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TODAY'S HOPES, TOMORROW'S POSSIBILITIES

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PREFACE

Five years ago, we launched the *Singapore Labour Journal* with the aim of building a community of scholars and practitioners across the labour ecosystem to exchange meaningful and groundbreaking ideas. This was an ambitious undertaking for the National Trades Union Congress (NTUC). Journal work goes beyond simple selection and compilation of papers. Behind the scenes, editing, peer review, and publishing are collaborative processes of negotiation and storytelling. Authors share diverse perspectives and passions; editors and reviewers make difficult choices, ask constructive questions, and steward contributions; and readers carry these ideas into their own contexts. In this sense, the *Journal* is an ongoing dialogue of knowledge and inquiry, not unlike union work and tripartism.



Five years and five volumes in, several of the *Singapore Labour Journal's* articles have variously influenced policy development, sparked conversations, and garnered international interest. For example, “Auditing Gig Work Platforms: Fairwork’s Research, Advocacy, and Impact” (Qiu et al., 2023) surfaced concerns about gig workers operating outside of traditional employment frameworks. This strengthened research that supported NTUC’s advocacy for gig workers and went some way towards contributing to the Platform Workers Act of 2025. Another example was the professionalisation of skilled trades. “Taking the Plunge: Professionalising the Plumbing Sector” (Tan et al., 2023) surveyed the plumbing sector and proposed a Career Progression Model to support structured skills training and clearer advancement pathways. In 2025, “Career Progression Model for the Skilled Trades” (Yee & Kang, 2025) proposed elements for implementation. Over the years, sustained advocacy has made some impact; the Ministry of Manpower launched a pilot in 2026 to establish a structured career and skills progression ladder for skilled trades, beginning with electricians.

Our work has helped catalyse conversations by being featured in *The Straits Times*, *Lianhe Zaobao*, *Berita Harian*, and *Harvard Business Review*, and even being raised in Parliament for discussion. International interest in the *Journal* is reflected in the range of academics who have lent their expertise to the *Journal*, from countries including Australia, Bangladesh, and the United States of America. Some of our articles have also been cited in international publications.

Accordingly, we are proud of our fifth-year milestone, and must give thanks to our Advisory and Editorial Board members for their expertise and support, as well as our contributors and reviewers for entrusting us with their work.

The theme of this volume is “Today’s Hopes, Tomorrow’s Possibilities”. In these pages you will find insights into top-of-mind labour issues such as gig work, flexible work arrangements, underemployment, and better support for Small and Medium Enterprises (SMEs), as well as new ideas on employee benefits, workforce transformation through job redesign, career coaching, local-foreign workforce integration, and unionisation. Together, the articles ground worker aspirations in practical institutional and workplace responses.

As we look ahead, our *Journal* will continue to document, question, and connect. The labour landscape is an increasingly fast-changing one, driven by increasing geopolitical volatility and technological disruptions. To help our workers meet new challenges and seize opportunities, NTUC remains committed to research and innovation, more meaningful collaboration with tripartite partners, as well as creating space for every worker’s voice to be heard and valued.

I am hopeful that our *Journal* continues to inspire hopes and possibilities in our readers as you impact policy, practice, and discourse in your respective fields.

Thank you for taking the time to engage with our *Journal*. Happy reading!

Patrick Tay

Assistant Secretary-General
General Editor of *Singapore Labour Journal*
National Trades Union Congress, Singapore

RESEARCH ARTICLES



From Ground-Level Voices to Labour Movement Strategy: The 'ARISE' Framework for Adoption-Centric Skills Development in SMEs

Vijayan Munusamy, Kang Yang Trevor Yu, Darshan Dave, and Zixuan Lian

Abstract

*Small and Medium Enterprises (SMEs) constitute a strategic frontier for labour movements aiming to expand their impact in the evolving knowledge-based economy. Distinct from large enterprises, which historically served as the anchor for union activity, the SME landscape is fragmented and resource-constrained, requiring novel mechanisms of engagement. Championing skills development offers a strategic pathway to engage this workforce. However, traditional “supplier-centric” Continuing Education and Training (CET) strategies are often inadequate for the SME sector despite being well-intentioned and theoretically sound. This failure stems from a misalignment with the lived realities of SMEs, specifically the lack of organisational capacity and limited cognitive bandwidth available for adult learning. This paper operationalises both the “employee and employer voices” of CET priorities to bridge this misalignment in Singapore. We started with an initial dataset of 3,007 unprompted qualitative responses. From these, we screened 2,657 valid entries. This screening enabled us to identify 407 SME narratives articulating CET needs. Subsequently, we employed a Grounded Theory approach to unpack this “black box” of CET aspirations. The unpacking identified that SMEs’ CET needs are not singular but systemic, coalescing into the ‘ARISE’ framework: **Accessibility, Relevance, Impact, Support, and Engagement**. Significantly, our analysis reveals a rare consensus between business and labour. Both parties identify Relevance and Impact as the primary drivers of CET value. This consensus is driven by a shared recognition of the existential threat to sustainable employability. We argue that this “uncommon consensus” provides the Singapore Labour Movement with the possibility to pivot from broad CET advocacy to play an active role in the CET ecosystem as an Ecosystem Integrator. We propose the ‘ARISE’ framework as an integrative mechanism for the Singapore Labour Movement’s Company Training Committees to operationalise an “adoption-centric” approach to strategic workforce transformation. The validated ‘ARISE’ framework offers a roadmap for labour movements and represents a fundamental paradigm shift: moving from a static, “supply-driven” to a dynamic, demand-led, and “adoption-centric” CET model.*



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Introduction

Globally, unions face a major challenge to stay relevant and responsive in a labour market that is changing faster than ever. These difficulties stem from three major structural shifts in the business environment. First, rapid digitalisation and automation are creating significant employment risks, primarily when technology acts as a substitute for human labour. While augmentation often leads to job growth by enhancing productivity and increasing service demand, substitution involves the direct replacement of human tasks by technologies such as Artificial Intelligence (AI), autonomous vehicles, and robotics (Stanford Digital Economy Lab, 2025). In substitution cases, unions lose the collective strength derived from traditional memberships (Agnolin et al., n.d.). Second, the job market has become increasingly fragmented. The proliferation of freelance, contract, and gig work contributes to this fragmented workforce that lacks both basic protections and the institutional support historically provided by unions. This shift is most evident in the youth demographic, who are increasingly embracing “portfolio careers” and diversified income streams as a new professional norm (Poon & Lam, 2025). Recent legislative milestones like Singapore’s 2025 Platform Workers Act have begun to address the welfare deficits of this “gig” demographic, though its scope is largely limited to statutory protection (Ministry of Manpower, 2025). Third, a similar but less visible form of fragmentation characterises the landscape of the Small and Medium Enterprise (SME) sector. While definitions vary globally, in Singapore’s context, SMEs refer to entities of 1–200 employees with revenues of up to S\$100 million. Encompassing vastly different growth maturity stages, SMEs’ heterogeneous landscape remains a difficult terrain to navigate. Yet, navigating this terrain and engaging SMEs is a strategic imperative for labour movements around the world and especially in Singapore, given the sector’s economic weight in a nation’s development. For example, in Singapore, SMEs form the backbone of the economy, accounting for 99% of registered enterprises, contributing 48% to Gross Domestic Product, and employing approximately 70% of the workforce (Singapore Department of Statistics, 2025). As the economy relies more heavily on smaller enterprises, which typically exhibit lower unionisation rates, unions face compounding difficulties in enforcing employment standards (Hyman, 2007). Collectively, these converging trends necessitate a fundamental paradigm shift: labour movements should consider expanding their remit beyond the traditional defence of *employment rights* to the active facilitation of *sustainable employability*, particularly within the fragmented landscape of the SME sector.

Against this backdrop, Singapore’s model of tripartism, where the government, employers including SMEs, and unions collaborate closely stands out as a resilient approach for navigating these structural challenges. Specifically, the tripartite agenda focuses on: (i) *Upgrading capabilities of employers and workers*; (ii) *Uplifting and strengthening support for our vulnerable and mature workers*; and (iii) *Fostering inclusive and progressive employment practices, and upholding workplace fairness* (Ministry of Manpower [MOM], n.d.). Driven by this model, Singapore’s National Trades Union Congress (NTUC), which is at the heart of the Singapore Labour Movement, has partnered with the MOM (the government), trade associations, and employers to undertake numerous focused initiatives to assess the future needs of the SME workforce. Building on this foundation, NTUC, MOM, and the Centre for Research and Development in Learning (CRADLE) also collaborated on a research initiative titled “**The Pulse of SMEs**,” which identified three critical growth drivers of SMEs: **S**kills Development, **M**eaningful Work, and **E**mpowerment (NTUC, MOM, & CRADLE, 2026). In that research project, we posed an open-ended question to a spectrum of SME stakeholders ranging from employees to business owners: “**What one new initiative should the Labour Movement prioritise to better support employees and enhance its value?**” The reliance on unprompted responses precludes the possibility that the responses are merely a methodological artefact generated by leading questions. Hence, the results of that inquiry provided the empirical springboard for the present study. Among the diverse unprompted suggestions, Continuing Education and Training (CET) emerged as the dominant priority across all stakeholder groups.

At first glance, the priority of continuous learning for the SME workforce appears straightforward. However, the term “CET” is treated at such a high-level abstraction that it

oversimplifies the divergent interpretations of what constitutes “meaningful” learning. This lack of granularity stems largely from existing literature, which favours the top-down, “supplier-centric” models over the lived realities of the end-users. For instance, established frameworks like the Kirkpatrick Model (Kirkpatrick, 1959) and the ADDIE Model (Branson et al., 1975) are cornerstones for evaluating the Return on Investment and structuring training design. While invaluable for organisational efficiency, they operate as production-oriented pipelines that often treat the learner as a passive recipient of a pre-packaged solution (Bates, 2004). Conversely, progressive and learner-centric frameworks like the Universal Design for Learning (UDL) rightly advocate for inclusivity by addressing learner variability. However, UDL was originally conceptualised for the structured environment of formal education. Applying these principles to the resource-constrained SME context requires us to reimagine the challenge through a distinct workplace lens.

Beyond these andragogical limitations, the strategic framing of training presents another barrier. Strategic Human Resource Development models tend to frame upskilling primarily as a means to achieve business goals like productivity (Garavan, 1991). In this view, the worker is treated as a “unit” of investment, often sidelining their personal career goals. A growing strand of literature critiques this approach, arguing that it overlooks the fundamental drivers of adult learning. As posited by principles of andragogy, adults are self-directed and motivated by personal utility (Knowles, 1984). Moreover, purely designer-centric models frequently underestimate situational barriers such as lack of time, cost, and workplace support that research consistently identifies as primary blockers to adult learning (Lee et al., 2024; Merriam et al., 2007; Tan & Liw, 2022; Wang et al., 2025; Yang et al., 2022). Underpinning these andragogical and strategic limitations is a methodological gap where the employee’s “voice” is typically captured in isolation from the employer’s (or vice versa). This approach misses the rich, comparative, and often contradictory CET perspectives that characterise the learning dynamics of the SME sector. By overlooking this interplay, existing literature fails to explain the underlying mechanisms that convert CET intent into workplace practice.

This study is therefore motivated by a need to move beyond surface-level aspirations of CET by addressing these theoretical and methodological shortcomings. By conducting an in-depth qualitative exploration of the “black box” of CET, the study seeks to answer a fundamental question: ***“What specific support mechanisms or structural interventions are SME employees and employers seeking when they advocate for the Singapore Labour Movement to prioritise CET?”*** This research departs from single-stakeholder approaches to synthesise the simultaneous voices of the entire organisational hierarchy. Through this analysis, the study uncovers the distinct dimensions, underlying concerns, and implicit expectations embedded in stakeholders’ responses. Mapping these elements allows for the construction of a user-grounded framework that elucidates not only *what* SMEs are asking for, but *why* these initiatives matter. Ultimately, this research contributes to the Singapore Labour Movement’s ongoing efforts to build a more responsive skills ecosystem that aligns with the lived realities of the SME workforce.

Methods

This research originates from a singular, overarching inquiry embedded within a broader survey: ***“What one new initiative should the Labour Movement prioritise to better support employees and enhance its value?”*** This line of questioning is a classic “*wicked problem*” characterised by structural complexity and the absence of self-evident solutions (Rittel & Webber, 1973) as the initiative could lie in any number of labour domains: wages, benefits, job security, working conditions, skills, and training. However, a traditional multiple-choice question would also have been ineffective because it would have required pre-defining the potential initiatives, thereby biasing the outcome. Hence, an open-ended, qualitative approach that elicits unprompted responses was essential for three key reasons. First, by using an open-ended, non-leading question, we allowed the most pressing, unmet needs to surface organically from the data.

Second, it allowed us to understand not only the “*what*” but also the “*why*” and “*how*” behind the potential initiative as open-ended responses provide rich, contextual data on the proposed initiative. Third, for the Labour Movement to invest in a major new initiative, it would require a compelling, evidence-based case that this “one” initiative would resonate with members and enhance the movement’s value.

We conducted a rigorous coding and analysis of these responses, the mechanics of which are fully elaborated in the subsequent sections. Through this process, CET emerged as the clear priority, enabling us to crystallise the study’s focus into a specific question: **“What specific support mechanisms or structural interventions are SME employees and employers seeking when they advocate for the Singapore Labour Movement to prioritise CET?”**

Survey Design, Sampling, and Participants

Two survey instruments approved by the university’s institutional review board were administered online using Qualtrics: an Employee Survey completed by employees and managers, and an Employer Survey completed by C-Level leaders and employers. The survey comprised primarily closed-ended questions utilising multiple-choice formats and Likert scales to assess various dimensions of the needs and aspirations of workers. Near the end of the survey, participants were asked a single mandatory open-ended question: **“What one new initiative do you believe the Labour Movement (i.e. NTUC and associated unions/associations) should prioritise to better support workers and enhance its value? Please specify.”** No word or character limits were imposed on responses to encourage comprehensive expression of ideas. To ensure instrument clarity and feasibility, both surveys were pilot-tested with 56 employees prior to full deployment. This pilot phase validated the design of the open-ended question, and it was retained without modification.

To ensure sample independence and mitigate systematic selection bias, two independent market research firms conducted the recruitment. This dual-firm approach enhances the external validity of the findings by diversifying the participant pools and ensuring distinct recruitment channels for each survey. The Employee Survey was administered from August 2024 to October 2024 and yielded 2,000 responses, while the Employer Survey was conducted from December 2024 to January 2025 and generated 1,007 responses, resulting in a total sample of 3,007 respondents.

As shown in Table 1, the study targeted a comprehensive range of stakeholders, categorised by their specific influence on the CET ecosystem: Execution, Supervision, Strategy, and Ownership. To ensure the sample accurately represented the Singapore demographic, we applied pre-screening criteria requiring respondents to be currently employed within Singapore-registered enterprises. This purposeful sampling was essential to disentangle the diverse motivations driving CET in Singapore.

Table 1

Stratification of SME Participants

Survey Type	Target Group	Functional Scope	Representative Roles
Employee	Employees	Execution	Associate Professionals and Technicians, Craftsmen and Related Trades Workers, Service and Sales Workers, Plant and Machine Operators and Assemblers, Cleaners, Labourers and Related Workers, Clerical Support Workers, Professionals

Survey Type	Target Group	Functional Scope	Representative Roles
	Managers	Supervision	Senior Officials, Managers
Employer	C-Level Leaders	Strategy	C-Level Executives (Non-owners)
	Employers	Ownership	Chief Executive Officer, Company Owner/Founder/Partner

Given the reliance on online recruitment, rigorous data quality assurance measures were implemented to mitigate the risks of “careless responding” and bot interference (Buhrmester et al., 2011). Rigorous screening yielded 2,657 valid responses, from which 1,882 SME narratives were identified and 407 CET-specific entries extracted. Narrative lengths in terms of number of words varied (Mean: 12.6; Median: 11.0), capturing a range of qualitative depth. This final sample of 407 responses represents a mature workforce; 62.9% are aged 30–49, and 51.8% possess 11–30 years of experience, and they are drawn primarily from the Financial Services, Food Manufacturing, Food Services, Retail, and Construction sectors.

Coding Process

The data analysis followed a systematic, six-phase inductive process. Primary coding was conducted on the initial dataset to map the broad landscape of stakeholder priorities (Phase 1). CET was identified as a major theme. This was followed by the extraction of SME responses to see where CET priority lay (Phase 2). Subsequently, we did a targeted secondary coding of responses specifically related to CET to capture granular nuances (Phase 3). To align the analysis with the study’s specific scope, we chose the subset of responses originating from SMEs and extracted the specific CET-related narratives and associated secondary codes within this SME cohort (Phase 4). These specific codes were then aggregated into higher-order conceptual categories based on their shared properties and relationships (Phase 5). Through theoretical integration, a core category was identified that unified these concepts, culminating in the emergence of the ‘ARISE’ framework as the explanatory theoretical construct (Phase 6). Finally, to ensure robustness, the framework underwent a validation test utilising frequency count analysis to confirm the structural convergence of these priorities across diverse stakeholder groups.

Results

The results are presented sequentially below to mirror the six-phase inductive process, detailing the specific findings derived from each stage.

Phase 1: Primary Coding for Initial Dataset

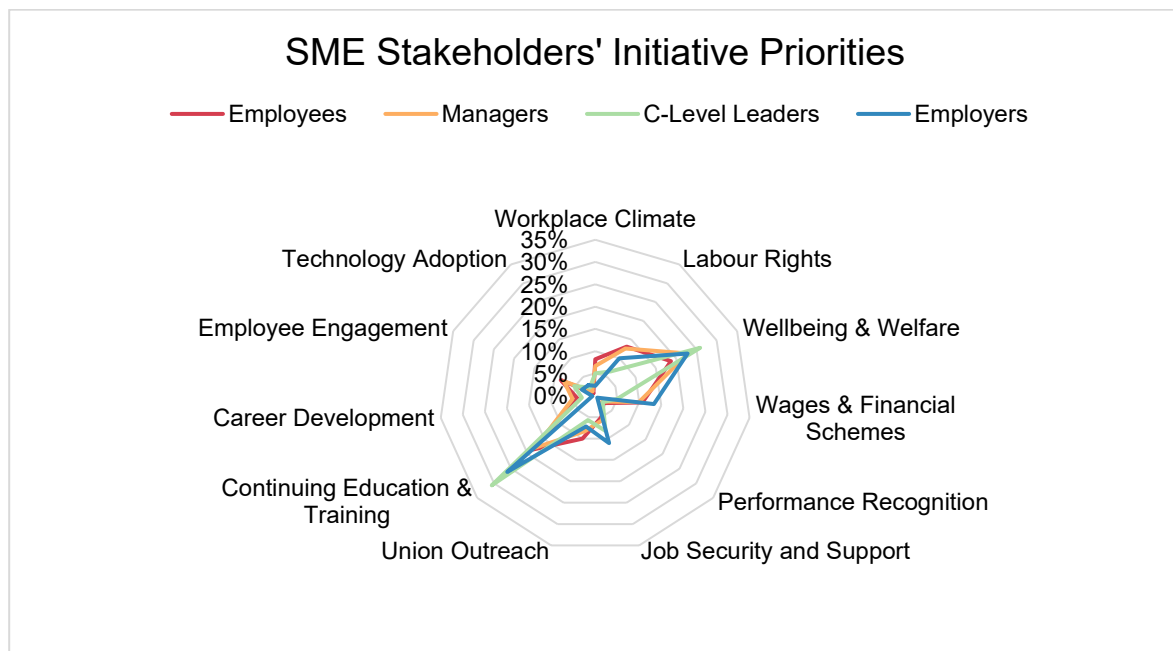
Consistent with a grounded theory approach (Glaser & Strauss, 1967), we did not utilise an a priori codebook. Instead, the coding framework was developed inductively, allowing themes to emerge directly from the raw dataset. We began with a process of open coding, where the research team analysed the open-ended responses line-by-line to identify initial concepts without the constraints of pre-existing categories. As coding progressed, this preliminary codebook underwent iterative refinement and consolidation until theoretical saturation was achieved; the point at which no new codes or conceptual dimensions emerged from the data (see the Appendix for definition of Primary Codes). Each valid response ($n = 2,657$) was eventually assigned up to three primary codes representing the dominant themes derived from the participants’ responses.

Phase 2: Extraction of SME Responses

Consistent with our research objectives, we narrowed the dataset to exclusively include responses from the SME sector. Figure 1 shows categories of the convergence of key initiatives proposed by different stakeholders in SMEs ($n = 1,882$). Their convergence represents a shared vision and provides a foundation for developing effective and sustainable solutions. One of the top categories that emerged centred on CET, which is also aligned with the entire dataset of 2,657 valid responses.

Figure 1

SME Stakeholders' Initiative Priorities

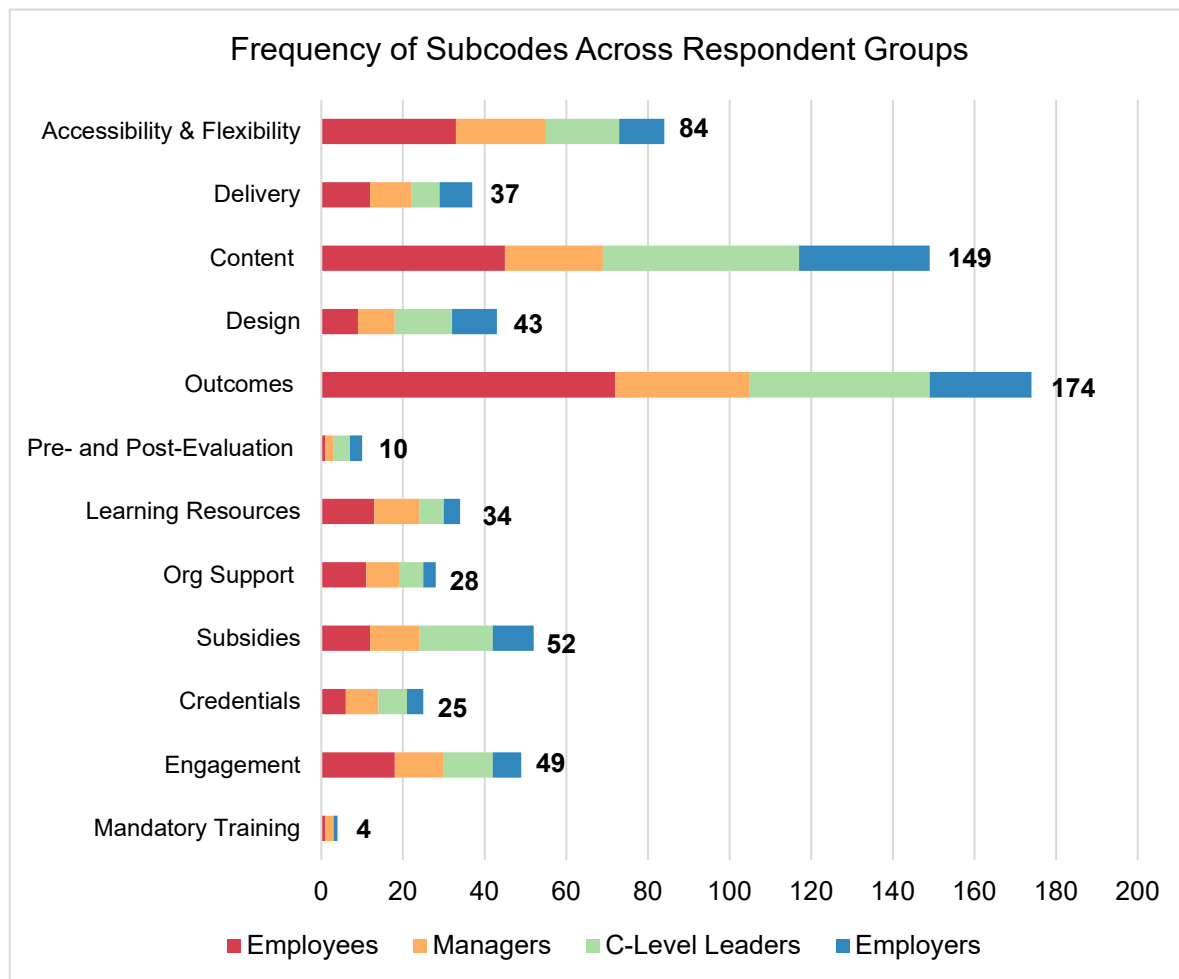


Phase 3: Secondary Coding of CET Responses

From the initial dataset (Phase 1), we identified 610 responses relating to CET (23% of all 2,657 valid responses). We subsequently employed a secondary coding process to unpack the nuanced sub-themes driving this priority for CET. Mirroring the iterative rigour of Phase 1, this stage involved identifying recurring patterns and defining distinct subcategories with clear conceptual boundaries. This analysis yielded 12 distinct subcodes: **Accessibility and Flexibility; Delivery; Content; Design; Outcomes; Pre- and Post-Evaluation; Learning Resources; Organisational Support; Subsidies; Credentials; Engagement; and Mandatory Training**. Each response was then assigned up to three subcodes to capture the multi-dimensional nature of the participants' responses.

