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National Trades Union Congress

SINGAPORE LABOUR JOURNAL

CHAMPIONING WORKERS' INTERESTS
BETTERING LIVES FOR ALL

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PREFACE

Geopolitical contests, economic uncertainties and widening inequalities impact societies worldwide. The increased number of strikes, protests and rising discontent reflect a global phenomenon of diminished institutional trust, eroded labour-management relations and a fraying social fabric, extending from France and Britain to South Korea and the United States. Singapore is not immune from these. Despite real wage growth, our workers and their families face mounting cost of living pressures due to rising inflation.

The Singapore National Trades Union Congress (NTUC) plays an important role in building our social compact and our march towards a better tomorrow. The challenges we face today cannot be understated. We have a rapidly ageing population and rising aspirations amidst the global rise of protectionism and a new world order. At NTUC, refreshing our workers' compact requires deep engagement with our workers on the ground. Our compact is inseparable from ensuring that Singapore is a place where meritocracy works for all and where everyone has access to gainful and rewarding employment opportunities. With our pulse on the ground and a good understanding of workers' concerns and expectations, NTUC is a cornerstone in this endeavour as a tripartite partner to secure a better future for our workers and Singapore.

Our workers form the core of a strong Singapore. Effective engagement with our workers, coupled with research, analysis and strategising how we can overcome the challenges impacting our workers from diverse perspectives, ensure that the Labour Movement remains ready, relevant and resilient. In this spirit, we have launched this Journal—to cultivate conversations, broaden perspectives and deepen understanding of the challenges that our workers and the Labour Movement face in a turbulent world and bring our tripartite partners, academia and research think-tanks together in this journey.

Championing Workers' Interests, Bettering Lives for All

The theme for this edition is Championing Workers' Interests, Bettering Lives for All. It underscores our commitment to fulfilling our role as an advocate for our union members and workers in Singapore. In this year's edition, the collection of articles seeks to articulate our work across the entire cross-section of our workforce and society, from understanding the efforts to professionalising trades such as plumbing to investigating the role of unions in the transition towards a more digital and greener economy.

We look closer at ways to balance the interests of platform companies and gig workers and reflect on how the Progressive Wage Model has evolved and positively impacted Singapore's workers. We remain committed to advancing the interests of our rank-and-files workers, who have been the foundation of our Labour Movement since our founding years. By looking at the challenges and opportunities in our push to upskill our workers, we aim to spark more robust conversations on how our workers can continue to benefit and climb the ladder amidst disruption, digitalisation and transformation. In this Journal, we have also included a thought-provoking article on ensuring that our ex-offenders get a second chance at life.

Our Workers' Compact in Action

We have recently concluded our year-long #EveryWorkerMatters Conversations campaign, which engaged more than 40,000 workers. However, the work has just begun for us, whether with the professionals, managers and executives, self-employed persons, women, youth or older workers. We want to establish our new workers' compact and push innovations. In the same vein, we have included in this Journal an exposé on the Four-Day Workweek, touching on its implications and relevance given the expectations of greater work-life balance amongst our youth, as well as a piece on continuous education and workplace learning, given our drive towards a more skills-based economy.

Championing our workers since 1961, we will continue to work with our workers and tripartite partners to build on our strengths and successes and seek to seize new opportunities amidst current challenges to empower workers in Singapore to secure their lives and livelihoods. To our international fraternity and friends reading this, we hope that the papers in this Journal will help illuminate and provide another perspective on how the Singapore Labour Movement and unions help to build an inclusive society.

At NTUC, we believe that no great goal is easy to accomplish and no challenge is ever daunting. In the spirit of 'Dream, Dare, Do', we dedicate this Journal to the workers of Singapore. And let us never lose sight of championing our workers' interests and bettering their lives and livelihoods—not just today but for the future.

Ng Chee Meng
Secretary-General
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RESEARCH
ARTICLES

Relevance of Workplace Learning in Enterprise Transformation: The Prospects for Singapore

Stephen Billett

Abstract

In Singapore, as in many other countries, there is a growing focus on working age adults' learning across their working lives to remain employable and contribute to the viability and continuity of the public and private sector enterprises in which they work. This focus extends to these workers' ability to be innovative. Those innovative capacities are being increasingly requested by employers and governments alike to respond to ongoing and emerging social and economic challenges. This paper proposes responses to these two key government goals: (i) enhancing skills upgrading, and (ii) enterprises becoming more innovative in response to global economic challenges. First, it proposes approaches to Singaporean workplaces becoming "learning practices" to maintain and upgrade workforce skills, largely through their engagement in everyday work activities and interactions. The case made here draws on Australian studies of learning in and through work and its augmentation. Second, it proposes engaging workers more in initiating, enacting, and monitoring innovations at work to be both generative of their learning and bringing about change in their workplaces. This case is made by drawing upon the findings of investigations of innovations and learning in Singaporean small to medium sized enterprises.

Advancing Singaporean Skills Currency and Innovations at Work

In February 2022, the Minister for Education, Chan Chun Sing set out a case for the importance of adult Singaporeans continuing to develop their occupational capacities across lengthening working lives. Like with some predecessors (Economic Strategies Committee, 2010a), he positions this learning as an urgent and top national priority. Perhaps more pointedly than others, however, he expresses what is being suggested in many countries with both developed and developing economies, and by global agencies. That is, the importance for continual learning across working life to promote working age adults' employability, and a national effort to achieve this outcome. That employability is more than securing a job. It is about maintaining the capacities to be employed and to contribute to workplaces in ways that sustain their viability and, possibly, secure their advancement through that learning and ability to innovate. Personal goals here are associated with individuals being able to secure promotion and affecting transition successfully to other work and occupations throughout working life. The Minister made the following statements, much of it referring to what the provision for supporting Singaporeans learning across working life needs to achieve:

> If we need to top up the knowledge and skills of our people as they take on new jobs every 4–5 years, that means upgrading 20–25% of our roughly 3 million local workforce each year: or about half a million adult workers every year! … The definition of success for our education system cannot be just how well we produce a cohort of 30 to 40 thousand students each year for the job market. It should be how well we do that plus retraining and upgrading about half a million adult learners each year. (Ng, 2022)

Such ambitions are principles in fact and energise considerations of how such important and worthwhile goals might be achieved. They also challenge orthodoxy associated with continuing education and training (CET), including questioning approaches that have become accepted and entrenched in education systems (i.e., provisions of taught courses). Certainly, it seems unlikely that the quantum of proposed adult learners and scale of learning being requested (i.e., 500,000 per year) can be realised alone through post-secondary education institutions (PSEIs: i.e., polytechnics, Institute of Technical Education and Institutes of Higher Learning (IHL)), even if they have the necessary expertise. Hence, it is timely to urgently consider other models and approaches to providing opportunities for this learning, educational support, and certification on the scale being requested by the Minister's goals. Few people would doubt the need for working age adults continuing to learn and develop further across their working lives. Indeed, in Singapore, this has been a key feature of its national social and economic policy for some time. For instance, in 2010, the Economic Strategies Committee report stated its top priority was for all Singaporeans to learn across their working life to sustain their employability and make contributions to national prosperity (Economic Strategies Committee, 2010b). The enactment of the SkillsFuture project is a more recent manifestation of this priority.

The key question is how this scale and scope of learning can occur and in ways that meet individual, workplace, and national goals. Given the resource constraints of the PSEIs and IHLs, it is timely to further consider using Singapore's workplaces as key sites for providing much of the learning experiences and securing outcomes associated with skills upgrading. Just as most adults would agree with the importance of this skill development, there is also a consensus that much, if not most, of what they learn across working lives arises through experiences in and through their work (Billett, 2010, 2011, 2021). So, combining the commonly understood need for ongoing learning and development, and the frequently acknowledged roles that workplace experiences can provide, including accommodating the scale of the required learning, makes them worthy of serious consideration at this time. This is not to deny or denigrate the educational experiences provided through PSEIs, such as the Specialist Diplomas. Instead, it is about utilising the range of available experiences to support that learning. This includes considering what learning can be realised through activities and interactions in Singaporean workplaces, and what is required to be learnt through experiences in these educational institutions. Placing these in this order suggests prioritising workplace learning experiences and proposing educational sites as addressing that learning that cannot be realised through workplaces. Moreover, beyond providing courses, teaching, and programmes within their institutions, there is much that adult educators can do to support Singaporeans' learning in workplace settings. A key consideration here is to

make these workplaces "learning practices", that can be the vanguard and generate the majority of learning outcomes and through these means realise the required scale and scope of development in the working age population.

There is yet another government goal that can be realised through focussing on workplaces as learning environments. That is, through engaging workers in initiating, enacting, and monitoring new ways of working and practices to achieve the twin goals of workers' learning and responding to emerging challenges. Prompted by an evaluation of the findings from the Singaporean data of the Program of International Assessment of Adult Competence (PIAAC) and the reported relatively low levels of worker innovation and discretion, a joint memorandum was published by the Ministry of Manpower and the Ministry of Education in 2016, which stated:

> As Singapore restructures itself into an innovative and manpower-lean economy, employers must play an important role in their workplace practices in areas such as work organisation, job design and management practices. These factors are likely to influence the extent of skills used in the workplace and work productivity.… However, employers could make better use of employees' skills and provide them more room to exercise task discretion, self-direction, and cooperative and influencing skills. (Ministry of Education, 2016)

Thus, it is important to consider how Singaporean enterprises and workers can take up the challenge of aligning the twin goals of learning and workplace innovations. Here it is proposed that innovations in and through work co-occur with worker learning (Billett, 2021; Billett et al., 2021a, 2021b). That is, when workers innovate, they are developing further what they know, can do, and value (i.e., learning). Conversely, innovations are dependent upon workers' learning, including the monitoring and further development of innovations, all of which emphasise the interdependence between workplace innovations and workers' learning.

In addressing these two goals simultaneously, this paper first discusses the concept of Singaporean workplaces becoming "learning practices", with the focus on supporting much of the learning required for upskilling arising through everyday work activities and interactions in these settings. That proposal is informed by investigations undertaken in a range of different workplaces and over time, largely in Australia. Following this are proposals for how linking of workplace innovations and workers' learning can best progress in and through work by drawing upon two recent studies of innovations in Singaporean small-to-medium-sized enterprises (SMEs). These proposals lead to considerations of how government, workplaces, and educational institutions can collaborate to realise both the scope and scale of working age adults' ongoing learning required to maintain the nation state's social and economic needs, and how innovations in and through work can be advanced to achieve the dual goals of innovative practices and workers' learning.

Promoting Learning Through Work Activities and Interactions

As noted above, workers often report learning extensively and widely through their work; that learning is not restricted to simple procedural knowledge, but includes higher order, strategic, and adaptable concepts, procedures, and dispositions (Billett et al., 2018). Essentially, much of that learning is simply necessitated by the demands and requirements of work, such as client or customer or patient needs, which are constantly changing and require responses to those changes by workers. The evidence from Singapore is quite clear. The 2015 Singapore PIAAC data indicate that all kinds and classifications of Singaporean workers report learning in and through their work (Organisation for Economic Co-operation and Development, 2016). As presented in Table 1, the sources of that learning are reported as arising more from these workers' own effort and agency than from support from co-workers and supervisors, which is also a frequent basis. This table indicates that whilst 28.4% of workers report learning from co-workers and supervisors on at least a weekly basis, 40.8% report learning through their own efforts and agency. This finding is consistent with what has been reported elsewhere (Billett, 2015).

Table 1

Singaporean PIAAC Data: Learning at Work

Learning at Work	N	At Least Once a Week (%)
From co-workers and supervisors	3,663	28.4
Learning by doing through performing job	3,985	40.8

The evidence here supports the frequently reported assertion that much of the learning across working life arises through work. Evident here also is that it is the combination of engagement in goal-directed work activities that includes reinforcing, refining, and extending what workers know, can do, and value, and support provided through direct and indirect guidance whilst engaging in everyday work activities and interactions. These data emphasise the accessibility, immediacy, and timeliness of workplace experiences in supporting the skills currency of an advancing working age Singaporeans' occupational knowledge, including the capacity to respond to new challenges. So, as in other countries and through other studies, the evidence here is that learning arises through working and its immediate applicability to learning, and that workplaces are supportive of worker and workplace development. These findings are triangulated by the PIAAC data on problem-solving activities that Singaporean workers engage in and through their work (Organisation for Economic Co-operation and Development, 2016). The data illuminate the kinds and frequency of problem-solving activities in which these workers engage. Two kinds of problem-solving activities are captured: those where a solution can be found in less than 5 minutes and those that will take 5–30 minutes to find a solution. These can be described, respectively, as "routine" and "nonroutine" problem-solving, with the latter being associated with innovations. That is, it is about the requirement to do something new or differently than in the past (i.e., an innovation; Organisation for Economic Co-operation and Development, 2005). As can be seen from Table 2, 51.9% of these Singaporean workers report most frequently engaging in simple or routine problems weekly at the least, and 29.3% report engaging in demanding or nonroutine problem-solving at least weekly.

Table 2

Singaporean PIAAC Data: Problem-Solving and Innovation

Problem-Solving	N	At Least Once a Week (%)
Simple problems (5 minutes to solve)	4,444	51.9
Demanding problems (up to 30 minutes to solve)	4,445	29.3

Importantly, engaging in these kinds of problem-solving is generative of important learning outcomes. Routine problem-solving assists in the reinforcement, refinement, and extension of what individuals know, can do, and value through their work (Anderson, 1993; Ericsson, 2006); however, nonroutine problem-solving is generative of higher order forms of that knowledge. In the Singapore data, this kind of problem-solving is reported for workers with all levels of educational achievement, while the Australian PIAAC data indicate the category of workers who engage most frequently in nonroutine problem-solving are technicians, not professionals (Billett, 2015). This is perhaps not surprising, as much of technical work is associated with addressing problems. However, such findings challenge assumptions about the kinds of workers requiring the ability to solve novel problems and be innovative. What this suggests is that it is the kind of goal-directed activities that workers engage in that shapes their thinking, acting, and learning. Hence, there is the opportunity to promote learning through work, based upon the kinds of activities and interactions workers are afforded. That is extending the kinds and scope of problem-solving in which they engage. Moreover, as noted, the evidence suggests that opportunities are evident and available for all kinds and classifications of workers, not just reserved for high-status workers (e.g., professions).

These findings suggest that, on the one hand, workplaces need to encourage and engage employees in problem-solving related to work tasks, including being innovative, as this is required for them to remain employable and for their workplaces remaining viable. On the other hand, that engagement leads to the kinds of learning that promote employability and workplace viability. Such findings indicate the importance of making a conscious effort to promote, encourage, support, and acknowledge learning that occurs through everyday work activities and of finding ways to make workplaces more effective as learning environments.

Making Singaporean Workplaces "Learning Practices"

One way to progress here is to emphasise that workplaces are physical and social settings where work-related learning arises largely through work activities and interactions and the practices of workers. Hence, opportunities for learning arise gratuitously through engaging in day-to-day work activities, responding to new challenges and problems. All of this warrants them being optimised and its potential fully augmented to achieve the best learning outcomes for workers and their workplaces. A means of progressing this agenda is to promote workplaces as "learning practices": that is places where learning becomes an aspect of work practice. This labelling also assists providing a tangible basis for achieving those goals. A learning practice can be seen as comprising both workplace practices—the activities and interactions afforded through workplace experiences that support, guide, or augment that learning, and personal practices—how workers come to engage with and learn through these activities and interactions. The dual consideration—of the experiences that are provided and how people come to engage with them—is common to any educational project albeit in schools, tertiary higher education, or workplaces. Hence, it is necessary to consider both what is afforded or provided for workers in terms of their activities, interactions, and opportunities in their workplaces or practices, and how individuals come to engage with them. To be optimised, these contributions from the workplace and, potentially, workers' participation will be optimised by some forms of support, guidance, and recognition.

The benefits from Singaporean workplaces becoming learning practices are six-fold: (a) utilising and building on ongoing learning that arises through everyday work activity, (b) developing or maintaining an enterprise focus on effective practices, (c) utilising immediately the capacities required by that workplace through that learning, (d) retention of experienced workers whose work life is enriched by providing support and guidance, (e) supporting initial occupational preparation for workers in the workplace, and (f) inherently building workforce succession capacities. So, whilst much learning and support provided will arise through work activities, most likely some commitment and resources can be used to secure such benefits. There are national benefits from Singaporean workplaces becoming learning practices, including enacting a scalable strategy for ongoing skill development that the Minister for Education seeks: that is, a model of ongoing skill development commensurate with developing the capacities of all Singaporean working age adults every 5 years. Second, it allows IHLs and PSEIs to focus on their key roles and what they can do best in augmenting what occurs in workplaces but also offering educational provisions that cannot be found in these workplaces, including some specialised provisions of CET, counselling, and guidance for working age adults and supporting their work transitions.

One way to consider the means for realising these kinds of outcomes is through the three concepts of: practice curriculum—the sequencing and organising of work-related experiences, much of which ordinarily occurs; practice pedagogies—means that support, guide, and enhance learning beyond individuals' own efforts and problem-solving; and personal practices—how working age Singaporeans can engage in and support their learning in and through work, as in Figure 1.

Figure 1

Models of Practice Curriculum
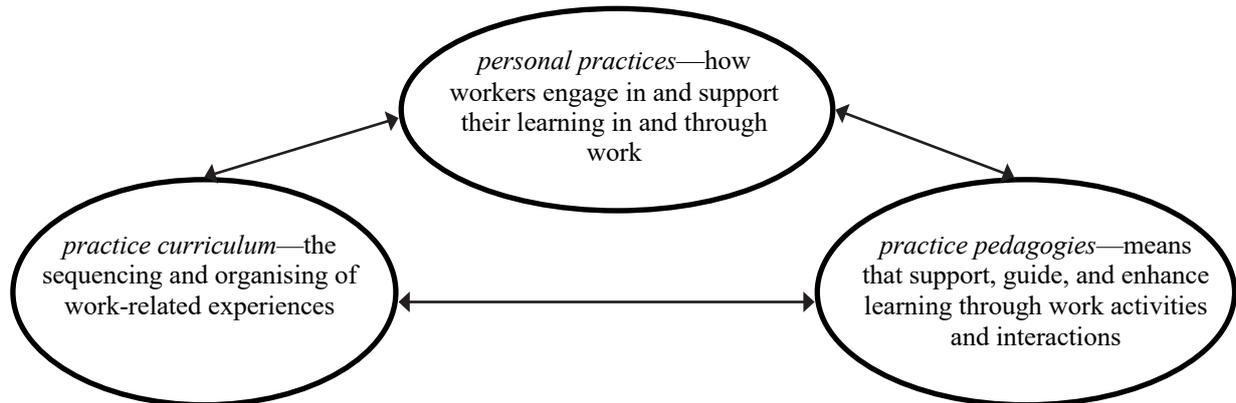
Note. See Billett (2014) for models of practice curriculum, examples of practice pedagogies and list of personal practices.

These practices have been described, discussed, and elaborated elsewhere (Billett, 2023); here, a brief overview is provided of what constitutes these practices and how they might be enacted in Singaporean workplaces.

Practice Curriculum

The practice curriculum comprises the kinds and sequences of work activities organised for and engaged in by workers and through which they learn and come to meet the requirements of the workplace and their occupational practice. This sequencing is consistent with the original meaning of the term "curriculum" that refers to the "course" or "pathway to progress along" (Marsh, 2004), and captures the sequence of activities that workers progressively engage in as they develop their workplace competence and occupational capacities. A range of studies illustrates how this concept is enacted in work settings. For instance, Lave (1990) noted that apprentice tailors progressed along a pathway of activities characterised by their engagement, in which any errors made would come at limited cost. Apprentices first made children's and then adults' undergarments, before progressing to making shirts and trousers and then, much later, ceremonial garments made of expensive fabric where mistakes would be costly. So, they worked through tasks where mistakes could be tolerated, progressing through a sequence of activities that carry greater error risk only when they are judged competent. Also, the sequencing of tasks provided opportunities to understand the requirements of the work performance, progressively developing their capacities to achieve those outcomes. In this case, they commenced by ironing garments and performing finishing tasks which exposed them to models of the level of work they would need to develop and replicate. This sequencing was also the case that Sinclair (1997) noted was deployed in hospitals with medical students and recently qualified doctors. For instance, the junior doctors would repeat the history taking and diagnosis of patients' conditions that had already been conducted by more senior clinicians, before checking with them. Hence, they progressively developed their capacities, albeit in ways that guarded against any potential harm to patients.

Other models include structured rotation through a range of tasks to understand the requirements of an occupation. For instance, a trainee estimator in a company producing cardboard boxes quite deliberately moved through a range of workplace tasks, commencing with working on the production line to understand how the boxes are made, to the team that designed boxes for particular customer needs (including the kinds of cardboard and linings or protections that were required) and then to the labelling and printing on the boxes to meet either regulatory or customer requirements (Billett et al., 2021a, 2021b). One model engages novices in tasks, but they are monitored closely by more experienced workers—referred to as parallel practice (Billett & Sweet, 2015). An example here is a medical student who, having spent time working directly with a doctor in history taking and diagnosis of patients, was assigned her own consulting room.

She then independently conducted those tasks before consulting with the doctor prior to reaching conclusions on treatments. Then, there is the progression based on the requirements of the workplace and access to resources and equipment that cannot remain idle or be wasted; for instance, apprentices in pottery perform a range of tasks which help them to understand the processes of producing pottery before they are given experiences working on a potting wheel (Singleton, 1989). Initially, their access to the wheel is when it's not being used for productive purposes, such as at meal breaks or in the evenings. Moreover, the clay the novices practise with is returned to the clay bin for productive purposes. Once the apprentice has acquired abilities to make simple pots on the wheel, they will be assigned practice and inclusion in the productive outputs of the workplace. A listing of some potential models can be used to appraise their relevance to a specific situation (Billett, 2014).

Therefore, there is no one single model of practice curriculum; rather, the manifestation in particular workplaces of how workers' engagement with work tasks can be best structured to assist them to learn the requirements of the workplace and the occupational practice. Of course, much of this is already practised in workplaces, and there is a need to understand the sequencing and optimise it to achieve the best outcomes for learning and productivity. Importantly, this sequencing and organisation of activities—the practice curriculum—usually is aligned to the requirements of everyday activities in workplaces. Indeed, they are likely to be most effective when they are embedded in the everyday activities of the workplace.

Practice Pedagogies

Workplace pedagogic practices are activities or interactions that can enrich and augment learning through engagement in work settings. The term "pedagogic practices" (Portisch, 2010; Tomasello, 2004) is used here to describe a range of ways that learning can be supported that go beyond instruction or telling (Fuller & Unwin, 2002). They include those arising through engagement with others and more experienced workers and with artefacts, such as partially completed jobs. An important quality of these practices is that they facilitate access to knowledge that worker learners would not likely discover on their own. These pedagogic practices are quite distinct from those enacted in classrooms as, in most instances, they are embedded in work activities and interactions and are not about direct teaching, telling, or instruction. Moreover, they are usually able to be exercised as part of daily work activities. Examples here include workers verbalising what they are thinking, to assist novices to access and develop their own processes of thinking and acting about the work tasks they are seeking to perform (Gowlland, 2012). Stories and examples are shared which are not only informative, but also helpful for assisting memory and recall (Jordan, 1989). There are also a range of practices to assess cognition, such as mnemonics (i.e., aids to memory) and heuristics or "tricks of the trade" that arise from the occupational practice and can be made accessible to novices by engaging with more experienced practitioners. Included here is direct guidance, where more experienced workers directly interact with novices, the development of skill performance progressing from modelling and demonstrating to providing hands-on experience and then monitoring progress (Collins et al., 1989; Ingold, 2000; Rogoff, 1995). All these are elements of apprenticeship as a model of education.

There is a listing of some pedagogic practices that can be used to appraise their relevance to a specific work situation (Billett, 2014). These kinds of pedagogic practices are enacted in the physical and social context of work settings and through engaging authentically in activities and interactions that workers are expected to learn. In doing so, these practices are grounded in work activities and interactions that enhance the novices' cognition (e.g., thinking, acting, learning) through being contextualised in this way (Barsalou, 2008; Collins et al., 1989). Ultimately, however, both the practice curriculum and pedagogies are merely invitations offered to workers to assist their learning. What is most important is how they take up those invitations.

Personal Practices

Central to how humans learn and develop is how they construe and construct knowledge from what they experience. This is both premised on and salient to the development of their capacities. Referred to as learners' epistemological practices, they comprise what they know, can do, and value and how they engage with what they experience in the activities and interactions in work settings, and then construct knowledge through them (Billett, 2009). As these are products of individuals' personal histories (Scribner, 1985), they are often person-specific to some degree. Importantly, these personal practices shape how they engage with and what they learn in their workplaces, and with what degree of effort they exercise in doing so. Consequently, how they engage, actively or otherwise, in activities such as observing, practising, interacting with others, and consciously seeking to improve their procedural capacities and understanding of workplace requirements and occupational practices are premised on their personal practices (Tomasello, 2004; Webb, 1999). Central here is their readiness to engage in those learning activities and optimise the opportunities afforded to them in work settings. So, readiness extends to their interest in the occupational practice, the capacities they need to perform work tasks, and how they identify themselves as adults.

Consequently, considerations of motivations to engage in their work activities are often associated with how individuals view themselves as workers, and what are their roles. For instance, in Singapore, many workers may not see it as their responsibility to bring about change, innovate, improve, because it is others who will direct and tell them what to do. If this ever was a desirable mindset, that time has certainly passed. As mentioned above, the government of Singapore, for instance, is concerned that this mindset limits the full capacity of workers to be realised, their contribution to the workplace optimised, and their interest in and willingness to innovate and bring about change. The capacity to bring about change and to be innovative in the workplace are essential qualities for contemporary working life, given the constant requirements to respond to change, to identify ways of improving the provision of goods and services, and to meet the specific needs of patients, clients, and consumers. A listing of some of these personal practices likely to promote rich learning can be considered in any relevance to a specific situation (Billett, 2014).

It is worthwhile making some final comments about workplaces as learning practices. The three foundational components of learning through work (the practice curriculum, pedagogies, and personal practices) need to be considered in tandem. They are complementary and interdependent by degree and when enacted together are more likely to lead to effective learning practices in workplaces. Whilst manifested in distinct ways in specific workplaces, learning in and through work can be realised in ways requested by the Minister of Education, since developing workplaces as learning practices offers an organic, systematic, and structured way to realise individuals' goals of employability and contribute to workplace viability and, collectively, national prosperity. As foreshadowed, however, beyond a consideration of specific practices and strategies to promote that learning is the alignment between innovations in workplaces and workers' learning.

Aligning Workplace Innovations and Workers' Learning

A second key priority for workers, workplaces, and occupational practice is being able to respond to emerging challenges. For workers, being innovative is important for them to make contributions that will advance both the work they do, and their occupational practice as directed towards the viability and progress of the workplace that employs them. Hence, workplaces have an interest in the viability of the workplace as much as those who supervise, manage, or even own the enterprise. Given that the requirements for the provision of goods and services that enterprises generate are subject to constant change and the specific requirements of those whom they serve, both public and private sector enterprises need to be able to innovate; the sources and means of realising those innovations are not restricted to those who manage and administer such workplaces. Indeed, quite the contrary appears to be the case: that is, across human history, it has been the time-honoured process of workers responding to challenges that has led to innovations that have sustained enterprises (Epstein, 2005) and contributed collectively to the

economic well-being of their communities and countries (Donald, 1991; Plotkin, 1994; Sennett, 2008). It is perhaps for these reasons that governments in countries with both advanced and developing economic bases are interested in promoting the capacity to be innovative in and through work and for workplaces to be focussed on innovations. For instance, there is a tradition from Scandinavia associated with employee-driven innovations that places the employees centre stage in these processes (Høyrup et al., 2012). Certainly, for a country like Singapore that is highly reliant on its workforces being innovative, initiating and enacting innovations in and through work is now a key priority.

Yet, whilst innovations at work are ultimately changes to workplace norms, forms, and practices, they rely on workers' learning. In fact, there is an interdependence between innovations at work and workers' learning (Billett, 2012). Innovating is about generating innovations that require workers to develop their knowledge, extend what they know in applying that knowledge to new circumstances, or finding new ways of achieving outcomes through developing further their procedural capacities. So, when identifying and initiating innovations, workers extend what they know, can do, and value (i.e., learning). Yet, even when employees implement something which has been initiated from outside, such as a new piece of equipment, process, or work practice, invariably they need to adapt it to the specific workplace requirements, its particular goals, and its processes and practices. So, even when enacting innovations generated elsewhere, learning is likely to occur. If that learning does not arise, it is likely that the externally generated innovation will be unsuccessful or not adopted.

Intentionally aligning workplace innovations and learning, therefore, can potentially achieve two governmental goals associated with the viability and progress of national economic bases. This seems to be central to what is being proposed for Singapore. Understanding how these two forms of change and their interdependence can best be realised in and through work is important. In the following sections, the findings of two projects undertaken in Singaporean SMEs that sought to understand that relationship are reported.

Study 1—Factors Supporting Innovation and Learning: Personal, Local, and Distant Contributions

The first study was conducted across five SMEs, three of which were from health and aged care and two from advanced manufacturing. The aim was to identify how innovations were initiated, enacted, and sustained, and the learning associated with them. In each enterprise, interviews were conducted with up to five employees and, in some instances, observations were able to be undertaken. These interviews included items about the extent of discretion that workers were able to exercise in the workplace, and directed towards initiating, enacting, and being rewarded for innovations in those workplaces. In addition, data were gathered about the frequency of their problem-solving and how they were able to engage and be supported to learn and innovate. These accounts provided findings that clarified how innovations can be initiated and enacted in these SMEs (Billett et al., 2021a, 2021b). Whilst tentative and from a small sample of Singaporean workplaces, these findings indicate that employees are central to initiating and engaging in innovations in these workplaces, while managers and supervisors are important for providing opportunities and environments for that to occur. So, the importance of workplace culture that is open to and encouraging of employees to innovate is central. With some exceptions, it was found that support for these innovations largely arose from within the immediate work setting; the factors outside of it were less important in achieving those outcomes. Repeatedly, it was reported that those proximal to employees—co-workers, supervisors, managers—were the key bases for support. Moreover, the kinds of work being undertaken, and the need for adherence to quality standards in precision engineering and care for residents and patients in healthcare, mediated the kinds and levels of discretion and problem-solving that employees were able to undertake (Billett et al., 2021a, 2021b).

Factors outside the workplace were, as noted, less salient, including educational provisions (with some exceptions) and policy mandates. The exceptions in terms of external education support were those associated with access to expertise not available in workplaces. For instance, one employee undertook a study about three-dimensional (3D) printing in a polytechnic and

brought what had been learnt and used that knowledge effectively in his workplace. There was also an example from one of the healthcare settings where ideas about how to improve practice came from outside of that setting.

In sum, combinations of workplace culture and kinds of work being undertaken broadly set out the potential range and scope of discretion and innovation in which employees could participate. Yet, optimising opportunities for workers to both innovate and learn were mediated by the actions and interactions of those working closely with employees. This suggests that efforts to enhance the scope of both learning and innovation are tightly centred on workplace practices and actions of actors within these work settings. This is what Gherardi (2009) refers to as the practice of communities. So, policy and practice focus might well be centred on what occurs in workplaces and how the potential for both innovation and learning can be nurtured, supported, and guided to optimise both learning outcomes and productive changes in workplaces. This does not exclude IHLs and PSEIs' contributions but position those contributions in particular ways.

Study 2—Innovations in Service, Distribution, Finance, and Education SMEs

The second study engaged employees from seven SMEs whose activities focussed on a range of service provisions (removalists, maintenance work, auditing, cleaning, education) while others were associated with manufacturing (i.e., food production), storage, and logistics. The aim here was to understand further how innovations were initiated, developed, and enacted and the relations to employee learning. The enterprises were selected because they had been identified as being innovative in some way and recognised as such through industry or governmental awards. In each enterprise, up to 10 informants, representing a vertical slice of employees, supervisors and, in some cases, owners, were interviewed twice. The first interview focussed on their work, how it changed, and how innovations had been initiated, enacted, and sustained in those workplaces. The second largely focussed on verifying analyses of the first interviews. Whenever possible, the interviews emphasised grounded instances of activities as directed through questions focussed on securing those activities. 58 interviewees informed the first round of interviews, and a slightly smaller number participated in the second round (Billett et al., 2022).

A key finding from these interviews was that different kinds of innovations had been enacted and these were distinct in terms of their scope, the extent of changes that were necessary, and employees' participation in them and at what point in the innovation process. From the analysis of the interview transcripts, it was concluded that there were three kinds of innovations. First, there were strategic innovations—changes in the direction, fundamental operation, and key aspects of these enterprises' activities and goals. For instance, some enterprises were shifting their focus of work to expand the scope of their activities, fundamentally changing what they did and their means of providing goods and services. For example, the auditing company was shifting its functions to the use of artificial intelligence for auditing processes, transforming the structure and organisation of the SME. Then, there were work practice innovations—changes in how work in the enterprise is undertaken, including its organisation and enactment. For instance, an enterprise focussed on logistics was changing its ways of work to using electronic technology to guide the transportation of goods and their storage across five storage units and to the enterprises that they served. There was also the educational enterprise that was shifting to using online educational provisions to sustain its viability in the period when social distancing was necessary and international students could not travel to Singapore. Then, there were what was labelled procedural innovations—enhancements, improvements, or transformations of existing or new working practices. This included innovations to make work more productive, to set up protocols that would allow effective work practices, and to refine how work tasks were undertaken. In considering each of these kinds of innovations, it was apparent that, for often understandable reasons, there are different patterns of initiation, approval, enactment, and monitoring of these innovations. That is, there are different ways in which employees were able to engage in the innovations, including the degree of discretion they could exercise and how they might have the opportunity to learn through participating in them. What these findings suggest is that there are different kinds and levels of opportunities for worker learning and contributing to these innovations that can be considered as potential zones of development.

Potential Zones of Development

There were distinct zones for potential development across these three kinds of innovations (Billett et al., 2022), that is, their potential to engage employees and support their learning. Unsurprisingly, strategic innovations were initiated and approved by owners or senior managers and implemented in top-down ways, with sharing of information being the common means of informing employees. Employees, except those in managerial positions, were largely the recipients of information about the innovations and their implementation. With the work practice innovations, it was the senior managers or owners who initiated and approved these, yet there was a greater likelihood of consultation and engagement with supervisors, employees, and those with specific technical expertise. Their implementation was more focussed at the operational levels with information sharing, feedback, and trialling of these innovations by supervisors and employees. In some cases, considerable effort was directed to engaging employees, particularly when new production or services processes were being introduced. For instance, the enterprise implementing digital technology to organise the storage of materials and their transportation within Singapore, consciously engaged in a process of working with employees to prepare them and build their competence and confidence in their use. This was, in part, associated with many of the employees being older and concerns about their technological competence.

However, the procedural innovations were typically initiated by operational employees and supervisors in response to specific problems that they encountered in and through their work. Those innovations often required the approval of either senior managers or senior supervisors, depending upon the scale and scope of the innovation. Implementation often arose through consultations between employees and supervisors, and their implementation was conducted in a similar way.

In all, each of these kinds of innovations offered distinct developmental zones for employees. That is, within the scope of the kinds of decision-making that is appropriate for workers, there is potential for their involvement as much as possible to both realise these innovations and for them to learn, both in responding to innovations initiated by others and through their own learning to initiate innovations. Procedural innovations were reported most frequently in these workplaces and hint at the range and scope of learning opportunities.

Policy and Practice Implications

There are key suggestions for policy and practices arising from these studies which have implications for advancing workplace learning and innovations in Singaporean workplaces, through actions by government, workplaces, and educational institutions. These suggestions also extend to addressing the kinds of outcomes which the Minister of Education proposes.

Government Actions and Policies

A key suggestion arising from the research on learning in workplaces and promotion of innovations is for governments to be championing them to achieve policy outcomes. Cultural changes, such as workplaces becoming learning practices and engaging employees more in workplace innovations, can be promoted and encouraged through championing and support by government. Government championing and urging enterprises to consider these two practices can legitimate them, drawing them to the working population's attention and acknowledging the contributions arising from such changes. Yet, to bring about social change also requires support in terms of educational infrastructure, in the form of support in workplaces by adult educators and by tertiary education institutions engaging and being supportive of these changes. That support extends to the provision of rewards and awards for enterprises and employees at the industry sector and national levels, as being realised through the National Workplace Certification project being enacted by SkillsFuture Singapore, and Team Excellence Award by the Singapore government. Government agencies can assist these processes by identifying how best enterprises can contribute to these goals and provide advice, support, and guidance. Hence, the championing of learning through work and, in effect, learning through initiating, enacting, and

monitoring innovations and work, providing support into workplaces, and in ways sensitive to enterprise, needs to support learning and innovations of the kind being provided by the National Centre for Excellence in Workplace Learning at Singapore Institute of Technology. Also, the ability to recognise and certify learning and innovations in and through work are roles that government can promote and organise. However, there are some elements of these processes that can best be addressed in work and educational settings.

Singaporean Workplaces

The contributions that Singaporean workplaces can make to assist employees' learning and securing innovations are perhaps sixfold. First, they can become learning practices that acknowledge, support, and guide the learning that can arise through day-to-day work activities and interactions. Part of this is identifying what can be learnt in those work settings and what is best learnt elsewhere, for instance, in IHLs or PSEIs. Second, there is a need to optimise the learning curriculum and practice pedagogies appropriate to the kinds of learning and development required by these enterprises. This task may require reaching out to engage with adult educators who are sympathetic to, and understanding and supportive of, these processes of supporting learning. Third, as requested by government, employees need to be given as much discretion as is feasible in their work tasks. This is central to taking responsibility for important aspects of their learning and initiating and engaging in innovations. Fourth, is breaking down occupational barriers and hierarchies so that employees of different kinds and levels can come to engage collaboratively in supporting learning and innovations in these enterprises. That may well involve having specific strategies such as projects, learning circles, or debriefing sessions that quite consciously bring workers together from different occupational fields and allow them to collaborate in achieving workplace goals. Fifth, and related to this, is the sharing of ideas and perspectives in the work setting, but not just in top-down ways. This assists employees in being aware of what is occurring and of the requirements of other occupations and work teams and learning from what others have found helpful and innovative. Sixth is the creation of an environment which habitually nurtures innovations; that is, one that encourages, recognises, and utilises employees' innovative contributions and promotes an environment in which employees want to contribute and learn. Despite the focus on workplaces, there are many roles that educational institutions can play.

Education Institutions

Education institutions can play a range of roles in supporting learning and innovations in Singaporean workplaces. Part of that is the conventional role of providing programmes that expose participants to new knowledge, emerging practices, and structured educational experiences for them to be achieved. The example above about 3D printing is of this kind. However, there are other roles that can be played which might be seen as less orthodox, although some of them have been long practised in Singapore. The most important is to drive workplace learning and innovations by having educators as workplace consultants and being knowledgeable about and supporting learning arrangements within and commensurate with those workplaces' needs. Those education institutions can also develop and disseminate principles and practices about supporting learning within individual enterprises and industry sectors to promote learning outcomes through work, such as through the Singapore Institute of Technology's Centre of Excellence for Workplace Learning. This includes facilitation of the practice curriculum and pedagogies, outlined above. Enterprises may require the guidance of adult educators to advance these processes. The role of assessing and acknowledging and certifying what has been learnt will likely fall to educational institutions as they are probably best placed to make assessments and provide certification. Much of this can be best realised if there is a practice community amongst the educational providers so they can learn from each other and through practice how to achieve these goals.

Learning and Innovation at Work

What has been proposed is that the ongoing development of working age Singaporeans' capacities and workplace innovations can best be realised to meet the kinds of goals suggested by the Minister of Education. Essentially, it is proposed that many of the goals for developing, maintaining, and extending national, workplace, and individual skilfulness can be advanced through workplace-based experiences, augmented by support and guidance from suitably qualified and oriented adult educators. This will become essential as there is a need to adapt to the changing requirements of occupational, workplace, societal, and economic imperatives which position both learning and innovations centrally in terms of enterprise viability, national well-being, and individual employability. One aspect of that is engaging employees as much as possible in initiating, enacting, and sustaining innovations, as this achieves the dual goals of promoting their employability and learning and advancing workplace capacities. It is towards these dual goals that this paper has made suggestions for Singapore's policy and practice.

BIOGRAPHY

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Stephen Billett is Professor of Adult and Vocational Education at Griffith University, Brisbane, Australia, a National Teaching Fellow, Australian Research Council Future Fellow, Fulbright Scholar and Honorary Doctorates from Jyvaskala and Geneva. He has worked in industry as a vocational educator, teacher educator, professional developer and policy roles in the Australian vocational education system and as a teacher and researcher at Griffith University.

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Auditing Gig Work Platforms: Fairwork's Research, Advocacy, and Impact

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Abstract

The rise of the "gig economy" poses fundamental challenges to pre-existing social compacts regarding labour relations around the world, with vital implications for Singapore's workforce, economic growth, and its tripartism framework. While some see an inevitable trend towards digital technologies and artificial intelligence (AI)-powered platforms dominating workers, others seek to find solutions through state intervention and/or corporate self-management. Both latter approaches, we contend, would be incomplete without hearing the voices of gig workers and considering their experiences in light of relevant platform policies and government regulations. Can gig work platforms be subjected to labour audits? If so, how? This paper introduces the Fairwork project as a case in which labour audits are conducted to assess ride-hailing and food delivery platforms across five continents in 30 countries including Singapore. We aim to discuss the project's background and its five main principles, its methods of research and advocacy, the promises of auditing gig work platforms, its social and policy impact, and its limitations. We also present findings from focus groups and interviews involving ride-hailing drivers and food delivery riders in Singapore, which were conducted in 2021–2022 using the Fairwork methodology. In so doing, we discuss the lessons learnt from the case of Fairwork and similar projects of labour-auditing gig work platforms, which deserve more attention and exploration in Singapore and elsewhere.

Introduction

Can the working people gain control over modern technology and—as Blake (1970, p. 273) called them—its "dark Satanic mills"? This has been a perennial question and central challenge facing the labour movement ever since the Industrial Revolution. Over the time span of more than two centuries, the specific forms of technology have changed: from steam-driven textile factories to petrol- or nuclear-powered machinery, to the most recent phenomena of digital platforms driven by artificial intelligence (AI), big data, and automated algorithms. "Platforms" are "companies that use digital platforms to distribute piecemeal work to workers who need to access it via an app or website to undertake it" (Fairwork, 2019, p. 27) usually through smartphones. Despite their novelties, platforms, like previous technological innovations, are primarily organised through capitalist modes of production in response to internal, historical crises of capitalism. These conditions precipitate the present situation of "platform capitalism" as represented by such "lean platforms" as Uber, Airbnb, Didi (Srnicek, 2017, pp. 75–87) and, in the context of Singapore, the likes of Grab, GoJek, and Deliveroo.

In debates about technology and labour, a classic critique is Marx's notion of alienation by which he argued that "machines can only arise in antithesis to living labour, as property alien to it, and as power hostile" (Marx, 1939/1973, p. 832). The more workers produce, the more they would lose the ability to control their life and destiny, and the more they are estranged as the forces of capitalist production become forces of social and ecological destruction to the detriment of labour. Generations of thinkers and reformers, activists, and technologists have attempted to show that alienation is not the only path forward; that the labour movement can and should use the new tools (including digital media) for organising labour (McKercher & Mosco, 2008; Scholz & Schneider, 2016; Trenerry et al., 2022). By doing so, new frameworks can be developed to assess the consequences of technological deployment, for instance, through labour audits (Kortelainen, 2008). The question is: Under contemporary conditions of an AI-powered "gig economy," can platform capitalism be subjected to labour audits? If so, how?

This question is crucial as digitally mediated platform work eroding the "standard employment relationship" is a definitive feature of 21st century labour relations (Stanford, 2017). The trend of flexible "gigs" replacing more stable "jobs" and "careers" has spurred much discussion among labour sociologists who have debated about "the precariat," i.e., the precarious proletariat, including in Asian contexts (Smith & Pun, 2018; Standing, 2012; Wright, 2016). Research has found that gig workers are particularly vulnerable due to the lack of job security (Goods et al., 2019), dependence on the platforms (Goods et al., 2019; Scholz & Schneider, 2016), and unclear legal status (Fredman et al., 2020). Moreover, key corporations in the gig economy, such as Uber, are often global players backed by transnational capital, whereas most labour organising among gig workers operate at the local, workplace, or at most national levels (Woodcock & Graham, 2020, pp. 89, 109). This mismatch between the transnational platform corporations and the small scale of gig-economy labour organising is another key reason for worker vulnerability in the digital economy.

In Singapore, the platform economy has grown by leaps and bounds with considerable implications for the national economy and workers' livelihoods. According to the Ministry of Manpower (MOM), there were 73,600 platform workers in Singapore in 2022, including 30,600 private-hire vehicle (PHV) drivers, 26,300 taxi drivers, and 16,700 delivery workers (Yong, 2022). Gig platforms such as Grab, GoJek, and Foodpanda are especially important for young workers as the MOM data shows that PHV drivers and delivery workers are much younger than taxi drivers who also use AI-powered apps (e.g., Zig) to find customers. Like elsewhere, gig platforms in Singapore became prominent during the COVID-19 crisis when they provided workers in need with sources of income and short-term benefits. However, gig platforms also introduced new vulnerabilities that require better, long-term social protection mechanisms (Mathews, et al, 2022a; 2022b).

This paper introduces Fairwork, a project launched by the Fairwork Foundation to create "a way of holding platforms accountable through a programme of research focused on fair work," which "operates under a governing belief that core transparent production networks can lead to better working conditions for digital workers around the world" (Graham & Woodcock, 2018, pp. 250–251). We will discuss Fairwork's background and its five main principles, its methods of

research and advocacy, the promises of auditing gig work platforms, its impact on platforms and workers, and its limitations. We also present findings from focus groups and interviews involving PHV drivers and food delivery riders in Singapore, conducted in 2021–2022 using the Fairwork methodology. In doing so, we aim to highlight how Fairwork and similar labour-auditing projects can allow for better oversight of gig work platforms—a situation that deserves more attention and exploration in Singapore and globally.

Fairwork: Project and Principles

"By evaluating digital platforms against measures of fairness in labour practices, we hope to not just show what the platform economy is, but also what it can be." Fairwork (2019, p. 2)

A consensus has emerged from academic literature that the rise of platforms, AI, and automated gig work fundamentally challenges existing labour relations and standards (Cant, 2020; Srnicek, 2017; Woodcock & Graham, 2020). The title of a new book by Jones (2021), *Work without the Worker*, captures the fatalism of this field. But we must ask: What problems does this change create? And how do we fix these problems? Some techno-determinists see it as inevitable for AI-powered platforms to dominate workers (Lee, 2018). Others, following in the footsteps of Luddism (Linebaugh, 2012), believe that resistance to new technological systems is possible and desirable (Rushkoff, 2017).

Broadly speaking, there are three avenues to seek solutions. One is to appeal to government regulators or legislators, or launching lawsuits against platforms, in the hope that state authorities would intervene to restore labour relations in the platform economy to reflect and extend protections that are modelled essentially after the "standard employment relationship" (Stanford, 2017) through either reclassification or novel policy creation. Second are those who trust that the platform companies can regulate themselves and improve the working conditions of gig workers either for the purpose of corporate social responsibility or because they realise creating decent work and ethical corporate practices is good for their business (Schultz & Seele, 2022).

Fairwork is joining the third camp that believes it is essential to listen to gig workers. The first two approaches, we submit, would be incomplete and likely ineffective without hearing the voices of gig workers and taking their experiences seriously. Platform transactions, such as those through Uber or Grab, generate so much fine-grained data in real time that regulators, or even analysts, seldom know how to make sense of them (Batty, 2013). Platform companies, meanwhile, typically demonstrate seemingly little care about gig workers and their working conditions. Even if they do, the algorithms and big data are often organised in such opaque and obfuscating manners that they simply do not know how different types of workers use their platforms in a myriad of ways. This is particularly true for geo-tethered platforms such as ride hailing and food delivery, when the sheer variety of work modes (e.g., full- or part-time), platform design, labour market dynamics, and local regulation has generated a kaleidoscope of labour regimes on the ground so much so that the platform companies are often incapable of looking through the transactions, to see things from a labour perspective at all.

Launched at the headquarters of the International Labour Organization (ILO) in 2017, Fairwork is coordinated by a team at Oxford Internet Institute, University of Oxford, and the WZB Berlin Social Science Centre, with 45 institutional partners in 38 countries including Singapore. Prior to Fairwork, there were already attempts to improve labour conditions in gig platforms through ratings, e.g., the Frankfurt Declaration (FairCrowdWork, 2017), or worker ownership, e.g., platform cooperativism (Scholz, 2016). Building on existing models and prior knowledge, Fairwork has mobilised a global network of researchers and activists who have developed a 10-point system after extensive deliberation and testing in multiple countries. Based on International Labour Organization's (ILO, 2013) framework for "decent work," the 10 points are measured along five principles: Fair Pay, Fair Conditions, Fair Contracts, Fair Management, and Fair Representation, each of which consists of 2 points: "a basic point and a more advanced point that can only be awarded if the basic point has been fulfilled" (Fairwork, 2019, p. 14). A platform can score one point for fulfilling the most basic point, and a second for a more advanced one. For example, in relation to pay, this includes a basic point for meeting the minimum wage after

costs and a second point for meeting a living wage after costs. Each principle is worth a maximum of 2 points each. They are outlined in greater detail below.

The Five Principles of Fairwork (Effective From September 1, 2022)

Principle 1: Fair Pay

Workers, irrespective of their employment classification, should earn a decent income in their home jurisdiction after taking account of work-related costs:

(1.1) The platform ensures workers earn at least the local minimum wage after costs.

(1.2) The platform ensures workers earn at least a local living wage after costs.

Principle 2: Fair Conditions

Platforms should have policies in place to protect workers from foundational risks arising from the processes of work and should take proactive measures to protect and promote the health and safety of workers:

(2.1) The platform mitigates task-specific risks.

(2.2) The platform ensures safe working conditions and a safety net.

Principle 3: Fair Contracts

Terms and conditions should be transparent, concise, and provided to workers in an accessible form. The party contracting with the worker must be subject to local law and must be identified in the contract. If workers are genuinely self-employed, terms of service are free of clauses which unreasonably exclude liability on the part of the platform:

(3.1) The platform provides clear and transparent terms and conditions.

(3.2) The platform ensures that no unfair contract terms are imposed.

Principle 4: Fair Management

There should be documented processes for workers to be heard, to appeal and understand decisions affecting them. Workers must have a clear channel of communication to appeal management decisions or deactivation. The use of algorithms must be transparent and result in fair outcomes for workers. There should be an identifiable and documented policy that ensures equality in the way workers are managed on a platform:

(4.1) The platform provides due process for decisions affecting workers.

(4.2) The platform provides equity in the management process.

Principle 5: Fair Representation

Platforms should provide a documented process through which worker voice can be expressed. Irrespective of their employment classification, workers should have the right to organise in collective bodies, and platforms should be prepared to cooperate and negotiate with them:

(5.1) The platform assures freedom of association and the expression of workers' voices.

(5.2) The platform supports democratic governance.

Examined through the five principles above, each platform receives a score that ranges from 0 to 10. Through independent inspections and the development of published standards, Fairwork promises to make the invisible visible for workers, consumers, regulators, the general public, and

the platform companies themselves. In so doing, it reveals the worker that is obscured through algorithms and big data while re-balancing the information asymmetry that benefits platform companies at the cost of labour (Heeks, 2017). As such, Fairwork provides a form of digital labour audit that fills the missing link connecting the bottom of the platform work hierarchy and corporate decision-makers at the top, enabling more effective assessment of labour conditions and collective bargaining.

The five principles are meant to be applicable globally to enable cross-country comparison and negotiation with platforms whose businesses span national boundaries. The actual operationalisation of the principles is, of course, contingent on local contexts. In Singapore, for instance, it would make sense to apply the progressive wage scheme (PWS) (Smith et al., 2017) for Principle 1 instead of "minimum wage" or "living wage."

Methods and Approach

Fairwork conducts labour audits of gig platforms through three methods including (a) desk research about the platforms being assessed, (b) approaching platforms for interviews, and (c) interviews with gig workers on those platforms. First, through desk research the team identifies the platforms to be scored, points of contact to access gig workers and management, and any public information that could help develop interview guides and improve recruitment strategies. Second, a sample of 6–10 workers is interviewed for each platform. This is a nonprobability sample whose purpose is merely to confirm or refute that certain platform policies or practices are really in place. Third, the team approaches platforms to interview their managers and request evidence regarding each of the five Fairwork principles. If the managers do not accept interviews or share any evidence, the scoring will be based on desk research and worker interviews. "Failing to achieve a point does not necessarily mean that a platform does not comply with the principle in question, but that it was not—for whatever reason—able to demonstrate its compliance" (Fairwork, 2019, p. 16).

"It is important that Fairwork makes its principles general enough to be universal, while also using a methodology that makes them applicable in any country" (Fairwork, 2019, p. 39). Besides cloudwork platforms evaluated through a different scoring system based on the five principles, geo-tethered gig work platforms including PHV and food delivery have received annual ratings in 23 countries (see Table 1). Each national report is prepared by a local research team in coordination with Fairwork, taking into consideration local variations and regulatory contexts. For instance, the Centre for Digital Society (CfDS) in the Faculty of Social and Political Sciences, Universitas Gadjah Mada (UGM), is the primary team who collected data on gig workers in Yogyakarta and Jakarta for the Indonesian study, whose reports were subject to examination by the Fairwork global network before publication. In large countries such as Indonesia, Fairwork studies attempt to cover a broader area than the capital city to ensure more diversity in worker responses.

In Singapore, we have used a localised version of the Fairwork principles in carrying out two waves of gig worker interviews, which include 78 interviews with individual PHV drivers and food delivery riders in May–June 2021 and four focus group interviews during July–August 2022. We recruited interviewees through on- and off-platform methods, meaning we hired some of them via the platform (e.g., GrabFood and GoJek) then invited them to join, or we approached them through online forums (e.g., Facebook and WhatsApp) and snowball sampling. Again, this is a nonprobability sample whose goal is not to generalise but to have fact checks. Among the 6–10 individual workers for each platform, we included interviewees of different genders, ethnicities, and ages through purposive sampling. The four focus groups, each consisting of five or six people, were based on gender and mode of work: One male group and one female group were assembled for PHV drivers; in the same manner for food delivery riders. In other countries, it is not uncommon for interviews with individual gig workers to become focus group discussions. For instance, when an interview with one food delivery worker was carried out at a spot where riders congregate, other riders may join and form a small-group discussion. In Singapore, we formalised this by using focus groups in the second round of study.

We plan to produce the first Fairwork Singapore ratings in 2024 using another round of gig worker interviews. To achieve this goal, we still need to complete desk research while approaching platform companies for evidence. In 2022, a major platform company in Singapore approached us to find out more about our work and about the Fairwork Pledge, although nothing has yet materialised from this internal discussion.

The Fairwork Pledge is a unique element of the Fairwork approach to work with multiple stakeholders including platform companies to advocate and support fairer work in the platform economy. Emulating Fairtrade's (2017) model, Fairwork initially planned to award platforms with decent-work certificates if they maintain high scores on the 10-point scale (Fairwork, 2019). But this approach may have limited effect if companies figure out how to game the scoring system, or if platforms lose the motivation to improve once they are certified. Similar problems exist in the labour audits of traditional sectors, e.g., along global manufacture supply chains (Kortelainen, 2008), as in the environmental movement (Delmas & Burbano, 2011) and in Fairtrade itself (Clark & Hussey, 2016). Fairwork therefore changed its strategy to advocate through the Pledge instead, calling upon organisations to help promote decent work in the gig economy "by appealing to their employees, members and affiliates to avoid platforms with unfair labour practices" (Fairwork, 2021, p. 1). These organisations include universities, research or training institutions; non-governmental organisations (NGOs), charity or religious organisations; government or administrative bodies; and companies in general—including platform companies themselves.

One such company is Glovo, a food delivery platform operating in more than 20 countries in Europe, Africa, and the Middle East. In October 2022, Glovo became the world's first gig platform company that made a pledge (https://www.thecourierspledge.com/) based upon, although not as all-encompassing as, the Fairwork Pledge, to provide its riders with (1) fair earnings, (2) health and safety equipment, (3) equality, transparency, and a formalised process for rider appeals, and (4) community and channels for workers' collective voice. These four promises were based on the Fairwork framework but adjusted to reflect the needs of food delivery riders on the platform. Glovo's plan was to improve conditions along the four dimensions for 40% of its workforce by mid-2022 and fully implement them in all its markets by the end of 2023 (Fairwork, 2021). Fairwork has been working with its local collaborators to conduct independent audits regarding Glovo's pledge in Morocco and Georgia. Meanwhile, other platform companies, including one in Southeast Asia, have learnt about Glovo's initiative and are considering following suit. As such, the Fairwork Pledge continues to propel platforms to improve conditions for gig workers, especially now that the companies can see a quantitative measure for the enhancement of decent work conditions and workers' welfare that is in the long-term interests of the platforms, too.

Findings and Impacts

At the Global Level

Fairwork ratings have been generated for gig work platforms in 23 countries located in Asia, Africa, Europe, and Latin America. A summary of these ratings is presented in Table 1. During 2019–2020, only three countries—India, South Africa, and Germany—released annual scorings. They were joined, during 2021–2022, by 20 other countries, including four in Asia: Bangladesh, Indonesia, Pakistan, and the Philippines.

Altogether, there have been 38 national league tables, including 370 individual platform ratings, for the 23 countries during 2019–2022. No platform so far has received the full score of 10. Of the average scores for each country in a given year, only 4 out of 38 received a score of 5 or higher: South Africa in 2019 (5.20) and 2021 (5.09), Germany 2020 (5.11), and France 2022 (5.17). Five countries received scores no more than 0.50: Paraguay in 2022 (0.50), Pakistan 2022 (0.43), Bangladesh 2021 (0.40), Chile 2022 (0.20), and Nigeria 2022 (0.00). These observed values suggest that most of the platforms have failed to provide decent work to gig workers as measured by the 10-point scale based on Fairwork principles.

Comparatively speaking, platforms in Europe tend to score higher (3.12 in 2021; 3.42 in 2022) than those in Africa (3.10 in 2021; 1.35 in 2022), which still outperform those in Asia (1.68

in 2021; 1.33 in 2022) and Latin America (1.75 in 2021; 0.77 in 2022). The general pattern of the Global North, i.e., Europe, upholding higher labour standards than the Global South (Asia, Africa, and Latin America) persists. However, the average scores for European countries are still less than 4.0 on the 10-point scale, with Belgium (2022 average: 2.20) and the UK (2021 average: 2.45) scoring the lowest compared to Austria and Serbia that are in the 2.75–4 range.

Except a few countries such as India, South Africa, and Columbia, most gig platforms in Asia, Africa, and Latin America treat their workers in deplorable ways as indicated by their average scores of 2.0 or lower. Disregarding the ratings during 2019–2020 when the sample sizes were too small (n = 2 or 3), the situation has deteriorated during 2021–2022 in the Global South with the average scores for Asia declining from 1.68 to 1.33, Africa from 3.10 to 1.35, and Latin America from 1.75 to 0.77. Europe is the only continent where there is an increase of the average scores from 3.12 to 3.42.

Table 1

Summary of Fairwork Annual Scorings for Gig Work Platforms in 23 Countries, 2019–2022 (Range: 0–10; Average Scores for Each Platform Being Assessed for a Particular Country in a Given Year)

Country	2019	2020	2021	2022
(Asia)	—	—	*(0–7); 1.68*	*(0–7); 1.33*
Bangladesh	—	—	(0–1); 0.40	(0–3); 1.44
India	(2–7); 3.75	(1–8); 3.09	(0–7); 2.36	(0–7); 2.50
Indonesia	—	—	(0–5); 2.28	(0–4); 1.18
Pakistan	—	—	—	(0–1); 0.43
The Philippines	—	—	—	(0–3); 1.11
(Africa)	—	—	*(0–9); 3.10*	*(0–7); 1.35*
Egypt	—	—	(1–5); 2.71	—
Ghana	—	—	(1–7); 2.80	(0–5); 1.00
Kenya	—	—	(0–7); 1.78	(0–4); 1.44
Nigeria	—	—	—	(0–0); 0.00
South Africa	(2–8); 5.20	(0–8); 4.73	(0–9); 5.09	(0–7); 3.00
Tanzania	—	—	—	(0–4); 1.33
(Europe)	—	—	*(0–9); 3.12*	*(0–9); 3.42*
Austria	—	—	—	(1–8); 3.67
Belgium	—	—	—	(0–6); 2.20
France	—	—	—	(4–8); 5.17
Germany	—	(1–9); 5.11	(1–9); 4.17	—
Serbia	—	—	(0–4); 2.75	(0–6); 3.00
The United Kingdom	—	—	(0–8); 2.45	(0–9); 3.07
(Latin America)	—	—	*(0–7); 1.75*	*(0–6); 0.77*
Argentina	—	—	—	(0–4); 0.67
Brazil	—	—	(0–2); 0.83	—
Chile	—	—	(1–2); 1.71	(0–2); 0.20
Colombia	—	—	(0–7); 2.13	—
Ecuador	—	—	(1–3); 2.33	(0–6); 1.70
Paraguay	—	—	—	(0–2); 0.50
All Countries	***(2–8); 4.48***	***(0–9); 4.31***	***(0–9); 2.41***	***(0–9); 1.77***

*Note.* Compilation based on annual scores provided at Fairwork.

Besides aggregated country- and continent-level comparisons and comparisons over time, the national league tables also enable firm-level inspections of the platforms across time and space, as shown in Figure 1. India and South Africa are the only two countries that have provided four consecutive annual ratings during 2019–2022. Closer examination reveals that the majority of gig platforms in these countries are local platforms, some of which—e.g., India's Flipkart,

Urban Company, and BigBasket; South Africa's GetTOD, NoSweat, and SweepSouth—have consistently outperformed other platforms in providing decent work. Yet, this is not true for other local platforms especially those who disappeared due to either market competition or corporate merger.

Another key observation is that foreign platforms—such as Amazon, Uber, and Foodpanda in India; Uber Eats in South Africa—tend to score lower than most local platforms. The same multinational platform company may also receive different ratings in different countries. For instance, in South Africa, Uber, the ride-hailing giant, received the following scores: 5 (2019), 4 (2020), 4 (2021), and 2 (2022); whereas its scores in India were 2 (2019), 1 (2020), 0 (2021), and 0 (2022). Although the substantive meaning for these scores, measured in the local contexts of South Africa and India, can differ, the overall trend is consistent that the pay and conditions for Uber drivers have worsened in both countries over the study period.