Phase 4: Extraction of CET Responses and Secondary Codes by SMEs

Using the SME database (identified in Phase 2), we extracted 407 SME responses prioritising CET, accounting for 67% of all CET narratives. Of these, 56% were assigned multiple subcodes, reflecting CET's multidimensionality. The sample captures a balanced organisational hierarchy: Employees (36.6%) and Managers (21.6%) represent the operational layers, while C-Level Leaders (26.0%) and Employers (15.7%) ensure strong representation of the strategic decision-making tier (>40% of the sample). As shown in Figure 2, the prevalence of these subcodes is remarkably uniform across the different hierarchical groups and industries. Table 2 lists the definition of each subcode and sample responses by role type.

Figure 2*CET Subcode Frequency Analysis for SME Stakeholders***Table 2***Examples of SME CET Responses by Subcodes and Role Type*

Code and Definition	Employees	Managers	C-Level Leaders	Employers
Accessibility and Flexibility <i>How easy is it for learners to access and benefit from the training?</i> Availability, scheduling, location, platform usability, and accommodations for diverse learners.	Promote the provision of more training and development opportunities. (Precision Engineering)	Provide a learning platform, offer learning opportunities for workers who are willing to learn or deepen their skills. (Hotels)	Provide access to online learning platforms and resources that can be accessed at any time, accommodating the varying schedules of workers. (Others)	Make sure all employees have access to the digital tools and skills they need to succeed in the contemporary workforce, regardless of their age or level of expertise. (Retail)

Code and Definition	Employees	Managers	C-Level Leaders	Employers
Delivery <i>How is the training delivered?</i> Modes of delivery (in-person, online, blended), interactivity, engagement strategies, and technology used.	Regularly hold lectures, allowing lecturers at the forefront of technology to give lectures. (Healthcare)	Organise more lectures and promotional activities to help workers have a clearer understanding of the meaning of work. (Energy and Chemicals)	Develop or partner with existing online platforms that offer a wide range of courses tailored to various industries and job roles. (Financial Services)	Carry out cross-skills training. (Others)
Content <i>What is being taught?</i> Topics, relevance, depth, and applicability of the training material.	Strengthening vocational skills training to help enterprises achieve technological upgrading. (Food Services)	Strengthen practical skills training for workers and provide more cost-effective but effective training courses. (Construction)	Offer a range of courses and training programmes focused on emerging technologies, digital literacy, and specific skills. (Food Services)	Offering workshops and counselling services to help workers identify new career paths and understand the skills required for emerging sectors. (Financial)
Design <i>How is the training structured?</i> Curriculum structure, learning objectives, instructional methods, customised, alignment with learner needs and addressing gaps.	Provide diversified vocational skills training. (Financial)	Conduct cross-departmental training to promote employees' understanding of different business areas. (ICT and Media)	Make sure the training is appropriate for a range of skill levels. (Healthcare)	Create individualised career development plans that take into account the unique needs, goals, and circumstances of each worker. (Electronics)
Outcomes <i>What changes or benefits result from the training?</i> Skills acquisition, knowledge retention, behaviour change, and measurable impact on performance.	By strengthening training and education, employees can better master new skills and tools, and complete work tasks more effectively. (Education)	Assist workers in enhancing their skills and knowledge, thereby increasing their own value and competitiveness. (Food Manufacturing)	This will not only enhance workers' employability but also foster a workforce that's adaptable to changes in the job market. (Financial)	This initiative positions workers to adapt to technological disruptions and economic shifts before they face job displacement. (Financial)

Code and Definition	Employees	Managers	C-Level Leaders	Employers
Pre- and Post-Evaluation <i>How is the effectiveness of the training assessed?</i> Assessment methods, evaluation processes, and needs analysis.	Trade unions can encourage employers to implement regular career development assessments. (Professional Services)	Conduct worker skill assessment and identify development needs. (Hotels)	Proactively researching and analysing emerging technologies and industries to anticipate the skills gaps that will arise. (Food Manufacturing)	Work closely with leaders to identify future skill needs and to design training programmes that are relevant and forward-looking. (Others)
Learning Resources <i>What additional supports are available?</i> Mentoring, coaching, supplementary materials, and ongoing learning opportunities.	Establish a mentorship programme pairing experienced professionals with younger workers to guide career development and growth. (Retail)	Establish a system of professional mentors. (Food Manufacturing)	I'd say that establishing a mentorship programme that links employees with business executives would promote development. (Wholesale Trade)	Mentorship programmes that allow seasoned personnel to assist junior staff members in advancing their careers are something I would like to see. (Electronics)
Org Support <i>Does organisation culture and environment support learning?</i> Time off, time for reflective learning, experimentation.	Can collaborate with employers and educational institutions to develop training programmes suitable for workers. (Electronics)	Motivate workers to continuously upgrade their skills. (Food Manufacturing)	Employer rewards for developing skills. Promote laws that incentivise companies to make ongoing investments in employee education. (Retail)	Lobby for policies that promote lifelong learning and make it a requirement for companies to invest in their employees' development. (Food Services)
Subsidies <i>Are training subsidies available?</i> <i>What training subsidies are available?</i> Subsidies for ongoing learning opportunities.	Establish a worker scholarship programme to encourage workers to continue their employment. (Electronics)	Establish a Workers' Development Fund to support low-income workers to participate in skills training. (Food Manufacturing)	Starting a specific initiative to give employees access to inexpensive or free training in cutting-edge technologies. (Food Manufacturing)	Create a fund to subsidise the costs of continuous education and training for workers across all sectors. (Financial Services)

Code and Definition	Employees	Managers	C-Level Leaders	Employers
Credentials <i>Is training being credentialed?</i> Industry recognition, stackable modules.	Establish skills certification system to enhance workers' professional recognition. (Professional Services)	Set up a skill certification and reward mechanism. (Construction)	I believe that providing workers with specific credentials could increase the marketability of their skills. (Wholesale Trade)	Consider skill certification programmes to help employees prove knowledge and advance careers. (Wholesale Trade)
Engagement <i>How are participants involved? Engaged?</i> Learner participation, hands-on activities, opportunities for feedback, and learner support, exchange of feedback/teaching/learning through partnerships/collaborations with external parties.	Trade unions can also organise various skills competitions and exchange activities to provide a platform for workers to display their talents and learn from each other. (Energy and Chemicals)	Jointly carry out university-research cooperation training with universities. (Wholesale Trade)	Collaborate with partners, educational institutions, and training providers to offer a wide range of courses and workshops covering in-demand skills such as data analysis. (Food Manufacturing)	Partnerships with educational institutions and private sector companies to create modular and flexible learning pathways that cater to different learning styles and schedules. (Food Services)
Mandatory Training <i>Is training being mandated?</i> Policies to make training mandatory.	Enforce all Singaporean employees employed be sent for training. (Wholesale Trade)	Raise the requirements of enterprises for workers' skills, provide learning opportunities for workers by the government, and require workers to improve their skills through mandatory measures. (Construction)	—	Lobby for policies that promote lifelong learning and make it a requirement for companies to invest in their employees' development. (Food Services)

Phase 5: Grouping Codes into Conceptual Categories

The next phase involved grouping the emergent codes into conceptual categories based on their relationships and properties. This is where the higher-level themes began to coalesce. We followed the **Constant Comparative Method**, central to the Grounded Theory approach (Glaser & Strauss, 1967). Through an iterative process of coding, distinct subcodes were aggregated into five higher-order constructs (see Table 3). First, logistical codes such as “accessibility,” “delivery mode,” and “flexibility” coalesced around the ease of participation, forming the category **Accessibility**. Second, codes pertaining to “content” and “design” were synthesised under **Relevance**, capturing the inherent utility of the curriculum. Third, functional outcomes including

“skill improvement,” “performance change,” and “career progression” were consolidated into **Impact**, focusing on verifiable results. Fourth, structural enablers ranging from physical “tools” to human “mentorship” were clustered into the category **Support**. Finally, drivers of participation, such as “subsidies,” “certifications,” and “motivation”, were grouped under **Engagement**.¹

Table 3

Grouping Subcodes into Conceptual Categories

Accessibility	Accessibility and Flexibility
	Delivery
Relevance	Content
	Design
Impact	Outcomes
	Pre- and Post-Evaluation
Support	Learning Resources
	Org Support
Engagement	Subsidies
	Credentials
	Engagement
	Mandatory Training

Phase 6: The Emergence of ‘ARISE’ Framework

The culmination of the Grounded Theory process involved theoretical integration, which is identifying a core category to unify all sub-categories into a coherent explanatory framework. Throughout the analysis, theoretical memos were employed to capture the analytical evolution of each category. A pivotal central memo articulated the framework’s emerging storyline:

*The data indicate that, for CET to be effective, it must first be perceived as **Relevant** and demonstrably **Impactful**. However, these value drivers cannot be realised unless the learning is **Accessible**, backed by tangible **Support**, and driven by effective **Engagement** levers.*

This “memo-ing” process solidified the understanding that the five conceptual pillars (**Accessibility**, **Relevance**, **Impact**, **Support**, **Engagement**) do not function in isolation, but rather as a dynamic, interconnected system. Specifically, **Relevance** and **Impact** operate as the primary *Value Drivers* (defining utility), while **Accessibility**, **Support**, and **Engagement** function as the *Critical Enablers* (facilitating realisation). We labelled the resulting framework as ‘**ARISE**’, which is an acronym derived naturally from these five categories, semantically resonating with the themes of workforce emergence and development (Table 4).²

¹ Subsidies are categorised under **Engagement** because they function as a strategic **catalyst for participation** rather than just a logistical or remedial measure. While **Accessibility** addresses physical and entry barriers (location, digital access) and **Support** focuses on learner persistence (coaching, peer networks), **Engagement** centres on **incentivisation**. In this context, subsidies serve to actively nudge individuals and employers to overcome inertia and initiate their CET journey.

² Consistent with the grounded theory approach, higher-order concepts were operationalised based on fit and relevance rather than frequency and ordered as ARISE to ensure meaningful interpretation.

Table 4*Emergence of the 'ARISE' Framework*

A	Accessibility	Accessibility and Flexibility
		Delivery
R	Relevance	Content
		Design
I	Impact	Outcomes
		Pre- and Post-Evaluation
S	Support	Learning Resources
		Org Support
E	Engagement	Subsidies
		Credentials
		Engagement
		Mandatory Training

Validation of the 'ARISE' Framework: A Cross-Stakeholder Consensus Analysis

To ensure the robustness and organisational applicability of the proposed ARISE Framework for CET, we undertook a rigorous validation process across all stakeholder levels within SMEs. We used a data triangulation approach, analysing qualitative input from four distinct SME stakeholders: Employees, Managers, C-Level Leaders, and Business Owners. The objective of this analysis was to determine if the proposed ARISE framework resonated equally across the organisational spectrum or if it was biased towards a specific functional level. This validation is critical, as any CET framework that lacks broad stakeholder buy-in faces formidable barriers to adoption within the SME context.

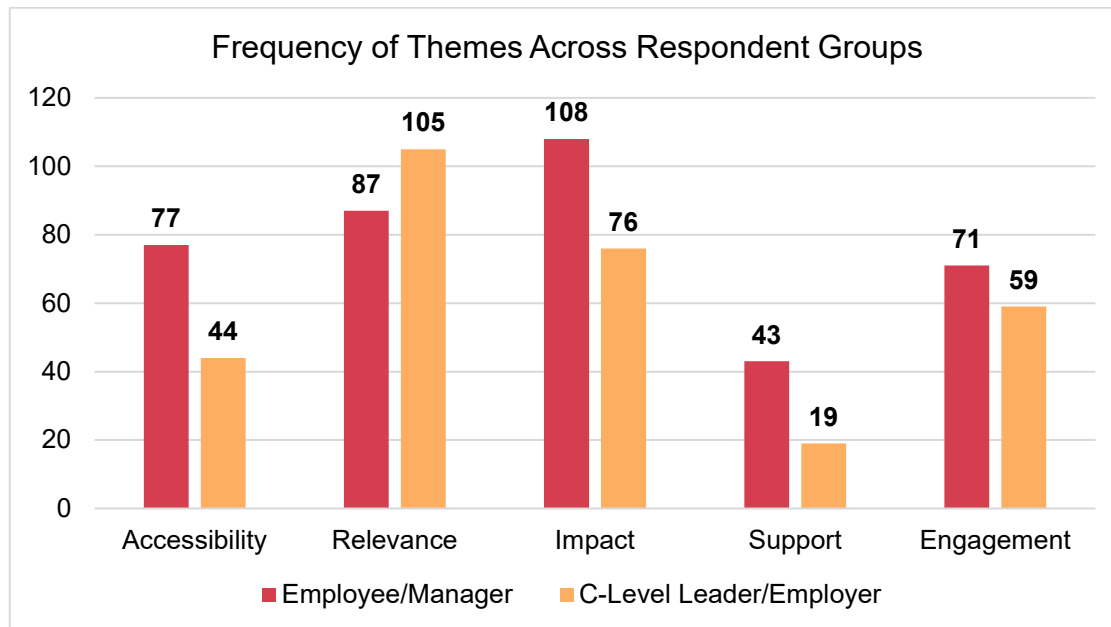
To rigorously compare the perspectives of these diverse groups, this study employed the conversion of qualitative themes into numerical frequency counts (Sandelowski, 2001; Tashakkori & Teddlie, 1998). While the foundation of the framework is qualitative, calculating the frequency counts for each element allows for the identification of patterns and degrees of consensus.

Validation Results: Cross-Stakeholder Convergence

Table 5*Cross-Stakeholder Convergence Results*

		Employees	Managers	C-Level Leaders	Employers
A	Accessibility	19%	21%	14%	16%
R	Relevance	23%	22%	34%	36%
I	Impact	31%	23%	26%	24%
S	Support	10%	12%	7%	6%
E	Engagement	16%	22%	20%	19%

Note. Percentages may not sum up to 100 due to rounding.

Figure 3*Frequency Analysis of Elements in 'ARISE' Framework*

A frequency analysis of the 407 CET-related narratives reveals a striking structural convergence between Capital (C-Level Leaders/Employers) and Labour (Employees/Managers). While minor variances in intensity exist, the data demonstrate that all four stakeholder groups prioritised the ARISE components with remarkable consistency (see Table 5). This consensus is evidenced by three statistical patterns:

- 1. Rank-Order Stability (the “top two” agreement):** The hierarchy of needs is identical across the organisational spectrum. For every single stakeholder group, **Relevance** and **Impact** emerged as the top two drivers of value (between 45% and 60% of total responses).
 - There is no instance where a “peripheral” concern for one group (e.g. Support) becomes a “primary” concern for another.
 - This shared hierarchy confirms that both employers and employees view CET not as a box-ticking exercise (Compliance), but as a strategic utility driven by *content* (Relevance) and *outcome* (Impact).
- 2. Tight Clustering of Enablers (Accessibility, Support, Engagement):** The infrastructural enablers of the framework show high statistical tightness, indicating a shared understanding of the operational landscape.

Support: Exhibits the tightest consensus (Range: 6%–12%), confirming that all groups view “institutional scaffolding” as necessary.

Engagement: Clusters tightly between 16% and 22%, suggesting a shared view on the mechanisms of motivation to participate in CET.

Accessibility: Ranges narrowly from 14% to 21%, with three of the four groups falling within a five-point band, underscoring that accessibility is not a niche concern.
- 3. Rational Intensity Variance (explaining the “Relevance” and “Impact” gap):** Where variances do exist, they reflect rational functional roles rather than strategic disagreement.

The Relevance Delta: Employers and C-Level Leaders emphasise *Relevance* (34%–36%) more intensely than Employees (23%). This is consistent with their role as strategic guardians responsible for market competitiveness and avoiding obsolescence.

The Impact Delta: Conversely, Employees place a slightly higher premium on *Impact* (31%) than managers (23%), C-Level Leaders (26%), and Employers (24%).

These variances represent minor differences in **intensity**, not **direction**. The data do not show two separate worlds of “Business versus Workers” (see Figure 3). Instead, it reveals a single, unified ecosystem where all actors agree on the architecture of the solution (ARISE). This validates the ARISE framework as a cross-cutting model for CET intervention.

Discussion

Operationalising the insights from the broader query on Labour Movement strategy, this study aims to unpack the “black box” of CET needs within the fragmented context of SMEs. By analysing the voices of 407 SME stakeholders across the organisational hierarchy, this research reveals that the need for CET is not merely a request for more courseware, but a call for a holistic ecosystem of learning. The emergence of the **ARISE** framework (**A**ccessibility, **R**elevance, **I**mpact, **S**upport, **E**ngagement) offers a theoretically grounded and empirically validated framework to interpret these needs. By integrating insights from adult learning, industrial relations, and policy, this discussion frames ARISE as a fundamental paradigm shift. The framework moves the industry away from a static, “supply-driven” model towards a dynamic, demand-led, and “adoption-centric” CET ecosystem.

The 'ARISE' Framework: Addressing the Ecology of the SME Learner

The ARISE framework represents a strategic evolution beyond traditional instructional design and evaluation models like ADDIE (Branson et al., 1975) and Kirkpatrick (1959). While these foundational frameworks are essential for optimising the mechanics of content delivery, they are inherently *content-centric*. In contrast, ARISE is *adoption-centric*. It moves beyond the classroom to address the broader ecology of the learner, focusing on the systemic enablers and barriers that dictate whether training is actually accessed, applied, and continuously adopted. ARISE grounds this by centring the lived experience of the SME workforce. If **ADDIE** creates the *product* (the course), **ARISE** creates the *conditions* for that product to work. By shifting the lens from instructional design to learner agency, ARISE also aligns CET with the self-directed nature of adult learning advocated by scholars such as Knowles (1984) and Ryan and Deci (2000). This shift away from passive consumption is vital, as traditional pedagogical structures struggle to keep pace with industrial disruption. As Bound (2024) argues, standard training courses are no longer enough; workers also need the skills to solve new problems collaboratively across different teams.

We now examine the five pillars of ARISE to uncover the systemic dynamics at play. Through an ecological lens, we surface the interdependent structural frictions that currently stifle CET adoption within the SME sector. We explicitly define these frictions by framing each pillar as a central challenge statement. Distilled and triangulated directly from the qualitative evidence and literature, these statements crystallise the core tension within each pillar, articulating what is truly required to convert CET intent into adoption.

- **Accessibility:** Can workers actually access CET, both materially and cognitively?
- **Relevance:** Can CET be relevant for them today and transferable for tomorrow?
- **Impact:** Are we measuring growth, or just performance?
- **Support:** Are we enabling the *learner*, or merely supporting the *learning*?

- **Engagement:** Are we relying on compliance, or igniting intrinsic hunger?

Accessibility: Can Workers Actually Access CET, Both Materially and Cognitively?

To effectively unlock skills development in SMEs, which often face resource constraints and limited human capital (Coetzer et al., 2019; Wang et al., 2025), accessibility must be conceptualised as a dual mandate comprising both the Material Accessibility and Cognitive Accessibility. Material Accessibility encompasses both the fundamental availability of training and the removal of logistical friction through the provision of necessary infrastructure. Our data strongly support the importance of **Material Accessibility**, with respondents prioritising learning platforms, digital tools, and the availability of training opportunities. While prior studies confirm that training fails to reach a dispersed workforce without these provisions (Cheong, 2022; Yang et al., 2022), this accessibility is often neutralised in practice by a lack of employee motivation and time. In addition, reducing workload and protected time for learning might not be possible within SMEs. This underscores the importance of our second dimension, **Cognitive Accessibility**, which addresses the “cognitive load” and mental space of the learner. It ensures that the intervention does not compete for mental resources in an already cognitively congested workflow.

Yet, despite the importance of this dual mandate accessibility, our data reveal a pervasive “Supply-Side” bias: the assumption that if the delivery tool or content is provided, access is achieved. This ignores the more important “Demand-Side” reality of Cognitive Accessibility. For example, a mentally exhausted SME worker who has spent an 8-hr shift primarily “firefighting” operational crises possesses zero true “accessibility” to learning, even if the content is physically available on the phone in his/her hand. This friction is highlighted by Bajaj et al. (2023), who note that while employees desire flexibility (like a four-day work week) to improve well-being, businesses struggle to sustain output without hiring additional manpower or redesigning work, creating a structural bottleneck that impedes genuine access to development time. Furthermore, our own recent research (Yu et al., 2025) on the “demands-abilities misfit” warns that when job demands exceed a worker’s resources, it disrupts self-regulatory processes, leading to resource depletion and reduced persistence. Viewed through this lens, failing to address cognitive bandwidth implies that any additional training demand merely exacerbates the misfit, leading to exhaustion rather than engagement.

The exclusive focus on content availability and delivery represents an oversimplification; it is not because it is wrong, but because it is incomplete as it distracts from the harder, complementary necessity of creating and providing the access to a “learning space,” characterised primarily by reduced workloads and protected time. Therefore, true accessibility requires a synchronised approach. We must provide the content and delivery flexibility (Material) while simultaneously preserving the Mental Energy (Cognitive) required to absorb it. This is possible through learning in the flow or solving business issues in real time.

Relevance: Can CET Be Relevant for Today and Transferable for Tomorrow?

The concept of “relevance” exists on a spectrum. Hence, conceptualising CET “relevance” within the SME context necessitates balancing two distinct imperatives: immediate operational utility and long-term strategic resilience. Our data reveal a preference for “practical skills” and solution-oriented interventions. This preference is a logical consequence of the resource-constrained SME environment. In a capital-scarce environment, training is often viewed as a luxury rather than a necessity. As a result, SME leaders typically reject interventions that do not offer immediate, measurable improvements in productivity or speed.