Figure 1

Scores (Out of 10) for Platforms Evaluated in India and South Africa, 2019–2022
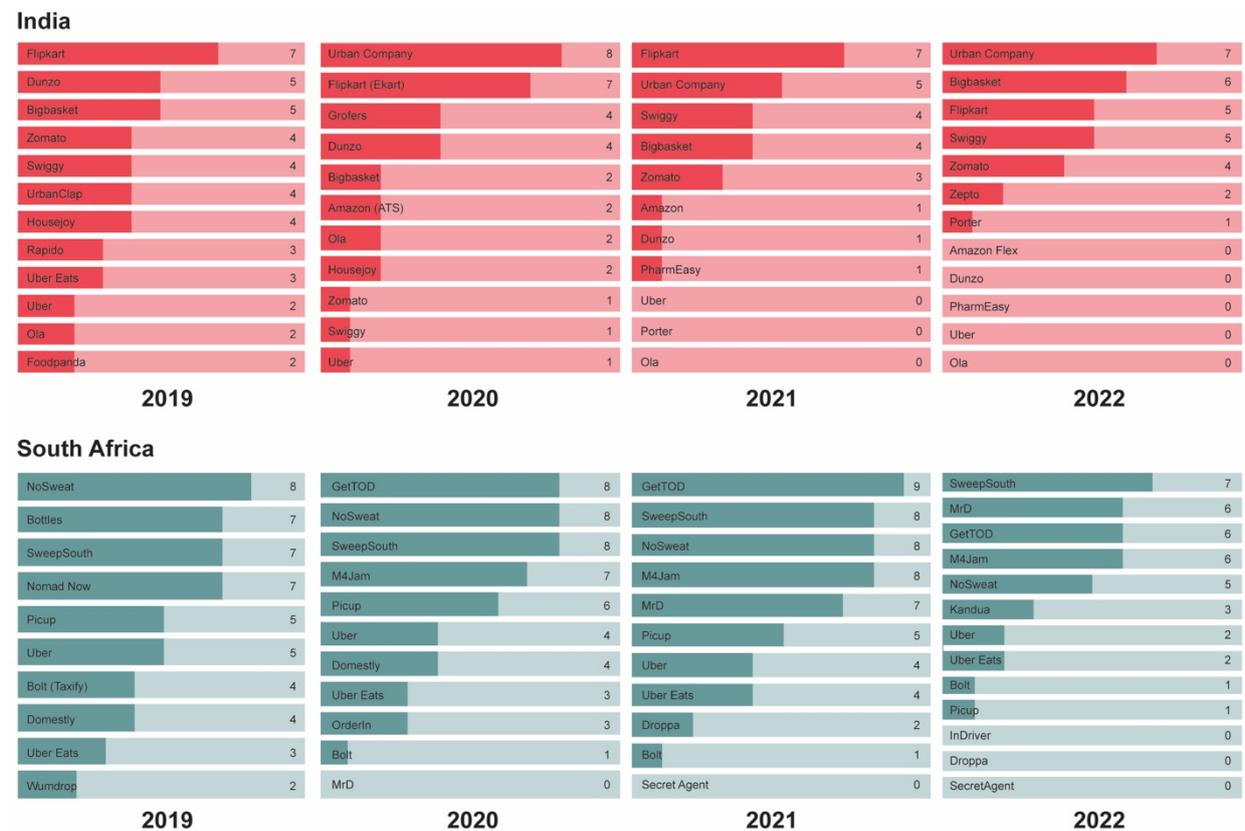
Note. Compilation based on data provided at Fairwork.

In Singapore

To assess platform work conditions among PHV drivers and delivery riders, Fairwork Singapore conducted 78 interviews with individual gig workers in mid-2021 and four focus groups in mid-2022. The goal is to test and localise the interview questions to gain traction before a more systematic audit can be conducted based also on desk research and manager interviews. The interview questions and focus group discussions were hence organised around the five Fairwork principles. In the following we report findings derived especially from the focus groups because the circumstances have changed considerably after the easing of COVID-19 restrictions in mid-2021, rendering the individual gig worker interviews less relevant. To select focus group participants, we asked PHV drivers and delivery riders to first fill in a simple survey, based on which we invited participants of different ages and races, who work on different platforms, for

both the male and female focus groups. All focus group participants reported working full-time on either a single PHV or food delivery platform, or a combination of several platforms.

Our focus groups started with Principles (1.1) and (1.2): Do PHV drivers and food delivery riders in Singapore receive fair pay? We inquired on this in two ways. First, workers were asked about their monthly earnings, then second, we asked them to calculate their average hourly earnings after deducting costs. Most workers reported below Singapore median incomes in the initial question, but the issue of a fair wage really appeared after the second exercise. One group of PHV drivers expressed shock at the low numbers that they arrived at:

> Driver X: I have never done this before—getting my net divided by total hours I put on the road. Per hour, only 12.50 arh?
>
> Driver Y: This is called reality check!
>
> Driver X: Walao[1]!

This exposes the challenge involved in tackling the subject of pay. Workers explained that, although their total annualised earnings may look the same year-on-year, each year may require more hours to attain the same amount as fees-per-job have increased or as tasks become sparse. A food delivery rider exclaimed: "Even the earnings are the same. But riders are spending more hours. Maybe one, two hours more [each day] compared to three years ago on the road." Another driver said, "Before the pandemic, I have probably been driving 8 hours. After the pandemic, I [have] probably been driving 14 hours, but… my salary is the same." This observation about declining hourly earnings corroborates with survey findings in Singapore (Mathews et al., 2022b) and was echoed by a PHV driver: "I don't understand why we keep on working hard, and the thing is going downslope."

Principle 2 "Fair Conditions" and Principle 4 "Fair Management" attracted heated discussion among platform workers. For "conditions," we asked:

> Who controls your work and working hours? How have your working hours changed in recent months since the beginning of 2022? How do you think the automatic AI system should be improved? Have any of you encountered or heard about any dangerous incidents while doing your work? What is your view of these accidents and injury?

Questions concerning "management" include:

> How do you communicate with the platform management? Is there a clear channel of communication? Is that dependable and sufficient? Have you ever had a disciplinary or deactivation problem with the platform, e.g., blacklist, ban, or locked? Have you ever been fined, reprimanded by the platform? If yes, why? Can you appeal? Does the platform have any policies in place to support equality or avoid discrimination (e.g., gender)?

The two prominent issues that emerged from our individual gig worker interviews in 2021 were: (a) There is insufficient training for new workers, especially food delivery riders (Qiu, 2021), and (b) there is substandard support for workers who need help from the platform. The first issue became much less salient one year later in our focus group discussions probably due to Singapore's mandatory training requirements implemented in July 2021. But the second continued, as shown through the following discussions, which described how drivers were unable to receive proper help because the call centres for the platform were not located in the country:

> Driver A: You get a person from call centre, then they locate in Philippines, for example. How are we going to solve or whatever? Then anything you can, right, it's all… "Walao!" So, everything is through black-and-white, emails whatever.
>
> Driver B: They cannot solve most of the problem.
>
> Driver A: Cannot lah! It cannot solve one lah!
>
> Driver C: Sorry arh, I drive for 6 years, what is the number to call them arh?

---

[1] Common expression among Singaporeans to express the feeling of being surprised and dismayed.

These problems deteriorate in situations where platforms are unreachable. A rider noted this with Platform X when she started work at 6 am and received an order that required her to travel an unreasonable distance for a bicycle-user. "They [the call centre] only open at 8," she explained and so she had to use the chatbot which could not respond to her issue: "They never answer the call… it's very irritating." In this case, she was forced to carry out that order to avoid affecting her cancellation rating.

These instances reflect the general frustrations experienced by workers in asking and receiving help from the platform. Drivers and riders were able to speak of different instances where the system would dispatch them incorrectly, wasting their time. But these problems also went beyond inconvenience. Rider D, for instance, offered a particularly unsettling incident known to the community where a rider was killed in an accident during a delivery. When another rider reported the accident to the platform, the customer service agent asked about the food rather than the deceased rider. "C[ustomer] S[ervice] was trying to find 'is the order okay? Can the order be delivered?'... Where is the humanity? Where is the compassion?"

This incident relates to safety concerns about platforms. Many participants report of having been in an accident or knowing of someone involved in an accident, and could explain how platform protocols create unsafe situations. One common complaint is that platforms would assign or stack orders without consideration of the weight of the items ferried. Riders who were women or elderly, in particular, expressed struggling to handle the weight of the delivery items. A woman-rider on a bicycle was given three stacked orders that were "very, very heavy." Another rider of short and skinny stature, who was 50-year-old, spoke of how he was asked to carry "18 bottles of 1.5 litre mineral water plus miscellaneous items" on a bicycle. He also shared with us images of the heavy loads that he had to deliver on his bike (Figure 2).

Figure 2

Images of Heavy Loads for Delivery Shared by a 50-Year-Old Who Rides a Bicycle
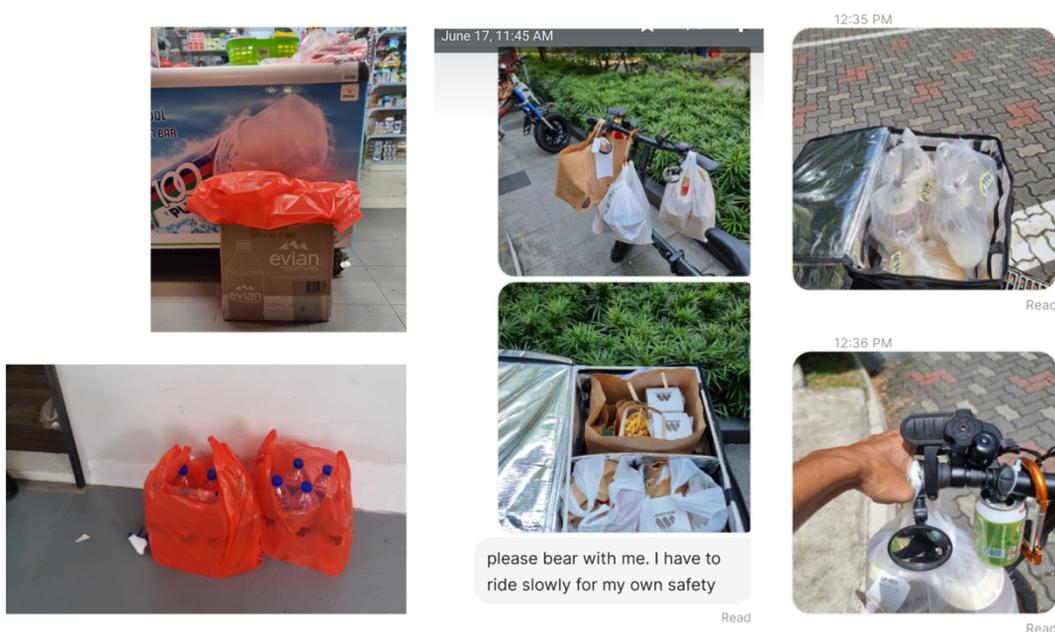
Platforms' gamification system on stacked orders can produce significant time pressure on riders, who are nudged to rush to finish the orders within the time limit to receive an incentive. The tragic accident mentioned above, for example, took place on a stacked order. A focus group discussion noted:

> Rider A: One of my concerns is there are some unsafe features in the app itself. Like Platform X, I think some riders have some delivery timing... so-called "required to meet."

Rider B: Oh yes, give you a hard time.

Rider A: The timing is unrealistic one.

At the same time, safety and risk were experienced by workers differently depending on the kinds of work they do and the services provided by the platform. One female PHV driver referred to the app function that allowed drivers to notify the platform if they feel unsafe:

You don't have to press the switch [for safety monitoring], you know? There was an incident, I think… 3 time they call me! Then they find out that was dropping the passenger very late; a guy in the late night. They call me! They call me! They said, "Where are you now?" I say, "I'm on the road, going to drop this passenger!", "Is the passenger on the car with you?", "Ya!", "Is he alright?" I said, "Yes!". He said, "Are you alright? Everything OK?", I said, "Yes!" So, [the platform company] is very on-the-ball! They track lady driver in the night—I'm so sure there's not many!

Discussions of these issues include the AI algorithms deployed by platforms, which determine pricing and gig dispatchments based on not only the location and time but also the seniority of workers. These systems are so obfuscated that a driver uttered: "I think this AI is also controlled by man. It's man in the background! So, if they say that… you know, it's not manned by anybody, I don't believe that!"

Again here, most participants were able to speak of situations where disputes were resolved algorithmically against their favour. This experience is particularly prevalent among food delivery riders who tended to experience more disputes with consumers. More specifically, participants on Platform Y complained that the platform tended to unreasonably favour the consumer:

Rider C: I think even until now, Platform Y is still the easiest way [for consumers] to get the refund.

Rider D: Cheat. Ya.

Rider C: To cheat a free meal [laughs]. It's the easiest way to cheat a free meal. It's either you get a refund of like 10-dollar voucher, or you will get a free meal.

This unfair favouring of consumers relates to the disciplinary action levelled on riders. Focus group participants spoke of how platforms could suspend them without allowing for fair arbitration. Most of these suspensions are short, lasting from two days to a week for minor infractions like missing an item or for not delivering an order—towards which the rider would have no chance to explain. But participants also spoke of unfair and unexplained permanent suspensions:

Rider D: Ya, I think Y is also one of the platforms that has the highest [number of] riders being unfairly suspended.

Rider E: My account [on Platform Y] was permanently suspended, even when I emailed to them. I was a senior PAB [power-assisted bike] rider… I don't know why they suspend my account for no reason.

Further, participants raised the point that complaint systems contained one fundamental flaw. These systems allow complaints to be raised of passengers and consumers, but never of the platform. As this driver said:

I think when the customer or driver want to complain about the platform company, it's impossible! Passenger-side arh, you can only complain about your driver, your driver, and your driver, you can't complain about the platform. For driver, passenger, passenger, passenger… At least put in, you know? At least put in! Because they [the platforms] are always the win-win situation, because "Haha, you cannot complain about me! Complain about the driver, complain about the passenger!"

Towards Principle 3 "Fair Contracts," Singaporean focus group participants were less interested in discussing their contracts because many did not see their job as a contractual agreement. Many, for instance, said that they did not need to "sign" any contracts because they only needed to "register" to become a "partner" of the platforms. Few who had to click through online agreements paid attention: "I know it's very important one. They always have so many of

them, full sentences, always start with, 'We reserve the right to… We reserve the right to…'— That's it only lah!"

However, the ambiguities in contractual obligations become a striking problem when workers get sick or injured. PHV and food delivery workers in Singapore were provided insurance by the platform, but few in the focus groups knew what the insurance covers. One rider, for instance, expressed that she wasn't clear if she would be eligible for the insurance since she delivers irregularly. As a result, she chose to avoid seeing a doctor when she fell during a delivery: "They just say, 'Oh, you have insurance.' Ya, you never explain to us what is covered. Is it... if I go to A&E, then I check my bone, check my... everything elsewhere. Is it totally covered or what?"

The other focus group of riders were also confused about how they would qualify for compensation during medical leave. One was told that they needed to be on medical leave for at least four days, another said he needed to be on leave for six days. Rider C said, "Because when we sign the contract, the terms and conditions didn't even... get that our MC is supposed to be... above 4 days or above a week or 10 days." This ambiguity caused workers to be reluctant to see a doctor or get rest when they fall ill. The possibility of a loss of income or expensive unclaimable hospital bills was of too much risk for these gig workers to bear:

> Rider C: You know nowadays you visit the clinic, it will cost you like 70 bucks to a hundred bucks. So, if let's say three days... we couldn't work, and then our loss of income, and then... and then the company is not even paying us a single cent… I don't think... this acceptable for a delivery platform to do this to us.

Finally, towards Principle 5, there seems to be a fair amount of collective formation among platform workers in Singapore, although they tend to be self-organised through either face-to-face contact or social media platforms such as WhatsApp, Telegram, and Facebook rather than the gig work platforms. According to a PHV driver:

> I think it's very important for us to get ourselves into groups, because in groups, we can help one another! And… you… cut down a lot of unnecessary call-in frustration, and a lot of things. Like, so far, my group… we don't really have any issues with customer service because we can self-sustain, we know what we can do, what we can't. We understand the policies, and… we know at certain time, we can add money, we cannot add money, certain things we can do, we can't do. So, I… again, we don't have issues like that lah! Ya… but I think that's the difference between driving alone, and driving as a group that actually knows things!

Drivers and riders also tended to come together in moments of crisis, assisting when there are accidents in the area.

The level of activity among worker groups is, however, uneven. Sometimes this is due to the nature of work:

> I used to have private groups, but now I leave all these groups already. I don't need lah, because platform driver, you don't need groups! It's not like taxi driver; taxi driver you must, "Eh! Where got surge? Where got people? What timing? Right now, whatever…" so sharing information. PHV jobs are already assigned. I leave the group because inside a lot of negative forces.

This can also be a function of the group's size, as a food delivery rider reveals: "The bigger the group became, it would become more political. So once that happens, then the group will start to shrink." What this shows is that self-organisation has its place and usefulness, but representation is something that also needs scaffolding to happen.

Impact

As of February 2023, Fairwork's labour audits and its annual reports have been covered in more than 650 media reports around the world including in Al Jazeera, BBC, *Business World*, *Fortune*, France 24, *Jacobin*, *The Globe and Mail*, *The Manila Times*, *The Times of India*, *Vice*, *Wired Magazine*, and so on.

Fairwork has engaged with regulators and policymakers in national and regional governance bodies in Africa, Europe, Latin America, and in four Asian countries: India, Indonesia, Pakistan, and Singapore. National Trades Union Congress (NTUC) and Ministry of Manpower learnt about Fairwork's global evidence while discussing future regulation with the Fairwork team led by Professor Mark Graham and Dr Adam Badger. Fairwork has also engaged the ILO and UNHCR in promoting global platform labour standards.

Consisting of numerous unionists and activist scholars, the Fairwork team supports workers and their associations in promoting their actions and advocacy campaigns. Meanwhile, Fairwork has developed campaigns in the UK, Brazil, and Colombia, targeting consumers so that they can patronise platforms with high ratings and shun those with low ratings. Another element in consumer advocacy is the Fairwork Pledge. Until February 2023, more than 40 organisations, e.g., Oxford University, Solidarity Centre, and the Berlin Senate, have pledged to support fairer working conditions in platform economy.

From 2018 to 2022, Fairwork has engaged with 40 platforms that agreed to make changes along the five principles. Altogether there have been 144 changes that result from the platforms' dialogue and engagement with Fairwork. Most of these changes concern "fair management" (48 changes), "fair contracts" (37 changes), and "fair conditions" (26 changes), whereas there have also been 18 changes for "fair pay" and 15 changes for "fair representation." Specific information about these changes can be found at https://fair-work.shorthandstories.com/platform-changes/index.html.

Discussion: Auditing Gig Work Platforms

Fairwork is one of the world's most ambitious, innovative, and impactful projects concerning the working conditions of platform work. In an unprecedented way, it has revealed the working conditions and social (ir)responsibilities of platform companies that used to be rendered invisible by algorithms, techno-mythologies, and corporate newspeak. Now, everyone—gig workers, consumers, regulators, and platform companies—can start to see the extent to which a platform is or is not abiding by the five principles; how the platforms are doing better or worse from one year to another; how they compare with their counterparts in different markets; and exactly where they can improve along the 10-point scale?

The main strength of the Fairwork principles is their relevance at the global scale, which can then be localised in different contexts including in Singapore. This strength, however, also suggests that the project has its limitations. First, there certainly can be more than five principles, and each principle can be assessed in more nuanced manners beyond the current conceptualisation of merely two sub-dimensions. Second and perhaps more importantly, the Fairwork methodology can be seen as somewhat bare bones, e.g., given its small sample size per platform each year, it does not use random sampling among the gig workers. Both limitations have to do with the project's positioning of itself, not as a pure academic study but as one that actively seeks to make a change in the world it investigates. They are due to Fairwork's policy and advocacy goals that shall be better served when platforms are incentivised or pressurised to share information and join the dialogue, especially when they see that the research recurs year-on-year. A practical consideration is that using more complicated conceptual frameworks and more rigorous methodologies will likely reduce the number of participating countries, especially those in the Global South. Less participating countries will then reduce the global scale of the project, while making it less feasible to compare results across time and space.

With that being said, there is also nothing holding back from localising and elaborating on the five principles whether in research design or measurement. And this can be done in Singapore without compromising the comparability of data gathered from international Fairwork teams. In other words, the limitations faced by Fairwork at the global level can be addressed at the national level as long as there is a strong local will, and if sufficient resources can be mustered.

Why, despite Fairwork's impacts, did the average ratings decline over the study period? One reason is that more countries from the Global South have provided ratings during 2021–2022,

whereas certain countries in the North such as Germany did not release their reports in 2022. Another is the economic stimulation packages being handed out in the first two years (2020–2021) of the COVID-19 pandemic in many countries. This factor, along with further quantitative easing, lower interest rates, and government subsidies to gig workers such as Singapore's Driver Care Fund, resulted in more resources for the growth of platform economy overall and more room for pay and condition improvements for gig workers until around mid-2021. But from the second half of 2021 onwards, interest rates started to increase while the subsidies stopped. Most tech companies including the platforms could no longer "burn" money under the new macroeconomic conditions when financial discipline becomes a requirement for survival. This had a trickle-down effect for not only lower pay but also deteriorating working conditions and more authoritarian management styles designed to further disempower gig workers in order to extract profit from their platform work.

The bursting of "tech bubbles," as *The Economist* (2022) calls it, should not become yet another excuse for platform companies to evade corporate responsibilities and ignore the need to renew their social compacts with labour. Unlike small startups in social media or digital entertainment sectors, large ride-hailing and food delivery platforms are here to stay due to geo-tethered market needs and the segment of labour force who indeed needs flexible gig work. Having independent platform labour audits shall, as such, benefit the wellbeing of the platform economy in the long run by giving workers and consumers more transparency, gaining more trust from regulators and the public, while helping platform companies to know where to improve (e.g., within the Fairwork five principles framework), and how to improve (e.g., using qualitative insights from the focus group findings).

Conclusion

This paper introduced Fairwork, a pioneering platform labour audit initiative aimed at evaluating the working conditions of gig workers. We have discussed its background, five principles, and methodology, which is relatively simple relying on desk research, worker interviews, and dialogues with management to determine the status of decent work on the platforms. Despite its simplicity and limitations, the Fairwork framework, when localised in Singapore for instance, can nonetheless shed light on the "dark Satanic mills" of our AI era, showing that, in reality, some platforms do treat their workers better than others; and that all of them have ample room for improvement—for gig workers, for the companies themselves, and for platform economy as a whole. Our study therefore demonstrates that labour audits can improve transparency in the gig economy regarding the worker-platform relationships which may otherwise be difficult to highlight, much like how traditional enterprises' treatment of workers is highlighted through regular labour auditing. Doing so in Singapore can potentially be part of updates to the tripartism model (Trenerry et al., 2022) for a changing, more digital era. Thus, our paper highlights a ground-breaking approach towards a more balanced outcome in the treatment of platform workers by gig worker platforms, which can be examined further with an eye on uplifting all workers in our economy.

BIOGRAPHIES

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Jack Linchuan Qiu is Shaw Foundation Professor in Media Technology at the Wee Kim Wee School of Communication and Information, Nanyang Technological University, Singapore. He has published more than 130 research articles and chapters and 10 books in English and Chinese including *Goodbye iSlave: A Manifesto for Digital Abolition* (University of Illinois Press, 2016), *World Factory in the Information Age* (Guangxi Normal University Press, 2013), and *Working-Class Network Society* (MIT Press, 2009).

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Adam Badger is a PDRA at the University of Oxford's Fairwork project. Fairwork is an action research initiative that operates across 39 countries on four continents with the sole focus of improving working conditions and lives in the platform economy. Adam also has an interdisciplinary PhD in Geography and Management, focussing on the lived experience of platform work and resistance in London. Adam has produced a variety of outputs including journal publications, books chapters, and documentary film.

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The Role of Labour Unions in a Just Transition: Insights From the Workers

Samuel Chng, Harvey Neo, Ariel Tan and Bayi Li

Abstract

Climate change will bring about changes in production and consumption patterns globally. Workers largely understand that a transformation of their industry and organisation is impending, but there is uncertainty about what this transition will look like. However, ensuring meaningful employment amidst mitigation to address climate change within organisations, can be aligned to address workers' concerns. Enhancing existing livelihoods and income is fundamental to this transition. A strategy for changes that are fair and equitable for all stakeholders, or what is termed as "Just Transition," is necessary to ensure that the future sustainable economy provides new and meaningful green jobs for workers. This study reports findings from a survey with 1,000 Singaporean and Permanent Resident workers in Singapore investigating their perceptions, attitudes, and priorities in a Just Transition. First, despite the ongoing push for sustainability, workers' top concerns today and in the coming decade are the cost of living and livelihoods. Climate change is of less concern. Even among workers with strong pro-environmental attitudes, cost of living, livelihoods, and an ageing workforce were greater priorities. Second, workers are seeking certainty of what Just Transition looks like and reassurances that job opportunities will be available. These hint at existing uncertainties among workers about jobs, livelihood, and impending changes that will take place as part of this transition. Third, workers see a role played by unions in Just Transition and this role is multifaceted and builds on existing advocacy, negotiation, and partnership activities.

Introduction

The world is experiencing accelerated warming and climate change brought on by anthropogenic activities (Intergovernmental Panel on Climate Change [IPCC], 2018). Tackling climate change is a global effort that will involve all parties in our society. The Paris Agreement was adopted by 196 Parties at the 21st session of the Conference of the Parties (COP) in Paris on December 12, 2015, signalling their commitment to combat climate change and to accelerate and intensify the actions and investments needed for a sustainable low-carbon future through globally coordinated programmes on climate change mitigation, adaptation, and finance (International Trade Union Confederation-Asia Pacific [ITUC-AP], 2022; United Nations Treaty Collection, 2015).

COP26 also reaffirmed global ambitions towards limiting the rise of global temperatures with the agreement of The Glasgow Climate Pact. The Conference saw the biggest representation from countries, civil societies, indigenous people, youths, and businesses (United Nations Climate Change Conference, 2021). Some key outcomes of the UK Presidency at COP26 include securing net-zero commitments covering over 90% of world gross domestic product (GDP) and new Nationally Determined Contributions from 153 countries, ensuring that 86 countries are now in National Adaptation Plans or Adaptation Communications to increase preparedness for climate risks, achieved record mobilisation of the Adaptation Fund and Least Developed Countries Fund, and garnered financial support from the public and private institutions.

COP27, held in 2022, saw progress in helping countries and organisations meet climate goals. The task group set up to address greenwashing presented recommendations of what companies need to meet to claim to be net zero (United Nations' High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities, 2022). In addition, the International Organisation for Standardisation (ISO) published a net-zero guideline paper for organisations wishing to create meaningful net-zero targets (International Organisation for Standardisation, 2022).

Climate Change's Impacts on Jobs and Livelihoods

Climate change presents significant challenges to sustainable development and has major implications for economic growth, employment, key infrastructure, human health, and livelihoods. Uncontrolled climate impacts will cause damage to infrastructure, disrupt business activity, and destroy jobs and livelihoods on an unprecedented scale (International Labour Organization [ILO], 2020). In the Sixth Assessment Report by Intergovernmental Panel on Climate Change (IPCC, 2022), observations of the impacts of climate change in urban settings included economic losses, disruptions of services, and impacts on well-being.

The economic impacts of climate change are felt disproportionately by the most vulnerable people and systems across the world. The impacts of climate change, biodiversity loss, and environmental degradation are concentrated among workers from lower-income countries and small-island developing states, rural workers, people living in poverty, indigenous and tribal people, and other disadvantaged groups (ILO, 2020). In urban contexts, observed climate impacts are concentrated amongst economically and socially marginalised residents (IPCC, 2022).

As industries shift towards a green economy, jobs in previously secure but highly polluting industries may turn precarious (Goods, 2017). Moreover, workers in conventional fossil fuel energy production face redundancy as changing labour processes to renewable energy require different skills. Nevertheless, the International Labour Organisation estimated that limiting global warming to 2°C by the end of the century has the potential to create around 24 million jobs, largely offsetting any job losses in sectors such as carbon- and resource-intensive industries (ILO, 2018).

Workers: The Gap in the Climate Crisis Response

Over a decade ago, International Labour Organization (ILO, 2010) highlighted the need to acknowledge the role of a socially unjust and consumption-oriented economic model in

generating present environmental and social crises. While climate debates of the past have given some coverage to the issue of employment opportunities and challenges arising from a greener economy, the social aspect of climate policies remained an afterthought (ILO, 2010). Progress has been made in this aspect.

The United Nations 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, is a 'plan of action for people, planet and prosperity' (United Nations, 2015), indicating overwhelming support for sustainable development across the globe. Action to combat climate change and its impacts is central to Goal 13 of the Agenda and is relevant to most other Sustainable Development Goals, including Goal 8 on decent work and economic growth (ILO, 2020). Global measures are generating multiple benefits in agricultural productivity, innovation, health and well-being, food security, livelihood, and biodiversity conservation (IPCC, 2022).

Repesenting Workers in the Climate Crisis Response

Climate change policies will have impacts on the labour market and the interests of workers need to be represented. Labour unions represent workers and are vital actors in facilitating sustainable development, particularly with their experience in addressing industrial change, and the extremely high priority they give to protecting working and related natural environments.

In 2007, the International Trade Union Confederation (ITUC) stressed that it was vital for trade union approaches to be reflected within ongoing international negotiations, thus establishing a Trade Union Task Force on Climate Change representing developed and developing countries (ITUC, 2008). More recently, International Trade Union Confederation (ITUC, 2017) called for a holistic climate response whereby climate change is treated as both a social and an economic concern and for the climate impact to be wholly acknowledged for its other societal effects.

Goods (2017) categorised the response of organised labour to the transition to greener economies as two competing ideas: (1) labour protection, often seen as labour or jobs versus the environment, and (2) labour for the environment, which emphasises a "Just Transition" for workers. To effectively achieve sustainable development and address the climate crisis, a Just Transition is needed.

What is a Just Transition?

Just Transition is the idea that the transition to a more sustainable and equitable economy or society should be fair and equitable for all stakeholders, including workers, communities, and marginalised groups. It involves ensuring that the costs and benefits of such a transition are shared fairly, and that affected individuals and communities have the support and resources they need to adapt and thrive in the new economic and social environment (ILO, 2010). Hence, a Just Transition contributes to the goals of decent work for all, social inclusion, and the eradication of poverty. The Just Transition concept has been adopted and integrated into the 2015 Paris Agreement (ITUC, 2016).

While the concept of Just Transition is most often applied to discussions around transitioning to a low-carbon economy, it is also relevant to other social and economic transitions, such as the transition to a more digitally driven economy.

The Role of Labour Unions in Just Transitions?

Labour unions play a critical role in Just Transitions, as they represent the interests of workers and can advocate for policies and practices that protect and support affected workers and communities. In the context of climate change, for example, labour unions may advocate for policies that provide retraining and job placement assistance for workers in the fossil fuel industry, or that invest in economic development in affected regions.

Labour unions can also be involved in planning and implementing Just Transition policies, working with governments, employers, and other stakeholders to ensure that the needs and concerns of affected workers are considered. They may also play a role in educating their members and the broader community about the importance and benefits of a Just Transition. Furthermore, they can also play a role in promoting sustainability and equity more broadly, such as negotiating for policies that reduce the environmental impact of industries, or that promote more equitable distribution of the benefits of economic growth.

Normann and Tellmann (2021) elaborated that a Just Transition requires balancing between destruction and creation policies whilst protecting workers and regions. Phase-out efforts should be accompanied by policies that contribute to both diversifying and reallocating resources from fossil fuel industries towards low-emission industries. Tripartite actors may support this reallocation effort by prioritising job transfer programmes and retraining. While creation policies are politically feasible, they are not sufficient for a transition (Normann & Tellmann, 2021). For labour unions to become a force for change, they must also support deliberate decline policies that aim to phase out fossil fuel industries (Kivimaa & Kern, 2016). These phase-out policies can include the removal of fossil fuel subsidies, stricter regulations, reduced research and development support, or the banning of certain carbon-intensive activities. However, such policies are deeply contested and intensely political. Therefore, a successful Just Transition has to be sufficiently transformative but also politically feasible.

The International Labour Organization, in its study into the risks that climate and environmental change pose for decent work, issued a guideline for a Just Transition, which offers a comprehensive set of socially responsible policies that countries may draw on to implement their climate change commitments (ILO, 2015). The guidelines call for an alignment of climate action programmes with a universally accepted concept of "sustainable development" and A Decent Work Agenda advocated by the ILO, with its "four pillars" of social dialogue, social protection, rights at work, and employment (ITUC-AP, 2022).

Our Study

This study seeks to understand how workers, key beneficiaries of Just Transitions, perceive climate issues concerning their livelihoods, and their attitudes and priorities towards achieving a Just Transition using Singapore as a case study. Singapore has stated ambitions to actively contribute towards the climate agenda, which inevitably will have a spillover impact on workers, both directly and indirectly.

The National Climate Change Secretariat and the Ministry of Sustainability and the Environment announced in October 2022 that Singapore will raise its national climate target to achieve net-zero emissions by 2050 (National Climate Change Secretariat [NCCS], 2022). Revisions to the city state's Nationally Determined Contributions saw a reduction of emissions to around 60 million tonnes in carbon dioxide equivalent before 2030, down from its previous commitment of peaking at 65 million tonnes in 2030 (NCCS, 2022). While Singapore has strengthened its 2030 target, greenhouse gas emissions must peak before 2025 and be reduced by 43% by 2030 (Fogarty, 2022).

The National Trades Union Congress (NTUC), the sole Labour Movement in Singapore with 58 affiliated trade unions and seven affiliated associations and over 1 million NTUC members, is working closely with its tripartite partners to support Singapore in achieving its climate targets while ensuring a Just Transition. To date, some initiatives include supporting training and transformation efforts through Company Training Committees and Operation and Technology Roadmap initiatives and working with government agencies such as Workforce Singapore and SkillsFuture Singapore, and Institutes of Higher Learning to identify basic and intermediate green certification Continuing Education and Training courses (Tan, 2022).
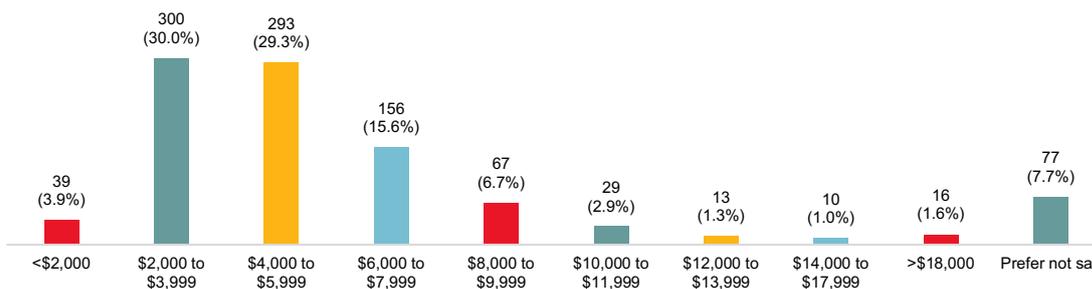
Methods

An online survey was conducted in Singapore with 1,000 Singaporean and Permanent Resident workers in October 2022 using a third-party vendor's online survey platform. The sample consisted of 51.1% females and 62.9% of participants under 35 years of age. Respondents represented all 11 union industry clusters as defined by NTUC, Singapore's Labour Movement, and 39.8% are current union members. Moreover, 80.2% of the sample were classified as Professionals, Managers, Executives, and Technicians under the Ministry of Manpower's classification, while 62.7% of the sample were in non-management roles. Detailed demographics are presented in Figure 1.

Figure 1

Sample Demographics

G Monthly Income.

Income	Count (%)
<$2,000	39 (3.9%)
$2,000 to $3,999	300 (30.0%)
$4,000 to $5,999	293 (29.3%)
$6,000 to $7,999	156 (15.6%)
$8,000 to $9,999	67 (6.7%)
$10,000 to $11,999	29 (2.9%)
$12,000 to $13,999	13 (1.3%)
$14,000 to $17,999	10 (1.0%)
>$18,000	16 (1.6%)
Prefer not say	77 (7.7%)

H Industry Cluster.

Industry	Count (%)
Oil, Petrochemical, Energy & Chemical	39 (3.9%)
Aerospace & Aviation	17 (1.7%)
Electronics, Marine & Engineering	94 (9.4%)
Maritime	18 (1.8%)
Land Connectivity	46 (4.6%)
Building & Facility Management	47 (4.7%)
Essential Domestic Services	187 (18.7%)
Financial & Professional Services	209 (20.9%)
Infocom & Media	157 (15.7%)
Hospitality & Consumer Business	86 (8.6%)
Others (including Military and Law Enforcement)	100 (10.0%)

Priorities of Workers

Respondents ranked the relative urgency of eight current issues with two time horizons: the urgency of these issues at present (in 2022) and in 10 years. The eight issues were global and local issues that would affect workers and their livelihoods: (1) the physical and mental well-being of workers, (2) ensuring job opportunities exist, (3) social cohesion, inequality, and social mobility, (4) the need to take action to address climate change, (5) ensuring industries and organisations are globally competitive, (6) ageing population, (7) political stability, and (8) cost of living.

Organisations and Climate Change

Respondents were asked about how they thought climate change would impact their organisations with the option to select one or more of the following five options: (1) jobs will be lost, (2) the organisation will have to transform its business, (3) the organisation will disappear, (4) the industry that my organisation is in will significantly transform, and (5) the industry that my organisation is in will disappear. A sixth option of "will not affect at all" was also presented to respondents.

Further, respondents rated the stage of their organisation's transition to being environmentally sustainable as one of the following five stages: (1) my organisation is not aware; (2) my organisation is aware but has not done anything; (3) my organisation has started planning; (4) my organisation has a strategy in place and is implementing it; and (5) my organisation has a strategy in place and has implemented it.

Attitudes Towards Climate Change and Just Transition

Respondents were asked about their agreement with the statement that "Protecting people's jobs is more important than protecting the environment" as a measure of their attitudes towards Just Transitions by responding with either agree, disagree, or neutral.

Next, respondents were asked to rank the factors they consider when joining a company, which included considerations of the company's contribution towards climate change and other common considerations (i.e., salary, work-life balance, career development and advancement opportunities, company culture, purpose and meaning of job role, and size of the company).

As a follow-on question, respondents were then asked about their willingness to accept a lower salary and/or change their jobs to work for an organisation that prioritises contributing positively to climate change mitigation, or whether they are not willing to make any changes.

Assuring Workers During Just Transitions

A list of five strategies was then presented to respondents for them to select their top three preferred strategies that will assure them during Just Transitions. The five strategies presented were (1) knowing how industries, jobs, and skills will evolve; (2) having a clear plan on how the transition will take place; (3) establishing a trusted organisation to oversee the transition in Singapore; (4) assurance of funding and support for reskilling and upskilling opportunities; and (5) human resource practices to ensure level playing field for Singaporeans.

The Role of Labour Unions in Just Transitions

Respondents were given questions focusing on the potential role of labour unions in Just Transitions. Respondents selected potential roles they thought labour unions could take on from a list of six: (1) advocate and represent worker interests; (2) facilitate upskilling and reskilling opportunities; (3) provide workers with personalised career transition support; (4) facilitate partnership between companies and government; (5) support company transformation; and (6) curate relevant training programmes for workers. Finally, respondents were asked if they would consider joining a union that champions sustainability-related causes.

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Results

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Workers Have Different Priorities

Respondents ranked eight key issues by their urgency to be addressed across two time horizons: today and in a decade (see Figure 2). Despite the ongoing international and national momentum for sustainability-related initiatives, workers' top concerns today and in the next decade were the cost of living and livelihoods. Climate change was of less concern. Even among workers with strong pro-environmental attitudes, the cost of living and livelihoods were greater priorities. The ageing workforce was also a growing concern for the future. There were no significant differences observed across age, sex, income, labour union membership, and job role (all values of $p > 0.05$).

Figure 2

The Urgency of Key Issues Today (in 2022) and in the Next 10 Years
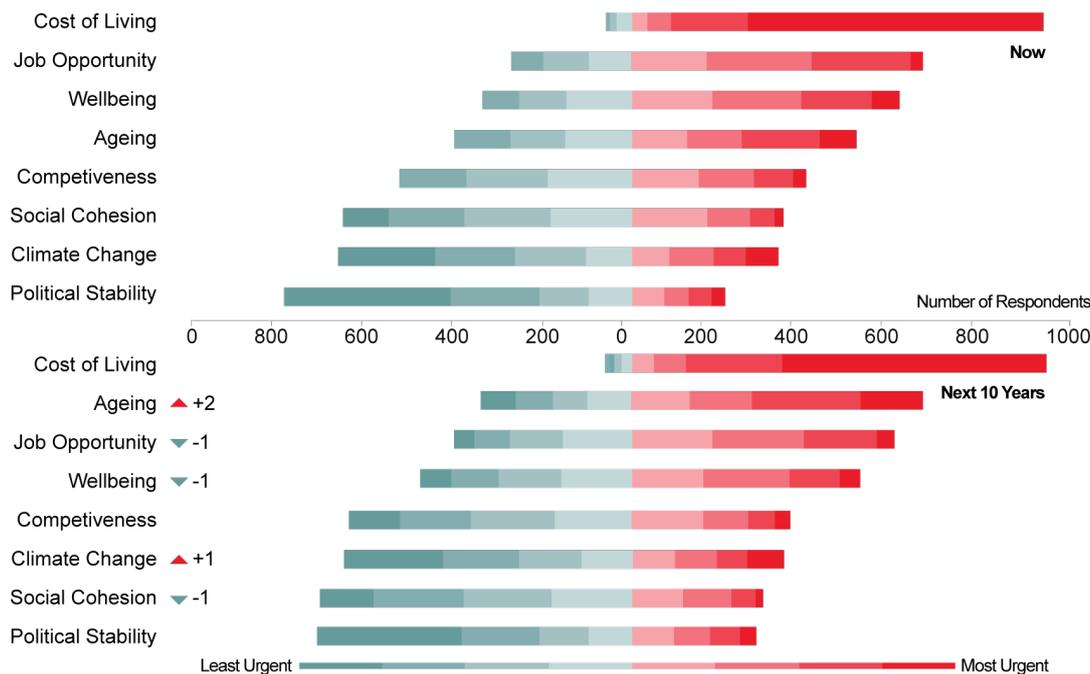
Workers' Perceptions of Climate Change's Impacts on Their Organisations

Respondents shared their perspectives on how climate change might impact their organisations (see Figure 3). The need for organisations to transform their business was most reported (41.2%), and this was significantly higher among respondents from the aerospace and aviation industry cluster (70.6%) and significantly lower among those from the essential domestic services industry cluster [32.1%; $\chi_2(10, N = 1,000) = 22.26, p = 0.014$].

One in three respondents (33.5%) reported that the industry their organisation is in will transform significantly. This percentage was significantly higher among union members (39.6%) and those in the aerospace and aviation industry cluster (70.6%) but significantly lower among those from the essential domestic services industry cluster (32.1%; for all $\chi_2, p < 0.05$).

The impact on jobs was less reported. One in eight respondents (12.8%) reported that jobs will be lost but this percentage was significantly higher among respondents who were union members (16.2%), non-PMETs (18.7%), and in the hospitality and consumer business industry cluster (25.6%; for all $\chi_2, p < 0.05$).

The perspectives that their organisations (7.5%) and industries (6.8%) will disappear as a result of climate change were least reported by participants. However, the former was significantly higher among respondents who were in senior management job roles (17.7%) and non-PMET respondents also reported significantly stronger perspectives of both the former (11.1%) and latter (10.0%) perspectives (For all $\chi_2, p < 0.05$).

Nevertheless, about one in three respondents (35.5%) also responded that their organisations would not be affected and this number was significantly higher among those from the essential domestic services industry cluster [51.3%; $\chi_2(10, N = 1,000) = 35.64, p < 0.001$].

While most participants reported that their organisations will be impacted in some manner and will have to transition to be environmentally sustainable, most organisations appeared to be in the early stages of this transition. Less than two in five (37.2%) respondents reported that their organisations had a strategy in place and only one in 10 (11.2%) reported that their organisation had implemented their strategy to be environmentally sustainable. Also, 25.7% of organisations were reported to have started planning for their transition and 25.0% of organisations were reported to be aware of the need to transition but have not started planning for it. The remaining

12.1% of organisations were reportedly not aware of the need to transition to be environmentally sustainable.

Figure 3

*Perceived Climate Change-Related Impact on Organisations*
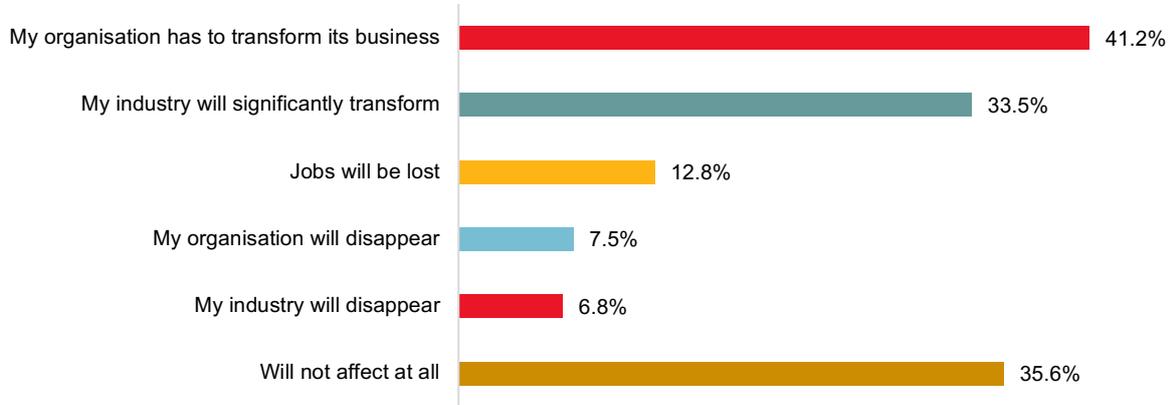
Note. Multiple selection is possible for all options except "Will not affect at all".

Prioritising Organisations' Just Transition Focus

Ensuring clear and viable job transition pathways for workers was reported by survey respondents to be the most important focus they would expect of organisations in a Just Transition, followed by providing continuous training and learning opportunities and the longevity of the organisation's business model. Focusing on minimising carbon emissions was the least important. The order of the priorities reported was largely similar across respondents from organisations that were at different stages of transition (see Figure 4).

Figure 4

Desired Organisational Priorities During Just Transitions
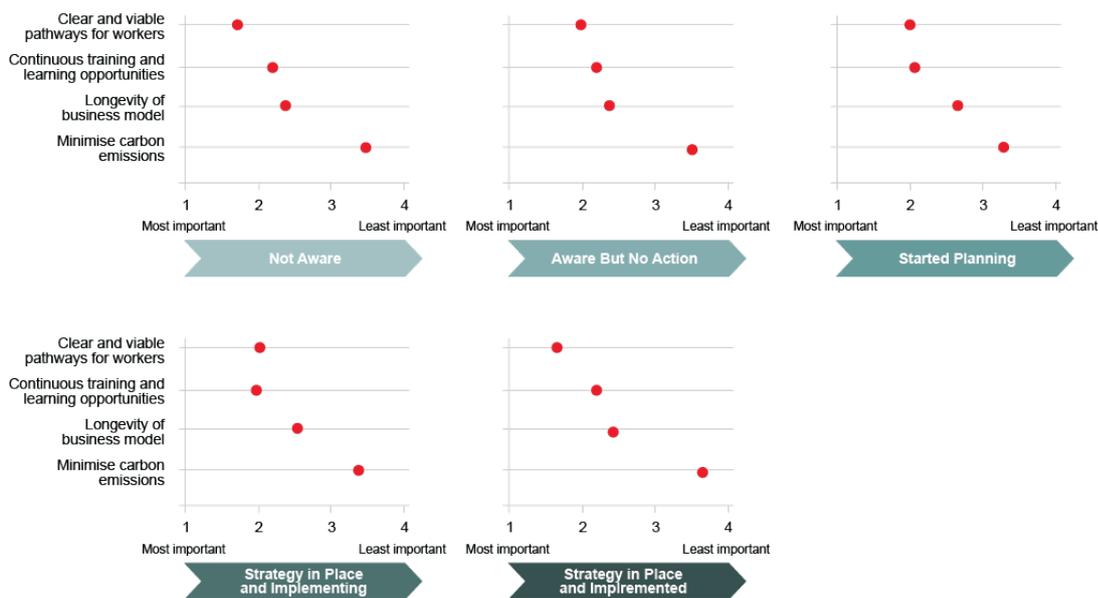
Attitudes Towards a Just Transition and Taking Up Greener Jobs

Less than one in 10 (8.8%) respondents felt that protecting the environment is more important than protecting jobs in a Just Transition. However, one in two (51.1%) respondents felt that protecting jobs is more important. This attitude varied significantly across job roles. Almost one in four (23.5%) respondents in senior management job roles felt protecting the environment was more important compared to respondents in middle (9.4%) and non-management roles (7.7%). In addition, a significantly higher percentage of respondents in non-PMET jobs were neutral (48.0%) compared to those in PMET jobs (38.2%). All χ^2 were significant at $p < 0.05$.

Further, when exploring the willingness of workers to take up green jobs, most workers were generally unwilling to accept changes to the status quo for a greener job. About three in five (63.4%) were not willing to make any changes. This percentage was significantly higher among mid-career (35–44 years of age; 70.1%) and middle-to-high income ($8,000–$13,999 per month) respondents. Non-union members (65.4%) also reported higher levels of unwillingness than union members (58.3%; for all χ^2, $p < 0.05$).

The youngest (16–24 years of age, 12.8%) and older (45–54 years of age, 14.5%; and 55 years of age and above, 16.0%) respondents were significantly more accepting of a lower salary. Regarding changing jobs, the youngest (16–24 years of age, 44.7%) and union members (36.3%) were significantly more accepting of changing to a green job. Mid-career (35–44 years of age, 23.8%) respondents were significantly less accepting. All χ^2 were significant at $p < 0.05$.

The willingness to accept changes to take up a greener job differed significantly across respondents' attitudes towards Just Transition. Almost one in five (18.2%) who felt that protecting the environment was more important would accept a lower salary, compared to 8.0% and 5.2% of those who felt protecting jobs was more important and those who were neutral, respectively, $\chi^2(2, N = 1,000) = 16.89$, $p < 0.001$.

Regarding changing jobs, almost one in two (48.9%) who felt that protecting the environment was more important would do so, compared to 24.9% and 36.2% of those who felt protecting jobs was more important and those who were neutral, respectively, $\chi^2(2, N = 1,000) = 26.79$, $p < 0.001$.

The organisation's contribution towards mitigating climate change was the least important factor for respondents. The most important consideration for respondents when seeking a job was salary followed closely by work-life balance. The other important factors considered were career development opportunities, the purpose and meaning of the job, and organisational culture.

Assuring Workers in a Just Transition

Assuring workers with a clear plan on how a Just Transition will take place was the top preference with three in four (75.9%) respondents selecting this option (see Figure 5). Ensuring that workers will be supported with reskilling and upskilling opportunities (66.5%) and understanding how industries, jobs, and skills will evolve in this transition (57.3%) ranked closely behind. These findings were consistent across respondent profiles (all values of $p > 0.05$).

Figure 5

Assuring Workers in a Just Transition
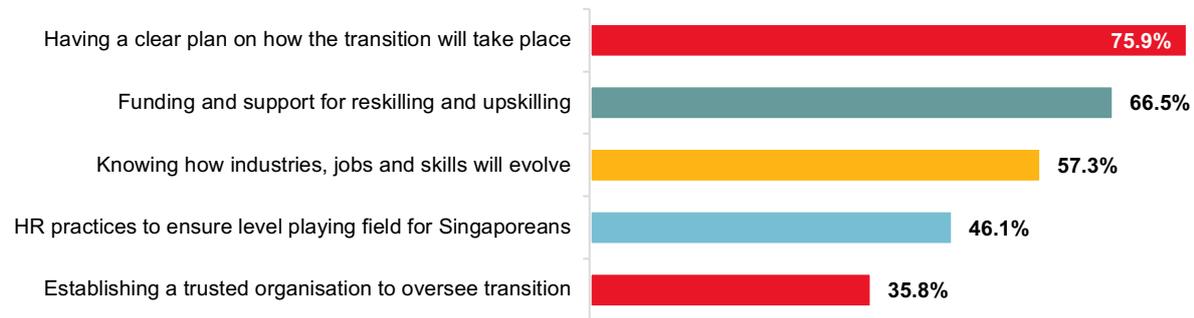
Note. Multiple selection is possible.

Discussion and Conclusion

This is one of the first studies to investigate how workers in Singapore perceive climate issues in relation to their livelihoods, as well as their attitudes and priorities towards achieving a Just Transition in their workplaces and organisations. A key finding here is the observation of a disconnect between workers' priorities and the climate agenda. Despite the ongoing push for sustainability, workers' top concerns today and in the coming decade are the cost of living and livelihoods. Climate change is of less concern to workers, even among those with strong pro-environmental attitudes. Immediate and individual-level concerns, such as the cost of living and livelihoods, were greater priorities.

Furthermore, it was clear from the findings that workers are not willing to trade off better-paying jobs with jobs that are greener but pay less. This disconnect between environmental attitudes and willingness to make a change to take climate action is not surprising and is well-established in the literature both locally (e.g., Chng & Borzino, 2020) and globally (Whitmarsh et al., 2021). This disconnect requires addressing by organisations, industries, and government bodies when planning for Just Transitions. Workers, who will remain core to a well-functioning company and economy, expect their livelihoods and prospects to be maintained, if not improved, in a Just Transition. While the study was conducted in Singapore, the findings about the disconnect that exist among individual workers found in here regarding Just Transition are likely applicable elsewhere too. This disconnect arises from the universal human cognitive biases that we possess as humans.

This disconnect at the individual worker level will be exacerbated if organisations are also ill-prepared for a Just Transition. Indeed, this appears to be an area of potential concern as workers reported that most of their organisations have not planned for their transitions, even as the need to do so grows. While the self-reported nature of the responses here might be subject to bias and a lack of knowledge by individual workers, it will also suggest how organisations that are preparing for transition need to be better communicated if this is indeed the case. Understanding that their organisations are actively planning and strategising for a Just Transition would help to assure workers of their livelihoods, similar to when organisations have to communicate and work alongside their workers during digitisation and digital transformation (Trenerry et al., 2021).

In this study, we specifically focused on the potential opportunities for labour unions to be active participants and facilitators of Just Transitions. The responses from respondents suggest that labour unions are viewed by workers to have an important role in supporting them through their core activity of advocating and negotiating on behalf of workers, and working with tripartite partners to put in place supporting initiatives and programmes (e.g., career transition support, and reskilling and upskilling programmes). Particularly in Singapore's context, NTUC, the sole labour movement, could potentially serve as a nexus between employers and the government, bringing employers, workers, and relevant stakeholders together regularly to explore, discuss,

and problem-solve transition-related issues that affect workers. To a large extent, the active involvement of the labour unions to look out for the interest of workers during this transition addresses the key assurances that workers would like; a clearer understanding of how this transition will take place and what workers need to do to prepare for it.

Moreover, in the context of declining membership challenges faced by labour unions globally, we found encouraging findings that workers are willing to join unions that include climate change and environmental sustainability-related causes in their organising and advocacy. This move appeals not only to non-union members but also to the majority of existing union members, which helps with membership retention. This also suggests that the traditional roles played by unions could be expanded as we prepare for a Just Transition. Nevertheless, this might require unions to expand their capacity and capabilities to advise workers, advocate for them, and to organise initiatives that support workers through the transition. Unions can also strategically tap on digital tools to enhance their capability to do so (further explained in Trenerry et al. (2022)). These efforts and strategic diversification of organising activities by unions will address the challenges of ensuring that they are able to continue to remain relevant by adapting and evolving with the changing needs, aspirations, and concerns of workers while contributing towards the global movement to tackle climate change.

Despite the above findings, the study is not without its limitations. This is a cross-sectional study which only provides a snapshot insight into current attitudes and perceptions regarding Just Transition. It will be useful to follow up longitudinally to track how these attitudes and perceptions are changing especially as the climate agenda evolves. The study, due to its design, was also not able to probe further into what are the various reasons underlying the priorities, attitudes, and perceptions of respondents. This would require qualitative follow-ups with respondents, such as interviews and focus group discussions, where there could be further exploration of the underlying thought processes and perception formation.

These limitations notwithstanding, this study is one of the first to understand how workers perceive climate issues related to their livelihoods, and their attitudes and priorities towards achieving a Just Transition. While a clear disconnect between the immediate and livelihood-related priorities of workers, and the climate agenda presents a challenge for tripartite partners when preparing for a Just Transition, we also found that workers looked favourably towards labour unions to help advocate and support them in this transition. Collectively, these findings support the view that labour unions will continue to play an important role in the coming years to ensure that the Just Transition is successful.

BIOGRAPHIES

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The Growing Scope and Impact of the Progressive Wage Model

Terence Ho

Abstract

This paper outlines the origins and evolution of Singapore's Progressive Wage Model (PWM), an initiative to raise the incomes of lower-wage workers through stipulated wage floors and ladders corresponding to skills and productivity. The PWM has evolved from a niche scheme targeting outsourced service sectors, viz. cleaning, security, and landscaping, to a national programme covering the majority of lower-wage workers. It has helped to narrow the wage gap without reducing employment. However, the wage ladders will require continual updating, and businesses and consumers will have to adjust to higher costs as Singapore strives to become a more inclusive society.

Introduction: Genesis and Evolution of Progressive Wage Model

Singapore's Progressive Wage Model (PWM) has come a long way since it was introduced in 2012 to address stagnant wages in the cleaning sector. Then a targeted move to address wage depression caused by outsourcing practices in the cleaning and subsequently security and landscaping sectors, PWM is now being expanded to become a major plank in Singapore's national strategy to raise the incomes of lower-wage workers and narrow the socioeconomic divide.

The introduction and subsequent expansion of the PWM came amid years of public debate over the merits of having a Minimum Wage in Singapore. It also followed the 2007 introduction of the Workfare Income Supplement (WIS), a wage supplement for lower-income workers with over 400,000 recipients (about a fifth of the local workforce) in 2022 (Ministry of Finance Singapore, 2022).

From late 2004, the economy began to recover from SARS and the global electronics slowdown. While median wages rebounded, wages at the lower end continued to stagnate in real terms from 2004 to 2006 (Poh, 2007). The Gini coefficient, a measure of income inequality, rose from 0.454 in 2001 to 0.470 in 2006 (Department of Statistics, 2006).

While many countries facing similar challenges had adopted minimum wages, Singapore took a different approach. There was concern that a minimum wage may reduce employment demand and potentially displace vulnerable workers such as seniors, although the evidence from countries which implemented minimum wages has been mixed (Neumark & Munguía Corella, 2021).

Instead, WIS was introduced as a permanent, structural social transfer to boost the income and retirement savings of mature and older lower-wage workers. The cost of WIS was borne by the government rather than employers. Qualifying criteria such as spousal income and residential property value were added to target support at the less well-off.

Notwithstanding WIS, stagnant wages remained a concern. In particular, the practice of outsourcing and competition for contracts resulted in "cheap sourcing": Cleaning companies would submit low bids to win cleaning contracts, then rehire the same workers at lower wages. The income of cleaners and labourers hardly rose in nominal terms in the decade from 2001 to 2011, inching up from $1,044 (including employer CPF) in 2001 to $1,063 in 2011 (Ministry of Manpower, 2011). Most of the 69,000 cleaners (including about 55,000 resident cleaners) earned a basic wage below $1,000 as at 2012, with the median basic wage of resident cleaners just $850 (Ministry of Manpower, 2012).

In 2012, the National Trades Union Congress (NTUC) introduced the PWM to address this issue. Under this model, the Tripartite Cluster for Cleaners (TCC) recommended a starting basic wage of at least $1,000 for the most common types of cleaning jobs, with higher wages pegged to higher skills and job responsibilities (Tripartite Cluster for Cleaners, 2012).

The design of the PWM addressed concerns that a wage floor delinked from productivity would erode price competitiveness and distort the market. The intent was to equip cleaners with better skills to improve productivity and raise the quality of service. Unlike a minimum wage, the PWM also sets out a pathway for upgrading, with wage ranges corresponding to different levels of skills and job responsibilities.

Developing and implementing the PWM entailed an extensive consultation process involving unions, employers, and government to ensure the efficacy and sustainability of the wage increments in improving the livelihoods of lower-wage workers.

PWM adoption became a requirement for all new cleaning contracts from September 2014, and for all cleaning contracts from September 2015. Adoption of PWM in the landscaping and security sectors became mandatory in June and September 2016, respectively.

After establishing baseline wages in these sectors, it became necessary to update the wage floors and rungs and set out a forward schedule of wage increases to give companies greater certainty regarding wage costs. A review of PWM in the cleaning sector in 2016 stipulated yearly adjustments in wages from 2017 to 2019, and a schedule of increases from 2020 to 2022

(Tripartite Cluster for Cleaners, 2016). Likewise, in 2017, the Security Tripartite Cluster recommended a six-year schedule of wage adjustments for security officers over the period 2019 to 2024 (Security Tripartite Cluster, 2017).

Although wages in the PWM sectors grew faster than the median wage, the scope of PWM coverage was limited. Only about 10% of lower-wage resident workers (those in the bottom fifth of the wage distribution) were covered by PWM. While there were plans to extend PWM to other sectors with a preponderance of lower-wage workers, some felt that the pace of expansion was too slow (Lim & Ng, 2020). This led to renewed calls for a statutory minimum wage to help the remaining lower-wage workers (Ong & Yao, 2021).

A Tripartite Workgroup on Lower-Wage Workers was formed in October 2020 to evolve the long-term strategy to support lower-wage workers. In August 2021, the workgroup released its report and the government decided to elevate PWM into a key policy lever, alongside WIS, to address the pay gap and uplift lower-income workers across the Singapore workforce.

Prime Minister Lee Hsien Loong announced at the 2021 National Day Rally that PWM would be expanded to cover over 8 in 10 lower-wage resident employees (Lee, 2021). This would be achieved by expanding PWM to more sectors, including occupations that span different sectors, as well as imposing a minimum qualifying salary for local workers as a prerequisite for hiring foreign workers.

The coverage of PWM would be further increased by voluntary adoption of progressive wages via a Progressive Wage Mark that would be a prerequisite for companies to bid for public sector contracts. This could raise the coverage of lower-wage workers to an estimated 94%, with the balance likely to benefit from spillover effects through market forces (Tripartite Workgroup on Lower-Wage Workers, 2021).

This brief report takes a closer look at the expanding scope and impact of PWM in the following dimensions, while also noting its limitations:

- Pace of wage increases

- Expansion of PWM coverage of lower-wage workers

- Impact on employment

Pace of Wage Increases

First Phase: Catch-Up Wage Growth

The introduction of PWM in the cleaning, security and landscaping sectors was aimed at raising basic wages, which had fallen significantly behind the median wage following years of stagnant wage growth in these sectors. Affected companies were given time to raise wages before the PWM rates became mandatory.

The initial $1,000 wage floor for cleaners was a 17.6% increase over the 2012 median basic wage of full-time resident cleaners ($850). As the wage schedules were announced in 2012 and only became mandatory for all cleaning contracts in 2015, this implied a compound annual increase of 5.6% over a 3-year period.

In fact, the median basic wage of full-time resident cleaners grew at a compound annual rate of 9.0% between 2012 and 2015, and at a compound annual rate of 6.7% between 2012 and 2016, the year before the wage floor was next revised (see Figure 1 and Table 1). This compares with a compound annual basic wage growth of 4.7% for all full-time resident workers between 2012 and 2015, and 4.4% between 2012 and 2016.