However, this “short-termism” precipitates a strategic paradox known as the “Competency Trap” (Levitt & March, 1988). By focusing exclusively on current tasks, companies cultivate a workforce that is hyper-efficient at existing processes while remaining ill-equipped for future adaptation. This vulnerability is magnified by the rapid rate of technological change, which renders

such static efficiency obsolete (C. M. Ng, 2022). This danger is particularly acute for non-PMETs (non-Professionals, Managers, Executives, and Technicians), who are at the greatest risk of job redundancy due to rapid technological change yet lag in training participation (Osman, 2023). Munusamy and Jenkins (2019) argue that the HR function must navigate a persistent tension between short-term efficiency and long-term sustainability. This struggle reflects the core challenge of organisational ambidexterity, which requires the simultaneous pursuit of immediate performance and long-term capability building (Duncan, 1976; March, 1991). Consider an administrative employee trained strictly to use a specific, older invoicing software. They become highly efficient at data entry, which boosts productivity today. However, if the company migrates to an automated AI-driven finance system next year, that employee's specific skill becomes obsolete. Since they were trained only on the specific tool rather than transferable skills like data logic, problem-solving, or digital adaptability, they cannot pivot to the new system. Their value was tied to a machine that no longer exists, rather than a capability they could carry forward.

In the context of the SME workforce, the “exploration” arm of ambidexterity translates specifically to the cultivation of adaptive capacity. Developing transferable skills and “future-oriented” capabilities, such as critical thinking and adaptability, is essential for navigating uncertainty and ensuring long-term employability (Bound, 2024; B. Ng, 2023). This necessity is substantiated by Yu's (2014) expectations-based model of Person–Organisation fit, which suggests that workers are attracted to environments that fulfil their anticipated needs. If training is confined to current tasks, it fails to generate the “future-oriented” value proposition necessary for long-term attraction and retention. Consequently, a robust skills strategy must reconcile these competing horizons: combining “**Just-in-Time**” skills (for immediate survival) with “**Just-in-Case**” capabilities (for future resilience). Prioritising immediate needs to the exclusion of developmental growth would fail to build the resilient workforce required for the future. Hence, CET must be framed through “**Adaptive Relevance**” to overcome the common perception that future-oriented development contradicts immediate needs. This approach demonstrates that competencies such as AI adoption are not merely long-term aspirations, but critical tools for competitive survival and near-future viability.

Impact: Are We Measuring Growth, or Just Performance?

Impact refers to the verifiable outcomes of training. For employers, this is quantified in productivity and performance; for employees, it translates to career mobility and wage growth. Our data primarily reflect this utilitarian view. Intuitively, focusing on performance results makes sense. Businesses need to know that training pays off. However, if we obsess over these numbers, we fall into a “Measurement Trap.” By defining Impact only by what we can see right now (like speed or error reduction), we prioritise Performance (looking good) over Learning (getting better). This narrow focus ignores the broader “intrapreneurial motivation” identified by Chan et al. (2017), where impact is driven not just by task efficiency but by employees' desire to innovate and lead within their roles. CET must therefore unlock these deeper professional and leadership motivations to create sustained organisational value.

Consider the difference between two workers learning a new data software:

Worker A memorises the specific steps to generate a standard report. The worker is fast, and the “Performance” looks great because the worker finished the task quickly with zero errors.

Worker B takes the time to understand the underlying logic of the data. The worker might be slower at first. The worker might even make a mistake while trying a new method. The immediate “Performance” scores look lower.

If “Impact” is strictly defined by immediate speed and visible output, the system implicitly penalises Worker B; violating what Clark (2020) terms “Learner Safety.” It prioritises short-term efficiency over long-term adaptability. Such valuation models create a hostile environment for learning and development. Without the psychological safety to experiment and fail, the worker

views training as a reputational risk (Edmondson, 1999). This creates a workforce that is highly productive in a static environment but fragile in a dynamic one. Therefore, the Labour Movement must challenge the SME sector to broaden the definition of Impact: moving beyond industrial metrics of productivity to human metrics of adaptive capacity. This broader definition aligns with the goal of “*sustainable employability*,” ensuring workers remain valuable not just for today’s task, but for their entire career lifespan (Chua et al., 2024).

Support: Are We Enabling the Learner, or Merely Supporting the Learning?

While **Accessibility** dismantles barriers to entry, **Support** constructs the institutional scaffolding required to sustain the learner. However, stakeholders tend to be instrumental, focusing primarily on resources that enable the learning process such as mentorship programmes and digital repositories rather than structural changes to the work environment.

This restricted focus of the nature of support precipitates a “Resource Trap,” where providing instrumental assets enables the learning but fails to enable the learner. For instance, mature workers face significant stress when task demands (e.g. self-learning technologies) exceed the structural guidance provided (Chua et al., 2024). This creates a “Needs–Supplies misfit” (Yu & Davis, 2015), a dynamic best explained by the Job Demands–Resources (JD-R) Model (Demerouti et al., 2001). While resources are theoretically meant to buffer job demands, introducing training without reducing workload pressures transforms the support into a net liability. Consequently, the training itself becomes a demand, leading to burnout rather than capability building.

Consider logistics coordinators in a busy SME.

- **Enabling the Learning:** The company gives them a premium digital course on supply chain management and assigns a mentor.
- **The Reality:** The daily delivery targets remain exactly the same, and the culture implies that “real work” happens on the floor, not the screen. Now, the worker is in a bind. They have the resources, but not the Capacity. The worker has to do their full 8-hr job *plus* utilise the new resources.

In this context, the abundance of tools becomes a source of guilt and stress, not growth. The manager’s “support” feels like pressure because the organisation has not resolved the conflict between production and development. Therefore, true support must be defined as Subtractive, not just Additive. It is not enough to add resources; you must subtract conflicting priorities. However, implementing this can be challenging for managers, as researchers have identified that “Developing Employees” is consistently ranked as a top challenge for leaders globally, often outweighing technical competence. This also suggests that the failure of workplace learning support is often a double-bind: managers are expected to scaffold their subordinates’ learning while simultaneously lacking the self-efficacy to perform this developmental role themselves. Consequently, true institutional support must be “meta-developmental”, where organisations must first upskill managers in the andragogy of “Developing Others” before expecting them to effectively support the learner (Gentry et al., 2014).

True support is also the institutional validation that learning is work. A significant barrier to this, however, is the paradox identified by Yang et al. (2022) in their study of Singaporean business leaders. They revealed that while skills mismatches are considered the most prevalent issue, leaders often fail to prioritise the very workers experiencing these gaps for training. To bridge this disconnect, organisations must move beyond selective training and adopt inclusive models like the “buddy system,” which facilitates hands-on learning and reduces isolation for workers (Chua et al., 2024). By ensuring that all employees regardless of their role’s busyness have equal access to development time, organisations prevent training from becoming a privilege for the few rather than a right for the many (Munusamy et al., 2021).

Engagement: Using Carrots and Sticks, or Igniting the Hunger?

Engagement encompasses the mechanisms that drive participation, including funding support (subsidies), clear certification pathways, and the intrinsic motivation derived from visible career progression. Our data reveal that stakeholders often rely on a traditional “**Carrot and Stick**” approach to drive this.

- **The Carrots:** Stakeholders propose incentives like **Subsidies** to remove costs. A stakeholder from Electronics suggests: “*Establish a worker scholarship programme.*” In Singapore, similar financial incentives, such as the Workfare Skills Support, are already utilised to encourage training among lower-wage workers (Osman, 2023).
- **The Sticks:** Stakeholders propose enforcement mechanisms like **Mandatory Training**. A respondent explicitly suggests: “*Require workers to improve their skills through mandatory measures.*” This mirrors the mandatory nature of the Progressive Wage Model in certain sectors like cleaning and security (Osman, 2023).

These “carrots and sticks” mechanisms are essential for overcoming the initial barriers of cost and inertia. However, an exclusive reliance on such “push” factors cultivates transactional and compliant orientations that fail to ignite the “Hunger to Learn.” While subsidies and mandates successfully drive registration, they do not guarantee meaningful adoption. Subsidies make training affordable, but not necessarily desirable; mandates make it compulsory, but not necessarily meaningful. This distinction mirrors the difference between extrinsic motivators like salary and intrinsic ones like purposeful work, which are key for retention (Chng et al., 2023).

Igniting the “hunger” for mastery requires us to augment the necessary “push” of subsidies with the compelling “pull” of meaningful career progression. A worker becomes “hungry” for training only when they see a direct line of sight between the skill and a better life (e.g. a promotion, a wage hike, or a new role). The hunger is not generated by the *training provider*; it is generated by the *labour market* (i.e. organisation). Strategies like the NTUC’s “SMART” model (Job Support, Matching, Advocacy, Re-creation, and Training) utilised by the SIA Group demonstrate that engagement peaks when training is directly linked to job preservation and redeployment during crises (Cham & Ng, 2024).

Therefore, true engagement requires a dual approach: Use **Carrots and Sticks** (Extrinsic Motivators) to open the door but ignite **Hunger** (Intrinsic Motivators) to walk through it. If the “Engagement” pillar relies only on making training affordable or mandatory, we will achieve high enrolment but low workforce transformation. True engagement requires building a system where the “hunger” to learn is fed by the promise of career progression.

In summary, our analysis suggests that the five pillars of ARISE operate not in isolation, but as an interdependent system. We propose that **Relevance** and **Impact** act as the *Strategic Drivers* (the “Why”), while **Accessibility**, **Support**, and **Engagement** serve as the *Structural Enablers* (the “How”). These strategic and structural distinctions clarify why piecemeal interventions often fail. As noted by Merriam et al. (2007), adult learning barriers are situational (e.g. cost and time) as well as dispositional (e.g. hunger to learn). A training programme may be fully subsidised (**Engagement**) and available online (**Accessibility**), yet if it lacks **Relevance**, uptake remains low. Conversely, a highly relevant course will fail if the worker lacks the **Support** (e.g. time-off) to absorb and apply the knowledge.

Reimagining Industrial Relations: The “Uncommon Consensus”

Beyond the conceptual utility of the ARISE framework, this study uncovers a striking sociological phenomenon: a high degree of alignment across the organisational hierarchy. Traditional industrial relations literature often frames training as a site of contestation, where “Labour” demands portable, broad-based employability skills while “Capital” seeks firm-specific productivity to minimise turnover risks (Becker, 1964; Garavan, 1991). However, our cross-stakeholder analysis reveals a convergence of interests, particularly regarding the emphasis on

Relevance and Impact. This consistency suggests that both employers and employees appear to recognise that in an era of rapid structural disruption, the obsolescence of the worker equates to the obsolescence of the firm. This shared recognition is vital for business survival and workforce employability, akin to the “twin engines” powering the SME economy (C. M. Ng, 2022).

This consensus also implies that the “Employee Voice” regarding training is not adversarial to business goals but is, in fact, isomorphic with the strategic intent of business owners. This mirrors the International Labour Organization’s (2024) stance on social dialogue and tripartism, where workforce development serves as a shared pillar of resilience against economic and structural transitions. The practical efficacy of such social dialogue is exemplified by Singapore Airlines’ experience during the COVID-19 pandemic, where it facilitated cost-cutting and redeployment measures that safeguarded both jobs and organisational survival (Cham & Ng, 2024). Underpinned by Singapore’s robust tripartism model, this reality offers valuable insights for labour movements globally. It suggests a strategic pivot where the traditional defensive orientation (protecting jobs) is complemented by a proactive developmental orientation (building capabilities), leveraging CET frameworks that employers explicitly endorse.

‘ARISE’ Practical Implications: Operational, Strategic, and Structural

This section translates the ARISE framework into targeted interventions across operational, strategic, and structural dimensions. First, we position ARISE as a potential audit tool for Company Training Committees (CTCs). Second, we anchor the “SkillsFirst” agenda in the concept of “Dual Agency,” demonstrating how the alignment of Learner Relevance and Employer Impact creates the necessary psychological foundation for a skills-based economy. Finally, we address the “Last Mile” implementation gap, arguing for a structural evolution of the Labour Movement from CET advocate to “*CET Ecosystem Integrator*” capable of supporting the fragmented SME sector.

The ‘ARISE’ Framework as a Checklist for Company Training Committees

The most immediate application of this research is within the NTUC’s **CTC** initiative. The ARISE framework offers CTCs a mechanism to audit the human side of transformation, moving beyond administrative compliance to operational viability. For example:

- **Audit for Accessibility**
Cognitive: Is the CET designed to respect the finite cognitive bandwidth of a fatigued worker?
- **Audit for Relevance**
Strategic: Was the training need identified through bottom-up consultation with the end-users, ensuring alignment with the actual current and future realities of the job?
- **Audit for Impact**
Evaluation: Are we measuring “Skills Utilisation” (application in workflow) rather than just “Training Hours” (attendance)?
- **Audit for Support**
Managerial: Are line managers evaluated on their team’s capability growth, or solely on production output, which disincentivises releasing staff for training?
- **Audit for Engagement**
Motivation: Is the training linked to a transparent career progression pathway (The Pull), or is it framed solely as a mandatory requirement (The Push)?

Anchoring the “SkillsFirst” Strategy: Catalysing Dual Agency of Learner and Employer

The ARISE framework provides an anchor for the “**SkillsFirst**” movement. By validating the consensus on the ground, this study highlights how the ARISE framework can act as a catalyst to accelerate the shift towards a skills-based economy. Realising the full potential of the SkillsFirst agenda requires **Dual Agency** synchronisation between **Employer Agency** (the active recognition of skills) and **Learner Agency** (the proactive pursuit of relevance). The ARISE framework reveals that the psychological foundation for this partnership is already robust, as our frequency analysis highlights a striking consensus: both Capital and Labour prioritised **Relevance** and **Impact** above all else.

This convergence demonstrates that the incentives are aligned to support the SkillsFirst strategy:

- **Learner Agency is fuelled by Relevance:** Workers are motivated to learn when they see the skill is applicable and portable. This agency can be enhanced by “Career Health” initiatives that empower individuals to cultivate career management skills and gain clarity on upskilling needs (Chua, 2025).
- **Employer Agency is fuelled by Impact:** Employers are motivated to recognise skills when they see the training drives tangible productivity. Chua (2025) notes that 88% of organisations adopting skills-first hiring reported business benefits such as improved performance and retention.

This shared prioritisation of *utility* suggests that the SME ecosystem is primed to operationalise the SkillsFirst agenda, where the worker’s pursuit of relevance is met by the employer’s recognition of impact.

Bridging Structural Gap: The Labour Movement as an Ecosystem Integrator

While national policies (like Singapore’s SkillsFuture) provide robust funding and CET infrastructures, there remains a challenge in SMEs’ ground-level adoption globally. Unlike Multinational Corporations (MNCs) and Local Large Enterprises (LLE), which possess dedicated HR departments to translate national CET policy into corporate learning strategy, SMEs lack the institutional bandwidth to interpret complex grant schemes or construct structured training roadmaps (Osman, 2023).

This structural disconnect suggests a fundamental evolution in the role of the Labour Movement. Unions must step in not just as **Advocates** lobbying for CET policy, but as **Ecosystem Integrators** helping to operationalise CET policy. For instance, as demonstrated in Singapore, unions can facilitate partnerships between companies and the government, and curate relevant training programmes (Chng et al., 2023). By functioning as an aggregator, the Union serves as the transmission mechanism that bridges this gap. For example, an individual SME cannot afford to build the infrastructure required to implement sophisticated skills policies. However, by aggregating the demand of thousands of SMEs, the Union can construct shared institutional infrastructure such as industry-wide mentorship networks or cross-company training rotations that acts as a proxy HR function for the entire sector. This role is particularly critical in supporting vulnerable workers, such as non-PMETs, who may lack access to structured training (Osman, 2023).

Historically, the role of a Labour Movement was defined by a bilateral relationship between the worker and the employer. However, in an increasingly fragmented job market, it would be highly beneficial for both employees and employers if the Labour Movement evolves into an **ecosystem integrator**. In this capacity, it can support the following:

- **Bridging the Skills Gap:** As an integrator, the Labour Movement can align the content provided by training institutions with the real-time needs of industry. By leveraging its ground-level access to workers, it can identify emerging skill shortages before they manifest as economic bottlenecks.

- **Aggregating SME Needs:** Individual SMEs often lack the “buying power” or HR infrastructure to implement large-scale transformation. The Labour Movement can integrate these smaller players into larger CTCs, allowing them to access resources and subsidies that would otherwise be out of reach.
- **Coordinating Tripartite Innovation:** By acting as a neutral but informed intermediary, the Labour Movement can facilitate high-trust collaborations between the Government (policymakers) and Employers (market drivers). This ensures that policies such as “subsidies” are not just available but are actually integrated into business workflows.

Limitations and Future Research

While this study has successfully established the ARISE framework for CET adoption in SMEs, future research must pivot towards developing ARISE as a validated psychometric diagnostic instrument. Developing this psychometric tool would transform the utility of the framework in three critical ways:

1. **Precision Targeting:** It moves the Labour Movement from intuition to data. Instead of guessing why training uptake is low, unions could administer the instrument and statistically identify that, for example, while *Relevance* scores are high (8/10), *Support* scores are critically low (2/10).
2. **Benchmarking:** It allows for the creation of industry benchmarks, enabling an SME to compare its “Learning Health” against sector averages.
3. **Pre- and Post-Intervention Analysis:** It allows initiatives such as CTCs to measure growth over time, proving that a specific union intervention resulted in a statistically significant increase in worker *Engagement* or *Accessibility*.

Ultimately, evolving ARISE from a static checklist into a dynamic diagnostic engine will equip the Labour Movement to prescribe precise, evidence-based CET interventions for the SME workforce.

Conclusion

This study commenced with a critical challenge: “**How can unions secure their relevance in an era defined by the ‘wicked problems’ of workforce fragmentation and technological disruption?**” Through thousands of unstructured, unprompted voices from the ground, we have identified that one of the answers lies in the reimagined approach to CET. The resulting **ARISE framework** (Accessibility, Relevance, Impact, Support, Engagement) crystallises both employees’ and employers’ voices into an “adoption-centric” roadmap, offering a validated mechanism to align skills development strategies with the structural constraints and lived realities of the SME sector.

The ARISE framework highlights that **Relevance** and **Impact** are the non-negotiable currencies of CET, while **Accessibility**, **Support**, and **Engagement** are the essential infrastructure required to access it. By identifying these distinct yet interdependent pillars, the framework provides policymakers and union leaders with a tool to audit existing gaps and design more responsive CET interventions. While the traditional SME mindset often views training as a cost to be minimised, our cross-hierarchical alignment findings challenge this prevailing paradigm. This suggests that within the unique tripartite context of Singapore, the “skills agenda” has matured, where both employees and employers recognise that the obsolescence of the worker equates to the obsolescence of the firm. This consensus offers labour movements a possible mandate to move beyond advocacy and towards the institutionalisation of an “adoption-centric” CET framework.

Ultimately, this study posits that the future of labour representation may not lie just in the protection of employment, but in the facilitation of *sustainable employability*. As AI and automation rewrite the rules of work, the ability to learn is the only true job security a worker possesses. The ARISE framework equips the Singapore Labour Movement to be the guardian of that security, transforming the “black box” of CET into a transparent, accessible, and impactful ladder for social mobility. By exploring the adoption of this “adoption-centric” CET framework, Singapore’s Labour Movement can potentially ensure that as they step into the future, they do so in lockstep with the aspirations of the people they serve.

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BIOGRAPHIES

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Ms Zixuan holds a degree in Psychology and Economics. Following graduation, she has worked across educational settings, engaging with diverse learner populations, including children with special educational needs, adolescents with dyslexia, and adult learners. Her work draws on research to enhance learning experiences and outcomes, with a focus on accessibility and skill development. Through her work, she seeks to expand opportunities for all learners to thrive in inclusive and sustainable learning environments.

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Appendix

Codebook for Primary Codes

Primary Theme	Definition
Performance Recognition	Implement reward systems, recognise outstanding employees, and offer performance-based incentives, bonus, internal promotion opportunities
Labour Rights	Strengthen worker rights, employment rights, establish anti-discrimination policies, improve working conditions, and enforce labour laws, Equality/Inclusivity (e.g. PMET vs. blue collar, race), legal knowledge and training on rights
Wellbeing and Welfare	Reduce working hours, enhance work–life balance, provide mental health support, and improve healthcare, bonding, group insurance plan, staff retreat, paid leaves, health and wellness programme, non-work-related policies (e.g. family), financial literacy training, financial schemes for specific/niche groups of employees, retirement planning
Wages and Financial Schemes	Increase wages, ensure wage equality between citizens and non-citizens, raise minimum wage standards, offer financial support such as loans/subsidies, provide better retirement benefits and plans, wage policies, gender pay equality, pension
Job Security and Support	Finding jobs, starting own business, entrepreneurship training/workshop, career transition/mid-career change/new positions, re-employment of elderly workers, unemployment/retrenchment support, career planning for jobseekers, job portal
Continuing Education and Training	Includes certification, online learning portal, vocational skills, flexible learning, professional/career development, mentorship programme, accessibility of training resources, knowledge exchange programme, sponsorship/subsidies for training programmes
Workplace Climate	Encourage sustainable training and development environment, work quality, social responsibility (CSR), practices designed to protect employees from accidents, injuries, and health hazards, workplace conflict, workplace culture, transparency, workplace/occupational safety training
Union Outreach	Strengthen collective bargaining, support trade unions, promote worker representation, participation and involvement of union members in their union's activities and union's initiatives (e.g. enhance communication and cooperation, raising public awareness of union, legal aids/assistance, feedback on union, union intervention)
Employee Engagement	Encourage employee participation in decision-making, enhance communication channels, and create platforms for feedback, skills competition, voice needs and concerns, innovation, internal knowledge sharing among individuals or groups, foster a sense of belonging/workers' identity
Technology Adoption	Use of technological tools or AI software to automate daily work processes
Career Development	Planning, counselling, guidance, growth, progression, job rotation opportunities, overseas opportunities, external networking opportunities to learn best practices

Overcoming Precarity in Gig Work: Digital Skills Framework for Upskilling

Carol Soon, Han Ei Chew, and Beverly Tan

Abstract

Own-account workers are self-employed persons who engage in a trade or business without employing any paid workers, and hail from a wide range of industries. They include platform workers; information and communications technology professionals; science and engineering professionals; freelancers in the arts, media, creative, entertainment, and sports industries; and real estate and property agents. As independent contractors, this group of workers often has to navigate the complexities of upgrading their skillsets in an employment landscape undergoing continuous technological disruption to remain competitive in the workforce on their own. We developed a tiered skills framework based on a review of international frameworks and curricula, and analysed job postings from MyCareersFuture portal with our collaborators from the Living Analytics Research Centre at the Singapore Management University to identify in-demand digital skills in Singapore. The framework includes skills which own-account workers would need to thrive in a global digital economy, encompassing baseline digital skills, intermediate digital skills, occupation-specific skills, and contextual skills. We draw on data collected through focus group discussions and in-depth interviews with own-account workers, employers, and trainers, as well as a pilot study to examine the impact of training and factors which influence own-account workers' digital readiness. Based on the findings, we make specific recommendations to improve self-assessment to help own-account workers overcome upskilling inertia and paralysis, communicate the relevance of training to correct the "one and done" attitude, and personalise training recommendations.



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Introduction

Today, gig economy workers make up a third of the global workforce (McKinsey Global Institute, 2021). In the US, more than a third of the workforce identified themselves as independent workers (McKinsey & Company, 2023). The adoption of remote work has been catalysed by the COVID-19 pandemic and the rise of digital intermediaries like online job matching platforms. As such, Singaporean workers face not only local competition, but also regional and global competition for jobs as the world becomes increasingly interconnected due to evolving technologies. In addition, technologies like Artificial Intelligence (AI), big data, and new digital platforms continue to shape the nature and structure of work (Hoffmann et al., 2025; Wood et al., 2019).

Current policy discourse and research on gig economy workers focus on location-based platform labour like platform drivers (Boston Consulting Group & Michael & Susan Dell Foundation, 2021; Cedefop, 2020). The gig economy also holds many implications for pre-existing social compacts that undergird labour relations globally (Qiu et al., 2023). Adding to the challenges is the diversity of gig work which encompasses both blue-collar and white-collar jobs. Nearly a quarter of gig workers in Europe are professionals, and nearly a fifth are made up of skilled agricultural, forestry, and fishery workers (European Commission, 2020).

In Singapore, gig workers are generally understood to be part of a larger group of self-employed people known as own-account workers. Own-account workers are defined by Singapore's Ministry of Manpower (MOM) as "self-employed persons who are engaged in a trade or business without employing any paid workers" (MOM, 2018, p. 1). Based on *Labour Force in Singapore 2024*, this group currently makes up 8.1% of the resident workforce (MOM, 2025) and workers in this group take on own-account work for myriad reasons. While some do so as a stop-gap measure while they seek to go back to full-time work or supplement their income, others take on own-account work as their primary source of work. They are motivated by different needs and reasons like boosting income earnings, and balancing caregiving with income generation (National Trades Union Congress [NTUC] & Singapore University of Technology and Design, 2025).

Own-account workers in Singapore take up jobs in a wide range of occupational groups. The most common occupations among regular primary own account workers in 2023 were private hire car drivers, taxi drivers, and delivery workers. Sales jobs such as real estate agents and insurance sales agents/brokers made up a sizeable percentage of resident regular primary own account workers in 2023 (MOM, 2024).

To keep pace with rapid technological developments, workers need to constantly upgrade their digital skills. However, the needs and competencies of own-account workers who are increasingly dependent on digital platforms for work have yet to be investigated. Thus, this study explores: (a) the skills own-account workers need to thrive in a global digital economy; (b) the impact of training; and (c) the challenges own-account workers face when upskilling.

Methods

Systematic Literature Review and Web Crawling

To understand what digital skills are essential to own-account workers, we conducted a systematic literature review of academic research, consultancy research, policy research, intergovernmental research, press releases, and news publications between June and October 2021. The keywords which were used for the review were grouped under three broad categories: (a) digital, (b) occupational, and (c) geographical. First, the digital aspect covered various related keywords such as "digital literacy," "digital competencies," and "digital upskilling," with an emphasis on digital skills for the workplace. Second, due to scant research on "own-account workers," the review was expanded to include digital upskilling measures targeted to people in related

occupations, such as independent workers and gig workers. Finally, the literature search covered relevant and current research done in Singapore and internationally. The review served as a landscape study on the trends and developments in own-account work, and the general and sector-specific digital skills required by these workers to thrive in a changing employment landscape.

The Living Analytics Research Centre (LARC)¹ at the Singapore Management University collected data on the types of own-account work which were published on the MyCareersFuture jobs portal in June and July 2021, and the corresponding digital skills required in those jobs. As own-account work is likely to be project-based and contractual in nature, we extracted all non-permanent job postings for these categories: (a) part-time, (b) contract, (c) flexi-work, (d) temporary, (e) freelance, and (f) internship/traineeship. As of July 2021, there was a total of about 182,000 non-permanent job postings listed on the MyCareersFuture portal. Using the Singapore Standard Occupational Classification 2020 (SSOC), these job postings were tagged by their major occupational group (i.e. one-digit SSOC codes) and sub-major groups (i.e. two-digit SSOC codes). The job postings were also classified according to the Singapore Standard Industrial Classification by division.

To deepen our understanding of the skills needed by own-account workers in the local context, LARC analysed the skills listed on non-permanent job postings on MyCareersFuture. The use of job postings from MyCareersFuture anchors our study in actual labour market demand rather than aspirational or normative skills lists. The majority of non-permanent job postings (80%) were found in nine occupational groups (Soon et al., 2024). The top three non-permanent occupational sub-major groups were: (a) information and communication technology (ICT) professionals (e.g. software developers, cloud specialists, and data centre engineers), (b) science and engineering professionals (e.g. physicists, geologists, statisticians, engineers, and urban planners), and (c) business and administration associate professionals (e.g. accounting associates, buyers, auctioneers, and police inspectors).

However, the largest group of own-account workers in Singapore were those who held location-based jobs in non-ICT industries. Private-hire car drivers and taxi drivers were the two most popular own-account occupations (MOM, 2021). These workers would not be looking for jobs on platforms like MyCareersFuture. Hence, we focused on these key occupational sectors: (a) software development and technology, (b) engineering and manufacturing, (c) sales and marketing, (d) creative and multimedia, (e) professional services, and (f) transportation and delivery.

LARC then analysed the job descriptions for these job postings to determine if they required digital skills, and if so, what skills. To do so, researchers from LARC used skills recognition and linking software to parse each job description to determine the digital skills that were required by the job. The software recognised 1,560 distinct digital skills mentioned in the job descriptions and linked them to the respective Wikidata entries and Wikipedia articles.

Focus Group Discussions and In-Depth Interviews

We conducted five focus group discussions (FGDs) and 30 in-depth interviews (IDIs) with own-account workers from different sectors, employers who engaged own-account workers, and training providers who worked with own-account workers. The FGDs and IDIs helped to contextualise the digital skills that own-account workers in Singapore need and shed light on their motivations and the challenges they face when upskilling.

We recruited participants whose own-account work was their primary source of income for the FGDs. The participants were also recruited for occupational diversity. Steps were taken to ensure that participants were diverse in terms of their age, gender, and ethnicity. Training providers were required to have a track record of training own-account workers, and employers either supervised

¹ The LARC was established in 2011 with the aim of innovating new technologies and software platforms to support Singapore's Smart Nation efforts. It has since completed its operations and is no longer active.

or made decisions concerning own-account workers' job scope and deployment in their organisations.

The FGDs lasted between 120 min and 150 min, and were conducted online over Zoom between 13 and 20 January 2022. FGDs 1–4 consisted of own-account workers who held occupations in different sectors and FGD 5 was made up of employers and training providers who worked with and trained own-account workers, respectively. See Table 1 for the descriptions of the FGD groups.

Table 1

Composition of FGD Groups

FGD No.	Group Description
FGD 1	Own-account workers who are private-hire car drivers, car and light goods delivery drivers, taxi drivers, hawkers, and stall holders
FGD 2	Own-account workers who are real estate and property agents, insurance agents, and tourist guides
FGD 3	Own-account workers who are ICT professionals, science and engineering professionals, business and administrative associate professionals, and business and administrative professionals
FGD 4	Own-account workers who are freelancers in the arts, media, creative, entertainment, and sports industries
FGD 5	Employers and training vendors who work with or train own-account workers

While the FGDs enabled us to identify similarities and differences among own-account workers who held different occupations, the IDIs provided us with a more nuanced picture of own-account workers' motivations and the challenges they encountered when upskilling, their lived experiences, and their employment aspirations. The IDIs also elicited feedback and suggestions for our proposed digital skills framework.

We conducted IDIs with 20 own-account workers, and 10 employers and trainers. Twenty-five of the IDI participants were recruited from the group who participated in the FGDs and gave their consent to be re-contacted to participate in the IDIs. The interviews were conducted between 1 March 2022 and 22 April 2022 over Zoom due to prevailing pandemic conditions at the time. Each interview lasted between 60 min and 180 min. The FGDs and IDIs were recorded for verbatim transcription.

Pilot Test

To determine the impact of training, we tested the digital skills framework that we developed. Together with our training partner, CreativesAtWork, an agency which trains freelancers and matches them with prospective employers, we developed a 5-day training programme based on the framework. A total of 52 own-account workers from two occupational sectors participated in the study: (a) 26 creative and multimedia workers and (b) 26 sales and marketing workers. Table 2 provides the breakdown of the participants by various demographic factors (e.g. age, gender, ethnicity).

Table 2*Pilot Study Participants by Citizenship, Age, Gender, Ethnicity, and Education*

Demographic Data		Number of Participants	Percentage (%) of Participants
Citizenship	Singapore Citizens	47	90.4
	Permanent Residents	5	9.6
Gender	Male	25	48.1
	Female	27	51.9
Age	25–29	13	25.0
	30–34	5	9.6
	35–39	6	11.5
	40–44	12	23.1
	45–50	16	30.8
Ethnicity	Chinese	44	84.6
	Malay	1	1.9
	Indian	6	11.5
	Others	1	1.9
Education	Secondary	2	3.8
	Post-Secondary (Non-Tertiary)	1	1.9
	Diploma and Professional Qualification	13	25.0
	University and Above	36	69.2

The training was conducted in April and May 2023, and a total of 12 digital skills were taught to each participant. A blended learning approach was adopted where the 5 days of training were conducted in-person and were interspersed with online activities in between. The skills taught were made up of 11 common digital skills that were taught to all participants: six baseline skills (e.g. “basic digital operations”, “communication and collaboration skills”, “organisation and project management”, and “safety and security”); four intermediate skills (e.g. “content and product creation” and “programming fundamentals”); and one common occupation-specific skill (i.e. “digital marketing”). The training programme also covered a unique occupation-specific skill for each occupation group (i.e. “social media” for the creative and multimedia workers and “analytics” for the sales and marketing workers). (See Table 3 for the summary of digital skills taught to the participants.)

Table 3*Summary of Digital Skills Taught to Participants*

Skill Level	Skill Name
Baseline Skill	1. Basic digital operations
	2. Communication and collaboration skills
	3. Organisation and project management
	4. Safety and security
	5. Optimising profile
	6. Pricing products and services
Intermediate Skill	1. Information management and processing
	2. Content and product creation
	3. Data analysis and visualisation
	4. Programming fundamentals
Occupation-Specific Skill	1. Digital marketing ¹
	2. Social media (Creative and Multimedia skill) ²
	3. Analytics (Sales and Marketing skill) ²

Note. ¹Skill was taught to both groups of participants. ²Skill was only taught to one group of participants.

We administered a total of three surveys, one before training (*T1*), one immediately after training (*T2*), and the last one 6 months after training (*T3*) to determine: (a) the impact of training on own-account workers' digital skills, (b) the impact of the training programme on own-account workers' attitudes towards digital technology, and (c) the effects of training on own-account workers' attitudes towards upskilling.

Results

Digital Skills for Own-Account Workers

Currently, there are a few skills frameworks which provide useful indicators for the range of digital skills one requires to thrive in the economy today, such as the Essential Digital Skills Framework in the UK and European Commission's DigComp 3.0. However, these frameworks address the needs of the general public. Grounded in local job postings, we seek to develop a contextualised framework targeted at a specific type of workers. The literature review and analysis by LARC shed light on the skills required by own-account workers to thrive in a global digital economy. Based on the job postings from MyCareersFuture, we found that:

1. A wide range of digital skills was required across various occupations and industries, with specific skills tailored to the nature of the job, such as design and computing.
2. Despite the diversity of digital skills, most non-permanent jobs required applicants to have a minimum proficiency with word processing, presentation, and spreadsheet tools, indicating that such skills were essential and baseline. As such, potential own-account workers seeking entry into white-collared contractual jobs would have to equip themselves with these basic digital skills before undertaking training for a specialised digital skill set.

3. Except for the transportation and delivery sector, all occupational sectors placed a premium on fundamentals in programming and cloud computing, making these skills essential for most own-account work sectors.

Based on the findings, we developed a tiered skills framework for own-account workers' digital skill acquisition, which we refined based on findings from the FGDs and IDIs. The final framework comprises three tiers—baseline digital skills, intermediate digital skills, and occupation-specific skills. A fourth category of skills—non-digital contextual skills—supports the usage of digital skills across the three tiers. Table 4 presents the tiered skills framework.

Baseline digital skills are essential skills for all workers of the 21st century. A report published by Economist Impact (2023, p. 11) which surveyed more than 1,000 employees from Asia Pacific found that three in four employees (73.9%) thought that basic digital skills were a “must-have.” These skills spanned from handling and operating basic digital software and hardware, using technology for project management, communication, and collaboration, harnessing technology creatively in problem solving, to critical thinking. From the data collected from MyCareersFuture by LARC, we found that skills in the Microsoft suite of applications (e.g. Excel, PowerPoint, and Word) were needed across job postings for ICT and non-ICT jobs alike, suggesting that there is an expectation for most workers to have some proficiency in this software suite.

We identified six baseline digital skills for own-account workers: (a) basic digital operations, (b) communication and collaboration skills, (c) organisation and project management, (d) safety and security, (e) optimising profile, and (f) pricing services and products.

Intermediate digital skills are digital skills applied at a more advanced level than baseline digital skills. Intermediate skills comprise platform-related skills (e.g. using a platform, optimising one's profile, pricing products and services, and managing finances) and digital skills that are applied at a more advanced level than baseline digital skills (e.g. information management and processing, safety and security, digital content and product creation). Gig workers need to develop skills that help them to obtain work on a platform, such as making sense of information and features provided by the platform to obtain and optimise work (Cedefop, 2020). Platform-related skills will help them gain an edge over others, especially since digital platforms are not constrained by geographical boundaries.

Workers also need to acquire and develop intermediate skills that will enable them to perform better and transition to other industries more easily, increase their economic contribution, and improve their remuneration. For instance, digital content creation and product creation are no longer skills required only by the creative and multimedia industry, but also by those doing business and administration jobs. We identified four intermediate skills: (a) information management and processing; (b) content and product creation; (c) data analysis and visualisation; and (d) programming fundamentals.

Occupation-specific skills are examples of digital skills required by those who work in: (a) science and engineering; (b) creative and multimedia; (c) professional services; (d) business and administration; (e) software and development; and (f) transportation and delivery. Two skills—programming fundamentals and cloud computing—are important to all sectors, except for the transportation and delivery sector.

Contextual skills are non-digital skills used in tandem with the baseline, intermediate, and occupation-specific digital skills and help workers perform more effectively in their work. Contextual skills are particularly pertinent for own-account workers who lack institutional support and mentorship structures. Here we identified six contextual skills: (a) problem solving; (b) critical thinking; (c) analytical thinking; (d) learning to learn; (e) adaptability; and (f) ethical awareness.

Table 4**Digital Skills Framework**

Contextual Skills: Problem solving, critical thinking, analytical thinking, learning to learn, adaptability, ethical awareness	Digital Skill		Description					
	Baseline Skills	Basic digital operations	Basic use of digital devices (e.g. smartphones, computers), including connecting to Wi-Fi, taking and uploading photos, receiving app notifications, using GPS for navigation, searching for and filtering information online, opening and viewing files of various formats (e.g. photos, PDF documents, word documents), using job-matching applications or platforms (e.g. delivery apps), digital payment apps					
		Communication and collaboration skills	Using digital tools such as instant messaging applications (e.g. WhatsApp, Telegram, Facebook Messenger), video conferencing platforms (e.g. Zoom, Microsoft Teams), email and cloud-based storage (e.g. Google Drive, SharePoint) to communicate and collaborate with others Etiquette for communication (e.g. when to use emails or text messages with work partners)					
		Organisation and project management	Plan schedules, stick to deadlines and track payments, with the help of digital tools like digital calendars (e.g. phone calendars, Google Calendar), Excel, or customer relationship management tools (e.g. Notion, Microsoft Access, Enterprise Resource Planning systems)					
		Safety and security	Setting access rights on online shared drives, password protecting files, setting up firewalls, reminding clients of security issues, being aware that the cloud can be hacked easily, understanding how to protect personal data					
		Optimising profile	Publishing and developing their profile (e.g. experience, track record, skillsets) to publicise their services and products in online platforms to gain visibility and traction					
		Pricing services and products	Only essential for those selling products or services Setting and adjusting prices of service or products on online platforms e.g. e-commerce platforms					
	Intermediate Skills	Information management and processing	Use digital tools to process and present text and data in various formats (e.g. Word, Excel, PowerPoint, Keynote, Tableau)					
		Content and product creation	Generate novel content or repurpose existing content using digital design tools (e.g. Photoshop, Canva, Gimp) to create simple images and graphics (e.g. web banners, IG stories, Facebook posts) to attract new clients or engage existing clients online					
		Data analysis and visualisation	Tracking and analysing data about sales income, monthly or annual sales level, costs of supplies and services, performance of online advertisements and profiles Visualising data using Excel, Power BI, and Tableau					
		Programming fundamentals	Basic understanding of HTML and CSS for making minor edits to personal profiles or business websites					
	Occupation-Specific Skills	Science & Engineering	Creative & Multimedia	Professional Services	Business & Administration	Software Development & Technology	Transportation & Delivery	
		- Digital modelling software (e.g. AutoCAD, Altium, CANape) - Advanced programming frameworks and tools (e.g. React, Node, Angular, VUE) - Advanced programming skills (e.g. Java, Python, R, C++, advanced HTML and CSS) - Computer engineering	- Digital marketing (e.g. branding) - Human-computer interaction (e.g. UX, UI) - Web development - Social media (e.g. Twitter, Facebook, TikTok) - Information management - Data visualisation - Graphic design (e.g. logo design, typography)	- Data analysis (e.g. Microsoft Excel) - Programming skills (e.g. SQL, Python) - Data visualisation - Machine learning - Leadership and management	- Customer relationship management (e.g. Salesforce, Microsoft Dynamics) - Digital marketing (e.g. Mailchimp, Adobe Suite) - Analytics (e.g. Google Analytics)	- Cloud platforms (e.g. AWS, Azure, Google Cloud) - Programming languages (e.g. Python, JavaScript, Java) - Data analysis - Database management (e.g. SQL)	- Operation of smartphone - Information management (e.g. keeping client contact information private) - Communication (e.g. reporting problems via digital platform) - Critical thinking and problem solving (e.g. using online map to plan most efficient route) - Electronic payment (e.g. banking apps, platform payment options)	

Impact of Training on Own-Account Workers

To understand the impact of training, we tested the digital skills framework that we developed in Phase Three of the study with 52 own-account workers, half of whom were engaged in Creative and Multimedia work and the other half in Sales and Marketing work. Both groups were taught a total of 12 skills in the digital skills framework over 5 days: 11 common digital skills and one occupation-specific skill according to their occupation group. We surveyed participants at *T1*, *T2*, and *T3*.

We analysed the survey data using IBM SPSS software version 29 and conducted repeated measures ANOVA to determine if the training programme had significant overall effect. Paired *t*-tests were run to determine the net effect of the training, immediate effects of the training, and lagged effects of the training for all participants ($N = 52$) and for participants split by occupation group ($n = 26$ for creative and media group and $n = 26$ for sales and marketing group).

Training Improved Reported Ability in Digital Skills Taught

We found significant improvements in participants' ability for 10 digital skills (out of 11 common digital skills taught) by the end of the study. However, the significant improvement was mostly registered immediately post training, and there was a plateauing of reported ability for seven of these skills (e.g. "optimising profile," "programming fundamentals"). The results suggest that the improvements were likely attributable to the training programme, but there was no further self-directed improvement after 6 months in the absence of training. This finding suggests the need for regular efforts to upskill in order to maintain proficiency in digital skills and remain competitive in a rapidly changing technological environment. Regular formal training is key to skills enhancement.

The participants made gradual improvements for the other three skills (e.g. "basic digital operations," "information management and processing") from the start to the end of the study period (i.e. from *T1* to *T3*). These improvements may not be directly attributable to the training programme. A possible explanation is that the participants' self-reported ability in using the skills increased naturally over time as they continued to use the skills covered during the training programme. (See Table 5 for the summary of changes in perceived ability at different time periods.)

Table 5
Summary of Repeated Measures ANOVA for Ability in Using Digital Skills

Skill	T1				T2				T3				Within-Subject Contrast					
	N	Mean	SE	95% CI		N	Mean	SE	95% CI		N	Mean	SE	95% CI		F	p (linear)	Partial Eta Squared
				Low	High				Low	High				Low	High			
Adaptability	52	4.12	0.11	3.90	4.33	52	4.19	0.09	4.02	4.37	52	4.15	0.10	3.95	4.36	0.12	0.735	0.00
Ethical Awareness	52	4.58	0.08	4.42	4.74	52	4.52	0.08	4.37	4.67	52	4.63	0.08	4.47	4.80	0.29	0.595	0.01
Analytical Thinking	52	4.29	0.09	4.10	4.47	52	4.44	0.08	4.29	4.59	52	4.23	0.10	4.03	4.43	0.23	0.636	0.00
Problem Solving	52	4.46	0.10	4.27	4.66	52	4.50	0.09	4.32	4.68	52	4.54	0.09	4.36	4.72	0.72	0.399	0.01
Critical Thinking	52	4.25	0.12	4.01	4.49	52	4.27	0.10	4.07	4.47	52	4.46	0.09	4.28	4.65	2.54	0.117	0.05
Learning to Learn	52	4.38	0.11	4.17	4.60	52	4.40	0.10	4.21	4.60	52	4.29	0.11	4.07	4.50	0.86	0.358	0.02
Basic Digital Operations	52	4.44	0.09	4.26	4.63	52	4.46	0.09	4.28	4.64	52	4.65	0.08	4.49	4.82	4.45	0.040	0.08
Communication and Collaboration	52	4.48	0.09	4.29	4.67	52	4.63	0.08	4.48	4.79	52	4.65	0.08	4.50	4.81	3.12	0.083	0.06
Organisation and Project Management	52	3.94	0.13	3.68	4.20	52	4.15	0.12	3.91	4.40	52	4.33	0.13	4.06	4.59	8.12	0.006	0.14
Safety and Security	52	3.62	0.14	3.33	3.90	52	4.06	0.12	3.83	4.29	52	4.21	0.11	4.00	4.43	16.68	<.001	0.25
Optimising Profile	52	3.65	0.15	3.35	3.96	52	4.13	0.10	3.93	4.34	52	4.27	0.11	4.06	4.48	16.65	<.001	0.25
Pricing Products and Services	52	3.35	0.16	3.03	3.67	52	3.77	0.13	3.52	4.02	52	3.90	0.13	3.65	4.16	10.46	0.002	0.17
Information Management and Processing	52	3.77	0.13	3.52	4.02	52	3.85	0.12	3.62	4.08	52	4.15	0.12	3.92	4.39	5.74	0.02	0.10
Content and Product Creation	52	3.58	0.17	3.24	3.91	52	4.15	0.12	3.92	4.38	52	4.15	0.11	3.93	4.38	12.86	<.001	0.20
Data Analysis and Visualisation	52	2.79	0.17	2.45	3.13	52	3.44	0.12	3.20	3.69	52	3.46	0.14	3.18	3.74	13.74	<.001	0.21
Programming Fundamentals	52	2.44	0.18	2.08	2.80	52	3.29	0.15	3.00	3.58	52	3.12	0.17	2.77	3.46	17.30	<.001	0.25
Digital Marketing	52	3.12	0.15	2.82	3.41	52	3.94	0.10	3.74	4.14	52	3.69	0.12	3.44	3.94	10.94	0.002	0.18
Social Media	26	3.08	0.24	2.59	3.56	26	4.15	0.11	3.93	4.37	26	3.96	0.15	3.65	4.27	10.46	0.003	0.30
Analytics	26	2.96	0.19	2.57	3.35	26	3.38	0.19	2.57	3.35	26	3.15	0.19	2.57	3.35	0.80	0.38	0.03

We also compared the two groups of own-account workers. On the whole, creative and multimedia workers reported significant improvements in their self-reported ability for a greater number of skills, compared to the sales and marketing group. This could be because the creative and multimedia group found the training more useful. (See Table 6 for the summary of changes in perceived ability at different time periods for each group.)