Figure 1

Median Monthly Basic Wage of Full-Time Residents (Cleaning Sector)
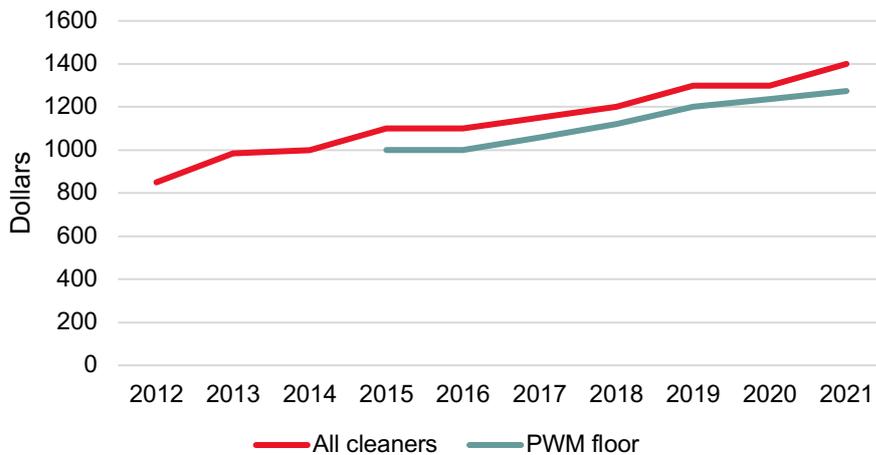

For the security sector, the first set of progressive wages was announced in October 2014, two years before PWM became mandatory as a licensing condition for private security agencies. The wage floor of $1,100 was 28.4% higher than the median basic wage of $857 in 2014, implying a 13.2% compound annual increase from 2014 to 2016. This was a steeper increase than that for cleaners, although the next revision to the floor wage was only implemented three years later in 2019.

The actual median basic wages for security officers grew at a compound annual rate of 23.2% between 2014 and 2016, and 11.0% between 2014 and 2018 (see Figure 2 and Table 1).

Figure 2

Median Monthly Basic Wage of Full-Time Residents (Security Sector)
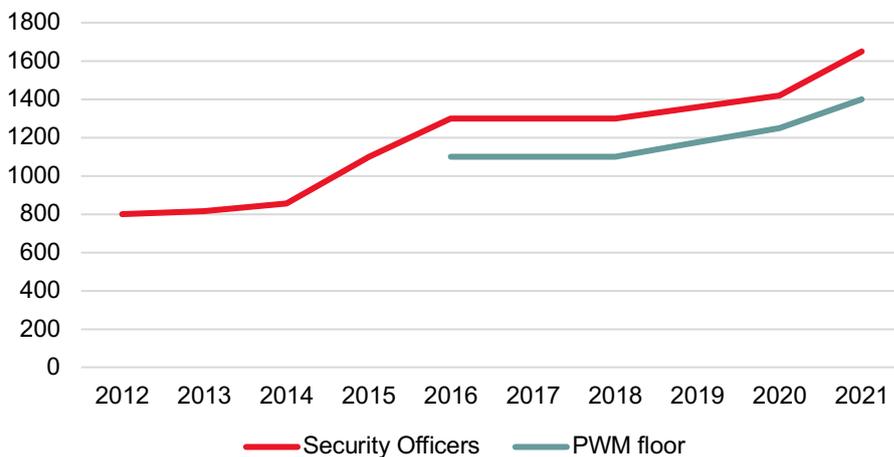
The landscaping sector PWM was announced in April 2015 for implementation in June 2016, with the initial floor wage set at $1,300. Compared with the cleaning and security sectors, the implied increase of 4.0% over the 2015 median basic wage of $1,250 seemed modest, although there could have been an anticipatory increase in wages in the run-up to implementation since the Tripartite Cluster for Landscape Industry had indicated in its 2015 report that median basic wages had stagnated at around $1,000 since 2009 (Tripartite Cluster for Landscape Industry, 2015). Wages, however, continued to rise after 2016. Between 2015 and 2019 (the year before the PWM floor was revised), the median monthly basic wage of park and garden maintenance workers grew at a compound annual rate of 3.9% (see Figure 3 and Table 1).

Figure 3

Median Monthly Basic Wage of Full-Time Residents (Landscaping Sector)
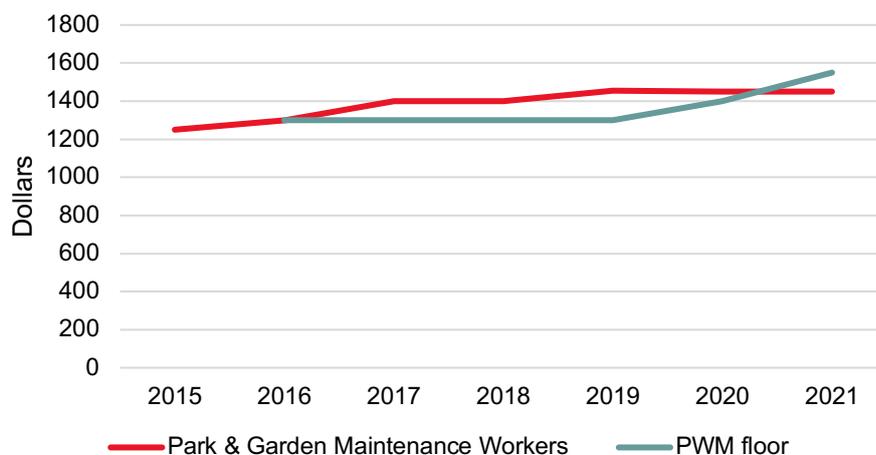
Table 1

Implied and Actual Wage Growth in PWM Sectors

	Cleaning	Security	Landscaping
Implied CAGR (from announcement to implementation)	5.6% (2012–2015)	13.2% (2014–2016)	4.0% (2015–2016)
Actual CAGR (from announcement to implementation)	9.0% (2012–2015)	23.2% (2014–2016)	4.0% (2015–2016)
Implied CAGR (from announcement to year before next PWM revision)	4.1% (2012–2016)	6.4% (2014–2018)	1.0% (2015–2019)
Actual CAGR (from announcement to year before next PWM revision)	6.6% (2012–2016)	11.0% (2014–2018)	3.9% (2015–2019)

Note. CAGR: Compound Annual Growth Rate.

Subsequent Reviews: Sustaining Wage Growth

Without a periodic update of the PWM wage floors, however, wages in these sectors could again stagnate. Indeed, there was evidence of wage growth flatlining in the cleaning and security sectors after 2015 and 2016, respectively, as employers digested the recent wage hikes (see Figures 1 and 2). Therefore, the tripartite clusters for cleaning, security and landscaping reviewed the PWM and released their recommendations in 2016, 2017 and 2018, respectively.

The PWM wage schedule for cleaners was increased by fixed dollar quanta from 2017 to 2019, followed by a 3% increase to the PWM baseline wage for all job roles between 2020 and 2023 (see Figure 4). This would front-load the increase in wages, which would then revert to 3% as a reasonable baseline growth rate.

Figure 4

PWM Wage Floors (Cleaning Sector)
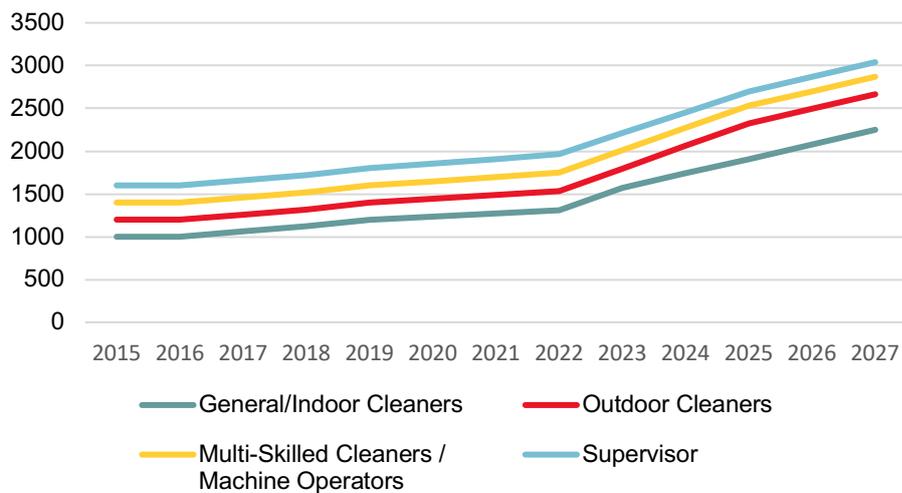
The security and landscaping sectors adopted a similar approach, specifying fixed dollar quantum increases from 2019 to 2021 (security)/ 2020 to 2022 (landscaping), followed by a minimum 3% increase to the baseline wage for all job roles between 2022 to 2024 (security)/ 2023 to 2025 (landscaping).

Wages in the cleaning and security sectors, which had earlier flatlined, began to climb again in tandem with the increase in PWM floor wages (see Figures 1 and 2). Between 2014 and 2019, gross wages in the cleaning, security and landscaping sectors grew by a cumulative 31% on average, outpacing the 21% cumulative real median wage growth of full-time resident employees (Tripartite Workgroup on Lower-Wage Workers, 2021).

Other steps were taken to enhance gross pay and working conditions as well. A mandatory two-week bonus for eligible resident cleaners was implemented in January 2020. A minimum two-week bonus was also introduced for landscape workers. From 2021, the overtime exemption for security officers was removed to prevent overwork and promote better work-life balance for security officers. This brought down overtime hours from an average of 95 hr per month previously to a cap of 72 hr a month. The wage schedules for security officers were set taking into account the impact of this on security officers' gross wages.

2021 Review: Accelerating Efforts to Narrow the Pay Gap

Further reviews for these sectors were released in 2021 for 2023–2028. A six-year schedule of wage increases was set to provide greater certainty to the industry, enabling service providers to price in the wage increases when bidding for new contracts, and also allowing service buyers to factor this into their budget for services.

For the cleaning sector, there was a significant jump in the pace of wage increases in the period 2023–2025, reflecting a "stronger desire to uplift the wages of the cleaning workforce and narrow their income disparity with other workers" (TCC, 2021). The compound annual growth in wage floor is 13.3% for general cleaners in the three years from 2022 to 2025, compared with 3% in the preceding three years (2020–2022) (see Figure 4).

The 2021 review saw the security and landscaping sectors abandon earlier plans for 3% wage increases in 2022–24/2023–25, respectively, in favour of a much faster increase in wages.

From 2024 onwards, the security sector PWM wage schedule includes wages for work done beyond the 44 hr regular work-week. The PWM basic wage floor was raised to $2,650 in 2024, while extra working hours (above the 44 hr work-week) were capped at 72 hr a month to safeguard security officers from overwork. Disregarding the one-off jump in 2024, the pace of

increase in wage floor averages 7.4% per annum (CAGR) for the four years from 2024 to 2028, higher than the 7% per annum from 2018 to 2022 (see Figure 5).

For the landscaping sector, the PWM base wage will grow by a compound annual average of 6.3% from 2022–2028, up from 4.1% in the preceding six years (see Figure 6).
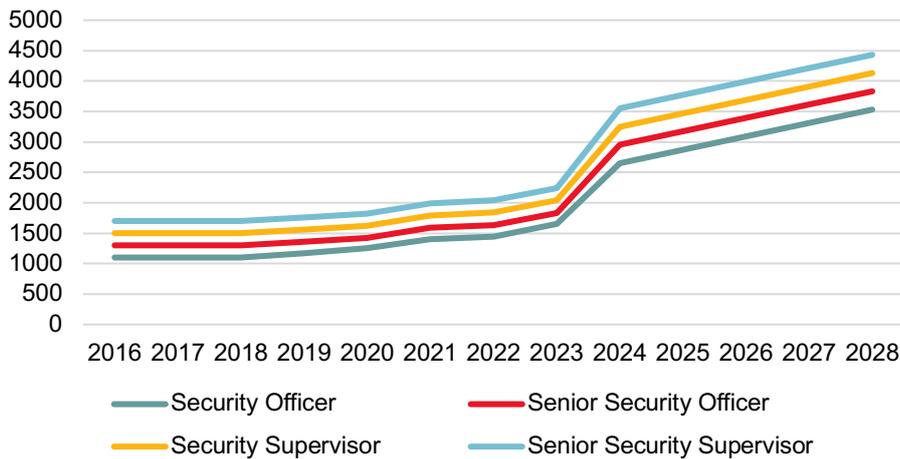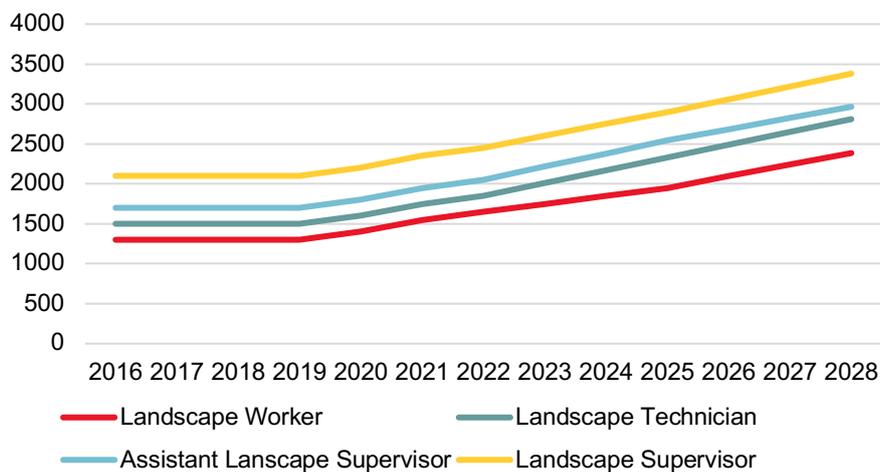
Figure 5

PWM Wage Floors (Security Sector)

Figure 6

PWM Wage Floors (Landscaping Sector)

The 2021 PWM wage revisions in the cleaning, security and landscaping sectors reflected considerable ambition in raising workers' wages, even prior to the high inflation rate experienced in 2022. However, with headline inflation reaching 6.1% in 2022 and high inflation projected to persist in 2023, the real wage growth of workers in these sectors could be eroded. Future reviews of the PWM wage schedules would have to take this into account.

The Tripartite Workgroup envisages that wage growth for lower-wage workers should outpace that of the median wage over the decade up to 2030. When the wage gap has been narrowed sufficiently, the wages of lower-wage workers can thereafter keep pace with the median.

Expansion of PWM Coverage

While PWM covered over 70,000 resident workers in the cleaning, security, and landscaping sectors in 2018 and about 85,000 by 2021 (Mohamad, 2021; Teo, 2018), coverage of lower-wage workers (viz. those in the bottom 20% of the wage distribution) remained low. The report of the Tripartite Workgroup on Lower-Wage Workers (2021) put the latter figure at 28,000, or about 10% of the 283,000 full-time resident lower-wage workers in Singapore (Tripartite Workgroup on Lower-Wage Workers, 2021).

Plans to ramp up coverage to over 8 in 10 lower-wage workers were outlined in the recommendations of the Tripartite Workgroup. The increase in coverage over time is shown in Table 2.

Table 2

Projected Coverage of Workers Under PWM

Year	Sectors	Projected No. of resident workers covered	Projected No. of full-time resident LWWs covered
2021	Total—Cleaning, Landscaping and Security Sectors	85,000	28,000
2022–2023	Lift & Escalator Sector (1 Sep 22)	+1,300	
	Retail Sector (1 Sep 22), Food Services (1 Mar 23), Waste Management (1 Jul 23)	+83,000	+28,000
	In-House Workers (1 Sep 22)	+ 50,000	+24,000
	Floor Wage of $1.4k (1 Sep 22)	+ 99,000	+99,000
	Occupational Progressive Wage—Drivers and Administrators (1 Mar 23)	+195,000	+55,000
	Total		234,000

The introduction of Occupational Progressive Wages recognises that there are many lower-wage jobs that cut across sectors, such as drivers and clerical workers. As it is not feasible to convene a sectoral tripartite cluster or committee to determine the wages of each occupation, the tripartite National Wages Council has been tasked with setting wages, as well as skills and training requirements, for these occupations.

To expand the coverage of PWM to sectors without a tripartite cluster, any firm that wishes to hire foreign workers is now required to pay all its local employees at least the Local Qualifying Salary (currently at $1,400). This will bring close to 100,000 lower-wage workers under the PWM ambit, much faster than would be possible through the process of tripartite negotiations.

In total, about 234,000 of the estimated 283,000 full-time lower-wage resident workers (82%) will be covered by PWM when the measures in Table 2 are fully implemented in 2023.

Impact on Employment

While higher wages would be expected to attract more workers to PWM sectors, the impact on employment would depend on how labour demand responds. Economic theory suggests that in a competitive labour market, a wage floor could reduce labour demand and increase unemployment. Conversely, in a labour market characterised by monopsony power, a wage floor could in fact increase employment.

Ler and Png (2018) noted that the employment of cleaners and security officers rose by 24% and 11%, respectively, from 2011 to 2016. Ler (2017) attributed the large, positive impact on cleaning sector employment share to substitution effects, whereby lower-wage workers may have been attracted from other sectors to cleaning. He also suggested that employers' ability to substitute foreign workers for locals may have been constrained by foreign workforce policy levers, notably the dependency ratio ceiling.

The longer-term impact of PWM on employment trends should be monitored, particularly in regard to older and less skilled workers. While there may be concern that wage increases may price less productive workers out of employment, it is also possible that in a tight labour market with constraints on foreign manpower inflow, demand for local workers will remain strong, and employers will in fact have greater impetus to train them.

PWM: Significance, Limitations and Future Directions

Overall, the impact of PWM is evident in helping the wages of lower-income workers outpace that of the median, thus narrowing the pay gap, without correspondingly reducing employment in these sectors. PWM has also greatly expanded its coverage of lower-wage workers since 2022, taking its place alongside WIS as Singapore's two-pronged alternative to the traditional minimum wage.

As a structural approach, PWM complements downstream social transfers and subsidies, and also reduces the fiscal outlay needed for the latter. It is also a more sustainable approach that gives dignity to work by better reflecting the value to society of different types of work.

Each sectoral PWM comes with specific training requirements corresponding to job level, to enable workers to perform their job functions competently, thereby raising productivity and professionalism.

PWM will, however, raise wage costs for businesses, which may transfer these costs in whole or in part to consumers. Training and productivity improvements can mitigate the increase in costs but may not be able to fully offset it given limits to productivity improvement in certain jobs. Hence, PWM requires the support of society at large for a more inclusive Singapore. Wage offsets via the government's Progressive Wage Credit can help ease the transition for businesses that are currently facing a range of cost increases in addition to manpower cost.

PWM is also resource intensive as it will require continual updating by tripartite partners. The implementation of PWM must also be monitored for gaming behaviour. Recently, NTUC highlighted the case of a security firm which it said had carried out "forced demotions" of security officers to offset the impact of PWM on wage costs (Ming, 2023).

While countries with a statutory minimum wage typically apply a floor wage to both local and foreign workers, PWM is not extended to foreign workers, who comprise about a third of the workforce and a significant share of lower-wage workers. Foreign workers may have much lower reservation wages compared with local workers, but employers would have to find ways to manage staff morale and cohesion if there are pay disparities across their local and foreign workforce. There is concurrently a need to raise the quality and skills of the foreign workforce to improve productivity and transform the image of lower-wage jobs.

With the vast majority of lower-wage local workers now covered by PWM, NTUC is turning its attention towards the creation of wage and skills pathways for workers beyond the bottom fifth of the income distribution. In particular, it has initiated discussions on skills and career pathways for tradesmen such as plumbers, welders, carpenters, electricians and technicians (Ang, 2023). These workers could benefit from the professionalisation of their jobs, without prescribing job types or salaries in a way that would impede labour market flexibility and job innovation.

To professionalise such jobs, there must be greater emphasis on skills and competencies, along with investment in training and certification. This is not about making barriers to entry high, but recognising there is a set of measurable skills and competencies that are important for the job and to ensure that it is performed to a high standard.

<p style="text-align: center; color: red;">**Conclusion**</p>

The PWM is an innovative alternative to the traditional minimum wage as a tool to raise the incomes of lower-wage workers and narrow the pay gap. As the design and implementation of the PWM require extensive consultation among employers, unions and the government, its feasibility depends on strong trust and close partnership among tripartite partners.

The continued evolution and progress of the PWM are critical to Singapore's efforts to narrow wage differentials across sectors and occupations and build an inclusive workforce that values every worker. Making this transition will require stakeholders across society to rally behind the goal of improving jobs and wages for a more inclusive society.

BIOGRAPHY

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Terence Ho is Associate Professor in Practice at the Lee Kuan Yew School of Public Policy, National University of Singapore. Since 2002, he has served in various policy, research, and leadership roles in the Singapore Public Service. He is the author of *Refreshing the Singapore System: Recalibrating Socio-Economic Policy for the 21st Century* (World Scientific, 2021) and *Governing Well: Reflections on Singapore and Beyond* (World Scientific, 2023).

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A Multi-Dimensional Inventory for Measuring Future Graduates' Work Readiness

Betsy Ng

Abstract

The present brief paper offers a multi-dimensional work readiness inventory for measuring future graduates' work readiness. It also highlights the importance of career success and employability by identifying the 21 dimensions of work readiness. This paper provides a summary of how the study developed and validated the work readiness assessment inventory (WRAI) using a total of 1,076 university students in Singapore. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted to validate the WRAI. Using factorial analyses, this study examined the reliability and convergent validity of this inventory, suggesting that the WRAI could be used in universities and organisations to bridge the expectations of employees and employers. As there are limited numbers of studies which have developed and validated an inventory relating to work-ready attributes of graduates, the findings in this study can contribute significantly to research and practice areas regarding workforce development. Only by equipping our graduates with work-ready attributes, can they be competent and be confident in finding career success. This brief paper also contributes to labour policy by informing the key stakeholders that relevant work-ready attributes are important for career success and workplace transition which in turn relates to lifelong employability.

Introduction

Work readiness is defined as individuals having the competencies and attributes to succeed in a workplace (ACT, 2013; Ng et al., 2022). Previous studies related to work readiness revealed that graduates who entered the workforce lack the readiness that is expected by their employers, especially personal and socio-emotional competencies (e.g., Hart, 2008; McGunagle & Zizka, 2020). This, in turn, may result in discrepancies of expectations between employees and employers. Work readiness is an important concept that not only relates to being prepared for future workplaces and bridging the gaps between employees and employers; it is also about gaining and advancing employment over one's lifetime (i.e., lifelong employability).

The present brief paper reports findings of a large-scale research study on the work readiness of university students (Ng et al., 2022). This paper provides an overview of work readiness and an established inventory to assess its related attributes. The development and validation of the multi-dimensional work readiness assessment inventory (WRAI) were to provide a potential measure for the advancement of profession and career success. The findings in this study contribute to existing research and policy, advancing conclusions which highlight practical contributors and factors for career success and employability which in turn may support the workforce and economy.

As research in work readiness is still in its infancy especially in the context of Singapore, the present paper is timely and relevant for the evolving economy. As such, there is a need to develop and validate the instrument for graduates' work readiness. To obtain an understanding of work-ready attributes in a generic context, the purpose of the study is to identify the dimensions of work readiness for future graduates.

Method

The present brief paper includes data from two studies, namely a pilot study and the main study. Before the commencement of the two studies, ethical clearance was obtained from the university's institutional review board (IRB-2018-01-054-03). A total of 1,076 university students participated in the research. As the present research is to develop and validate the WRAI, two independent samples were recruited for factorial analyses. First, a pilot study comprising 162 undergraduates (Male = 75, Female = 85, Not Stated = 2) with mean age of 23.79 years (SD = 1.35) was involved. Exploratory factor analysis (EFA) analysis was conducted on the pilot study's sample. The initial version of the 116-item WRAI with 21 factors was reduced to 75 items. Second, 914 participants (Male = 362, Female = 552) with mean age of 23.11 years (SD = 1.48) took part in the main study. This main study's sample was used for confirmatory factor analysis (CFA) and there was no further item deletion.

Results

Table 1 presents the descriptive statistics, reliability and validity for the 21 dimensions. The reliability for all scales is very satisfactory as Cronbach alpha is above 0.70, suggesting good internal consistency (Nunnally, 1978). In addition, the average variance extracted (AVE) and convergent reliability (CR) were calculated to indicate the average amount of variance in the items of the dimension and correlation of all items under a single dimension, respectively. The AVE values are above 0.50 and the CR values are above 0.80, indicating at least 50% of the criterion construct's variance and good convergent validity.

Table 1

Descriptive Statistics, Reliability and Validity of the 21 Dimensions of Work Readiness

No.	Dimension	Mean	SD	Reliability (α)	AVE	CR
1	Collaboration	5.33	0.77	0.91	0.69	0.92
2	Career management	5.14	0.98	0.91	0.83	0.92
3	Willing to learn	5.65	0.96	0.93	0.80	0.94
4	Need for achievement	5.27	1.01	0.93	0.74	0.92
5	Integrity	5.93	0.70	0.85	0.57	0.87
6	Sociability	4.42	0.99	0.84	0.66	0.88
7	Application of knowledge	5.01	0.97	0.82	0.67	0.89
8	Adaptability	4.98	0.97	0.89	0.70	0.90
9	Career preparation	5.65	1.03	0.92	0.85	0.94
10	Innovation	4.76	1.20	0.93	0.74	0.89
11	Self-efficacy	5.76	0.78	0.90	0.70	0.90
12	Empathy	5.33	0.87	0.86	0.78	0.92
13	Intrinsic motivation	4.98	1.05	0.88	0.78	0.91
14	Resilience	5.02	1.09	0.85	0.92	0.97
15	Self-reliance	5.74	0.84	0.81	0.73	0.89
16	Extrinsic motivation	5.12	1.11	0.80	0.73	0.89
17	Open-mindedness	4.97	1.14	0.81	0.72	0.89
18	Critical thinking	5.69	0.84	0.88	0.75	0.90
19	Task management	5.02	1.12	0.77	0.66	0.85
20	Emotional regulation	4.85	1.05	0.74	0.62	0.83
21	Communication skills	5.42	0.88	0.80	0.60	0.82

Discussion

The present brief paper identified the 21-dimensional attributes of work readiness for supporting future graduates' career success. These 21 dimensions of work readiness hope to bridge the expectations between graduates (employees) and employers, contributing to career success and lifelong employability. By understanding the work-ready attributes, institutions and universities could tailor to students' needs and create the awareness of employers' expectations. There are two practical implications to consider based on the current findings. The first implication is that work-ready attributes should be developed before graduates enter the workplace. As such, the "how" is essential for universities in equipping the undergraduates with the relevant work-ready attributes such that these qualities contribute to career success beyond their formal education. The second implication is to create an experiential and work-integrated education to develop university students' work-ready attributes. However, some work-integrated environments may not support students' work readiness as the duration and nature of work might impede the development of work-ready attributes. As such, it takes time to develop one's work-ready attributes. One recommendation is that both institutions and organisations should try to create communities of practice so that the students have opportunities to interact and acquire relevant work-ready skills. An example of how communities of practice can be implemented is to engage the Young National Trades Union Congress (Young NTUC) network through collaboration and communication. Through the Young NTUC's support, there are resources and opportunities to help university students develop their work-ready attributes and transition confidently to their future workplaces.

Nevertheless, there are two limitations to the study. First, it was a cross-sectional study that was conducted in one university in Singapore. Future research could apply the WRAI across other institutions and organisations to better understand and gauge the broad applicability of the findings across the wider graduate population. Second, the research did not examine the causal relations among all attributes of work readiness. Future research could consider these relations among the attributes and then longitudinally assess these attributes on career success.

Although the present study focused on future graduates' work readiness, the WRAI may be adopted by organisations to assess new employees' attributes. It may also serve as a self-evaluation for individuals who have been away from employment for a certain period to assess their work readiness. Taken together, the WRAI may be used to address the individual's needs in a current and relevant manner as those attributes are likely to evolve over time and with the changing workplace contexts affecting the particular importance of each attribute.

Conclusion

The key contribution of this brief paper is to provide research into potential ways to better support university students' work readiness by validating the 21-dimension WRAI in the context of Singapore. This WRAI is recommended to be applied in other organisational settings to create more mutual and reciprocal understanding between new employees and employers, thereby bridging the expectations of both groups and enhancing individuals' work readiness. This recommendation might also provide insightful ideas for international audiences, to consider implementing and additionally can assist in helping individuals to develop their work-ready attributes.

BIOGRAPHY

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Betsy Ng is a researcher and lecturer at the National Institute of Education, Nanyang Technological University. Her areas of expertise include motivation and adult learning, with over 60 peer-reviewed articles and conference paper presentations. She serves as a guest editor and reviewer for numerous academic journals including *Learning and Individual Differences* and *Learning and Motivation*.

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PRACTITIONERS' INSIGHTS

Businesses Need to Sustain Output for Four-Day Workweek to Work

Abhishek Bajaj, Shannon Boo, Gim Guan Sim, Yvonne Lum and Edwin Lye

Abstract

The four-day workweek has gained renewed prominence globally as part of the larger employer-employee compact refresh. The Singapore National Employers Federation's survey investigated employers' perspectives towards the four-day workweek and their reasons for supporting or not supporting it. A total of 236 companies responded from 28 October 2022 to 11 November 2022. Results indicated that one in four companies had implemented or were interested in implementing a four-day workweek, with reasons including improving employees' job satisfaction and well-being while strengthening the company's value proposition. Companies who were not interested in implementing a four-day workweek cited challenges with the business operations cycle, cost increases due to additional manpower, and concerns about fair implementation across all employees. Our findings highlight the need to balance the trade-offs between business continuity and output with autonomy and flexibility in workplaces.

Introduction

There are multiple interpretations of a four-day workweek including a compressed workweek or 4/40, where individuals spend 40 hours working over fewer than 5 workdays, and 4/32 where workers work 4 days a week for a total of 32 hours. The latter in the Singapore context will however be classified as part-time work as the employee is working less than 35 hours a week and will have a different pay structure and leave entitlements as compared to a full-time employee. The four-day workweek has been piloted for various policy goals including improving employee well-being, and other social and environmental goals.

Hitherto, surveys done on the four-day workweek in Singapore have focused on the employee's standpoint, which revealed their strong support for this, albeit against a pay reduction (Chew, 2022). Our study sheds light on employers' perspectives on a four-day workweek instead. We hypothesise that while employers do value their employee's work-life balance, they have to balance such requests against their business needs.

In the late 1800s workers in the United States (US) worked 60 to 70 hours weekly in factories. As productivity and wages increased, work hours were substituted for leisure time (Sawyer, 1977). Eventually, in 1938, the Fair Labour Standards Act, which set overtime pay if an employee worked more than 40 hours per workweek, was passed (Terrell, 2021).

One US estimate in 1974 reported that 1.1 million workers or 2% of full-time workers were working less than 5 workdays (Hedges, 1975), with companies such as Kyanize Pains Inc. reporting a decline in absenteeism rates (Samuels, 1971). Other significant impacts of implementing a four-day workweek included increased employee job satisfaction, productivity improvements and a reduction in turnover rates (Hartman & Weaver, 1977).

Improvement in employees' job satisfaction was attributed to workers' utilisation of extended leisure time with a favourable arrangement of leisure activities (Allen & Hawes, 1979; Hodge & Tellier, 1975). Fottler (1977) suggested that an employee prefers a four-day workweek due to the possibilities of a new job schedule or job upgrading resultant of the new arrangement. However, with a 4/40 arrangement, employees suffer as a result of longer workdays (Fottler, 1977).

The Utah state government introduced a 4/40 workweek in 2008 to reduce their energy costs but this was eventually scrapped because it did not meet the savings target (Jones, 2011). Iceland implemented shorter workweeks due to union demands, which ultimately allowed 86% of its entire working population to shorten their working hours (Kobie, 2021). However, more workers had to be hired for essential jobs. Sweden had several organisations, including hospitals, trialled a 6-hour workday and reported improvements in employee engagement and patient outcomes. But extra nurses had to be hired, making the trial unsustainable (Savage, 2017).