Table 6*Summary of Paired Samples t-Test (Before and Immediately After Training, Split by Occupation Group)*

	Creative and Multimedia Group					Sales and Marketing Group				
	T1	T2	Difference	t	p	T1	T2	Difference	t	p
Adaptability	4.15	4.23	0.08	0.63	0.538	4.08	4.15	0.08	0.63	0.538
Ethical Awareness	4.62	4.54	-0.08	-0.57	0.574	4.54	4.50	-0.04	-0.33	0.746
Analytical Thinking	4.31	4.42	0.12	0.65	0.523	4.27	4.46	0.19	1.73	0.096
Problem Solving	4.42	4.73	0.31	2.31*	0.029	4.50	4.27	-0.23	-1.44	0.161
Critical Thinking	4.23	4.35	0.12	0.68	0.502	4.27	4.19	-0.08	-0.49	0.627
Learning to Learn	4.54	4.50	-0.04	-0.20	0.846	4.23	4.31	0.08	0.46	0.646
Basic Digital Operations	4.46	4.58	0.12	0.77	0.449	4.42	4.35	-0.08	-0.53	0.603
Communication and Collaboration	4.58	4.77	0.19	1.73	0.096	4.38	4.50	0.12	0.77	0.449
Organisation and Project Management	4.00	4.15	0.15	0.61	0.548	3.88	4.15	0.27	1.49	0.148
Safety and Security	3.62	4.12	0.50	2.05	0.051	3.62	4.00	0.38	1.79	0.086
Optimising Profile	3.65	4.15	0.50	2.39*	0.025	3.65	4.12	0.46	2.00	0.056
Pricing Products and Services	3.38	3.85	0.46	1.85	0.076	3.31	3.69	0.38	1.33	0.195
Information Management and Processing	3.69	3.73	0.04	0.18	0.862	3.85	3.96	0.12	0.59	0.559
Content and Product Creation	3.62	4.38	0.77	3.00	0.006	3.54	3.92	0.38	1.79	0.086
Data Analysis and Visualisation	2.77	3.35	0.58	1.96	0.061	2.81	3.54	0.73	2.91	0.008
Programming Fundamentals	2.46	3.27	0.81	2.91*	0.007	2.42	3.31	0.88	2.85	0.009
Digital Marketing	2.88	4.04	1.15	4.95*	<.001	3.35	3.85	0.50	1.79	0.085
Social Media	3.08	4.15	1.08	4.35*	<.001	—	—	—	—	—
Analytics	—	—	—	—	—	2.96	3.38	0.42	1.90	0.069

Note. *p < .05

Increase in Overall Skill Use

The participants reported a significant increase in their use of six out of the 11 skills that were taught (e.g. “safety and security,” “content and product creation,” and “digital marketing”) 6 months after completing training. The frequency of use for all six of these skills increased immediately after training (from *T1* to *T2*) but also plateaued during the timelapse (from *T2* to *T3*). (See Table 7.) There is convergence in the skills for which participants reported significant improvements and their frequency of use. Most of these skills are intermediate skills.

Table 7
Summary of Repeated Measures ANOVA for Frequency of Using Digital Skills

Skill	T1				T2				T3				Within-Subject Contrast					
	N	Mean	SE	95% CI		N	Mean	SE	95% CI		N	Mean	SE	95% CI		F	p	Partial Eta Squared
				Low	High				Low	High				Low	High			
Basic Digital Operations	52	4.42	0.10	4.22	4.62	52	4.42	0.10	4.21	4.63	52	4.46	0.10	4.26	4.66	0.10	0.755	0.00
	52	4.52	0.09	4.35	4.69	52	4.58	0.09	4.39	4.76	52	4.64	0.09	4.46	4.81	0.10	0.755	0.00
	52	3.98	0.14	3.70	4.27	52	4.10	0.13	3.84	4.36	52	4.08	0.14	3.80	4.35	0.37	0.546	0.01
	52	3.08	0.17	2.74	3.41	52	3.81	0.13	3.56	4.06	52	3.79	0.15	3.49	4.09	13.34	<.001	0.21
	52	3.17	0.17	2.83	3.51	52	3.87	0.13	3.61	4.12	52	3.69	0.14	3.41	3.98	10.07	0.003	0.17
	52	2.69	0.17	2.36	3.03	52	2.94	0.11	2.72	3.17	52	2.89	0.16	2.56	3.21	1.07	0.307	0.02
Information Management and Processing																		
	52	3.33	0.17	2.99	3.66	52	3.60	0.13	3.34	3.85	52	3.69	0.15	3.38	4.00	3.10	0.084	0.06
Content and Product Creation	52	3.06	0.17	2.72	3.40	52	3.71	0.14	3.44	3.98	52	3.62	0.15	3.32	3.91	21.24	<.001	0.29
	52	2.21	0.17	1.86	2.56	52	2.85	0.16	2.53	3.16	52	2.85	0.18	2.50	3.20	12.41	<.001	0.20
Data Analysis and Visualisation																		
Programming Fundamentals	52	1.92	0.16	1.61	2.24	52	2.40	0.16	2.09	2.72	52	2.46	0.18	2.10	2.82	10.00	0.003	0.16
Digital Marketing	52	2.83	0.17	2.48	3.17	52	3.64	0.15	3.33	3.94	52	3.48	0.15	3.17	3.79	12.09	0.001	0.19
Social Media (Creative and Multimedia Only)	26	2.92	0.25	2.40	3.45	26	2.92	0.25	2.40	3.45	26	3.42	0.21	2.99	3.85	4.45	0.045	0.15
Analytics (Sales and Marketing Only)	26	2.19	0.20	1.78	2.61	26	2.85	0.22	2.39	3.30	26	2.65	0.19	2.26	3.05	2.65	0.043	0.15

Immediately after training (from *T1* to *T2*), the sales and marketing group reported significant increases in their use of skills compared with the creative and multimedia group. The former reported increases in use for seven out of 12 digital skills (e.g. “safety and security,” “data analysis and visualisation,” “analytics”). However, during the 6-month lapse, this group did not report any further increase or change in frequency of using digital skills. The immediate increase in frequency of skills usage is likely attributable to the training programme and the lower baseline for use in their professions. It is possible that frequency of skill usage among the sales and marketing group plateaued due to relatively limited opportunities they had in using these skills at work during the 6-month time lapse.

On the other hand, the creative and multimedia group reported significant increases in the frequency of use for only four skills (out of 12) immediately after training (e.g. “safety and security,” common occupation-specific skill “digital marketing”). This group reported significant gradual increases in their frequency of using three skills (i.e. “data analysis and visualisation,” “programming fundamentals,” and “social media”). These three skills were more technical and advanced. It is possible that the creative and multimedia own-account workers had fewer opportunities in using these skills at work, and that their usage frequency increased with time when there were more opportunities to apply the skills.

Both groups did not report significant increases in their frequency of using five digital skills, most of which were baseline skills (e.g. “organisation and project management”). Since participants already used these skills frequently before they started training, the training programme did not have further impact on the participants’ frequency of skill use (non-significant findings likely due to ceiling effects). (See Table 8.)

Table 8

Summary of Paired Samples t-Test (Before and Immediately After the Training Programme, Split by Occupation Group) for Frequency of Using Digital Skills

	Creative and Multimedia Group					Sales and Marketing Group				
	T1	T2	Difference	t	p	T1	T2	Difference	t	p
Basic Digital Operations	4.58	4.58	-0.23	0.00	1.000	4.27	4.27	0.00	0.00	1.000
Communication and Collaboration	4.58	4.65	0.00	0.57	0.574	4.46	4.50	0.04	0.21	0.832
Organisation and Project Management	4.04	3.88	0.15	-0.64	0.527	3.92	4.31	0.38	2.00	0.057
Safety and Security	3.04	3.69	0.81	.00*	0.012	3.12	3.92	0.81	3.43	0.002
Optimising Profile	3.19	3.65	0.62	.57*	0.037	3.15	4.08	0.92	4.63	<.001
Pricing Products and Services	2.92	3.00	0.00	-0.64	0.753	2.46	2.88	0.42	1.90	0.069
Information Management and Processing	3.35	3.54	0.35	0.00	0.539	3.31	3.65	0.35	1.74	0.095
Content and Product Creation	3.15	3.77	0.42	.57*	0.029	2.96	3.65	0.69	4.22	<.001
Data Analysis and Visualisation	2.23	2.58	0.62	-0.64	0.265	2.19	3.12	0.92	3.93	<.001
Programming Fundamentals	2.00	2.19	0.58	0.00	0.511	1.85	2.62	0.77	2.9	0.007
Digital Marketing	2.96	3.42	0.58	.57*	0.008	2.69	3.85	1.15	6.36	<.001
Social Media (Creative and Multimedia Only)	2.92	3.27	0.50	-0.64	0.095	—	—	—	—	—
Analytics (Sales and Marketing Only)	—	—	—	—	—	2.19	2.85	0.65	2.95*	0.007

Note. *p < .05

Training Improved Task Performance

By the end of the study, there were significant improvements observed in the self-reported ability of participants in performing 15 out of 16 tasks taught to all participants during the training programme. The only task for which participants did not report significant improvements in ability performing was the contextual task “problem solving (search engine).” Of these 15 skills, we observed a plateauing of their ability during the 6-month time lapse for nine (out of 16) tasks. There were two baseline tasks (i.e. “basic digital operations [cloud platforms]” and “communication and collaboration [videoconferencing]”), which improved immediately after training (from *T1* to *T2*) and also during the time lapse (from *T2* to *T3*).

These findings highlight the effectiveness of the training programme in improving participants’ reported ability in performing the specific tasks taught. These therefore point to the need for continuous learning or training for the ability to keep on improving, especially for the more advanced or complex skills.

There were five (out of 16) tasks which improved gradually over the duration of the study. These were mostly baseline tasks (e.g. “communication and collaboration [presenting information]”) and one intermediate task (i.e. “content and product creation [different formats]”). As the reported significant improvements in these tasks did not occur immediately after training, they are not immediately attributable to the training programme. However, it is also possible that the effects of training on these tasks have been delayed as participants needed more time to practise and apply their skills.

Including the three unique occupation-specific tasks taught to each occupation group, the creative and multimedia group reported increased ability for more tasks, compared to the sales and marketing group, by the end of the study (i.e. from *T1* to *T3*). For example, the creative and multimedia group reported significant increased ability for 11 tasks immediately after training (i.e. from *T1* to *T2*), compared to the sales and marketing group who reported significant increased ability in only four tasks. There were only five (out of 19) tasks that did not improve by the end of the study for the creative and multimedia participants, compared with 10 tasks for the sales and marketing group. (See Tables 9 and 10.)

Table 9
Summary of Repeated Measures ANOVA for Learning Outcomes, Creative and Multimedia Group

Skill	Task	N	T1				T2				T3				Within-Subject Contrast			
			Mean	SE	95% CI		Mean	SE	95% CI		Mean	SE	95% CI		F	p (linear)	Partial Eta Squared	
					Low	High			Low	High			Low	High			Low	High
Problem Solving	Use search engines (e.g. Google, Bing, Yahoo) to help solve problems in your work	26	4.69	0.12	4.44	4.94	4.65	0.11	4.43	4.88	4.85	0.07	4.70	5.00	1.64	0.212	0.06	0.06
Basic Digital Operations	Use instant messaging platforms (e.g. WhatsApp, Telegram, Facebook Messenger) as a business communication tool	26	4.58	0.18	4.21	4.94	4.65	0.12	4.40	4.91	4.89	0.06	4.75	5.02	3.51	0.073	0.12	0.12
	Use cloud platforms (e.g. Google Drive, Microsoft SharePoint) to do and store work	26	4.50	0.13	4.24	4.76	4.54	0.15	4.23	4.85	4.69	0.16	4.35	5.03	1.50	0.232	0.06	0.06
Communication and Collaboration	Use videoconferencing tools (e.g. Zoom, Microsoft Teams) to conduct virtual meetings	26	4.50	0.15	4.19	4.81	4.65	0.14	4.38	4.93	4.69	0.11	4.47	4.91	2.40	0.134	0.09	0.09
	Use digital tools (e.g. Microsoft Word, Google Sheets, Tableau) to process and present text and data to business partners or clients	26	3.77	0.22	3.32	4.22	4.12	0.17	3.77	4.46	4.31	0.19	3.92	4.70	8.39	0.008	0.25	0.25
Organisation and Project Management	Use project management tools (e.g. Notion, Trello, Asana) to plan and manage project timelines	26	3.12	0.27	2.56	3.67	3.89	0.20	3.48	4.29	3.73	0.21	3.30	4.17	4.72	0.04	0.16	0.16

	Use digital finance tools (e.g. Xero, Books, Lyte Pay) to track payments from clients	26	2.39	0.27	1.82	2.95	3.65	0.21	3.23	4.08	3.50	0.22	3.04	3.96	11.13	0.003	0.31
Safety and Security	Identify best practices for digital safety and security	26	3.42	0.22	2.98	3.87	3.85	0.17	3.49	4.20	4.15	0.19	3.76	4.54	11.92	0.002	0.32
Optimising Profile	Use components of an effective profile to edit or update my online profile to attract potential clients	26	3.85	0.21	3.42	4.27	4.12	0.17	3.77	4.46	4.39	0.14	4.10	4.67	6.62	0.016	0.21
Pricing Products and Services	Set appropriate prices for my products and services so that my business is sustainable	26	3.31	0.20	2.90	3.72	3.69	0.14	3.40	3.99	4.04	0.15	3.73	4.35	13.82	0.001	0.36
Content and Product Creation	Create different formats of content (e.g. images, videos) to attract potential clients to your business profile using design platforms and software (e.g., Canva, Adobe Photoshop)	26	3.65	0.27	3.10	4.21	4.35	0.14	4.07	4.63	4.23	0.15	3.92	4.54	5.36	0.029	0.18
Information Management and Processing	Collect and process data for your work or business using digital tools (e.g. Microsoft Power BI, Tableau, HootSuite)	26	2.50	0.26	1.96	3.04	3.15	0.16	2.82	3.49	3.19	0.24	2.69	3.69	4.48	0.044	0.15
Programming Fundamentals	Identify basic components of HTML and CSS	26	2.65	0.27	2.11	3.20	3.08	0.20	2.67	3.49	3.04	0.25	2.53	3.54	2.18	0.153	0.08
Digital Marketing	Craft a brand story	26	3.00	0.24	2.52	3.49	3.85	0.20	3.44	4.25	4.04	0.21	3.60	4.47	15.59	<.001	0.38
	Create a marketing audience persona	26	3.04	0.20	2.62	3.46	3.89	0.19	3.50	4.27	3.96	0.18	3.59	4.33	16.36	<.001	0.40

	Create a cross-channel digital marketing strategy for a business	26	2.69	0.22	2.24	3.15	3.65	0.19	3.26	4.05	3.85	0.18	3.47	4.22	20.91	<.001	0.46
Social Media (Creative and Multimedia Only)	Identify the most suitable social media channel(s) to promote a business	26	3.38	0.20	2.97	3.80	4.31	0.13	4.03	4.58	4.27	0.15	3.96	4.58	13.16	0.001	0.35
	Create different types of video content (e.g. livestreaming, short videos) for various social media channels (e.g. TikTok, Instagram)	26	3.62	0.21	3.19	4.04	4.15	0.15	3.84	4.47	4.08	0.17	3.74	4.42	4.87	0.037	0.16
	Create a social media strategy for a brand or campaign using insights from social media metrics and tools (e.g. Google Trends, TikTok Creative Centre, HubSpot, Mention)	26	2.89	0.24	2.38	3.39	3.58	0.18	3.21	3.94	3.81	0.20	3.40	4.22	11.11	0.003	0.31

Table 10*Summary of Repeated Measures ANOVA for Learning Outcomes, Sales and Marketing Group*

Skill	Task	N	T1				T2				T3				Within-Subject Contrast		
			Mean	SE	95% CI		Mean	SE	95% CI		Mean	SE	95% CI		F	p (linear)	Partial Eta Squared
					Low	High			Low	High			Low	High			
Problem Solving	Use search engines (e.g. Google, Bing, Yahoo) to help solve problems in your work	26	4.42	0.19	4.04	4.81	4.50	0.13	4.24	4.76	4.65	0.14	4.38	4.93	1.21	0.282	0.05
Basic Digital Operations	Use instant messaging platforms (e.g. WhatsApp, Telegram, Facebook Messenger) as a business communication tool	26	4.65	0.12	4.40	4.91	4.42	0.14	4.14	4.71	4.73	0.13	4.46	5.00	0.16	0.691	0.01
Communication and Collaboration	Use cloud platforms (e.g. Google Drive, Microsoft SharePoint) to do and store work	26	4.35	0.16	4.02	4.67	4.39	0.13	4.13	4.64	4.69	0.11	4.47	4.91	6.55	0.017	0.21
Communication and Collaboration	Use videoconferencing tools (e.g. Zoom, Microsoft Teams) to conduct virtual meetings	26	4.46	0.13	4.20	4.72	4.27	0.12	4.03	4.51	4.69	0.09	4.50	4.88	2.37	0.136	0.09
Communication and Collaboration	Use digital tools (e.g. Microsoft Word, Google Sheets, Tableau) to process and present text and data to business partners or clients	26	3.85	0.18	3.47	4.22	4.08	0.17	3.74	4.42	4.31	0.17	3.95	4.67	4.27	0.049	0.15

Organisation and Project Management tools (e.g. Notion, Trello, Asana) to plan and manage project timelines	26	3.15	0.26	2.62	3.69	3.73	0.20	3.33	4.14	3.65	0.18	3.28	4.03	3.65	0.068	0.13
Use digital finance tools (e.g. Xero, Books, Lyte Pay) to track payments from clients	26	2.73	0.24	2.24	3.22	3.65	0.21	3.23	4.08	3.39	0.17	3.04	3.73	5.80	0.024	0.19
Safety and Security Identify best practices for digital safety and security	26	3.42	0.19	3.04	3.81	3.69	0.16	3.35	4.03	3.81	0.16	3.48	4.13	2.99	0.096	0.11
Optimising Profile Use components of an effective profile to edit or update my online profile to attract potential clients	26	3.73	0.17	3.38	4.08	4.00	0.14	3.72	4.28	4.04	0.15	3.73	4.35	4.55	0.043	0.15
Pricing Products and Services Set appropriate prices for my products and services so that my business is sustainable	26	3.46	0.19	3.06	3.86	3.54	0.18	3.17	3.90	3.77	0.18	3.40	4.14	2.86	0.103	0.10
Content and Product Creation Create different formats of content (e.g. images, videos) to attract potential clients to your business profile using design platforms and software (e.g. Canva, Adobe Photoshop)	26	3.42	0.21	2.99	3.85	3.73	0.18	3.36	4.10	3.81	0.18	3.43	4.19	3.68	0.067	0.13
Information Management and Processing Collect and process data for your work or business using digital tools (e.g. Microsoft)	26	2.81	0.22	2.37	3.25	3.35	0.17	3.01	3.69	3.19	0.16	2.87	3.52	3.98	0.057	0.14

Power BI, Tableau, HootSuite)																	
Programming Fundamentals	Identify basic components of HTML and CSS	26	2.08	0.21	1.64	2.52	3.19	0.22	2.75	3.64	2.92	0.22	2.47	3.38	10.25	0.004	0.29
	Craft a brand story	26	3.04	0.24	2.55	3.53	3.73	0.14	3.44	4.02	3.54	0.18	3.17	3.90	4.01	0.056	0.14
	Create a marketing audience persona	26	3.08	0.27	2.52	3.64	3.77	0.15	3.46	4.08	3.65	0.19	3.26	4.05	4.67	0.041	0.16
	Create a cross-channel digital marketing strategy for a business	26	2.92	0.23	2.45	3.39	3.65	0.15	3.35	3.96	3.46	0.20	3.05	3.88	5.17	0.032	0.17
Analytics (Sales and Marketing Only)	Identify business problems and sources of data	26	3.27	0.20	2.86	3.67	3.54	0.17	3.19	3.89	3.58	0.17	3.23	3.92	4.55	0.043	0.15
	Make sense of data and answer business problems using data	26	3.31	0.21	2.88	3.73	3.58	0.16	3.25	3.90	3.54	0.15	3.23	3.85	2.08	0.161	0.08
	Present and compare data using various forms of visual representation (e.g. Pivot Tables, dashboards)	26	2.89	0.24	2.40	3.37	3.31	0.21	2.88	3.73	3.46	0.16	3.13	3.79	5.64	0.026	0.18

The training appears to have improved the reported ability in more tasks among the creative and multimedia group. As there were no statistically significant differences between the pre-training skill levels reported by the two groups of workers in the independent *t*-tests, the findings suggest that the creative and multimedia group possibly found the training programme more useful in raising their reported ability in performing these tasks.

Increased Confidence in Using Technology but Reduced Interest in Training

We observed significant improvements in participants' confidence in using digital software for work. Participants also felt significantly more confident in using digital services (e.g. internet banking services, online job-matching platforms) for work. (See Table 11.) This shows that training improved own-account workers' efficacy in deploying technology at work. By the end of the study, there was a significant increase in participants' belief that digital technology has helped them find work more easily. They learned more effective ways to optimise their profiles on job-matching platforms or social media and to apply those skills in their work to attract more potential clients and business.

Table 11

Increased Confidence in Using Technology

Item	T1	T3	Difference	<i>t</i>	<i>p</i>
I feel confident using digital software (e.g. Microsoft Word, Google Sheets, internet browsers, etc.) for work	4.33	4.63	0.31	3.16	0.003
I feel confident using digital services (e.g. internet banking services, online job-matching platforms) for work	4.1	4.56	0.46	3.81	<0.001
Digital technology has helped me find work more easily	3.79	4.13	0.35	2.90	0.005

However, we observed a negative change in participants' attitudes towards digital upskilling. After training (from T1 to T3), they were less likely to look for opportunities to develop new digital skills and knowledge and were less willing to invest their time in developing their digital skills. (See Table 12.)

Table 12*Summary of Paired Samples t-Test for Learning Goal Orientation*

Item	T1	T3	Difference	t	p
I look for opportunities to develop new digital skills and knowledge	4.46	4.29	-0.17	-2.02	0.049
I think learning and developing digital skills is important	4.63	4.58	-0.06	-0.77	0.444
I am willing to invest my time in developing my digital skills	4.56	4.25	-0.31	-3.30	0.002
I am willing to spend money on developing my digital skills	3.75	3.75	0.00	0.00	1.000

A possible reason for the slight decrease in participants' seeking out new opportunities and willingness to spend time on developing their digital skills could be participants did not feel the need to upskill so soon after completing the training programme. The same can be said for the importance of learning and developing digital skills, even though the decrease for this item was not significant.

Challenges Faced by Own-Account Workers

Through the FGDs and IDIs, we found that own-account workers fell into two main groups: those who did not see the importance of upskilling, and those who found upskilling important but were stuck in inaction as they felt overwhelmed and lost. For those in the first group, upskilling was not seen as a priority despite digital technology being part of their work and businesses due to "lack of incentives or motivation to upskill." They were cautious about wasting time on training which could have been spent on taking on more jobs and earning more income.

However, the second group which had a more positive attitude towards upskilling expressed feeling overwhelmed by the endless challenge of having to keep learning new tools, given the rapid and incessant advancement of technology. An e-commerce business owner said there was a general "fear of being left behind" as technology moved at an "exponential pace," while people like him were "struggling to grasp with TikTok, cryptocurrency, and NFTs." A graphic designer shared his struggles with encountering "a new learning curve," and each time when he learnt a new software to better cater to his clients' needs, he would be "throwing away" his experience with a software he is more familiar with. Concerns over playing catch up with new technology and tools were shared even by those who were more IT savvy, such as experienced IT professionals. For example, an IT network administrator spoke about having to, in his own words, "unlearn" and "relearn" continuously.

Adding to this sense of futility and anxiety is the lack of awareness and knowledge of what skills are needed in the industry and where their own gaps in terms of competencies lay. While many own-account workers agreed that upskilling was important, most of them did not know what they did not know — that is, they were not aware of the skills they lacked and, correspondingly, what skills they should improve on or learn.

As an IT network administrator noted, own-account workers "don't know what they don't know." Similarly, an accounts payable clerk said, "You don't know some things so you can't see what you need to improve on." Additionally, participants often faced an overwhelming number of options on the MySkillsFuture course portal and that further compounded their confusion. The sentiments expressed by a freelancer writer were shared by many participants.

When I went to the SkillsFuture website, I find many courses, and there are a lot of things I feel like doing. But I'm not sure which one I should commit my time to. — **freelance writer**

Own-account workers also faced challenges with existing guidance and resources which they found to be too general. The different needs of own-account workers highlight that a one-size-fits-all approach does not work. The FGDs and IDIs shed light on the diversity of participants' competencies, preferences for learning modality and training needs. The findings from the pilot test which point to different effects of training show that course design and recommendations have to be tailored by occupation needs and career goals. An insurance agent said that the course listings on the MySkillsFuture portal should be "industry-specific" and provide recommendations based on occupations for people seeking training like her: "Telling us, for insurance agents, these are the courses you can take. For real estate agents, these are the courses." Her suggestion was echoed by a freelance writer who said that a list of relevant skills by job role would be helpful.

For the different roles that we are in, it would be good to know what kind of skills or what kind of trending skills or updated skills we need to be equipped with. This can be done through a platform or a portal. For example, for a digital marketing role, here are the skills you need to be equipped with. This will be useful for people to want to grow their skills or people who want to start a new role in another industry. — **freelance writer**

Besides personalising course recommendations by sectors or occupations, participants said that recommendations which are tailored by educational qualifications, aspirations, and current digital skills level would help them navigate the upskilling landscape.

If SkillsFuture can customise in such a way [that] when we input our educational qualification, what we are doing now, and what our aspirations are, we can get a personalised roadmap. Like this is something that you can consider doing based on your current skill set and your qualification. — **web designer and developer**

There should be a criteria to say, 'Do you have the basic digital skills? If you do, great... then, this course plus this works for you. If you don't, then let me suggest you a course where you do a bit of both.' So, it won't overwhelm [users], and I think it would help. — **tourist guide employer**

Discussion

Improve Self-Assessment to Overcome Upskilling Inertia and Paralysis

Through the FGDs and IDIs, we found that many participants were interested in upskilling but unsure of what exactly to learn. They needed and wanted help in identifying their skill gaps, without which they felt helpless and discouraged from upskilling. Our findings echo those of an NTUC report that outlined recommendations for various groups of workers, including vulnerable workers which comprise low-wage workers and self-employed persons (NTUC, 2023). The report highlights the issues these vulnerable workers are facing, which include the "lack of awareness and availability of training and career progression opportunities" and the "absence of clear pathways... to upskill in relevant and complementary skillsets" (NTUC, 2023, pp. 88–89). Similarly, Wang et al. (2025) found that workers who were interested in training were held back by low self-confidence, and uncertainty over learning outcomes and career prospects.

The tiered digital skills framework which we developed, together with the SkillsFuture for Digital Workplace, a training programme launched by the government which seeks to equip Singaporeans with foundational digital skills, will help provide this group of workers with greater clarity in the digital skills they need to survive and thrive as own-account workers. Additionally, our digital skills framework can be used to refine existing self-evaluation tools to assess one's digital skills level.

The earlier self-assessment tool developed by SkillsFuture Singapore (SSG)² which members of the public could access from the “Resources” on MySkillsFuture portal menu bar included questions which lacked personalisation to users’ existing and target occupations. For example, an own-account worker would answer the same set of questions as a full-time employee. Advancements have been made on the policy front to improve resources which offer more tailored information and guidance for those interested in upskilling and how they can better match their skills to jobs, such as the Careers and Skills Passport and MyCareersFuture. The Jobs-Skills Portal, a one-stop portal which houses skill reports, datasets, dashboards, and other resources, seeks to improve individuals’ access to job-skills data and insights. These initiatives will help tackle the challenge of individuals not knowing what they do not know.

Moving forward, there is a need for better integration of, for example, the Jobs-Skills Portal with different existing portals managed by different institutions like SSG, Workforce Singapore (WSG), and the Institute for Adult Learning. Better synchronisation of information and data across the various dashboards will optimise recommendations for users. The use of jargon on these portals should also be minimised to improve usability and access for the layperson.

Communicate the Relevance of Training

A common theme that emerged during our study was the importance of skills being relevant and applicable to the work of the participants. The pain points encountered in one’s upskilling journey were reiterated by the findings from the pilot study. In general, the participants reported an increased confidence in skills they also reported using more often after the training programme. Despite the good outcomes we observed in terms of self-reported ability and frequency of skill use, participants did not report significant improvements in their job effectiveness. Additionally, in the open-ended section of the post-training feedback form, participants frequently mentioned the relevance of the skills taught during the programme regardless of whether the feedback was positive or negative.

The findings suggest that missing links between training and the application of skills taught for improved productivity at work might disincentivise own-account workers from taking up training to improve their skills. To encourage the formation of the virtuous cycle of life-long learning, making the connection is critical, not just for the benefit of workers who are learning these skills, but also for Singapore’s economy. Once workers realise that upskilling can translate to better productivity, and returns on the time and money invested, they are more likely to continue to invest in more training instead of seeing training as a one-and-done deal.

Although factors such as the quality and ability of the trainers could have shaped participants’ training experience, it was evident that participants wanted to learn skills that are relevant and applicable to their work. Highlighting the relevance and applications of skills should be done not only during training, but also continuously so that learners do not lose sight of valuable skills. Close to the end of training, the trainers and the trainees can jointly formulate a plan on how to apply the skills acquired to their work. This would help learners who might have difficulties relating the skills acquired to their work. There could also be a follow-up session with trainers 6 months later to reassess how the skills can further be improved on or incorporated into the learners’ workflow. Additionally, trainers and learners could join or set up a learning community to hold themselves accountable, by facilitating the continuous learning of skills and sharing of knowledge.

This will help address the “one and done” attitude among Singaporeans, where individuals undergo training once and expect it to yield sustained benefits in the long run. In today’s rapidly evolving digital landscape, there is an urgent need to embrace a culture of lifelong learning that extends beyond mere rhetoric. Singaporeans need to cultivate a mindset of continuous learning

² PM and Minister for Finance Mr Lawrence Wong announced at Singapore’s Budget 2026 that WSG and SSG would merge into a new statutory board jointly overseen by MOM and the Ministry of Education. This paper was submitted to the *Singapore Labour Journal* before the merger.

to stay competitive in their careers, enhance their job contributions, and thrive in the dynamic global economy.

Personalise Training Recommendations

The pilot study also highlighted differences between the two groups of workers who signed up for the training programme. For example, the creative and multimedia group reported a higher number of significant increases in their ability in using digital skills and ability in performing the specific tasks taught during the training programme than the sales and marketing group overall. Many of these improvements occurred immediately after the training programme, suggesting that they were attributable to the training. The differences between the two groups suggest that while the training had positive effects on both groups, the training benefitted the creative and multimedia group more.

The participants generally scored the perceived importance of the skills in our framework highly and the majority (43 out of 52 participants) reported that the training was “useful” or “very useful” immediately after training, regardless of their profession. These findings suggest that the skills being taught were relevant and applicable to both groups of workers studied. Thus, it is possible that the sales and marketing group might have needed more time to pick up and apply the skills taught during the training programme. A tailored training programme that places more emphasis and focuses on certain skills or provides more occupation-specific examples for the sales and marketing workers could hold more benefits for this group.

The feedback for the training programme showed that the training was perceived differently among the participants. While some participants found the course to be “too basic,” others found certain portions of the course “too difficult.” Clearly, own-account workers are a diverse group with varying skill levels and learning needs. To provide training that is relevant and effective to different workers, the level of difficulty must be pitched at an appropriate level with the right amount of specificity. Sector- or occupation-specific advice, as well as self-assessment tools would help own-account workers better understand the next steps they should take in upskilling and be able to more accurately assess their needs. Self-assessment tools will play an increasingly critical role in helping own-account workers understand their existing strengths, the areas for improvement, and specific courses to take that would fill their skills gaps.

Conclusion

Since the completion of this multi-year study, the trajectory of job skills requirements had already been pivoting towards AI and new, emerging technologies. This shift and evolution have driven greater demand for specialised AI-related skills such as machine learning, natural language processing, and AI application development. A recent report by PwC revealed that the skills required changed 25% faster in AI-exposed occupations (PwC, 2024). The same report points to the acceleration of AI penetration, with the growth in AI jobs outpacing all other jobs (PwC, 2024). As businesses continue to harness AI to gain competitive advantages, workers will need to upskill and adapt to emerging trends in AI-driven innovation and business transformation. To remain competitive in spite of rapidly changing skill demands, skills upgrading should be a lifelong endeavour, in other words, a norm, and not a one-time event.

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Underemployment in Singapore: A Focus on Skills, Qualification, and Education Field Mismatches

Samuel Chng, Sarah Chan, Brigid Trenerry, Rabi'ah Ghazali, and Ariel Tan

Abstract

Economic competitiveness and productivity are critical to Singapore's success. However, changes in the economic and technological landscape have influenced how human capital is developed, deployed, and matched to jobs. Tasks and skills requirements are rapidly changing as industries digitise and digitalise, and career pathways from education are more varied and fluid than before. Many are also rethinking their employment choices and work-life priorities, leading them to embark on alternative careers. Collectively, these lead to the phenomenon of underemployment. Hence, this study focused on understanding how workers are refining their balance of career, aspirations, and personal life in Singapore and its implications on underemployment. Through a survey conducted with 1,100 Singapore Citizens and Permanent Resident workers in October 2025, we found that expanding our tracking of underemployment beyond a time-based indicator of underemployment to include skills, qualifications, and education field mismatches provides a more nuanced snapshot of underemployment in the workforce. We found that 22.5% in our sample were overskilled, 23.0% and 20.3% were overqualified for their job or occupational category respectively, and 31.4% worked in jobs that did not match their field. Nevertheless, the prevalence of qualification–job and qualification–occupation mismatch is comparable in Singapore to the Organisation for Economic Co-operation and Development's (OECD) Programme for International Assessment of Adult Competencies and other high-income countries, while skills–job and education field–job mismatches are notably lower. Furthermore, we found that workers who reported being underemployed on subjective dimensions such as inadequate pay or involuntary temporary work were also more likely to report lower job satisfaction.



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Introduction

While unemployment is a more familiar phenomenon that dominates the headlines, underemployment is also a concern. Different from unemployment, a situation where those who are willing and able to work are unable to find a job, underemployment concerns working fewer hours, earning less income, or using occupational skills inadequately (Greenwood, 1999). Collectively, both measures are important indicators of labour market deficiencies. Underemployment has been increasing worldwide over the past few decades (International Labour Organization [ILO], 2021; Organisation for Economic Co-operation and Development [OECD], 2019). For example, among OECD countries, time-based underemployment increased from an average of 4.3–5.4% between 2006 and 2017, with steeper increases of up to 6.2 percentage points in certain countries that were harder-hit by the 2007–2009 Great Recession (OECD, 2019). The main causes are structural changes in economic activities and the nature of employment, with the rise of the service sector and platform-based work, which are in turn driven by technological advances such as automation and artificial intelligence (Acemoglu & Autor, 2011; Montcho et al., 2021; Pratap et al., 2021). Economic downturns such as the Great Recession and the recent global pandemic, as well as the concomitant rising incidents of retrenchments during such crises or rough economic conditions (Seah & Tan, 2024), further exacerbated the trend.

The ILO (2013, 2018) distinguishes between two main types of underemployment: time-related underemployment and inadequate employment. Time-related underemployment is defined as the extent to which an employed person is insufficiently engaged in employment based on their hours of work (ILO, 1998, 2015), while inadequate employment includes skills mismatch and income-related underemployment. These occur when individuals are working in jobs where their skills are not adequately utilised (skills mismatch) or their income is not commensurate with their skills/qualifications (income-related underemployment) (ILO, 2018; Wilkins & Wooden, 2011).

Skills mismatch is sometimes conflated with qualification mismatch, where individuals have higher academic qualifications than are required for their jobs, as it is easier to obtain data on workers' qualifications compared to that on workers' skills (F. Green & Henseke, 2016; Quintini, 2011). While the ILO has stressed that educational qualifications are inadequate indicators for work-related skills, there is currently a lack of international agreement on how skills mismatch should be measured (ILO, 2018; Montcho et al., 2021). It is similarly so for yet another form of mismatch not mentioned by the ILO, field-to-job mismatch (Wilkins & Wooden, 2011), which encompasses individuals who are employed in sectors that do not match their field of study or prior experience. Subjective measures based on workers' personal evaluations of their work situation are an option, as respondents know their jobs and tasks best. However, these may not be wholly reliable, as one person's assessment of the skills necessary to perform a job may differ from that of another person performing a similar job (ILO, 2018; Livingstone, 2019). Despite the measurement challenges, there is a growing recognition of the importance of considering other forms of mismatches in addition to the more well-recognised time-based underemployment (F. Green & Henseke, 2016; Pellizzari & Fichen, 2017).

Another dimension of underemployment is whether it is voluntary or involuntary. The ILO's (2013) official definition of time-based underemployment reflects an involuntary situation, whereby for various reasons workers find themselves unable to obtain more paid hours of work despite desiring to do so. However, there are instances where underemployment is voluntary, whereby an individual chooses to work fewer hours or in a less demanding job that is not congruent with their skills and qualifications. Some reasons for doing so include seeking more flexibility and work-life balance, reducing stress, prioritising family responsibilities, or pursuing other interests outside of work (Deutermann & Brown, 1978; Mosseri, 2019; Poon & Lam, 2025; Umney & Kretsos, 2015). While voluntary underemployment has long been observed among women, due to their role as primary caregivers (Deutermann & Brown, 1978; Hakim, 1991), it has now become more widespread, enabled by the changing nature of work, including trends such as the gig economy, remote work, and other such alternative forms of work (ILO, 2021). The coronavirus disease 2019 (COVID-19) pandemic has accelerated such changes, making remote

work and flexible work arrangements more of a norm (Vyas, 2022; Yang et al., 2022). At the same time, it has also exacerbated issues of burnout and poor well-being, forcing many workers to reconsider their work-life priorities (Lluch et al., 2022; Toh & Sheng, 2025). These developments portend a greater trend of voluntary underemployment.

High underemployment is a cause of concern as it could indicate underutilisation of human capital and inefficiencies in the labour market. It could also hinder productivity and economic growth (McGowan & Andrews, 2015a). At the individual level, underemployment could have many dire consequences, such as low wages and unfavourable working conditions (Bell & Blanchflower, 2021; R. MacDonald & Giazitzoglu, 2019). Psychologically, underemployment could lead to heightened stress, anxiety, depression, and psychological distress (Feldman & Turnley, 1995) as well as poorer job attitudes (McKee-Ryan & Harvey, 2011; Roh et al., 2014; Wilkins, 2006). These personal-level impacts can also have implications at the organisational and macroeconomic levels due to lowered morale and reduced productivity. With all these interlinked effects, underemployment is a key concern, especially for countries that highly depend on having a high-performing and efficient workforce, like Singapore. Yet, underemployment is arguably less well studied and understood than unemployment (Montcho et al., 2021). Also of concern is how the measurement issues described above may hide the true magnitude of underemployment.

To develop targeted policies and interventions for enhancing the employment outcomes of specific profiles of workers, and to enhance the productive capacity of the labour force, it is crucial to first understand the causes and impact of the various forms of underemployment. This is what this study seeks to do.

Causes of Underemployment

Underemployment is a complex phenomenon with many possible predictors. While the causes of underemployment can be broadly divided into three categories: macroeconomic conditions, demographic and socioeconomic factors, and job-related characteristics (Feldman, 1996; J. Li et al., 2015; McKee-Ryan & Harvey, 2011), these factors intersect and reinforce one another. Furthermore, the factors shaping voluntary versus involuntary forms of underemployment can differ. As voluntary underemployment is often related to individual factors such as self-identity, values, and motivations (Arnett, 2014; Kim & Allan, 2020), this review will focus on the causes of involuntary underemployment.

Macroeconomic conditions influence underemployment in both the short and long terms. During economic downturns and recessions, both underemployment and underemployment rates tend to increase as employers reduce their work (Wilkins & Wooden, 2011). However, heightened levels of underemployment may persist even after the unemployment rates recover, as was the case during the Great Recession from 2007 to 2009 (Avila & Lunsford, 2022). Furthermore, some groups, such as young people and minorities, are consistently impacted by underemployment during such economic downturns (Avila & Lunsford, 2022; Bell & Blanchflower, 2020; Churchill & Khan, 2021; Golden & Kim, 2020).

The COVID-19 pandemic has also led to a significant increase in underemployment (Golden & Kim, 2020). Globally, economic disruptions arising from lockdowns drastically reduced the hours of work and new job opportunities, particularly in sectors that could not transition to remote work, including aviation, retail, hospitality, transportation, and real estate, among others (ILO, 2020; Z. F. Li et al., 2021). Small and medium-sized enterprises, which tend to hire a sizeable portion of the labour force, were also badly affected (Bartik et al., 2020).

Broader structural changes, such as the impact of technology and the growth of lower-skilled occupations and non-standard forms of work, also lead to underemployment (OECD, 2019). For example, the rise of the service industry in recent decades has led to an increasing proportion of low-skilled occupations and the proliferation of non-standard forms of employment, contributing to underemployment (D. MacDonald, 2019; OECD, 2019). The recent global pandemic likely accelerated such trends, driven by the increased adoption of new digital technologies and

advances in artificial intelligence (World Economic Forum, 2020). While new technologies are creating new opportunities in the labour market, the automation of manual and repetitive tasks could affect workers across a range of industries (Goos et al., 2014), a trend that is set to accelerate in the future (Acemoglu & Autor, 2011).

The rise in “gig” and platform-based work could also potentially reinforce underemployment (ILO, 2020). While some workers may choose such jobs due to the flexibility and autonomy offered, others do so due to a lack of full-time job opportunities (Anwar & Graham, 2021). For example, a study on ride-hailing drivers in Singapore by the Institute of Policy Studies found that 46% of respondents became drivers because they could not find other work (Mathews et al., 2022). Studies elsewhere have similarly found that workers turn to crowdsourced work due to economic pressures and a lack of full-time jobs (Barnes et al., 2015).

Another set of causes is related to the demographic characteristics of workers. Emerging evidence suggests that some groups in the labour market are consistently vulnerable to underemployment (Gould & Kassa, 2020; OECD, 2019). These include women (J. Li et al., 2015; Salin & Natti, 2019), young people (Bell & Blanchflower, 2021; Churchill & Khan, 2021; Gould & Kassa, 2020; Raghunath, 2021), and mature-age workers (J. Li et al., 2015; Slack & Jensen, 2008). Other groups include racial and ethnic minorities, individuals from lower-income households, and those with lower levels of education (Batalova & Fix, 2021).

Women face a higher risk of being underemployed due to several intersecting factors (J. Li et al., 2015; Salin & Natti, 2019). Gender biases in the workplace, including perceptions of lower competence, ambition, assertiveness, and rationality, contribute to underemployment among women (Heilman, 2012; Weststar, 2011). Such biases are reflected in hiring practices, pay, performance review processes, and opportunities for promotion. Furthermore, since women are also more likely to take on caregiving roles, they are more likely to experience time-related underemployment as they seek to balance work and family (Gash, 2008; Koreshi & Alpass, 2022; McRae, 2003). Midcareer women tend to face the burdens and responsibilities of caring for both children and older parents, a phenomenon termed the “sandwiched generation” (Parker & Patten, 2013). Taking time out of the workforce for caregiving leads to disadvantages in earnings, career progression, and opportunities for training (Anderson et al., 2002; Churchill & Khan, 2021; Deming, 2022; Maestripieri, 2023). The resultant loss of job skills and social contacts would also perpetuate their underemployment (Bainbridge & Broady, 2017).

Labour-market segregation along gender lines also helps explain women’s underemployment. Underemployment is more prevalent in female-dominated occupations, such as administrative, retail, cleaning, and the care sector (Kamerāde & Richardson, 2018). These jobs are often part-time, low-paid, and offer limited opportunities for training and career progression (Acosta-Ballesteros et al., 2021). Technological advances can disproportionately affect women in such jobs (Brussevich et al., 2018). Gender bias and discrimination also intersect with other forms of bias (Karam & Afiouni, 2021). Women from ethnic/racial-minority backgrounds have been found to experience higher levels of bias and harassment in the workplace, making them more vulnerable to underemployment (Mays et al., 1996; Raver & Nishii, 2010).

Young people and recent graduates face increased risks of underemployment due to distinct challenges in entering the labour market. They are more likely to be engaged in involuntary part-time work, working significantly fewer hours than their older peers, and unable to increase their working hours (Bell & Blanchflower, 2021; Maestripieri, 2023; Raghunath, 2021). This leads to lower hourly wages and worse working conditions than their peers who are fully employed or even voluntarily underemployed (Bell & Blanchflower, 2021; D. MacDonald, 2019). Those working in informal employment face poorer working conditions, fewer benefits, and weaker trade union representation (ILO, 2020). Worse still, some underemployed young people become trapped in a cycle of low-paid and insecure work, unable to progress in their careers over the longer term (R. MacDonald & Giazitzoglu, 2019).