Andrew Barnes, who reported improvements in his employee's work-life balance in 2018 (Peters, 2018), founded 4 Day Week Global which is the organiser of the recently concluded four-day workweek trial in the United Kingdom (UK) with 61 companies and 2,900 employees, amongst other trials (Cohen, 2022; Lockhart, 2023). These trials are based on the 100:80:100 model—100% of the pay for 80% of the time, with a sustained 100% productivity (Kollewe, 2022).

The UK trial showed improved employee satisfaction levels, greater work-life balance, and a drop in employee absenteeism and resignations. Companies also reported growth in revenue and productivity levels, with the vast majority continuing with the trial to further evaluate its impact. Trial limitations included participating organisations being smaller and self-selecting, making heavy investments towards the trial's success (Anghel & Cohen, 2023; Bonnell, 2023; Timsit, 2023).

Other countries such as Spain are piloting the four-day workweek, with the government's backing, to accomplish environmental and social goals. The Spanish government is financially supporting companies to retain their employee's salaries with a 4/32 arrangement (Abend, 2021).

However, it is not a given that increased leisure time would improve employee well-being. Most recently, it was pointed out that how leisure time is structured—whether it is on activities which bring about exhaustion, alleviated anxiety, and unhappiness; or restorative activities—may

sway the outcome of a four-day workweek (Schrager, 2023). Additionally, other factors including household stresses, accessibility, and cost-affordability of leisure activities, may also be at play.

Research Methodology

Survey Design

The survey invitation was sent out to the Singapore National Employers Federation (SNEF) member companies via email, and respondents answered via the survey link attached. The survey was conducted from 28 October 2022 to 11 November 2022 and reached more than 2,500 companies.

For this survey, a four-day workweek is defined as a schedule where employees work on a 4/32 schedule while receiving the same compensation.

At the start of the survey, respondents filled in information related to their organisation profile. Subsequently, respondents were asked one compulsory structured and one optional unstructured filter question. The structured question required respondents to rank the reasons why companies have implemented/are interested or are not interested in a four-day workweek. These reasons were informed by our literature review. For the optional unstructured question, respondents added further comments.

Survey Respondents' Profile

A total of 236 companies responded to our survey, with 170 companies (72%) having an employment size of less than 200. The companies were spread across 19 industries with 1 in 4 respondents from the Manufacturing Industry (Table 1).

70% of respondents were from Human Resources (HR) and 25% were from Management. 71 of the 236 (30%) companies were unionised.

Table 1

Breakdown of Participant Profile by Industry

A	B	C	D	E
Sector	*N*	Break-down of total (%)	Interested/have implemented within sector, of total (%)	Not interested within sector, of total (%)
Aviation	4	1.7	50.0	50.0
Real Estate & Building Services	24	10.2	16.7	83.3
Chemical	14	5.9	21.4	77.6
Electronics	18	7.6	11.1	88.9
Energy & Utilities	9	3.8	11.1	88.9
Finance	11	4.7	27.3	72.7
Food & Beverage	7	3.0	0	100.0
General & Support Services	5	2.1	20.0	80.0
General Manufacturing	5	2.1	20.0	80.0
Hospitality & Tourism	16	6.8	18.8	81.3
Information & Communications	14	5.9	42.9	57.1
Maritime	8	3.4	25.0	75.0
Metal & Precision Engineering	8	3.4	25.0	75.0
Pharmaceutical & Health Science	6	2.5	66.7	33.3
Professional Services	13	5.5	23.1	76.9
Retail Trade	8	3.4	12.5	87.5
Social & Community Services	22	9.3	31.8	68.2
Transport & Logistics	10	4.2	30.0	70.0
Wholesale Trade	34	14.4	29.4	70.6
Total (Manufacturing)	55	23.3	NA	NA
Total (Non-Manufacturing)	181	76.7	NA	NA
Total (All Industries)	236	100	NA	NA

Notes. The total does not round up to 100% due to rounding. Column C is to be read by column, while Columns D and E are to be read by row (sector).

Results

The results indicated that one in four companies was interested in implementing a four-day workweek, with similar ratios amongst unionised and non-unionised companies (Table 2). The survey did not suggest an overwhelming interest from non-manufacturing sectors such as Information & Communications (43%), Finance (27%) and Professional Services (23%) in the four-day workweek (Table 1). This could be due to certain job functions within these sectors not being well-suited for a four-day workweek.

It was not surprising that more than 80% of respondents from sectors such as Electronics, Energy & Utilities, Food & Beverage, General & Support Services, General Manufacturing, and Hospitality & Tourism indicated that they were not interested in implementing a four-day workweek as they have 24/7 business operations, are customer-facing, and have lean manpower.

Although unionised companies were highly represented in the Hospitality & Tourism (13%[1]), Energy & Utilities (10%), Chemical (9%), and Electronics (9%) sectors, further results breakdown by each sector's responses to implementing a four-day workweek were not statistically significant.

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[1] The figures were calculated by dividing the number of unionised companies in each sector against the total unionised companies.

Table 2

Participants' Response to Implementing Four-Day Workweek

A	B	C	D
Implementation of a four-day workweek	*N* (total)	% of total	% of unionised companies
Yes, we have implemented a four-day workweek	4	1.7	0
No, we have not implemented but are interested to implement a four-day workweek	54	22.9	23.9
No, we have not implemented and are not interested to implement a four-day workweek	178	75.4	76.1
Total	236	100	100

Amongst survey respondents who responded that they have either implemented or are interested to implement a four-day workweek (24.6%), the top reasons include improving employees' job satisfaction, improving employees' well-being, and strengthening their company's Employee Value Proposition (EVP) (Figure 1). These were largely similar across all companies from various industries regardless of employment size.

The four companies [2] that have implemented a four-day workweek did so to lower absenteeism rates, improve employees' job satisfaction, and increase productivity by improving their employee engagement levels.

For the unstructured question, the responses could be classified into the following categories:

a. Companies aspire to be an employer of choice, which is a critical component of their manpower strategy. This aids in employee retention/attraction and better positions the company for the talent war. Companies facing manpower shortages use this to aid recruitment efforts. Employers hope that employees would benefit by reducing their commuting time and facilitating their work-life balance/family time.

b. Companies with Flexible Work Arrangements (FWAs) see a four-day workweek as feasible, while other companies are open to its 4/40 version.

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[2] The four companies were from the Security, Hospitality and Business Services sectors. However, they were not a representative sample of the sectors.

Figure 1

Reasons Companies Have Implemented/Are Interested to Implement a Four-Day Workweek

Overall Rank	Reasons companies have implemented / are interested to implement a four-day work week* (Mean Rank)	
1	Improve employees' job satisfaction	2.6
2	Improve employees' well-being	3.0
3	Strengthen my company's employee value proposition	3.0
4	Improve recruitment efforts and plug manpower gaps	4.2
5	Increase productivity	4.6
6	Lower absenteeism rates	6.0
7	Align with the company's corporate social responsibility strategy on sustainability	6.1
8	Reduce business costs (e.g. lower rental costs due to reduced office space)	6.5

Note. *A lower mean rank indicates that participants ranked the option higher, signifying higher importance.

Figure 2

Reasons Companies Have Not Implemented/Are Not Interested to Implement a Four-Day Workweek

Overall Rank	Reasons companies have *not* implemented / are *not* interested to implement a four-day work week* (Mean Rank)	
1	Business operations do not permit a four-day work week e.g. business runs 24/7	3.9
2	Higher costs due to additional manpower needed to plug the gaps	4.1
3	Issues in fair implementation across all employees	4.1
4	Current flexible working arrangements offered are already adequate to meet employees' needs	4.5
5	Unable to maintain or increase productivity	4.5
6	Pay equity issues (e.g. providing the same salary for the same job but with reduced work hours)	4.6
7	Potential for employee burnout due to added stress from completing the same amount of work in shorter hours	4.8
8	Difficulty in ensuring employee engagement and/or building company culture	5.5

Note. *A lower mean rank indicates that participants ranked the option higher, signifying higher importance.

The top reasons among respondents who had not implemented it and were not interested to implement a four-day workweek include effects on their business operations cycle, increases in costs due to extra manpower needed, and fair implementation concerns across all employees (Figure 2).

For the unstructured question, the responses could be classified into the following categories:

a. Companies with existing FWAs either deem them as sufficient as their employees reported being satisfied, or they have yet to analyse the FWA results. Companies reported a preference for a suite of FWA options to complement employees' differing work patterns.

b. Companies in the manufacturing, movers and packers, semiconductors, construction, shipping, and hospitality sectors, expressed concerns about sustaining their business operations, especially as they have 5 to 7 days of business operations.

c. Companies need additional manpower to sustain their business operations. However, this is challenging in labour-intensive sectors such as construction, landscape, retail, and wholesale, which have a dependence on foreign labour that is regulated by foreign manpower quotas and levies. Companies with existing manpower shortages find it challenging to hire even with a pay rise.

d. Companies fear productivity loss:

   i. Companies need to compete globally otherwise there is a fear of losing their competitive advantage with higher operating costs, reduced efficiency, and slower response times. Overall, a four-day workweek reduces contact time with their foreign counterparts.

   ii. Respondents felt the need to convince their management that productivity will not be compromised if a four-day workweek is implemented.

   iii. Some companies suggested a four-day workweek with longer hours, 10–12 hr, with feasibility concerns due to childcare arrangements.

   iv. Companies expressed pay concerns and suggested reducing salaries on a pro-rated basis. Otherwise, companies felt it was a paradox to increase pay, reduce work hours and expect increased productivity. For example, companies in the hardware sector found it challenging to achieve productivity increases. Others simply felt that the workweek should be 5 days long.

e. From a HR standpoint the following concerns were expressed:

   i. Management culture and mindset requiring employees to show up in person.

   ii. Multinational Corporations (MNCs) need global alignment on their policies, which their individual companies and branches cannot deviate from.

   iii. There will be inequity concerns if some of the company's employees can benefit from the four-day workweek and others cannot.

   iv. Small and Medium Enterprises (SMEs) do not have the HR capacity to implement it.

Discussion

This report provides insights into the opportunities and challenges around a four-day workweek from the employer's perspective. It also makes salient the potential trade-offs involved across various industries in the Singapore context.

Refreshing the Employer-Employee Compact

SNEF's findings indicate that all employers, regardless of their position on a four-day workweek, seek to attract and retain talent through a stronger work-life balance proposition. However, their stances differ depending on whether companies view their currently implemented measures as adequate or as a springboard to implement a four-day workweek.

In Singapore, a handful of companies trialling a four-day workweek—Lazywaist Co, which offers Wednesdays off, DP Dental, and Coriander Leaf Group—see it as helping them attract more job seekers and aid in talent retention (Teo & Yang, 2022).

These reasons largely mirror the opinion of employees, based on a survey conducted by Milieu Insight in September 2022, with 1,000 employed respondents in Singapore. Milieu's survey also showed that 8 in 10 employees would want a four-day workweek, with 78% saying it brought about greater work-life balance while 47% thought it reduced the likelihood of burnout (Chew, 2022).

Notably, work-life balance has been gaining importance, and tying with salary and benefits as the most important EVP in Singapore. According to Randstad's Employer Brand Research report in January 2022, 69% of more than 2,700 Singapore workers reported prioritising work-life balance (Randstad, 2022).

Singapore had a 5.5-day or 44-hr workweek which was shifted to a 5-day workweek in 2004 in recognition of the need for work-life balance. However, the total number of work hours was kept at 44 (Lee, 2004). Globally, Singapore was the second-most overworked city in the world, behind Japan, with an average of 44.6 hr per week in 2019, accompanied with low employee engagement levels. Gallup's State of Global Workforce 2022 report reported that 13% of Singapore's workforce is engaged, the lowest in Southeast Asia and lower than the global average of 21% (Gallup, 2023). Another survey by Prudential, conducted in April 2022 of 1,000 Singapore residents who had or intended to resign, revealed that 52% did so due to disengagement at work (Au, 2022).

Employees thought adopting a four-day workweek benefitted businesses as well, with 43% responding that it lowers operational costs for work offices, such as through hot-desking (Min, 2022). While hot-desking can also facilitate a more agile working environment by encouraging cross-departmental communication and collaboration, employees may perceive a loss of privacy and personal space, seating challenges, and difficulties with IT accessibility.

The surveys conducted also show employees' concern with pay cuts, working longer each workday with a compressed workweek, and attending to work matters on their off-days (Boo, 2022; Chew, 2022).

Business Output Needs to Increase for a Four-Day Workweek to Be a Win-Win

SNEF survey highlighted the importance of safeguarding business continuity and sustaining business output in the event of a reduction in work hours or working days. Otherwise, it will be challenging for businesses to justify their employees' existing pay level with a four-day workweek, which 8 in 10 respondents of July's Milieu Insight survey support keeping (Boo, 2022).

Our findings identified small companies and those in the manufacturing sector as more likely to be unable to maintain or increase productivity. To sustain output, such companies would need to engage, retain and grow their customer base, and ensure interoperability with their partner companies. Consequently, companies would have to invest in smart schedulers to stagger or roster the workdays (and off-days) while making sure that operations and business output are not compromised. However, this would impact workers' acceptance of the desired four-day workweek. Alternatively, companies may end up hiring a pool of workers (much like a "second shift") to maintain output, which will increase business costs, or invest in automation to make up for the reduced output.

Thus, the promise of the four-day workweek will not be equitably realised across all companies without affecting their competitiveness and value add, and hence may not be suitable

for them. Companies in the education sector highlighted in the survey that they need to operate five days a week as they serve children with special needs. Similarly, the maritime industry warned of shipping delays with a four-day workweek.

Critically, the four-day workweek involves much more than just implementing a "blunt cut". It requires a well-thought-out, authentic conversation between the management and its workforce, to discuss how to increase workplace efficiency and effectiveness. This could take the form of addressing inefficient practices, identifying and scrapping unnecessary/abortive tasks, reducing "waste hours", shortening work meetings, and keeping non-work responsibilities out of the workplace so that employees could wholly focus on work and perform optimally.

Should There Be a Review of the Companies' Leave Provisions?

A four-day workweek reduces the number of working days from 260 to 207 (give and take). Would this also mean a corresponding adjustment to annual and sick leave?

Evidence suggests that a four-day workweek reduces the number of sick days taken. A 2019 Henley's "Four Better or Four Worse?" white paper did a study on UK businesses that have adopted the four-day workweek. 64% of employers reported an improvement in staff productivity, such as with the quality of work, and a positive impact on employees' well-being as employees were happier (78% of employers), less stressed (70%) and took fewer sick leave days (62%) (Henley Business School, 2019).

Beyond annual leave, at the company level, there could be a fundamental review of all other leave provisions.

Employers Need to Think About an Equitable and Smooth Implementation of a Four-Day Workweek

Survey findings emphasised the importance of implementation as key to winning employees' approval. If owing to the nature of the job, some employees can enjoy a four-day workweek while others cannot, discontent and equity concerns are bound to emerge. Companies in the hospitality sector shared in the survey that it would not be feasible for front-line staff to sustain their operations if back-end staff are on a four-day week.

Employers would have to examine the impact on the company's people processes such as enhancing the company culture, employee training, and resourcing of employee well-being. Already, remote work has caused employees to experience higher levels of work pressure and anxiety in the past two years (Hyland, 2022). Organisations have to conduct comprehensive reviews and carefully manage the change management of these processes.

From a flexibility standpoint, there is a range of options that employers could explore, beyond a four-day workweek, such as telecommuting, job sharing, and flexi-shifts. This would benefit businesses which find it difficult to implement a four-day workweek, such as in retail and F&B services due to the 24/7 consumer demand. Considering a suite of FWA options would go down better with employees given their varying needs at different life stages, and the potential to attract an additional 400,000 people to the workforce (Chau, 2022). SNEF offers e-Workshops on Hybrid & Flexible Work Arrangements, do contact mrevent@snef.org.sg for more information.

Limitations and Future Research

Our survey respondents' industry profile is not nationally representative, with a large number of respondents from Wholesale Trade (14.4%) and Real Estate & Building Services (10.2%). Future research can ensure an outreach representative of Singapore's employment landscape with a larger sample size. It could also incorporate a qualitative assessment to investigate reasons why certain industries are more likely to be disrupted than others. Through our current research, factors such as business operations continuity and manpower resourcing were identified as business considerations, but it will be helpful to understand each industry's profile.

Conclusion

SNEF surveyed 236 employers on their perceptions of the four-day workweek, and 75% of the respondents had not implemented it and were not interested in implementing it. Employers supporting the four-day workweek saw it as an opportunity to improve their employees' well-being and the company's EVP. On the other hand, employers expressed concerns about sustaining and increasing their company's productivity and global competitiveness. Sectors that require 24/7 operations will face tremendous manpower challenges and expect cost increases from additional manpower recruited; while sectors facing a manpower crunch may not have the luxury to consider a four-day workweek.

Considerations for the uptake of the four-day workweek will differ globally depending on local factors such as the pressures from unions, working culture, and institutional support for the roll-out of the four-day workweek. Countries with large domestic industries, low unit cost of labour, healthy pipeline of manpower, a healthy economic environment, and strong workplace innovation culture will find it easier to adopt the four-day workweek. These conditions, as highlighted in our analysis, will facilitate the implementation of a four-day workweek, although challenges will differ for different job roles and sectors, and concerns relating to equitable implementation remain.

We would stress that the conversations on the four-day workweek are part of the larger reset that employees desire which balances their work-life better. It is a clarion call to relook at the employer-employee compact such as the autonomy and flexibility present at the workplace, while trialling ways to increase output to ensure business needs are not compromised.

Yet, deeper structural issues remain beyond its successful implementation. The Gallup Global Workforce 2022 report summarised that the biggest sources of burnout were unfair treatment at work, unmanageable workload, and unclear communication from managers (Gallup, 2023). An authentic and bold conversation between employers and employees is necessary to achieve better outcomes for both parties, by bringing clarity to the challenges faced and the consequent priority areas.

BIOGRAPHIES

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Addressing Employment Challenges for Ex-Offenders

Patrick Tay

Abstract

This practitioner note provides an overview of the National Trades Union Congress' (NTUC) engagement initiatives with ex-offenders, inmates, and employers interested in hiring them. These efforts aim to address the marginalised segments affected by the rapidly evolving economic and labour landscape. NTUC's broader campaign to renew its compact with workers encompassed these engagements. In tackling the employment challenges faced by ex-offenders, NTUC remains dedicated to expanding the pool of inclusive employers, improving job retention rates, and fostering career progression. However, to facilitate long-term rehabilitation, it is imperative for tripartite partners and the community to collaborate on initiating workplace mentorship programmes, integrating therapeutic interventions with Career Retention Support initiatives, and introducing supportive communities for ex-offenders.

Introduction: NTUC's Vision to Uplift Those Who Have Fallen Through the Cracks

Concerns about the cost of living have been growing amid a high inflationary environment, and rising costs have a profound impact on the lives and livelihoods of Singaporeans. For some, it hinders their ability to cope with daily expenses, fulfil caregiving needs, and puts a strain on longer-term plans such as retirement, healthcare, and other financial investments. Adding to that, widely publicised reports on generative artificial intelligence and the green economy transition have also caused worry and anxiety to breed among workers who are afraid that they cannot keep pace with developments in technology and sustainability (Strauss, 2023; World Economic Forum, 2023).

When the National Trades Union Congress (NTUC) set out to engage and listen to workers through the #EveryWorkerMatters Conversations (EWMC) campaign in early 2022, it involved a deep, honest conversation amongst those in the EWMC project office on how the Labour Movement has done well, how it can do better, and how it can do more. In one of those meetings, the project team raised the importance of the Labour Movement identifying and supporting workers who have fallen through the cracks, particularly in a time when the world was heading into a rapidly changing economic and labour landscape. This struck a chord and reminder as I recalled some decades ago writing an opinion piece on giving ex-offenders, a vulnerable segment of our country, a second chance, by allowing their offences to be "spent" after a period of time.

With that, we put on our "worker's hat"—as we often do as industrial relations practitioners—and asked ourselves: If regular workers are finding it difficult to grapple with the uncertainties brought about by a rapidly changing global economy, then what more those who have started or are starting out in society on an unequal footing, because of their socio-economic statuses or their "lot in life". If we were to isolate this group as a worker segment, then the archetypes of individuals that comprise this segment are as diverse as they are united by a common struggle.

Eventually, we reached a consensus to scope our engagements to ex-offenders and inmates. This was for two main reasons: first, our day-to-day engagements with our network of unionised companies revealed a genuine desire to hire ex-offenders as part of employers' diversity and inclusion efforts; second, we believed that the sentiments and findings gathered from ex-offenders and inmates would be unique to the segment and not expressed in conversations that we would have had with other segments of workers that we regularly engage, such as Professionals, Managers and Executives (PMEs), Rank-and-Filers, freelancers, and youth.

It would also mark the first time that NTUC was embarking on an effort to engage ex-offenders and inmates. While my colleagues in the NTUC Training and Placement ecosystem, specifically NTUC LearningHub (LHUB) and the NTUC's Employment and Employability Institute (e2i), together with institutions such as Yellow Ribbon Singapore (YRSG) and the Singapore Prison Service (SPS) have been actively involved in providing upskilling, reskilling, and placement opportunities to support inmates and ex-offenders in their transition to work, the Labour Movement has never engaged this segment directly to understand their concerns, challenges, and aspirations.

The EWMC thus provided us an opportunity to directly engage this segment, so that we could collectively brainstorm and explore the various ways and means to better support these individuals in their transition and assimilation from incarceration to work and society.

Our Engagements With the Community

After months of planning, we kickstarted this effort in 2023. In January, we collaborated with YRSG on their flagship networking event, YR Connects, with the aim of bringing together likeminded companies that support second chances. There were two distinct groups: (i) companies that already had inclusive hiring practices and were hiring ex-offenders; and (ii) companies that did not have such practices but were keen on incorporating them. Ex-offenders who were successful in re-integrating into their workplaces and the larger society were also invited to the event. The conversations were useful for the companies in the second group in

understanding the best practices that they could employ to embark on their efforts to hire ex-offenders. The insights were also illuminating for the EWMC project office in understanding the gaps faced by companies in employing and successfully onboarding ex-offenders.

In February and March, we spoke to more than 50 inmates (both male and female) in Changi Prison Complex, making it the first time that representatives from the Labour Movement had gone behind prison walls to engage inmates solely on the issues of employment and employability. These inmates were in their pre-release term, meaning that they were due for release within the following three months. If I could describe the mood in both engagement sessions, it would be that of "tempered optimism". While the inmates were looking forward to their release, they were also cautious about what the world outside had for them; how it has changed, how people would view them, and whether their family members would accept them.

Figure 1

Tell Us How You Feel Today
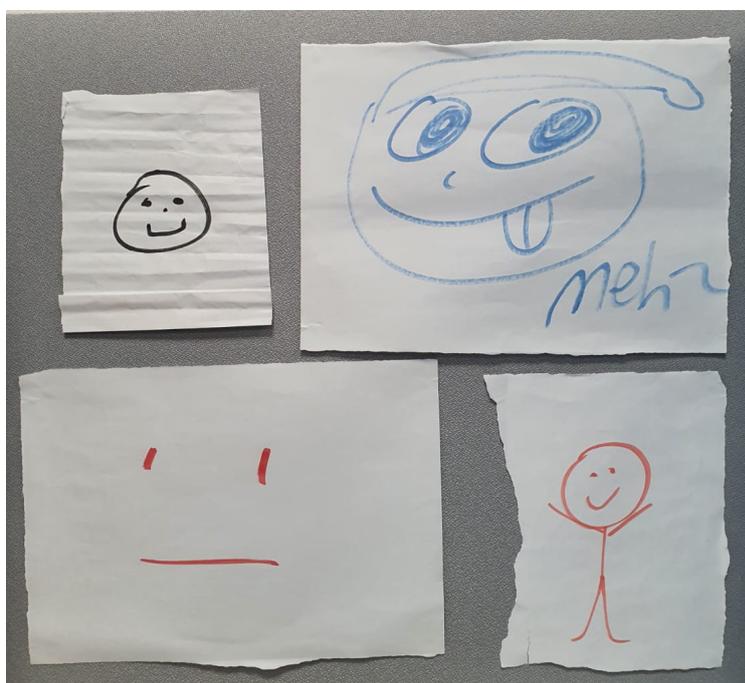
Note. Prior to our Conversations on employment and employability, we asked inmates to draw an emoji describing how they were feeling that morning (own photo).

Jane[1], 30, shared that she was eager to return to the healthcare sector eventually after her release. She added that her passion was in eldercare as she wanted to help seniors live out their final years in a comfortable and safe environment. She also enjoyed caring for others. However, she acknowledged that her entry into the job role of an eldercare provider might not be immediately possible given her criminal record, and that she may have to work in another role in the Food and Beverage industry instead. Still, she did not see that as a disadvantage but as an opportunity to build up the skills needed to pivot to the healthcare sector in time to come, such as by taking a part-time diploma or degree.

John[2], 51, expressed concerns about securing a job as he felt that he was "not young anymore". He was thankful for the training that he had received while in prison, but he also wished that the training topics offered could be more varied, or at least tailored to the sector that he was keen on joining after his release. John added that he wanted to become a tradesman, such as a carpenter or a plumber. He shared similar worries with his counterparts in the group that they

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[1] To protect the identity of the inmate, pseudonym has been assigned.
[2] To protect the identity of the inmate, pseudonym has been assigned.

would no longer have access to training opportunities after their release, or even if there were, they would not know who to approach.

These are just two of the many stories expressed over the course of our two-day engagement, but they are woven by a single thread of hope. As I left the prison compound after the last of our engagements, I could not help but feel a sense of hope as well; that our incarcerated sisters and brothers would be able to make the most out of their lives after their release, and that they would be able to pursue their aspirations in a manner that is both sustained and sustainable so that they would not re-offend.

Unfortunately, statistics show that an ex-offender's chance of re-offending remains moderately high. According to the SPS' annual statistics release for 2022, the two-year recidivism rate in Singapore stands at 20.4%, and this increases to nearly 40% at the five-year mark (Singapore Prison Service, 2023). More can be done to strengthen the whole-of-society support to complement the good work done by YRSG, SPS and its network of aftercare partners, to promote long-term desistance and ensure that inmates are adequately prepared for reintegration into society.

NTUC's Efforts to Support Ex-Offenders

The workplace is an incredibly important setting that help to reduce an ex-offender's chance of re-offending. From NTUC's perspective, we hope to do our part by building the pool of inclusive employers, increasing job retention, and ensuring career progression so that ex-offenders can look to their jobs as a source of confidence and purpose. This is why the NTUC Training and Placement ecosystem is such an important intermediary to facilitate the training and placement of inmates and ex-offenders.

For example, e2i has been working with YRSG to support ex-offenders with career resources such as employability workshops before job interviews, career coaching, and job matching services. Keeping inmates in the loop on the latest skills-in-demand is also critical in ensuring that they stay up to date with everchanging job trends, so that they are equipped with the relevant knowledge and skills upon their release from prison. This is why LHUB, a close partner of YRSG since 2007, introduced the Digital Citizenship with Coding Fundamentals programme in July 2022, to uplift inmates and ex-offenders in the digital literacy domain and to prepare them for future employment.

Our NTUC social enterprises have also been active supporters of the yellow ribbon movement. In April 2023, FairPrice Group announced its partnership with YRSG to offer employment and training opportunities for ex-offenders in the sectors of food services, logistics, and retail. The NTUC FairPrice Foundation had also pledged $200,000 to the Yellow Ribbon Fund to support initiatives that promote lifelong learning and career development for ex-offenders, as well as financial support for their families. The foundation has also consistently supported other aftercare partners, such as The New Charis Mission, the Industrial & Services Co-Operative Society Limited (ISCOS) and the Singapore Anti-Narcotics Association (SANA) in programmes that directly benefit their ex-offender beneficiaries, therefore playing a crucial role in fostering an inclusive society.

Moving forward, I want to submit a 3 "IN" approach for our tripartite partners and the community to embark on.

Initiate Mentorships at the Workplace

Workplace mentorships provide ex-offenders with essential support and guidance as they navigate the challenging transition from incarceration to the workforce. Mentors can serve as role models, offering practical advice, emotional support, and encouragement. At the same time, ex-offenders can gain valuable insights into the expectations and norms of the workplace, improving their chances of securing and maintaining employment. Research shows that mentored employees report greater satisfaction, career commitment, and career mobility, as well as more

positive job attitudes (Ragins et al., 2000). Specifically, for ex-offenders, mentorships are effective in reducing the likelihood that they may re-offend or engage in behaviour that is anti-social, and it would be most effective if such mentorships arise organically (Jackson et al., 2019).

By creating workplace cultures that support diversity and inclusion, we enable environments that normalise workplace mentorships, therefore contributing to the successful reintegration of ex-offenders into society and, in the process, the creation of more inclusive and compassionate workplaces and communities.

Integrate YRSG's Career Retention Support With Therapeutic Interventions for a Minimum Period of One Year After Release From Incarceration

Ex-offenders face unique challenges and barriers when it comes to employment due to their criminal records. Career counselling provides them with crucial support in identifying their strengths, weaknesses, and also support them in their journey to explore viable career options. Pairing career counselling with therapeutic modalities such as cognitive behavioural therapy and narrative therapy could also pave the way for changing negative thinking patterns and boosting an ex-offender's self-esteem.

The Good Lives Model (GLM) of offender rehabilitation, for example, is a narrative theory intervention that works to re-integrate ex-offenders into the workplace by utilising a strengths-based approach, enabling them to understand their identities and find meaning in the various aspects of their lives (Good Lives Model, n.d.). The GLM empowers ex-offenders to change narratives that they may have created about themselves (as a result of their lived experiences and/or perspectives of others) and thereafter develop a new narrative that can be a "guiding thread" through the course of their lives (Chen & Shields, 2020).

I further suggest that such services be extended to ex-offenders for a minimum period of one year following their release from incarceration, as data from YRSG reveals that the 3-month and 6-month career retention rates for ex-offenders stood at 84% and 66%, respectively, in 2021 (MyCareersFuture, n.d.). I posit that having access to therapeutic interventions may compel ex-offenders to remain employed, tiding them through the initial challenges that they may experience in their first 6 months of employment.

By complementing existing career retention support schemes with suitable therapeutic interventions, we improve ex-offenders' vocational well-being, support them to achieve financial stability, and transform their lives.

Introduce Communities of Care to Build an Ecosystem of Support That Ex-Offenders May Tap On

As we learned through our EWMC engagements with ex-offenders, the support, acceptance, and belonging offered by a strong community are essential for their rehabilitation and transition back into mainstream society. Such a community could comprise individuals who have successfully desisted, family members, and befrienders who understand the experiences and challenges faced by ex-offenders. By connecting ex-offenders with positive role models and peers who have successfully reintegrated, the community can inspire and motivate them to make positive changes in their lives.

Moreover, community support also helps in reinforcing the sense of belonging within an individual, thereby instilling in them an awareness of their accountability and responsibility to themselves and a larger group (Nixon, 2020). This may help them overcome negative tendencies, from failing to report for work to lapsing into destructive behaviour patterns. Ultimately, a strong community provides the necessary social capital, resources, and connections that ex-offenders need to rebuild their lives, break the cycle of reoffending, and become productive and valued members of society.

I am aware that the SPS and Ministry of Home Affairs have gone down to the constituencies and community to garner volunteers as befrienders to ex-offenders. However, an all-round support by volunteers and social service groups may be needed due to the complexity and complications which many of them face when they re-connect back with their families and re-integrate back into society and the workforce.

Conclusion

Lastly, though not greatly elaborated on in this piece, what matters just as equally is family support. Research has consistently shown a correlation between strong familial support and decreased recidivism, highlighting the importance of good family relationships in an ex-offender's reintegration process (Barrick et al., 2014; Berg & Huebner, 2010). Of note, strong family ties may serve as motivation for ex-offenders to attain legitimate employment and exert a positive influence on them remaining gainfully employed (Maruna, 2001).