Worryingly, young people are more likely to be affected by macroeconomic forces compared to older workers (Avila & Lunsford, 2022; Gould & Kassa, 2020). For example, the COVID-19

pandemic impacted young people's employment more severely than other age groups, especially since they are concentrated in industries and occupations that are more vulnerable to economic shocks, such as the service sector (ILO, 2020; Wilkins, 2006). The changing structure of the economy, specifically the rise of service industry jobs, is also increasing the share of young people in part-time jobs (Dhillon & Cassidy, 2018). This group is further affected by the rise in credentialism, defined as excessive reliance on credentials, especially academic degrees, in determining hiring decisions (Brown, 2022). This trend has led to worsening labour market outcomes for young people without tertiary education in several countries (OECD, 2019). However, those from upper- and middle-class backgrounds, who typically have better access to social networks and parental resources, are better able to "wait out" unfavourable economic conditions (Churchill & Khan, 2021).

Mature-aged workers form another group that faces unique challenges in the workforce and risks of underemployment. Studies in Australia (Australian Bureau of Statistics, 2023) and the United States have shown that these workers experience higher rates of underemployment than the other cohorts (J. Li et al., 2015; Slack & Jensen, 2008). This could be due to the lack of opportunities for career advancement and getting trapped in jobs that do not match their skills and experiences (Wong & Tetrick, 2017). Bias and discrimination in hiring practices and in the workplace can perpetuate their difficulties in finding jobs appropriately matched to their skills, experience, and preferred income (Bae & Choi, 2022; Virick & McKee-Ryan, 2014). This could be a structural issue, due to employers' preference to hire younger workers who incur less wage costs (Koeber & Wright, 2001).

A final set of factors is job-related characteristics, including job type, occupation, industry, career history, and job-search strategies (Feldman, 1996; J. Li et al., 2015; McKee-Ryan & Harvey, 2011; Wilkins, 2006). Those in low-wage and low-skilled jobs, and industries such as retail, service, and transportation, which carry high levels of precarity and instability, tend to be more vulnerable to underemployment (Golden & Kim, 2020). Individuals in "less-essential" jobs can be especially vulnerable to getting laid off and becoming underemployed, a trend that could be exacerbated by technological advances (Nakamura, 2020).

Impacts of Underemployment

The impact of underemployment can be conceptualised at three levels, individual, organisational, and macroeconomic (Pratap et al., 2021). At the individual level, underemployed workers frequently earn lower hourly wages and face poorer working conditions compared to similar workers in full-time or voluntary part-time employment (Golden, 2016; D. MacDonald, 2019; Pratap et al., 2021). Underemployment also hampers future employment prospects, wages, and career trajectories (Verbruggen et al., 2015) and can lead to persistent unemployment or underemployment in the future (Mavromaras et al., 2015). One explanation for this is that underemployment is often interpreted by employers as a "strong negative signal" (Nunley et al., 2017, p. 668) of potential unproductivity or negative work attitudes. Other studies have found that underemployment is countercyclical and persistent, with newly underemployed workers earning substantially less than their non-underemployed counterparts and finding it more difficult to progress in their jobs (Barnichon & Zylberberg, 2019). In Singapore, one study found that 60% of underemployed workers lacked sufficient income for daily expenses (Ng, 2017).

The increasing prevalence of non-standard forms of work such as gig and platform-based work (ILO, 2021; OECD, 2019) has made issues of career mobility and job precarity become especially pertinent. Gig and platform-based workers can find it more difficult to find other types of jobs in the future, despite being qualified to do so (Anwar & Graham, 2021; Mathews et al., 2022). Temporary contracts, and irregular and unpredictable schedules, which often characterise such gig work and other service sector jobs, also lead to job and income insecurity (Golden, 2016; Ng, 2017; OECD, 2019). This is exacerbated by a lack of protections and benefits for self-employed individuals and other workers in non-standard forms of work, which contributes to income insecurity and the ability to save for retirement (Donovan et al., 2016). Studies have found

a strong link between employability, underemployment, and job insecurity, with overqualified and temporary workers likely to experience higher levels of job insecurity (Peiró et al., 2012). At the same time, recent policy developments such as the introduction of Singapore's Platform Workers Act from 1 January 2025 represent growing recognition of such challenges as well as initial steps towards strengthening protections and benefits for platform workers, and may help to mitigate some of these risks over time.

Underemployment has also been found to be negatively correlated with job attitudes, such as job satisfaction, work commitment, job involvement, and work motivation (McKee-Ryan & Harvey, 2011). This could be due to lower satisfaction with both intrinsic and extrinsic rewards, such as salary and feeling of accomplishment (Feldman, 1996), with the extent of dissatisfaction depending on the nature of underemployment (Khan & Morrow, 1991; Maynard et al., 2006; McKee-Ryan & Harvey, 2011). Overqualified workers can have lower affective commitment and higher turnover intentions (Bolino & Feldman, 2000; Maynard et al., 2006).

Underemployment could also affect individual health and well-being. Studies have found that underemployment is associated with negative effects on physical health, and mental and psychological well-being, including higher levels of stress, anxiety, depression, and psychological and increased substance abuse (Bell & Blanchflower, 2019; Friedland & Price, 2003; Montcho et al., 2021; Roh et al., 2014; Virick & McKee-Ryan, 2014). Underemployment can also lead to negative emotions such as lower self-esteem and feelings of aimlessness, alienation, and frustration, which can have pervasive impacts beyond the workplace (Cunningham, 2016; McKee-Ryan & Harvey, 2011; Prause & Dooley, 1997). Individual attitudes such as personal goals, values, and motivation can help increase the drive and resilience among some underemployed workers to seek better opportunities (McKee-Ryan & Harvey, 2011), while better access to financial resources and relational support prompts workers to reframe their experience of underemployment as an opportunity for growth (Blustein et al., 2013).

Organisational impacts include high turnover rates due to reduced commitment and job satisfaction among individuals (Montcho et al., 2021; Wang, 2018) and reduced productivity since employees do not feel fully engaged and challenged in their work (C. Green & Heywood, 2008). Organisational climate and morale can also be negatively impacted by the perception of unfair treatment (Erdogan et al., 2012). A study of underemployed workers in Canada found that underemployed workers are more likely to leave organisations that rely heavily on part-time workers (Wang, 2018).

At the macroeconomic level, underemployment potentially limits the productivity capacity of the labour force, which can in turn affect economic growth through an underutilisation of human resources (McGowan & Andrews, 2015a). For instance, with time-related underemployment, the working hours during which workers are available and willing to work are underutilised, while under/over-qualification and skills mismatches underutilise employees' skills, qualifications, and work experience. This underutilisation of valuable human capital is wasteful and limits economic growth, especially detrimental for an ageing population like Singapore with an already shrinking workforce.

Widespread mismatches and non-optimal distribution of jobs are also indicative of allocative inefficiency within the labour market (McGowan & Andrews, 2015a). Trickle-down effects, whereby higher-skilled workers take up jobs they are overqualified for, lead to the displacement of lower-skilled workers and reinforce persistent unemployment and job mismatches (Barnichon & Zylberberg, 2019). A highly unequal dual market of good jobs and bad jobs can be formed (Dickens & Lang, 1985; Hudson, 2007), reinforcing income gaps and economic and social inequalities. Rampant underemployment can lead to monopsonies, lack of flexibility in wage bargaining, or exploitative and restrictive hiring practices (McGowan & Andrews, 2015b).

Finally, the impact of underemployment on individuals' health can have significant ramifications on overall public health (Pratap et al., 2021). Worsened health and well-being further limit productivity and discourage the underemployed from finding other jobs or participating in

reskilling programmes. In this way, the economic and psychological impacts of underemployment are mutually reinforcing, contributing to persistent underemployment.

Underemployment in Singapore

In Singapore, only time-related underemployment is officially tracked. Aligning with the international statistical definition of time-related underemployment offered by the ILO (1998, 2015), underemployed persons are defined as persons aged 15 years and over who normally work less than 35 hr a week but are willing and available to engage in additional work (Ministry of Manpower, 2023a). Time-related underemployment rate refers to the percentage of such persons compared to all employed persons. Certainly, this approach provides an indication of labour underutilisation. However, it does not offer a holistic understanding of underemployment according to the broadened definition described above. Since tracking began in 2009, the time-related underemployment rate has been low, declining from a high of 4.6% in 2011 to 2.7% in 2016 (Ministry of Manpower, 2020). There was a slight uptick to over 3% in 2017–2019, followed by a steeper rise in the COVID-19 pandemic years of 2020–2021, but the rate has lowered to 1.9% in 2025 (Ministry of Manpower, 2023b, 2025). It is worth exploring how the low rates may hide other forms of underemployment.

Few studies have investigated underemployment in Singapore. Those that have done so focused on qualification or skills mismatch among graduates who work in occupations classified as low-skilled or semiskilled, outside the professional or managerial classifications. Ng and Wong (2021) examined graduate full-time freelancers in the gig economy and found that half of them could be considered underutilised and underemployed. With regard to the impact of underemployment, they found that such workers reported a much higher degree of status discrepancy, i.e. being employed at a lower rank than someone with equivalent abilities. This could affect future career attitudes and psychological well-being. Another study, by the Ong Teng Cheong Labour Leadership Institute, found that underemployed workers were more likely to be underpaid, experience job and income insecurity, and lack finances for daily expenses (Ng, 2017). The study focused on a specific group of involuntarily underemployed individuals: degree holders who were employed full-time but earning a monthly salary of less than S\$2,000.

F. Green and Henseke (2021) examined skills utilisation among degree graduates in Singapore between 2013 and 2017 and found that graduates who were in task-unwarranted jobs (where the job does not have tasks requiring graduate-level skills) and in non-graduate jobs reported lower skills utilisation compared to their peers who worked in jobs with tasks that matched their graduate-level skills. Moreover, they found a negative wage gap of 18% for graduates in task-unwarranted graduate jobs and 31% for underemployed graduates employed in non-graduate jobs.

Research Aims

To date, there has been no comprehensive study conducted in Singapore focusing on the changing nature of career decisions post-COVID-19 in light of global developments and rapid reconfigurations of jobs and industries. Furthermore, most past studies have been limited to underemployed graduates experiencing time-based and income-based underemployment, with less focus on the causes and impacts of the various other dimensions of underemployment described earlier, as affecting a broader profile of workers.

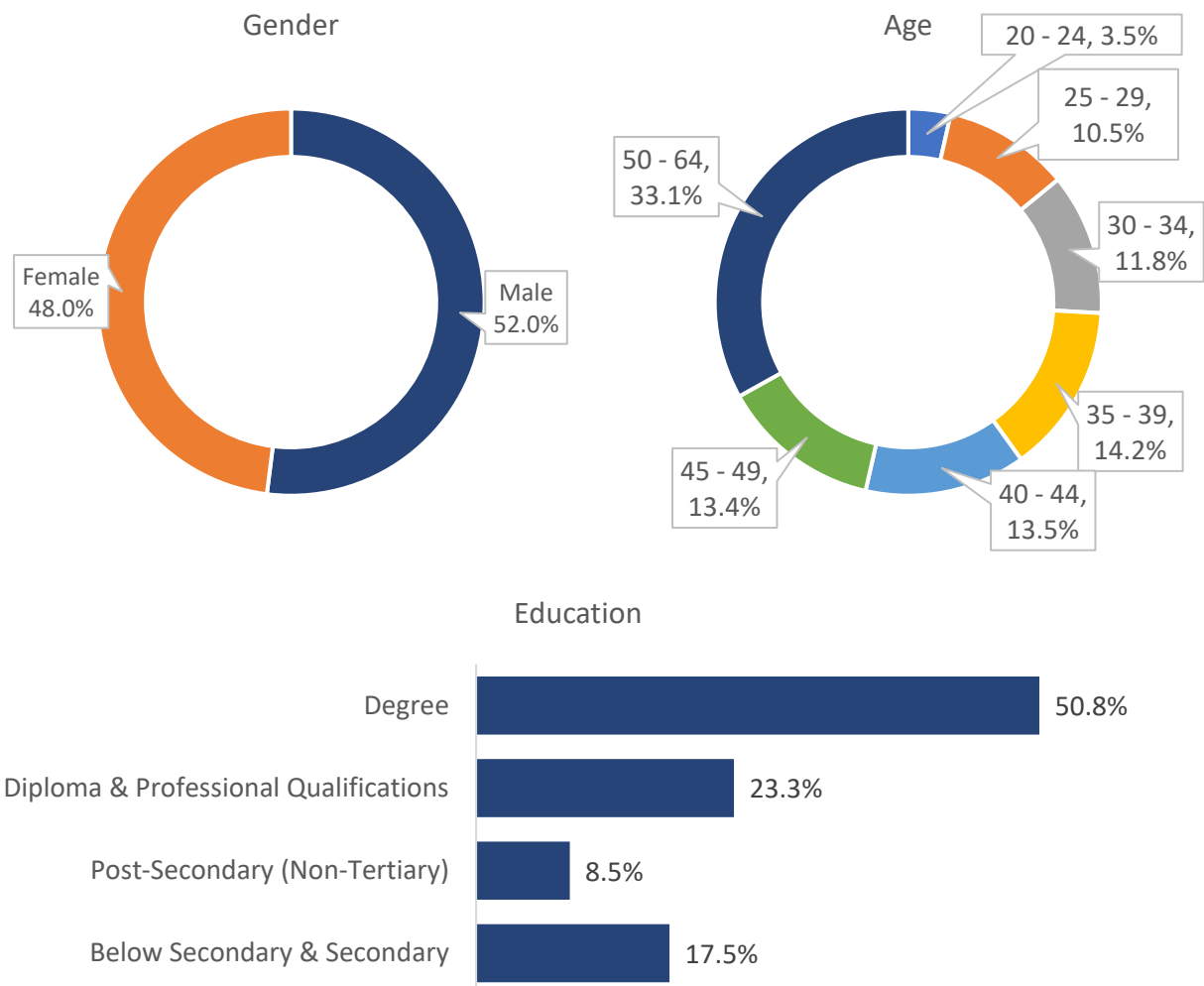
In this study, we set out to understand four different types of underemployment in Singapore, arising from skills–job mismatch, qualification–job mismatch, education field–job mismatch, and qualification–occupation mismatch as experienced and reported by workers. Furthermore, we explored the relationships between underemployment and job satisfaction.

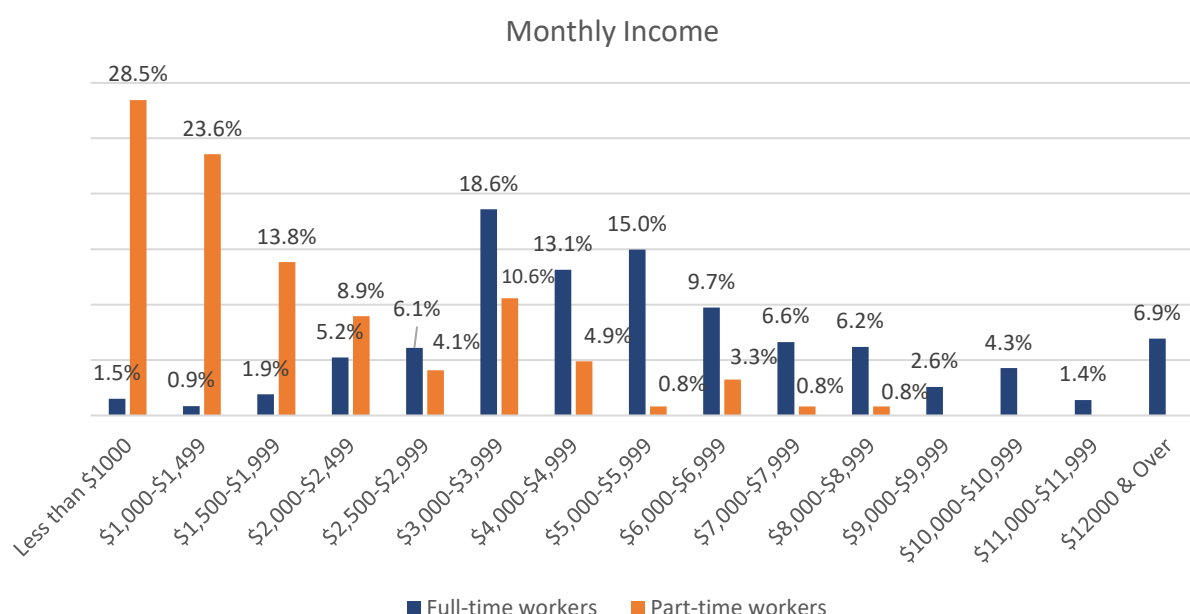
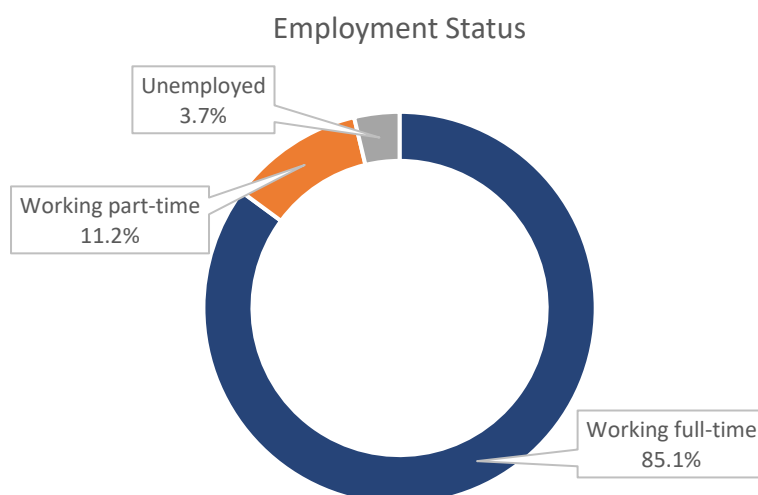
Methods

An online survey was conducted with 1,100 Singapore Citizen and Permanent Resident workers in October 2025. Participants were recruited using the services of a market research company and consented to the study prior to their participation. Among the participants, 68.8% were in professional, managerial, executive, and technical (PMET) jobs, and 67.9% of them were nonunion members. Detailed demographics of the sample are presented in Figure 1.

Figure 1

Sample Demographics





Measures of Underemployment

We assessed five forms of mismatch-related underemployment. Three were self-assessed mismatch measures, one was a normative indicator of mismatch, and one used the Subjective Underemployment Scale.

For the self-assessed measures of mismatch, we adopted the methodology established by the ILO for self-assessments and direct approaches to identify skills–job, qualification–job, and education field–job mismatches. The main advantage of the self-assessment approach is that it takes the heterogeneity of jobs into account because the respondents are most knowledgeable about their jobs and the tasks they require. The main disadvantage of this approach is its subjectivity; it depends on the perception of the respondent. One person’s assessment of the education and skills required to perform their job may not match that of another person performing a similar job. Nevertheless, in the absence of detailed job assessments at the national level, the approach we adopted provided a good proxy for the mismatches studied.

Skills–Job Mismatch

Skills–job mismatch was assessed by asking respondents to evaluate how well their current skills aligned with the demands of their job. Respondents selected one of three responses: “I need further training to cope well with my duties,” “My present skills correspond well with my duties,” and “I have the skills to cope with more demanding duties,” and were classified as underskilled, matched, or overskilled accordingly.

Qualification–Job Mismatch

Qualification–job mismatch was measured through respondents’ answers to how their highest level of education qualification compares with what is required by their job. They selected one of three responses: “My level of education is lower than what my job requires,” “My level of education meets what my job requires,” “My level of education is higher than what my job requires,” and were correspondingly classified as underqualified, matched, or overqualified.

Field–Job Mismatch

Field–job mismatch was measured by asking respondents whether their field of study was appropriate for the requirements of their job. They selected between “What I studied in my education is appropriate for what my job requires” and “What I studied in my education is not appropriate for what my job requires,” and were classified as matched or mismatched accordingly.

Qualification–Occupation Mismatch

We also constructed a qualification–occupation mismatch measure using a normative framework that supports consistent comparison across time and countries. Following ILO guidelines, educational requirements were defined for each major occupational group, and workers were classified as underqualified, matched, or overqualified depending on whether their educational attainment fell below, met, or exceeded the requirement for their occupation.

Subjective Underemployment Scale

We further explored six major domains of underemployment identified by Feldman (1996) through the subjective underemployment scale which was proposed by Allan et al. (2017). These six facets of subjective underemployment are: underpayment, status discrepancy, hours discrepancy, involuntary temporary work, working in a field unrelated to training, and poverty wage employment. For the purpose of this study, a short form of the scale with 18 items was used. Responses ranged from strongly disagree to strongly agree on a 5-point Likert scale, with higher scores indicating greater subjective underemployment in that facet. All six subscales demonstrated good internal reliability with Cronbach’s alpha ranging from .83 to .89.

Job Satisfaction

To measure job satisfaction, respondents answered the question “How satisfied are you with your current job?” using a 5-point Likert scale, ranging from very dissatisfied to very satisfied, with higher scores indicating greater job satisfaction.

Results

First, we focus on the four mismatches related to underemployment and compare the findings in Singapore to international levels. For skills–job, qualification–job mismatches and field–job mismatches, we compare our estimates to those derived from the OECD’s 2023 Programme for

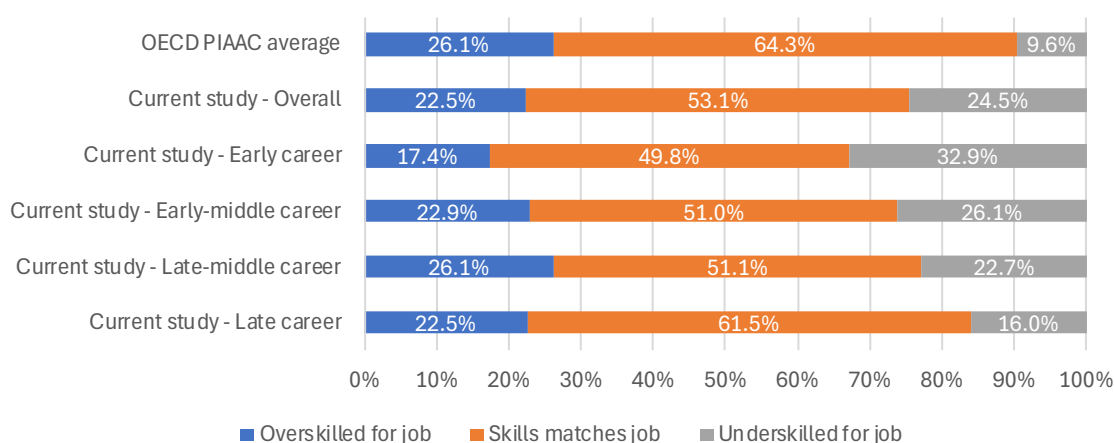
International Assessment of Adult Competencies (PIAAC) data from 29 OECD countries (OECD, 2024). For the qualification–occupation mismatch, we compared Singapore’s results with those reported in ILOSTAT for 35 high-income countries.

Skills–Job Mismatch

Underemployment arising from skills–job mismatch was identified among 22.5% of respondents who were employed. This observed figure is slightly lower than that of OECD’s at 26.1%. In particular, we found that the proportions of respondents reporting being overskilled for their jobs were higher among males, middle-aged to older adults (30–65 years old), and those in their late-middle career stage (16–25 years of work experience) (see Figure 2 and Supplementary Tables 1 and 2).