In conclusion, addressing the employment challenges faced by ex-offenders is multi-faceted and requires the active involvement of all stakeholders in society including family and friends. The Labour Movement stands ready to support ex-offenders in reintegrating into the workplace and society through our advocacy efforts for fair employment practices and enhancements of our Training and Placement ecosystem initiatives. We are also committed to strengthening collaboration with strategic partners and supporting them in their efforts to rehabilitate ex-offenders. Our EWMC engagements are testament to this effort, and it will be a journey that the Labour Movement will continue to create a fairer and more inclusive workforce amidst our new workers compact.

BIOGRAPHY

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Patrick Tay is Assistant Secretary-General of National Trades Union Congress (NTUC) and Director of NTUC's Legal and Strategy. He is an elected Member of Parliament (Pioneer SMC) and chairs the Government Parliamentary Committee for Education. He co-chaired the NTUC-SNEF PME Taskforce and Every Worker Matters Conversations Project Office. He is currently serving as Executive Secretary of the United Workers of Electronics & Electrical Industries (UWEEI) and the Singapore Manual & Mercantile Workers' Union (SMMWU).

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Fostering Learning Opportunities for Workers: Looking Through the Lens of a Practitioner

Silin Yang, Zoe Seah and Rachel Chow

Abstract

Many countries around the world are on a journey to help workers master skills throughout their careers and develop a culture of lifelong learning. Singapore has also made considerable strides towards the development of lifelong learning with its SkillsFuture national movement to change how people view skills, jobs, and learning. In our continuous effort to enhance the training and learning ecosystem, it is timely for us to review the training and learning opportunities provided for workers. This paper proposes a paradigm shift to frame training and learning of workers around a 3Cs perspective—Core, Critical, and Community. Through the 3Cs perspective, three strategies are recommended to foster learning opportunities for workers.

Introduction

Traditional functional career models that offer 30-year "lifelong" employment (Deloitte Insights, 2021) in congruence with linear corporate ladders are falling apart, and people are embracing the corporate lattice method: "a career progression with varied paths of growth", one open to exploring diverse career choices, developing new skills, and pursuing continued growth (Oppong, 2021), departing from ideas of having one company for life. This can be attributed to careers moving at a speed likened to conveyor belts, where the skills required at the workplace are changing at a breakneck speed, with the half-life of skills shortening in an increasingly disruptive and uncertain world (Clark, 2018). The traditional front-loading education model will no longer be sufficient to prepare the workers for a lifetime of employment in jobs that perhaps do not exist yet (Chia & Sheng, 2022), hence a new model of learning where work and education are rotated over the course of one's career is needed. Workers need to become lifelong learners to remain relevant and in demand in a rapidly changing workplace. "Lifelong learning" is envisioned as a cradle-to-grave endeavour—ongoing pursuit of knowledge and learning, involving learning from childhood till adulthood, throughout an individual's life (Broschart, 1977; Cropley, 1980; Jackson, 2003).

Knowles (1990) made a distinction between learning in childhood and learning in adulthood based on presumptions about the learners and the teaching-learning process. Learning for the sake of learning is a less frequent motivator. Most adults learn because they want to utilise the knowledge, not only because they love learning or want to acquire it (Aslanian & Brickell, 1980). Adults' self-directed learning activities were personal education endeavours driven by issues in their lives rather than merely random acts to fill up their free time (Roberson & Merriam, 2005). Therefore, adult learning is usually life-centred and a shift in circumstances would serve as the impetus for engaging in learning.

Experts believe that we are increasingly approaching a skill-based workforce, resulting in employers valuing skillsets more than pedigree (Estrada, 2020). Many studies have shown the impact of learning on workers. Learning helps workers to keep pace with the evolving changes of the societies, enhancing their employment and employability, preparing them for the jobs of tomorrow, and promoting their social mobility (Eurostat, 2021; Laal & Salamati, 2012). Training and learning have been found to have positive and significant effects on wage growth (Bartel, 1995; Myers et al., 2014), and higher pay is typically given to workers who invest in new skills (Field, 2012).

Adult learning is in overall decline across the OECD countries, especially with the induced shutdown of economic activity during the pandemic, decreasing workers' participation in workplace learning by an average of 18% (OECD, 2021). It is also disproportionately taken up by more highly skilled individuals rather than low skilled individuals or those from poor socio-economic backgrounds who will more likely reap greater rewards from learning. If the aforementioned trend persists, older and particularly lower-skilled workers will be especially vulnerable in a future labour market that is likely to place a premium on learning, exacerbating skills polarisation.

In recent years, there has been an increasing shift towards the provision of ongoing education and training opportunities to help workers stay current with the ever-changing marketplace. Several regions such as Europe, China, and Southern Africa have embarked on the journey of embedding lifelong learning within higher education and fostering a culture of lifelong learning in the countries through initiatives such as the adoption of learning cities framework (UNESCO, 2021), training older workers in digital skills (Ogg, 2021), and educators to walk the talk as lifelong learners (Niu & Liu, 2021). Despite these efforts, common challenges faced in implementing these initiatives include (1) difficulty in training and learning for older workers due to digitalisation and new technologies (Ogg, 2021); (2) marginalised and disadvantaged groups not having equal access to training and learning opportunities (Maruatona, 2021); (3) gaps between education and industry needs (Rotatori et al., 2020) and (4) employers not being supportive in workers' training (Woetzel et al., 2021).

To prepare a career-resilient and future ready workforce to meet changing economic demands in a global economy, Singapore has always been investing in the development of its

human capital (Low et al., 1991; Maitra, 2016). This is evident in Singapore's current investment in continuous lifelong learning through its national initiative SkillsFuture that aims to provide Singaporeans with the opportunity to develop mastery and maximise one's potential throughout life, regardless of starting points, as well as to foster a culture and mindset of continually striving towards greater excellence through knowledge, application, and experience. There are extensive programmes under SkillsFuture such as SkillsFuture Credits[1] that can be used to pay for a wide range of approved skills-related courses, Work-Study Programmes that allow the pursuit of a work-study pathway that facilitates learning, on-the-job training, and work-based projects to deepen skillsets at the workplace, and Professional Conversion Programme targeted at Professionals, Managers, Executives, and Technicians (PMETs), mid-career switchers to undergo skill conversion and move into new sectors that have good prospects and opportunities for progression. Singapore's Budget 2023 has also made plans to further invest more in these areas, ultimately keeping Singapore workforce resilient despite a challenging economic outlook. However, even with such efforts, some of the above-mentioned challenges faced by other countries persist in Singapore today.

Training and Learning in Singapore

Skill Gaps of Workers

Traditionally, pre-employment training in Singapore is expected to help workers acquire the skills desired by employers, which will, in turn, lead to their gainful employment. However, with rapid evolution and greater uncertainties, gaps in this conventional approach have been amplified, widened, and made more apparent. Employers are looking not only for relevant experience and discipline-specific knowledge and skills but also soft skills and positive attitudes towards work as well as "character" attributes such as resilience and work ethics (Ng et al., 2022; Tay et al., 2023). Findings from a study with 564 employers in Singapore have shown that skills mismatch (63.1%) is the most prevalent form of mismatch according to employers (Yang et al., 2022). This is followed by experience mismatch at 17.8%, wages mismatch at 16.7%, and expectations mismatch at 1.8%.

Hence, employers believe that labour market entrants are not properly prepared for the workforce and there is a gap in the understanding and expectation of what constitutes work readiness of education-leavers among employers, students, and educators. This leads to another challenge which is the matching between the skills in demand and the skills that one has to offer. Often, workers are trained in firm-specific skills. With the volatility of the job market, increasingly, workers must be prepared for skills in demand beyond those specified by employers. The ownership of skills development becomes an individual responsibility.

Inequality in Participation in Training

Given the accelerated digitalisation-driven shifts in skills, upskilling and reskilling are becoming increasingly important to remain relevant. Despite the positive outcomes of training and how it is more pertinent than ever, take-up rates in training remain lacklustre. A survey conducted on 800 workers in Singapore found that 47.3% of the respondents have not attended any training in the past 3 years (Yang et al., 2021), and this is a concern as skills are changing very rapidly, which could potentially hinder their career growth and limit their contribution to their organisation's success.

Participation in formal or non-formal job-related training declines with increasing age and lower education. Participation is lower among older workers and lower-educated individuals in Singapore (OECD, 2020). With age often seen as a liability, job-related training for older workers is sparse and not made readily available, impacting salary-related matters, their career development and promotion opportunities. Findings from a survey conducted in Singapore revealed that 57% of respondents shared about having fewer training opportunities as they age,

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[1] All Singaporeans aged 25 and above will receive an opening credit of $500.

which can account for career stagnations that workers with a mean age of 48 years face (Randstad, 2020).

There is also inequality in access to training for workers, with priority given to workers who are regarded as having high potential as compared to workers with a skills gap (Yang et al., 2022). These findings highlight the irony where workers who are already performing well in their jobs get the opportunity for further training to get even better at their jobs, whereas workers who need training are not given the same opportunity for training. Yang et al. (2021) found that investment in training by workers also increases with previous participation. Those that participated in training previously would allocate more time and money on learning/upskilling when given additional resources, than those who did not participate in training.

Lack of Awareness of Training and Learning by Workers and Employers

While businesses are aware of the need for workforce and company transformation to remain relevant and competitive, a lot of them are unsure where to begin (Ang, 2021). Other than the high financial costs to send workers for training, employers in Singapore face difficulties identifying relevant courses or workshops for their workers and matching workers to the appropriate training opportunities (Yang et al., 2022).

A study by Yang et al. (2021) found that the top three barriers workers in Singapore faced in attending training are the lack of time, lack of money, and lack of awareness of relevant training programmes. Out of those who did not attend training, 53.2% of them faced challenges identifying suitable courses to attend. In the same study, in-depth follow-up interviews alluded to the need for an improvement in the presentation of training schemes and training courses, so as to prevent people from getting deterred due to information fatigue. An interviewee shared that "Training is extremely important as it allows you to gain an in-depth understanding and streamline processes using the domain knowledge…however, there is an information overload when it comes to courses and schemes" (Yang et al., 2021).

While employers and workers often cite the lack of money as the key barrier to training, this was not supported by the findings of two studies conducted by Yang et al. (2021, 2022). An exogenous increase in disposable income did not translate to an increase in funds allocated to training by workers. Out of those who did not participate in training due to a lack of money, when given an additional $1,000 per month, 54.6% did not allocate any additional money to learning/upskilling. On the other hand, the utilisation of training-related initiatives by employers remained low at an average of 14%, despite the considerable strides Singapore has taken towards the development of lifelong learning with the SkillsFuture movement. These insights shed light that targeting training participation through solely increasing monetary incentives can be limited in its effectiveness, as money may not be the true barrier.

Rethinking Training and Learning

Countries can no longer rely solely on formal education to help individuals develop the right mix of skills for success in work and life because a lifelong effort is needed to continuously raise the skills of the workers (OECD & ILO, 2018). Identifying tomorrow's skills is crucial but the prediction of the skills needed is always challenging. This is especially the case in this increasingly Volatile, Uncertain, Complex, Ambiguous (VUCA) world when we cannot accurately forecast how the industry will change and how businesses will transform. Some governments in the advanced economies have resorted to picking industries for further investment in technologies and innovation (e.g., Netherlands' Top Sectors, Germany's industries 4.0, etc.). By doing so, policymakers hope to keep a tab on the pulse of skills demand, while banking on the innovation-led internationalisation of products and services to generate jobs. Although this strategy may give one a certain handle on the creation of a skilled workforce for immediate and near-term industrial needs, this is not sufficient for the long-term.

A paradigm shift in the thinking of adult training and learning is still needed and new approaches are required to provide more opportunities for workers to learn throughout their careers, enhancing their employment and employability.

For a start, the training and learning of workers could be framed around the 3Cs perspective: (1) Core—with workers' training and learning needs at the core; (2) Critical—training and learning are critical and imperative for every worker to stay relevant; and (3) Community—training and learning is cultivated in the community and made accessible for all workers through close partnerships with relevant stakeholders. Building on these 3Cs, the following three recommendations are proposed to foster training and learning opportunities for workers, that may help alleviate the above-mentioned challenges.

All three recommendations are built on the 3Cs (see Table 1), where workers' needs are prioritised and placed at the core. The Multi-Way Mentoring Ecosystem (Recommendation 1) creates critical learning opportunities for workers to exchange and gain relevant and greater social capital, whereby its initiative, mutual or flash mentoring, creates an ecosystem, supported not by one, but a larger community of workers from different networks. Leveraging Company Training Committees (CTCs) for company and workforce transformation (Recommendation 2) also taps and deepens collaboration between companies and unions to collectively identify imperative skills and learning areas so that workers are upskilled in tandem with company transformation. The validation and recognition of skills acquired through non-formal and informal learning (Recommendation 3) will allow employers to tap into a broader talent pool and identify individuals who possess the desired skills, even if they acquired them outside of traditional educational settings.

Table 1

Mapping of Recommendations and Challenges of Training and Learning

	3Cs: Core, Critical and Community		
	Recommendation 1. Multi-Way Mentoring Ecosystem	Recommendation 2. Collaborative Ecosystem: Leveraging Company Training Committees for Company and Workforce Transformation	Recommendation 3. Recognition of Skills Acquired Through Non-Formal and Informal Learning Including Micro-Credentials
Skills gaps of workers	✓	✓	✓
Inequality in participation in training	✓	✓	✓
Lack of awareness of training and learning	✓	✓	

Multi-Way Mentoring Ecosystem

The workplace is changing at an unprecedented rate and for the first time, we can see four generations working side by side: Baby Boomers, Generation X, Millennials, and Generation Z. These changes have brought about new challenges, as human resources grapple with not just managing the needs of different generations, but more importantly, new opportunities for workplace synergy. Learning is no longer confined to the four walls of the classroom. One way in which we can bring learning outside the classroom and create that synergy at the workplace is to further develop the practice of professional mentoring through a multi-way mentoring ecosystem.

The benefits from professional mentoring are extensive. According to MENTOR (2022), young people who have mentors are 130% more likely to hold leadership positions. Mentorships are also especially beneficial for the career development of entry-level female professionals.

According to Chin et al. (2018), exposing entry-level women to counterparts in senior positions would help the former to talk to and seek guidance from potential role models.

However, take-up rates of professional mentoring are still far from ideal. According to a survey by Olivet Nazarene University, although 76% of people think that mentors are important, only half of them have one (Comaford, 2019). In a Youth Mentoring Sentiment Poll conducted by the National Youth Council (2021), only 11% of 1,500 youth respondents aged 16 to 34 indicated that they have participated in formal mentoring programmes. However, more than 60% of the respondents who had not participated in such a programme said that they would be open to one.

Thus, we propose a multi-way mentoring ecosystem that is a flexible, network-based model of support where individuals of various profiles and backgrounds provide support to others and receive support in own areas of needs, beyond work-related matters. It allows individuals to be both mentors and mentees to different people at the same time, aims to expand one's network while providing mutually beneficial mentoring exchanges and career-enhancing outcomes. Although the practice of mentoring is not new, the attributes of our mentoring ecosystem differ from conventional mentoring programmes and are curated to better meet the demands of our modern workforce. Leveraging mutual mentoring[2] and flash mentoring, a key characteristic of the ecosystem is the duality of the role played by each participant. One is simultaneously a mentor and a mentee—contributing and benefitting from the ecosystem. An example of a multi-way mentoring ecosystem is illustrated in Figure 1[3].

Figure 1

Example of a Multi-Way Mentoring Ecosystem
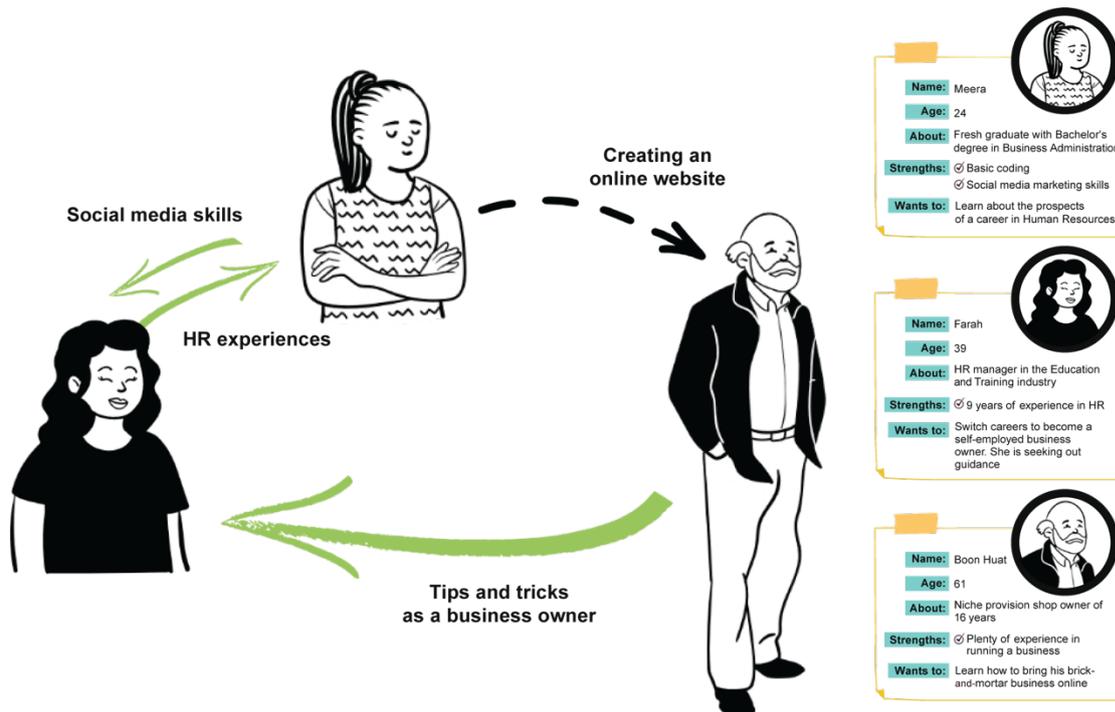
Collaborative Ecosystem: Leveraging Company Training Committees for Company and Workforce Transformation

Trade unions have always been associated with higher employer investment in training for workers (Green et al., 1999). To resolve the gap between education and industry needs, most advanced economies such as Denmark and Germany involve employers and trade unions in

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[2] Mutual mentoring shall not be confused with reverse mentoring. Mutual mentorship is a non-traditional form of mentoring, where both parties assume the role as mentor and mentee. Reverse mentoring, where younger employees are paired with senior leaders to mentor them, is a subset of mutual mentoring (Jordan & Sorell, 2019).

[3] Dotted arrow in the diagram refers to flash mentoring: shorter mentoring relations based on demand, and can go beyond geographical constraints.

shaping the skills system, so that it works for both employers and workers (Federal Institute for Vocational Education and Training [BIBB], 2021; German Economic Institute, 2018). A study by Yang et al. (2022) has shown that it is statistically significant that unionised companies are more likely to send their employees for training as compared to non-unionised companies in Singapore.

The CTC initiative was launched by the National Trades Union Congress (NTUC) in Singapore in 2019 to deepen collaborations between unions and companies in identifying skills and training needed to help workers stay relevant in tandem with business transformation. CTCs bring employers and unions together to redesign and preserve jobs amidst restructuring, weaning companies off the impractical expectation of new "plug and play" workers who come on board seamlessly. Over 1,000 CTCs have been set up as of July 2022, covering 28 industry sectors. From 2020 to Q1 2022, over 96,000 workers from participating CTCs have gone through relevant training offered by the NTUC's Training and Placement ecosystem (Ng, 2022). NTUC's Training and Placement ecosystem—comprising NTUC's Employment and Employability Institute (e2i), NTUC LearningHub (LHUB), NTUC Industry Training and Transformation (IT&T), and the Ong Teng Cheong Labour Leadership Institute (OTCi), is a one-stop intermediary to operationalise business and workforce transformation, as well as to better serve workers' training and jobs matching needs. Companies that require help with workforce and business transformation will be able to tap on the $70 million grant provided by the government to raise productivity, redesign jobs, and upskill workers. Having a stronger enterprise and workforce capabilities will in turn provide better jobs and better wages for our workers.

Through leveraging the CTCs and Training and Placement ecosystem of NTUC, partnerships can also be strengthened among the relevant stakeholders including the employers, unions, government agencies, and Institutes of Higher Learning, to enhance the national training ecosystem and broaden the impact of training and learning on workers. By working together, these stakeholders can create a holistic and responsive training ecosystem that meets the needs of both the industry and the workers and ensures that workers are equipped with the necessary skills and knowledge to stay employable in the rapidly changing world of work.

Recognition of Skills Acquired Through Non-Formal and Informal Learning Including Micro-Credentials

There are still many difficulties to assess workers' competencies for a job using only their qualifications. Credentials or professional certifications do not say much about workers' practical skills and know-how. Moreover, the changes brought about by the Fourth Industrial Revolution make it even more difficult to know if former training will be relevant in future labour markets. Job scopes constantly evolve, and formal educational requirements will no longer be sufficient to assess a potential candidate.

Many workers now acquire their skills through non-formal learning, e.g., self-paced learning using online resources, mobile learning, mentoring, and peer-coaching. There is also a proliferation of micro-credentials that are considered a new way to acquire skills that meet labour market needs through flexible, short, and timely training. According to Presant (2020), micro-credentials are marketed as facilitating transition in life and work at many points, including entering and exiting formal education programmes, entering the workforce, moving up career ladders, and switching across jobs and industries.

Despite the growing trend of micro-credentials, online learning and mobile learning, their impact is limited thus far, and workers will not invest sufficiently in them unless skills acquired from these non-formal learning are recognised by employers. Employers would first need to understand what a "micro-credential" is and view them as roadmaps in representing skills their workers (or prospective employee) have attained.

Some countries such as Denmark and Finland already have well-established systems for validation of non-formal and informal learning, where they focus on learning outcomes, regardless of where, when, and how these have been acquired, when devising qualifications. Recognition and validation of non-formal and informal learning may serve to help recruit and

encourage workers including older workers to participate in training and learning and may also lead to swifter professional qualifications.

A workgroup involving all the relevant stakeholders in Singapore should be formed to look into the common standards and recognition of informal and non-formal learning. In the same vein, the workgroup can also look into developing a framework to help employers adopt a skills-based approach to hiring and developing workers. Substitution of skills-oriented assessment rather than a degree or prior work experience will remove barriers for workers that may not have the degree or network but possess the skills, while also creating a more diverse pool of potential new hirers for the organisations.

Conclusion

The rise of automation and new technologies is transforming the world of work, creating an urgent need for workers to upskill and reskill. The future of work demands workers who can pick up new skills and work alongside machines. The required skillsets a worker needs changes quickly in the modern workplace. The half-life of professional skills has decreased from 10–15 years to just 5 years or less (La Prade et al., 2019). Hence, the ability and speed of picking up new skills will be critical for access to jobs and opportunities.

Workers will need to embrace lifelong learning to be able to segue into transformed or new jobs successfully. Companies and industries will also need to transform, re-organise and re-design their jobs to better attract and retain workers.

In an ever-evolving world, there will never be a perfect model nor a one-size-fits all approach. We should instead adopt an innovative spirit to continually explore new ways of training and learning to enable company and workforce transformation. The three recommendations built on the 3Cs—Core, Critical, and Community serve to be worker-centric and emphasise the criticality and urgency of learning and training. What is of utmost importance is that all key stakeholders—policymakers, education institutions, employers, trade unions, and training providers, work together to enhance the training and learning ecosystem in Singapore such that workers are adequately prepared for the changing work environment.

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Upskilling for Non-PMETs: Challenges and Opportunities in the Policy Landscape

Muhammad Farouq Osman

Abstract

Against the background of rapid technological change and globalisation, worker upskilling and reskilling is an important plank of Singapore's manpower policy. It serves not only Singapore's economic interests, but its social imperatives too, as the country strives to forge an inclusive society. However, Singapore's non-professionals, managers, executives and technicians (non-PMETs) workers—who are at greatest risk of job redundancies—lag behind their PMET peers in training participation. This paper analyses existing policy measures to encourage skills upgrading among non-PMETs, before examining the case studies of Denmark and Norway. The paper then delves into five recommendations to make training accessible to as many non-PMETs as possible, and encourage higher training participation among them. The recommendations underline the need for a holistic and customised approach to create a more conducive policy environment for non-PMET training.

Introduction

In recent years, the Singapore government has made worker upskilling and reskilling a centrepiece of its manpower policy. Against the background of rapid technological change and globalisation, workers can no longer simply rely on education and skills gained from their pre-employment school years to stay relevant in their careers (Brynjolfsson & McAfee, 2014). Instead, the current economic era—known as the Fourth Industrial Revolution—demands that workers pursue lifelong learning and continually adapt in a variety of work environments (Schwab, 2016). However, lifelong learning is not just an economic imperative for Singapore. It is also a social imperative. Continuing Education and Training (CET) is viewed by the government as a means to forge an inclusive society, where all Singaporeans, regardless of their formal education level, can maximise their potential and feel valued for their contributions (Shanmugaratnam, 2014). Indeed, CET presents an opportunity for all workers—and non-professionals, managers, executives, and technicians (non-PMETs) in particular—to level up and move to more fulfilling jobs.

Non-PMETs in the Workforce

Non-PMETs comprised about 36% of the resident workforce in 2022 (Ministry of Manpower, 2023a), reflecting their decreasing share of the total workforce over the past few years as compared to PMETs. The COVID-19 pandemic revealed the precarity of non-PMETs vis-à-vis their PMET counterparts. During the pandemic, a higher proportion of non-PMETs lost their jobs as many of them were in industries heavily affected by the COVID-19 economic shutdown, such as accommodation, retail trade, and food and beverages services (Ministry of Manpower, 2020a). While the resident unemployment rate among PMETs rose by 0.6 percentage points to 3.5% from June 2019 to June 2020, the increment more than doubled among non-PMETs who saw their unemployment rate increased by 1.7 percentage points to 6.4% in the same period (S. -A. Tan, 2020). However, despite their vulnerability, a lower proportion of non-PMETs in the private sector was provided structured training by their employers from 2010 to 2021, compared to PMETs (Ministry of Manpower, 2022b). A similar trend of lower non-PMET training involvement can be observed in many industrialised countries (Organisation for Economic Co-operation and Development, 2003). In addition, non-PMETs, who are disproportionately represented by older workers and those with lower educational attainment, were less likely to reskill themselves in the face of workplace changes (Boo, 2023; Institute of Policy Studies, 2023). This has not escaped the Singapore government's attention. As noted by Senior Minister Tharman Shanmugaratnam, "blue-collar and ordinary white-collar workers" were more likely to stagnate in their career than PMETs, and therefore "equal opportunities for quality learning" should be afforded to them and other segments of the workforce (Teng & Ng, 2022). This effort is especially urgent, considering that non-PMETs are less likely to find meaning and purpose in work compared to other workers, with negative consequences on their career and personal outlook (Ang, 2023; Boo, 2023; Institute of Policy Studies, 2023). How can we then encourage greater training participation among non-PMETs? This paper aims to examine existing initiatives to encourage skills upgrading among non-PMETs, and recommend policy measures to make training accessible to as many non-PMETs as possible.

Analysis of Supply-Side Policies

Singapore's CET landscape has been enhanced under the SkillsFuture, a national movement to provide all Singaporeans the opportunities to develop their fullest potential and promote skills mastery throughout life, regardless of their starting point (SkillsFuture Singapore, 2022). The Singapore CET Masterplan was refreshed in 2014 to focus on "building deep expertise in the Singapore workforce", "enabling individuals to make informed learning and career choices", and "developing…a wide range of high-quality learning opportunities" (Ministry of Manpower, 2020b). 34 CET centres have been established—encompassing Institutes of Higher Learning (IHLs), National Trades Union Congress (NTUC) LearningHub, non-profit organisations, and private training providers—offering Singapore Workforce Skills Qualifications

(WSQ) courses for a wide range of industries (SkillsFuture Singapore, 2020). However, to what extent are the training opportunities known and accessible to non-PMETs? Tripartite leaders agree that Singapore workers generally need more help to identify the skills they lack and qualifications needed (Ng, 2022). Yang et al. (2022) found that workers with skills gaps were not seen by employers as the top priority for training, compared to workers with high potential. In another research, workers reported lack of financial resources and time as key barriers to attending self-initiated training (National Trades Union Congress, 2023). All these represent a missed opportunity for skills upgrading for non-PMETs, who are more likely to benefit from training through a post-attendance pay rise or promotion (Hoskins & Facchinello, 2018; Ministry of Manpower, 2006). The evidence points to a need for a more concerted effort to promote training for non-PMETs—whether employer-supported or self-initiated.

This is not to say that the government has no specific programmes targeting the skills development of non-PMETs. The Progressive Wage Model (PWM), Workfare, and Rank-and-File (RnF) training schemes all aim to support the upgrading of non-PMETs' skills—but these programmes do not cover all non-PMETs. The PWM ties wage increases to skills and productivity growth for low-wage workers in selected sectors, mapping out a clear career and training pathway for them (Ministry of Manpower, 2023b). However, PWM is compulsory only in the cleaning, security, and landscape sectors where the government has regulatory levers over its implementation, through company licensing. While PWM would be expanded to other sectors and occupational groups such as food services, waste management, and administrators and drivers in 2023, it is unlikely that employers would adopt this requirement voluntarily, partly because companies fear that paying better wages would increase costs and lead to them being outbid for tender projects (Sapari & Pitchay, 2022). The Workfare Skills Support (WSS) provides financial incentives for low-wage workers to attend training, and funding for companies to finance the absentee payroll (Workforce Singapore, 2023). However, not all non-PMETs qualify for WSS, as eligibility is limited to low-wage workers earning S$2,500 or below per month. The RnF training programmes allow non-PMETs the opportunity to attend training and be offered placement or attachment in a participating company (Workforce Singapore, 2021). Still, many non-PMETs are excluded because the programmes are only applicable to workers who wish to change careers and enter a substantially different job role.

Analysis of Demand-Side Measures

The government has been exhorting companies—especially home-grown small and medium enterprises (SMEs) that, together, employ 70% of the workforce (S. L. Tan, 2022; Yahya, 2013)—to undergo transformation to improve productivity, expand their businesses, and create quality jobs (Choo, 2021). As a corollary, worker training—whether for non-PMETs or PMETs—is regarded by the government as a major enabler of transformation efforts. Training has been shown to be positively correlated with productivity (Black & Lynch, 1996; S. -A. Tan, 2021) and is promoted as a prerequisite for sustainable wage growth (National Wages Council, 2022). In their 2022/2023 guidelines, the tripartite National Wages Council (NWC) called upon employers and employees to "take decisive steps" to "transform jobs and invest in upskilling" the workforce, including RnF workers (National Wages Council, 2022, p. 6). An important lever to company transformation and training efforts is the NTUC Company Training Committee (CTC) programme. This is where companies form CTCs comprising management, worker, and union representatives to identify and drive areas for business transformation, tapping on tools in NTUC's training and placement ecosystem and the S$70 million government-funded CTC Grant to implement transformation plans (Ong, 2022; V. P. L. Tan & Liw, 2022). Nevertheless, while CTCs are a forward-looking and innovative platform to drive training and business transformation, more focus is needed on non-PMETs who most urgently need help in the face of transformation efforts.

Besides tapping government subsidies to fund reskilling and upskilling opportunities for employees, companies have been encouraged to learn about emerging career trends and in-demand skills to prepare their workers—including non-PMETs—for changes in job functions (National Wages Council, 2022). Indeed, SkillsFuture Singapore (SSG) releases publications such as the Jobs-Skills Quarterly Insights and the annual Skills Demand for the Future Economy

Report for citizens and enterprises to keep abreast with jobs and skills changes in fast-moving sectors (SkillsFuture Singapore, 2023). This information sharing is buttressed by the SkillsFuture Queen Bee network, a group of industry-leading companies championing skills development in organisations like SMEs, by helping them identify and acquire the skills needed for transformation (GoBusiness Singapore, 2023). Nonetheless, companies still reported difficulties identifying relevant courses and matching employees to training (Yang et al., 2022). This finding suggests the need for more industry involvement in shaping CET courses and pathways. A KOF Swiss Economic Institute research article found that Singapore has one of the lowest education-employment linkage (EEL) indexes among the countries studied, pointing to a relatively low level of industry inputs in the CET system (Renold et al., 2016).

Case Studies: Denmark and Norway

The Nordic countries are known for their high levels of adult learning participation, and good economic conditions with gross domestic product (GDP) per capita being above the European Union (EU) average (Cedefop, 2015). This paper will now examine the adult learning landscape in Denmark and Norway and how their non-PMET workforce has benefitted from it. Both countries scored above the Organisation for Economic Co-operation and Development (OECD) average in the Programme for the International Assessment of Adult Competencies (PIAAC) Survey of Adult Skills for all their workers, performing better than Singapore (Organisation for Economic Co-operation and Development, 2016).

The primary objective of adult education in Denmark is to provide "adequate" and "relevant" CET to adults across the levels, from "the low-skilled to university graduates" (Organisation for Economic Co-operation and Development, 2003, p. 94). The tripartite social partners are the main actors in the policy design and implementation of adult learning, and training for employed persons, as well as training leave are funded by the government. The educational reform of 2001 saw Denmark introducing two new programmes targeting the upskilling of non-PMETs: Preparatory Adult Education and Basic Adult Education (Nørholm, 2006). Furthermore, there is strong industry linkage with the education system, ensuring that students are trained with workforce-relevant skills (Renold et al., 2016). The provision of CET to non-PMETs is also contextualised based on the experience that they would rarely seek training themselves, trusting their employers to connect them to relevant courses (Nørholm, 2006). In this respect, the educational consultants in Danish trade unions play a leading role in sensing the training needs of workers based on industry demands and linking up workers with local educational establishments.

Norway's adult education system is predicated upon forging an inclusive society. The country's CET model aims to "raise the education level of the entire adult population" while meeting the labour market's needs for relevant competencies (Organisation for Economic Co-operation and Development, 2003, p. 96). Social partners have a strong role in designing adult learning policy, and there is free tuition for labour market training. In 2006, Norway introduced the Basic Competence in Working Life programme, aimed at upskilling workers most in need of training (European Commission, 2022). The programme involves organising training at workplaces, with customised curriculum and flexible schedules. By recognising the importance of quality career guidance for people at different stages of their education and work careers, the Norwegian Education Ministry established the National Unit for Lifelong Guidance, providing "free, public career guidance centres in all counties" (European Commission, 2022). In addition, the Norwegian adult education system recognises skills gained from non-formal and informal learning, with skill centres established to document those competencies using "national curricula as criteria for validation" (European Commission, 2022). The documentation process includes various modes of testing such as "dialogue-based methods" and "portfolio assessment", and the certification gained could be used in the labour market as evidence of "formal competence" (European Commission, 2022).

Discussions and Recommendations

The Singapore government recognises the importance of upskilling and reskilling non-PMET workers, placing this on top of its manpower policy agenda. Nevertheless, more could be done to make training accessible to as many non-PMETs as possible, with the involvement of industry and Labour Movement partners. Only then could Singapore truly be a "meritocracy of skills" (Desker, 2016), as envisioned by Senior Minister Tharman Shanmugaratnam. This paper lists five recommendations to create a more conducive policy environment for non-PMET training.

First, as in the Danish example, there needs to be a mechanism in Singapore where industry demand for specific skills is efficiently relayed to the education system—including CET centres, IHLs, and private training providers—so that all workers would know which skills are in demand and could be trained for, in anticipation of filling a new role. This should also allow for industry involvement in shaping CET courses, and the education system to project future skill needs. Singapore is taking nascent steps towards this direction through the appointment of Jobs-Skills Integrators (JSITs) as announced by Deputy Prime Minister Lawrence Wong at the 2023 Annual Budget (Ministry of Finance, 2023). The JSIT pilot would be launched in three sectors: precision engineering, wholesale trade, and retail (Ministry of Education, 2023). To ensure that JSIT would benefit non-PMETs, the programme should be extended to other sectors with a high proportion of non-PMETs such as manufacturing, construction, accommodation and food services, and arts, entertainment, and recreation.

Second, PWM should be expanded to other sectors and occupational groups in Singapore, and be made compulsory beyond the cleaning, security and landscape industries, so that a larger number of non-PMETs could benefit from a structured career and training pathway. As a corollary, more should be done to promote "best sourcing" (Ministry of Manpower, 2022a), where companies grant service contracts based on performance and quality, rather than just on price. A study of Singapore's private security services industry found that the "institutional logics" of awarding contracts to the lowest bidder perpetuate a "low-skills equilibrium" among companies who did not see the need to train their security officers beyond the stipulated bare minimum (Gog, 2015, p.110). At the root of the issue is how much are Singaporeans willing to pay for the true cost of quality services and support fair wages. This would involve recognising that each and every worker and trade have their own unique contributions to society, and must be valued.

Third, training should be customised and targeted to our non-PMETs, considering their learning styles, need for schedule flexibility and the observation that they would rarely seek training themselves. As in the Norwegian case study, microlearning, where workers are provided with "daily, bite-sized chunks of content" (International Labour Organization, 2019), as well as the recognition of skills gained from non-formal and informal learning, should be promoted to encourage training among non-PMETs. Singapore is making progress on this front with the recent introduction of the Workplace Skills Recognition (WPSR) Programme, where workers can undergo on-the-job learning and have their skills certified by assessors (Ministry of Education, 2023). Moving forward, more companies should be encouraged to get on board the programme, and different modes of testing, for example, through informal conversations, should be introduced to make training and certification more appealing to non-PMETs.

Fourth, Singapore trade unions could play a stronger role in advocating the training needs of non-PMETs, like their Danish counterparts. For example, our trade unions could work with companies to obtain the skills and career profile of non-PMET workers, and relay the information to NTUC's training and placement ecosystem for a needs analysis. In addition, the terms in the CTC memorandum of understanding or the collective agreement should specifically highlight the upskilling of non-PMETs—who are most at risk of job redundancies—as a core priority. For example, the terms could call for training targets to be set, and for protected training time and training leave for non-PMETs. Importantly, for such committees to more effectively champion the skills advancement of non-PMETs, RnF workers need to be represented among the members, and formalised human resource (HR) policy should explicitly call for non-PMET upskilling (Wotschack, 2019).

Fifth, the Singapore Labour Movement could work with employers and the government to set up a mentorship programme for non-PMETs where they would receive personalised guidance

to articulate their career aspirations, and chart out skills and training needs. This initiative could be modelled on the existing LIT (Learning is Triggered) Mentorship Programme (Young NTUC, 2023) by Young NTUC—the youth wing of the Labour Movement—and be supported by the national Mentoring SG collective which was launched in December 2022 (A. Tan, 2023).

A significant precondition for the successful implementation of these recommendations is a sound working relationship between the social partners in support of workers' wages, welfare, and work prospects. Indeed, Singapore, Denmark, and Norway have exemplary records of tripartite collaboration within each society. For example, in the wake of the COVID-19 pandemic, the respective union, employer, and government representatives of each country demonstrated their ability to work together to support workers moving into new industries with skills upgrading and job restructuring, preventing mass unemployment (Organisation for Economic Co-operation and Development, 2022). Consequently, countries aiming to create a conducive environment for non-PMET upskilling would do well to foster tripartite collaboration and social dialogue from the outset.

Conclusion

This paper has highlighted existing policy measures to encourage upskilling and reskilling among non-PMETs, acknowledging the Singapore government's objective of lifelong learning as a means to forge social inclusion and solidarity. Examining the case studies of Denmark and Norway, the paper then delves into five recommendations to encourage higher training participation among non-PMETs. The recommendations underline the need for a holistic and customised approach to create a more conducive policy environment for non-PMET training.

BIOGRAPHY

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Taking the Plunge: Professionalising the Plumbing Sector

Cheong Ling Tan, Shawn Seah, Rita Wong and Daphne Liow

Abstract

There is a strategic national need to ensure that essential services in Singapore, such as plumbing, are safeguarded and have a pipeline of local talents. How might we professionalise the plumbing sector in Singapore, addressing the challenges faced and, by doing so, attracting local talents? Through extensive ground experience, a sectoral operation and technology road-mapping (SOTR) exercise, and an international scan, this paper surveys the plumbing landscape; identifies key issues and problems facing the sector, like the lack of progressive career-developing pathways; aging profile of Licensed Plumbers; and lack of price transparency in pricing plumbing services. This think piece also suggests some solutions, including their potential limitations. One potential way forward is a future model, the Career Progression Model (CPM).

Introduction

There is a strategic national need to ensure that essential services in Singapore such as water and power are safeguarded. If the current challenges facing skilled essential trades are not addressed, there would be a critical lack of local expertise in these sectors. One of these essential services is plumbing. Focussing on this particular sector, this think piece considers the question: how might we professionalise the sector in Singapore, addressing the challenges faced by the sector and, above all, attracting more local talent to this trade? What new frameworks can create clear career pathways for these skilled essential workers? Taking a broader perspective, how might workers in skilled trades professions benefit from structured skills training that will lead to better career prospects and salaries? With more than 50,000 locals plying skilled essential trades including plumbers, electricians, and air-conditioning and mechanical ventilation (ACMV) mechanics, there is value to look into these trades to create substantial impact for our workforce.

To develop this think piece, the Industry Partnership Group's Built Environment and Planning, Strategy and Data Analysis teams of the National Trades Union Congress' Employment and Employability Institute (NTUC's e2i) surveyed the international literature and integrated the experiences and insights gained by the teams during the sectoral operation and technology road-mapping exercise conducted in March 2021. To contextualise and validate the insights, the team also held consultations with officers from the Public Utilities Board (PUB) and the Building and Construction Authority (BCA) in January 2023, and worked closely with NTUC's Industry Training and Transformation, Economic Policy department and U Small and Medium Enterprises (U SME).

The next few sections cover the plumbing landscape in Singapore, an international scan of Canada, the USA, and Singapore, and discuss the insights alongside recommendations.

Review of the Plumbing Sector in Singapore

The vast majority of plumbing companies appear to be small companies. Under the BCA Directory, there are 382 plumbing companies that are able to do public projects (Building and Construction Authority, 2023). Registration requires 1 full-time licensed plumber (LP) as employee, with employer-declared salary of more than $2,000 per month. 60 companies are members of Singapore Plumbing Society (SPS).

In Singapore's context, LPs are at the pinnacle of their trade (synonymous with the Professional Engineers accreditation) and rarely perform groundwork themselves (Public Utilities Board, 2023). Instead, LPs are needed for major works, while non-LPs perform simpler works. LPs must have 2 years of relevant industry experience, and the relevant BCA Certificate or National Institute of Technical Education Certificate (Nitec) from Institute of Technical Education (ITE) or Diploma/Degree (PUB, 2023). Typically, LPs perform a supervisory role that oversees, conducts random inspections or checks, or signs off on work performed by non-LPs, such as handymen, to certify that their work is accomplished in accordance with PUB's requirements. LPs are needed for large-scale, high-value construction projects including public projects, regulated water service, and sanitary works. Other major works include installation or replacement of electric storage water heaters, underground water service, and supply pipes.

On the other hand, non-LPs can service other areas of work, such as water service work. This includes replacement and/or removal work including any tap/mixer, pipe between a stop valve and instantaneous water heater, and parts of flushing system. They can also do sanitary work, including installation, replacement, and/or removal of sinks, bathtubs, and urinals, including any fitting trap or any pipe connecting the urinal to a urinal trap, or even clearing any blockage in any floor trap, water closet, or sanitary appliance.

According to aggregated data from PUB, there are more than 1,000 LPs in Singapore of which 89% are aged 40 years and above. Most LPs hold vocational qualifications and a significant proportion of them (about 94%) are local workers. Refer to Table 1 for further information. In other words, the typical LP today is a mature or senior local worker who is a non-degree holder.

Table 1

Breakdown of LPs in Singapore

	Breakdown	Percentage
Age	Below 39	12%
	40 to 49	43%
	50 and above	46%
Nationality	Local (SC/PR)	94%
	Non-Local	6%
Qualifications	Builder Cert	65%
	ITE	31%
	Degree/Diploma	5%

Note. These figures and statistics are also corroborated by ground experience. From a sectoral operation and technology road-mapping exercise supported by the Labour Movement and conducted by the Singapore Plumbing Society from March 17 to March 24, 2021, the plumbing sector was found to face the following key challenges: (1) no progressive career developing pathways, aging profile of LPs necessitating the attraction of younger talents into the industry, (2) lack of price transparency in pricing the plumbing services, (3) different standards of work due to the presence of unlicensed plumbers, and (4) higher customer expectations of LPs. Percentage may not add up to 100% due to rounding.

Even beyond challenges outlined in the exercise conducted by the Labour Movement, plumbing salaries could also be perceived as unattractive. According to NTUC's research, for non-LPs, salary starts from $2,100. For LPs, PUB estimates the salaries to be $3,000 to $5,000 per month for employed LPs, and $3,000 to $4,000 per month for freelance LPs. In fact, these salary estimates appear to be lower than the median gross monthly income from work (including employer CPF contributions) of full-time employed residents ($5,070 as at June 2022) according to Ministry of Manpower data (Ministry of Manpower, 2023a).

International Comparison of the Plumbing Sector

An international scan revealed that LPs in Canada and the USA had median wages that were much closer to their national median, in contrast with Singapore where median wages of LPs were generally below the national median (WorkBC, 2023; Yang, 2021). Table 2 provides a detailed comparison of the LPs in Singapore, Canada, and the USA.

Table 2

Selected International Comparisons of LPs in Canada, the USA, and Singapore

	Canada	USA	Singapore
Median LP Wage Relative to National Median	1.0	1.0	0.5
Attractiveness of Job	Able to attract the younger generation to join this industry	Plumbing can be considered a recession-proof profession that offers great job security	Unable to attract the younger generation to join this industry
Career Progression	Yes	Yes	N.A.
Licensing Requirement	Yes	Yes	Yes

In Singapore, the wages of LPs are relatively lower than their counterparts overseas for the following two probable reasons. Firstly, there is currently no skill differentiation among LPs as the current available licensing is single-tiered. There is no skills ladder to take on different scales of

projects under BCA-registered companies. Secondly, the current licensing and project requirements imply that low-cost and/or non-LPs foreign workers can perform most functions without requiring LPs. Further, most roles do not require the LP to perform the work directly; non-LPs carry out most actual plumbing work under the supervision of LPs. Anecdotally, most plumbing-related works are currently performed by a considerable proportion of foreign workers, though no reliable statistics on this industry practice are available today. As such, wage growth may be constrained, quality of work indirectly impacted, and the industry, inevitably, struggles to attract local talents.

A related problem would be a potential shortfall in quality and quantity of the skilled or general tradespeople the LPs have to employ. The talent pool of potential entrants, likely to come from skilled or general tradespeople, would face ready alternatives with similar pay. For example, from a survey of Glassdoor roles in January 2023, there were gig jobs offering flexible working hours (~$2,500 per month), or lower-entry roles such as in Customer Service (~$2,400 per month) (Glassdoor, 2023). To scale up plumbing operations, LPs have to depend on the available or existing pool of tradespeople who perform the actual installation work on-site.

Discussion and Recommendations

From the above brief review of the plumbing sector in Singapore, there are four potential solutions to address the challenges faced today. Firstly, a Progressive Wage Model (PWM) could be explored to provide sustainable wage increments and strengthening of career development. Since implementation, PWM sectors have raised wages at a sustainable and meaningful pace, mapping out a clear career pathway for lower-wage workers to benefit from rising wages along with training and improvements in productivity and standards (Ministry of Manpower, 2023b). Secondly, we could complement PWM with multi-tiered licensing requirements and this multi-tiered licensing framework can improve quality and prospects of LPs. Thirdly, we could strengthen promotion and publicity to raise the profile of Licensed Plumbers. Fourthly, we could also complement PWM through a standardised price list for household jobs, which would increase transparency in plumbing services through price list tied to the Case Trust Mechanism. We will elaborate and consider each recommendation in this section.

Progressive Wage Model

First, a PWM[1] (or elements of PWM) could be explored to provide sustainable wage increments and strengthening of career development throughout the entire spectrum of the plumbing ecosystem, spanning from tradespeople and handymen to LPs with different strategies for different tiers in the plumbing ecosystem. Career progression plans would be developed through close collaborations with relevant agencies and associations (e.g., PUB, SPS, BCA). Specialisation could be deepened through the creation of a skills-wage ladder to raise industry standards and ensure that wage increases are sustainable, and in tandem with productivity growth to support tradespeople and handymen in their aspirations to approach the epitome of the trade of becoming an LP in future. In fact, because of the benefits of attracting young aspirants into the LP trade, PUB had already been taking steps in this broad direction by partnering SPS on various training programmes, pathways, and even a mentorship programme to enhance the learning outcomes and raise standards in the industry (PUB, 2023).

However, unless there exists a multi-tiered framework for these tradespeople and handymen that acknowledges their respective skill levels, there would be little incentive for tradespeople and handymen to benchmark and upgrade their skills. Moreover, a large pool of lowly skilled tradespeople will have a natural tendency to keep prices low to remain competitive, rather than

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[1] Developed by tripartite committees comprising unions, employers, and the government, the PWM helps uplift lower-wage workers' wages, at a sustainable and meaningful pace, without hurting workers' livelihoods. The PWM maps out a clear career pathway for wages to rise along with training and improvements in productivity and standards, benefitting not just workers, but also employers and service buyers. The PWM covers Singapore Citizens and Permanent Residents in several sectors, including cleaning, security, landscape, lift and escalator, retail, and food services job roles.

offering higher levels of quality of their services. More importantly, while a PWM sounds workable in theory, a PWM would not likely be directly applicable in practice to the LPs of the plumbing sector. One of the possible reasons that PWM in isolation is not applicable is due to the small number of LPs. To scale up their operations, LPs have to depend on the available/existing pool of tradespeople who perform the actual installation work on-site. The acute shortage of workers during the COVID-19 period resulted in LPs having to reject many jobs as they did not have the workers to take on plumbing jobs. Therefore, a PWM by itself would not serve as a silver bullet.

Multi-Tiered Accreditation Framework

Perhaps a more effective strategy would be to propose a tiered accreditation of the tradespeople and handymen where their skillsets may be benchmarked against their peers such that the higher qualified tradespeople and handymen are able to visualise their progression and be inspired to be licensed as LPs. Career progression plans can work if they are paired with a multi-tiered accreditation framework. Under this model, the ability to execute work packages of different complexities by different tradespeople and handymen can be differentiated for the choice of LPs. It is important to note that PUB's motivation in maintaining the LP scheme is to upkeep the rigour of LPs capable of certifying the correctness and quality of work, much like the Professional Engineer and medical physician schemes and hence, the LP scheme would not be compatible with or for a multi-tiered framework.

However, this solution of a multi-tiered framework would most likely impose additional complexities and increase costs across the board. Beyond uplifting wages, attempts should also be made to address societal stigmas, and improve the awareness and image of such skilled trades. Both society and consumers must also be ready to accept higher cost of better services consequently. Bearing this in mind, accrued benefits in the future would include better wage progression, skills upgrading, better societal recognition/image of tradespeople, and ensuring a sufficient pipeline of tradespeople into the plumbing industry.

Promotion and Publicity

Third, it might be the case that the title "Licensed Plumber" does not evoke sufficient prestige and if so, promotional, public communications, and marketing efforts to coin a more befitting title or promote plumbing as a desirable career could go some way towards changing public perception. However, these promotional and marketing efforts would still need to be complemented by changes in training and skills; salary increments; and other more substantive changes, in order to be more meaningful.

Standardised Price List

Fourth, to address the existing challenges like the lack of transparency in pricing for plumbing services and different standards of work due to the presence of unlicensed plumbers, we could introduce a standardised price list for common household jobs. This would be similar to what has been implemented in the medical field (Ministry of Health, 2021). Under this recommendation, there would be transparency in plumbing services through a price list tied to the CaseTrust Mechanism. Under the CaseTrust accreditation system, a systematic and structured conflict resolution mechanism is in place in the event of a dispute[2]. A standardised price list for different plumbing services could be developed with stakeholder input and consensus. The pricing would commensurate with the complexity of the plumbing service. Buyers would therefore pay at the right price point, particularly for freelance, sole proprietors who do not draw salary. This model would provide a degree of assurance and/or credibility for non-commercial work. This idea would require enforcement or monitoring checks to be impactful. Handymen would continue to put

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[2] The accreditation arm of the Consumers Association of Singapore (CASE), CaseTrust is the de facto standard for companies desiring to demonstrate commitment to fair trading and transparency to consumers, and it works hand-in-hand with companies to raise industry standards. For further information, see https://www.case.org.sg/casetrust/about-us/.

pressure on price points, especially with "under the table payments". Furthermore, customers might not pay for an LP for relatively simpler plumbing works.

As an alternative way to resolve the issues of transparency in pricing and different standards of work due to the presence of unlicensed plumbers, the plumbing industry could consider partnering with third-party providers that review tradespeople, to provide transparent information on pricing and quality. For example, the plumbing industry could consider a "Find a Plumber" app with customers' ratings/reviews to facilitate the matching of services between consumers and LPs, and profile LPs who provide good services. This model may be preferable to a standardised price list for different plumbing services, which may add unnecessary regulatory costs on industry, which the cost will eventually be borne by consumers.

Conclusion

To attract more young people to work in skilled tradespeople jobs like plumbers and electricians, a new framework that draws in different elements and strengths of the PWM was publicly proposed to create clearer career pathways for these essential workers (Ang, 2023). On 9 February 2023, NTUC Secretary-General Ng Chee Meng outlined the Labour Movement's intention to uplift the work prospects and wages of skilled essential tradespeople through the Career Progression Model (CPM). Under the proposed CPM, workers in the skilled trades industry will benefit from structured skills training that will lead to better career prospects and salaries. It will also define more training pathways from tertiary education into skilled essential trades and publicise clear and transparent quality standards for respective sectors. NTUC would first prioritise three skilled trades with a direct effect on Singaporeans' daily lives: plumbers, electricians, and ACMV mechanics. The CPM would help skilled essential tradesmen have a viable career as well as sustain the continued supply of local talents in these trades. It would provide certainty to workers who have not yet entered the industry. Meanwhile, the progression model would provide ladders in the industry so that young people could look forward to a competency framework that could help them upgrade and recognise their skills if they choose to stay in the trade.

Within the plumbing sector, the CPM could cater the pathways and accreditation frameworks more to unlicensed skilled tradespeople, as this is where the main manpower crunch is. Doing so would help both licensed and unlicensed plumbers secure more projects and jobs, and there could be even better job prospects for plumbers in general (PUB, 2023). LPs could also benefit from higher quality and quantity of skilled and general tradespeople to scale up their current operations, thus safeguarding Singapore's strategic essential services. Consumers could also benefit from a higher quality and quantity of skilled and general tradespeople. There would be greater benefits for stakeholders, including creating better job prospects for plumbers in general, increasing quality and quantity of skilled and general tradespeople to scale up their current operations, and therefore safeguarding Singapore's strategic essential services.

BIOGRAPHIES

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ADVISORY BOARD MEMBERS

Mr Ng Chee Meng
Secretary-General
National Trades Union Congress, Singapore
Chairman of the Advisory Board

Mr Ng Chee Meng was elected as the Secretary-General of the National Trades Union Congress (NTUC) on 22 May 2018. As the NTUC Secretary-General, Mr Ng advocates and pushes for initiatives that will lead to better wages, welfare and work prospects for workers. He championed the formation of Company Training Committees whereby unions and management work together to identify disrupted jobs and new roles, and curate training for workers to keep up with industry transformation.

Mr Ng drove the setting up of the NTUC Job Security Council to provide pre-emptive assistance for at-risk workers through training and job matching. He also led the formation of the Professionals, Managers and Executives (PMEs) Taskforce to provide greater protection for local PMEs and strengthen their collective voice. Mr Ng was formerly the Minister in Prime Minister's Office and before that, was the Minister for Education (Schools) and Second Minister for Transport. Prior to his Cabinet appointment, Mr Ng was the Chief of Defence Force for Singapore.

Mr Patrick Tay
Assistant Secretary-General
National Trades Union Congress, Singapore

Mr Patrick Tay is Assistant Secretary-General of the National Trades Union Congress (NTUC) and Member of Parliament of Pioneer Single Member Constituency (SMC). He chairs the Government Parliamentary Committee for Education and co-chairs the Financial Sector Tripartite Committee. As Director of NTUC's Legal and Strategy departments, he represents the Labour Movement in tripartite workgroups to review/update employment and industrial relations legislation and has been pivotal in lobbying for the many changes to manpower related laws and policies in Singapore.

He also co-chaired the #EveryWorkerMatters Conversations Project Office and NTUC-SNEF PME Taskforce and is currently serving as Executive Secretary of the United Workers of Electronics & Electrical Industries (UWEEI) and Singapore Manual & Mercantile Workers' Union (SMMWU). Representing workers and the Labour Movement, he also sits on several Government boards, national institutions, and tripartite committees.

Professor Tan Eng Chye
President
National University of Singapore, Singapore

Professor Tan Eng Chye was appointed President of the National University of Singapore (NUS) on 1 January 2018. He is the University's 5th president, and the 23rd leader to head Singapore's oldest higher education institution.

Professor Tan is a passionate and award-winning educator. He was a pioneer architect of the current academic system in NUS, and has seeded many initiatives such as the Special Programme in Science, University Scholars Programme, University Town Residential College Programme, Grade-free Year, and Technology-enhanced Education. He was recognised with the University Teaching Award for Innovative Teaching in 1998, and other teaching awards.

Professor Hoon Hian Teck
Dean of School of Economics
Singapore Management University, Singapore

Professor Hoon Hian Teck is Professor of Economics at the Singapore Management University. He specialises in macroeconomics, international trade, and economic growth. How Singapore managed to grow without being caught in the middle-income trap and understanding what is needed to generate economic prosperity as a mature economy has occupied his mind in recent years.

He is author of *Economic Dynamism, Openness, and Inclusion: How Singapore Can Make the Transition from an Era of Catch-up Growth to Life in a Mature Economy* (2019). He is a past Vice-President of the Economic Society of Singapore (2002–2004) and co-editor of *Singapore Economic Review* (2002–2020).

Mr Alexander C. Melchers
Vice-President
Singapore National Employers Federation, Singapore

Mr Alexander Melchers is Vice-President of Singapore National Employers Federation (SNEF) and Member of the Advisory Council of the Singaporean-German Chamber of Industry and Commerce (SGC). Other current Tripartite appointments: NWC since 2006; Director in Institute for Human Resource Professionals (IHRP); past appointments: Chairman of the Tripartite Implementation Workgroups on Employability of Older Workers (Retirement and Re-employment); Board Member of Tripartite Alliance for Fair and Progressive Employment Practices (TAFEP).

After vocational training in international trade, he worked in Venezuela before studying at the University of St. Gallen. He worked in brand management with P&G; joined C. Melchers Group of Companies in Singapore in 1997. C. Melchers is a diversified trading, development and services company established in 1806. Headquarter in Bremen, Germany and offices across Asia. Married with four children.

Dr Beh Swan Gin
Permanent Secretary (Development)
Ministry of Trade & Industry, Singapore

Dr Beh Swan Gin was appointed as the Permanent Secretary (Development) at the Ministry of Trade & Industry on 1 May 2023. He was Chairman of the Singapore Economic Development Board (EDB) from December 2014 to April 2023. Prior to joining EDB, he was Permanent Secretary of the Ministry of Law from July 2012 to November 2014 and was Managing Director of the EDB from August 2008 to June 2012. He is a board director for Singapore Exchange Limited and chairs the board of CapitaLand Ascendas REIT Management Ltd.

Dr Beh is a medical doctor by training and graduated from the National University of Singapore. He is also a Sloan Fellow with a Master of Science in Management from Stanford University's Graduate School of Business and completed the Advanced Management Programme at the Harvard Business School.

EDITORIAL BOARD MEMBERS

EDITORIAL BOARD MEMBERS

Associate Professor Randolph Tan
Director of Centre for Applied Research
Singapore University of Social Sciences, Singapore

Associate Professor Randolph Tan currently serves as the Director of the Centre for Applied Research at the Singapore University of Social Sciences (SUSS). His research interest lies in applied labour market research, changing demands in skills and the acquisition of in-demand skills to facilitate workers' transition to adjacent higher-skilled roles. Associate Professor Tan has conducted analysis on the changing profile of the labour market and has expressed his views on the Singapore Government's Budget on productivity, CPF, and the employment credit scheme.

Dr Samuel Chng
Senior Research Fellow and Head of Urban Psychology Lab
Singapore University of Technology and Design, Singapore

Dr Samuel Chng is a senior Research Fellow and heads the Urban Psychology Lab in the Lee Kuan Yew Centre for Innovative Cities at the Singapore University of Technology and Design. He is an applied social psychologist and his research focuses on human behaviour and decisions in cities across a range of areas including mobility, sustainability and wellbeing. His work is multidisciplinary and applied in nature, focusing on delivering practical and policy impacts.

EDITORIAL TEAM

General Editor

Mr Patrick Tay
Assistant Secretary-General
National Trades Union Congress, Singapore

Mr Patrick Tay is Assistant Secretary-General of the National Trades Union Congress (NTUC) and Director of NTUC's Legal and Strategy departments. He is an elected Member of Parliament (Pioneer Single Member Constituency) and chairs the Government Parliamentary Committee for Education. He co-chaired the #EveryWorkerMatters Conversations Project Office and NTUC-SNEF PME Taskforce and is currently serving as Executive Secretary of the United Workers of Electronics & Electrical Industries (UWEEI) and the Singapore Manual & Mercantile Workers' Union (SMMWU).

Founding Editor

Dr Silin Yang
Deputy Director of Strategy
National Trades Union Congress, Singapore

As a Deputy Director (Strategy) of the National Trades Union Congress, Dr Silin Yang conducts strategic research studies to identify emerging trends that impact workers and the Labour Movement. Silin holds a Doctor of Philosophy and has more than 15 years of experience in the education sector. Her current research focuses on future human capital, underemployment and gig economy.

Editors

Associate Professor Ho Kong Weng
Associate Professor of School of Economics
Singapore Management University, Singapore

Associate Professor Ho Kong Weng is Associate Professor of Economics at the Singapore Management University (SMU). He has served as principal investigator or research advisor to the Ministry of Social and Family Development, National Youth Council, Strategic Group in the Prime Minister's Office, and the National Trades Union Congress. He has published on topics related to growth, inequality, happiness of youths, and challenges to social mobility in Singapore.

Dr Samuel Chng
Senior Research Fellow and Head of Urban Psychology Lab
Singapore University of Technology and Design, Singapore

Dr Samuel Chng is a senior Research Fellow and heads the Urban Psychology Lab in the Lee Kuan Yew Centre for Innovative Cities at the Singapore University of Technology and Design. He is an applied social psychologist and his research focuses on human behaviour and decisions in cities across a range of areas including mobility, sustainability and wellbeing. His work is multidisciplinary and applied in nature, focusing on delivering practical and policy impacts.

Associate Editor

Ms Kang Ruihan
Principal Specialist of Strategy
National Trades Union Congress, Singapore

As a Principal Specialist (Strategy) of the National Trades Union Congress, Ms Ruihan conducts strategic research to support the development of strategies for NTUC and analyses key issues, local and regional trends that impact workers. Her experience and work include analysis on skills and training gaps, underemployment and the impact of technology on job opportunities.

Editorial Associate

Mr Hariharan Nair
Senior Specialist of Strategy
National Trades Union Congress, Singapore

As Senior Specialist (Strategy) of the National Trades Union Congress, Mr Hariharan conducts strategic research on emerging labour trends, translating insights into actionable recommendations. With 6 years in public sentiment analysis, his current research focuses on the aging workforce, professionalisation pathways for tradesmen, and the impact of AI on work.

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