Figure 2

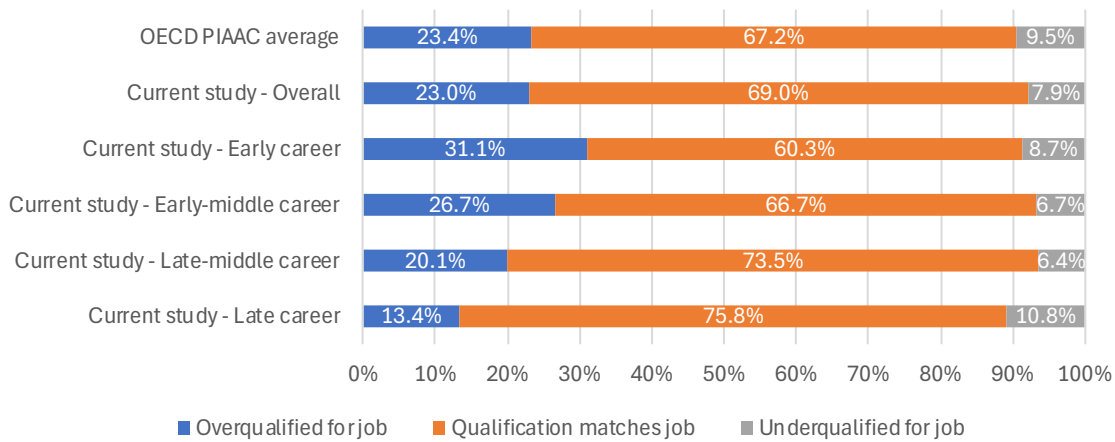
Skills–Job Mismatch



Note. Percentages may not sum up to 100 due to rounding.

Qualification–Job Mismatch

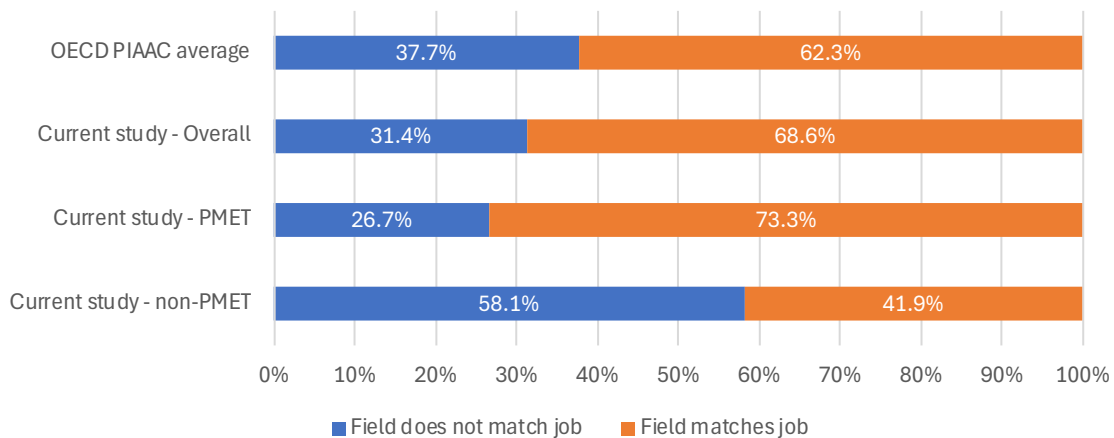
Underemployment arising from qualification–job mismatch was identified among 23.0% of respondents who were employed. This figure was comparable to that of OECD’s at 23.4%. In particular, the proportions of respondents reporting being overqualified for their jobs were higher among younger adults (below 35 years old), degree or diploma and professional qualifications holders, early to mid-career stage (15 years of work experience or less), and those holding part-time jobs (see Figure 3 and Supplementary Tables 1 and 2).

Figure 3**Qualification–Job Mismatch**

Note. Percentages may not sum to 100 due to rounding.

Education Field–Job Mismatch

Underemployment arising from education field–job mismatch was identified among 31.4% of respondents who were employed. Comparatively, this is lower than OECD’s figure at 37.7%. In particular, the proportions of respondents reporting their education field not matching their jobs were higher among non-degree or diploma and professional qualifications holders, those holding part-time jobs, and non-PMET respondents (see Figure 4 and Supplementary Tables 1 and 2).

Figure 4**Education Field–Job Mismatch**

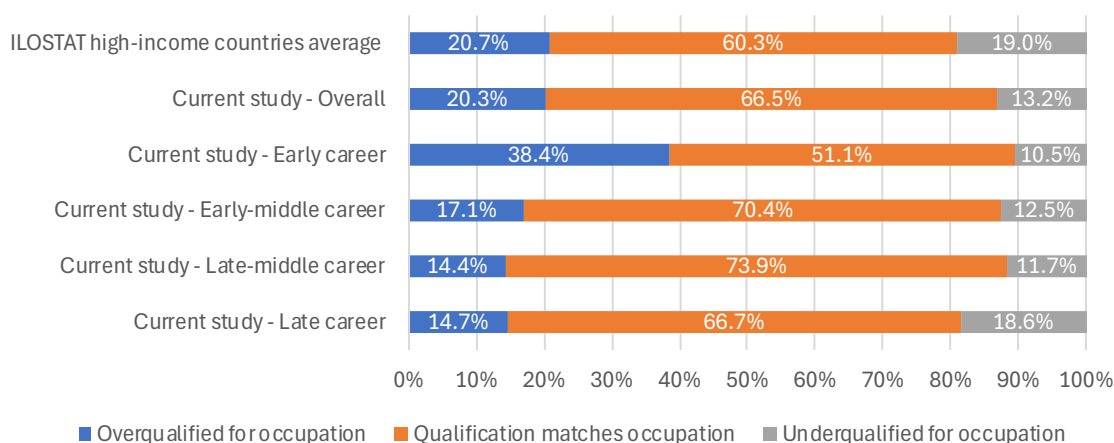
Note. Percentages may not sum up to 100 due to rounding.

Qualification–Occupation Mismatch

Underemployment arising from qualification–occupation mismatch was identified among 20.3% of respondents who were employed. This figure was comparable to that of ILOSTAT average across high-income countries at 20.7%. In particular, the proportions of respondents reporting being overqualified for their jobs were higher among younger adults (below 35 years old) and particularly so for the youngest aged 20–24 years old, degree or diploma and professional qualifications holders, early career stage (5 years of work experience or less), and those holding part-time jobs (see Figure 5 and Supplementary Tables 1 and 2).

Figure 5

Qualification–Occupation Mismatch



Note. Percentages may not sum to 100 due to rounding.

Education Field–Job Mismatch With Overqualification

A potential predictor of workers at risk of underemployment would be those who are both horizontally (referring to education field–job) and vertically (qualification–job) mismatched. Among our respondents, we found that 16.7% of those in full-time employment were mismatched by their education field but working at an adequate qualification level (mismatched horizontally, but not vertically). Also, 9.9% were working in a different field from their education and overqualified in their job, while 13.1% were working in the same field of their education and overqualified in their job. These figures are comparable to the levels observed across OECD countries (see Table 1).

Table 1

Education Field–Job Mismatch and Overqualification

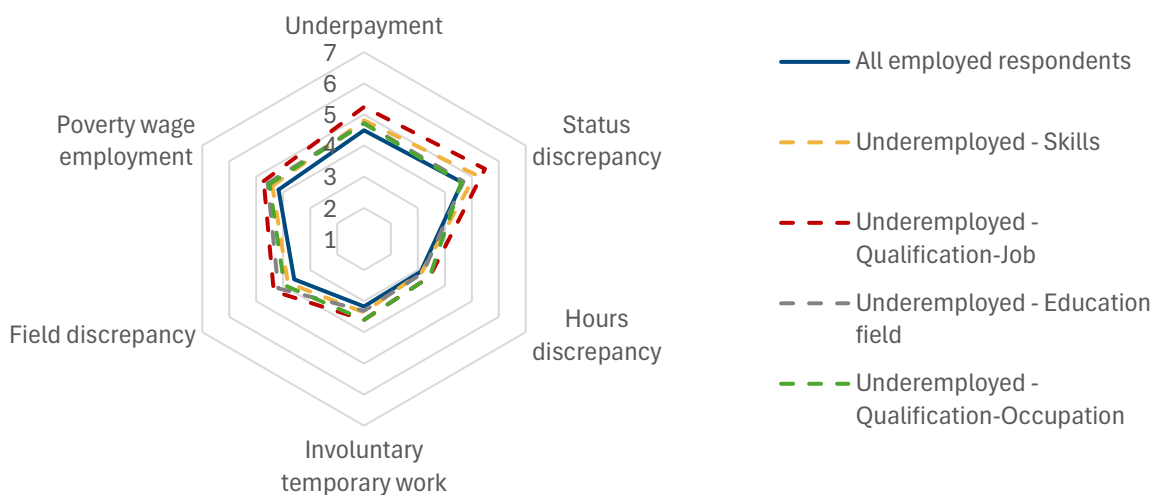
	Singapore	OECD's PIAAC Average
Education field–job mismatch with well-matched qualifications	16.7%	25.4%
Education field–job mismatch with overqualifications	9.9%	12.9%
Education field–job match with overqualifications	13.1%	11.4%

Six Facets of Subjective Underemployment

Next, we focused on six major domains of underemployment identified by Feldman (1996): underpayment, status discrepancy, hours discrepancy, involuntary temporary work, working in a field unrelated to training, and poverty wage employment. We found that underpayment and status discrepancy were the two most reported domains of underemployment by employed respondents. These suggest relatively stronger perceptions among respondents that they are underpaid and given lower status in the workplace than they expect to be accorded. Underpayment and status discrepancy were most prevalent among respondents who were in their early and early-mid career stage (15 years of work experience or less), and had self-assessed themselves to be underemployed in the skills and qualification mismatches (those experiencing skills–job and qualification–job mismatch). The least reported domain of underemployment was hours discrepancy, with the exception of respondents who are in part-time work arrangements. This suggests that respondents working part-time are seeking to work more hours. The summary of results is presented in Figure 6 with detailed results available in Supplementary Tables 3 and 4.

Figure 6

Responses on Six Domains of the Subjective Underemployment Scale by the Type of Underemployment

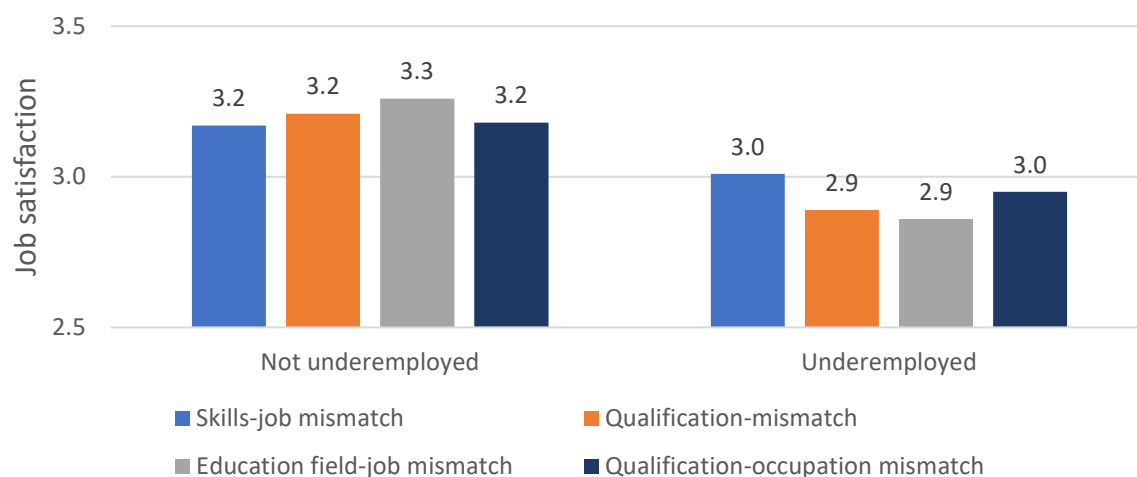


Relationships Between Underemployment and Job Satisfaction

The last set of analyses focused on understanding how underemployment is related to well-being, specifically job satisfaction for our respondents. A series of multivariate linear regressions were conducted with job satisfaction as the outcome variable and different indicators of underemployment as predictors. Covariates of gender, age, education, work experience stage, employment status, PMET status, and union membership were included in the analyses. Significant and positive relationships were observed, whereby respondents who are underemployed by qualification–job or education field–job mismatch were found to report lower levels of job satisfaction. This result persisted even after taking into account the actual hours worked. Furthermore, much lower job satisfaction was reported by respondents who reported the following: perceiving themselves to be underpaid, having to work more hours than they would like, having to work in a field different from their education and skills, not earning enough to make a decent living, and working in temporary positions involuntarily. The summary of results is presented in Figure 7 and Table 2, with detailed results available in Supplementary Table 5.

Figure 7

Job Satisfaction Scores Across Underemployed and Non-Underemployed Respondents



Note. Job satisfaction scores ranged from 1 to 5 with higher scores indicating greater job satisfaction.

Table 2

Linear Regressions for Underemployment-Related Predictors of Job Satisfaction by Respondents Currently in Employment (n = 1,059)

	Job Satisfaction		Job Satisfaction
	β		β
Skills–job mismatch		Self-assessed underemployment	
Skills matched	Ref	Underpayment	–0.18***
Mismatched: Skills underutilised	–0.05	Status discrepancy	0.01
Mismatched: Underskilled	–0.07*	Hours discrepancy	0.28***
Qualification–job mismatch		Involuntary temporary work	0.12**
Qualification matched	Ref	Field discrepancy	–0.27***
Mismatched: Overqualified	–0.10**	Poverty wage employment	–0.15***
Mismatched: Underqualified	–0.02		
Educational field–job mismatch			
Field matched	Ref		
Field mismatched	–0.17***		
Qualification–occupation			
Qualification matched	Ref		
Mismatched: Overqualified	–0.06		
Mismatched: Underqualified	0.02		
Current actual hours worked			
Same as contracted	Ref		
Work less than contracted	0.03		
Work more than contracted	–0.07*		

Note. * $p < .05$, ** $p < .01$, and *** $p < .001$; β : beta; and Ref: reference category.

Discussion and Implications

In this study, we have taken a closer look at the extent of underemployment in Singapore by focusing on the skills–job, qualification–job, education field–job, and qualification–occupation mismatches that workers experience for their jobs. As the first study of this nature in Singapore, the findings have demonstrated the value of expanding our understanding and tracking of underemployment in Singapore beyond the time-based indicators which are conventionally used in Singapore’s labour force tracking. We found that the most prevalent mismatch in our sample was education field–job mismatch, with a 31.4% prevalence rate among employed respondents, followed by qualification–job mismatch (23.0%), skills–job mismatch (22.5%), and qualification–occupation mismatch (20.3%). While, on the whole, we found that when focusing on these other

forms of underemployment, the figures are much higher than those of time-based underemployment, Singapore's figures remain comparable or lower than the averages seen in OECD countries.

Across the four indicators of underemployment-related mismatch, some consistent demographic and employment patterns were observed. Skills–job overskilled mismatch was more common among men, workers aged 30–65, and those in the late-middle career stage (16–25 years of work experience). This suggests that as workers progress in their careers, their accumulated skills may increasingly exceed the requirements of the roles they occupy. In contrast, qualification–job overqualification was concentrated among younger adults (20–35 years old), those with higher educational qualifications, early to mid-career workers (15 years of work experience or less), and part-time employees. These profiles point to early-career job–qualification misalignment, where workers may enter junior roles that do not fully utilise their credentials. Education field–job mismatch was higher among workers without degree or diploma qualifications, part-time employees, and non-PMET respondents. Qualification–occupation overqualification showed a similar pattern to qualification–job overqualification, with higher prevalence among younger adults, those with higher qualifications, early-career workers (5 years of working experience or less), and part-timers. Taken together, the findings show that underemployment manifests differently across life stages and employment arrangements. Early-career workers, especially those with higher formal qualifications, appear more susceptible to qualification-related overqualification, while skills-related overqualification tends to emerge later in the career span. They underscore the need for employment strategies that better recognise workers' accumulated experience and transferrable skills and not just formal qualifications, when supporting job placements and career progression.

Focusing on the impact of underemployment, we found that workers who reported themselves as being underemployed on any one of the five (out of six) subjective dimensions of underemployment were more likely to report being less satisfied with their jobs. This suggests that the well-being of workers is also compromised when they are underemployed. In the long term, this is also detrimental to employers, as it is likely to negatively affect employee morale and productivity, as well as worker retention. Thus, it will be important for employers to assess and work closely with their employees to ensure good employee–job match and to intervene early if employees are adversely impacted when being underemployed. Nevertheless, further research is needed to understand the impact of underemployment on workers and its implications for the employers, productivity, and the labour force. In so doing, we would be able to develop more robust programmes and interventions to identify potential risks and impacts of underemployment and mitigate them to reduce their impact on both workers and employers. The findings from this study suggest that Singapore should consider expanding its definition and measure of underemployment beyond time-related underemployment, which is not representative of the different types of underemployment. The expanded definition provides a more holistic understanding of the complex nature of underemployment issues in Singapore. Information on skills-, qualification-, field-, and income-related underemployment could be obtained through the job, skills, education, and income data already collected in the labour force survey conducted by the Ministry of Manpower (Tripartite Workgroup on Older Workers, 2019), or other data from the government's administrative records. The expanded definition and measure of underemployment in Singapore will provide policymakers with a more granular tracking of the underemployed segment of the labour force. These could inform the formulation and recalibration of education and skills training policies and programmes to ensure that they are responsive to the changing needs of workers and enable better matching of the supply of qualified and skilled workers with the industry demands. Furthermore, longitudinal tracking of these different measures of underemployment, by including them in the regularly conducted Labour Force Survey, will also help identify evolving career aspirations in the population, especially in the midst of rapid digitalisation and reconfiguration of industries. The availability of this longitudinal data and analysis will also help the government, employers, and labour unions to understand the underemployment situation in Singapore better, especially in monitoring the employment outcomes and career development of graduates across the range of tertiary and vocational

qualifications. Despite the above findings, the study is not without its limitations. It needs to be noted that all measures of underemployment in this study are subjective measures that rely on the self-report by respondents in the survey. Despite following the ILO's methodology and recommendations for the measurements of the mismatches leading to underemployment in this study, the subjective nature of the method would mean that the findings might differ from the objectively computed skills–job, qualification–job, and education field–job mismatches using employment and occupation data. Nevertheless, objectively computed underemployment data require significantly more time and resources than the subjective measures employed here and are contingent on the availability of employment data and occupation data. Hence, the subjective measures employed here offered a useful proxy in the absence of objectively computed ones. This study was also conducted as a cross-sectional survey that gives us an overview of underemployment at one time point. It will be important for future work to investigate the longer-term impacts of underemployment on the Singaporean worker's career trajectories and future job prospects. This will also enable us to develop a better understanding of a range of considerations and factors that lead one to be underemployed, be it voluntary or involuntary. Such a comprehensive investigation of these elements would likely require a longitudinal study. In the interim, we could begin by learning from the lived experiences of those in such situations (e.g. those who have been underemployed for an extended duration, or those who managed to transition out of underemployment).

These limitations notwithstanding, ours is the first to study underemployment arising from skills–job, qualifications–job, education field–job, and qualification–occupation mismatches in Singapore and to understand the relationship of these mismatches with job satisfaction. Our findings support the expansion of the official definition and measure of underemployment beyond a time-based indicator in Singapore. The expanded definition and measure of underemployment in Singapore will provide policymakers with a more granular tracking of the underemployed segment of the labour force. These could inform the recalibration of education and skills training policies, and programmes to ensure that they are responsive to the changing needs of workers, as well as to better match the supply of qualified and skilled workers with industry demands.

SUPPLEMENTARY MATERIAL

The following Supplementary Tables 1–5 are available online at:

<https://www.worldscientific.com/doi/epdf/10.1142/S2811031526500044>

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BRIEF REPORTS



Charting Our Future Together: Union–Association Partnership Within Singapore’s Healthcare Sector

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Abstract

While trade unions and professional associations have sometimes been perceived as antithetical entities, they could very well be compatible, with the combined capability of improving the stature and welfare of the occupation that both entities represent. On 30 September 2024, Singapore’s trade union for healthcare workers, the Healthcare Services Employees’ Union (HSEU), signed Memoranda of Understanding (MOUs) with nine Healthcare Professional Associations based in Singapore. An empirical study was conducted on a small group of 73 Singaporean healthcare workers who were concurrently a member with at least one healthcare professional association across various age groups to understand perceptions and attitudes of Singaporean healthcare workers towards the union–association partnership. The findings revealed that Singaporean healthcare workers possessed a distinctive sense of favourableness towards union–association partnerships. Moreover, the findings also demonstrated that the union–association partnership might elevate healthcare workers’ sense of professional identity and might be conducive to promoting better wages, welfare, and work prospects within Singapore’s healthcare sector. Taken together, these findings reflect a new future for the labour landscape where trade unions and professional associations can work collaboratively for the advancement of workers.



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Introduction

Academics, in recent decades, have engaged in discussions regarding the compatibility of trade unions and professional associations. Trade unions are commonly conceptualised as political organisations that play a critical role in seeking social justice for the group or workers that they represent (Hodder & Edwards, 2015). This is commonly done through pursuing the workers’ concerted interests, including employment benefits, wages, and conditions of employment, through collective bargaining. Professional associations, on the other hand, are contented to represent concerns of professional practitioners (Harvey et al., 1995). This comes with the inherent purpose of bringing people together in “committees, panels, task forces, and study groups...” (Galaskiewicz, 1985) to establish a cultural unification of the profession, institutionalise codes of conduct, develop standards of education and performance, as well as motivate change and innovation within the profession (Hovekamp, 1997).

While seemingly different from the outset, unionisation and professionalisation can be seen as processes with the common objective of attaining collective upward mobility (Haug & Sussman, 1973). Rabban (1991) argued that given the “existence of substantial, unambiguous support for professional values,” unionisation and professionalisation might not be necessarily incongruous. Hovekamp (1997) asserted that professional associations and trade unions can be compatible, with their ability to impact the stature and welfare of the workers that they represent.

On 30 September 2024, Singapore’s trade union for healthcare workers, Healthcare Services Employees’ Union (HSEU), an affiliate of the National Trades Union Congress (NTUC), took a step forward in their partnership with nine healthcare professional associations¹ based in Singapore by signing Memoranda of Understanding (MOUs). According to Tay (2024), it is anticipated that healthcare workers from these professional associations will “have better access to training, development, and welfare benefits” through their partnership with the trade union. This significantly aligns with arguments put across by Haug and Sussman (1973), Rabban (1991), and Hovekamp (1997) with regard to the compatibility of trade unions and professional associations.

Taking this partnership and the preliminary conception that trade unions and professional associations can be compatible, we need to move a step further and ask ourselves: Is this partnership desirable to healthcare workers within Singapore?

To establish a clear understanding of this, this paper seeks to examine two key research questions:

1. What are the pre-existing sentiments of healthcare workers within Singapore towards the trade union and healthcare professional associations, respectively?
2. If they possess positive sentiments towards the trade union and healthcare professional associations respectively, would this necessarily lead to their sense of favourableness towards the partnership between the trade union and healthcare professional associations?

A Complementary Pair? Trade Unions and Professional Associations

Before we examine the survey evidence, let us delve deeper into the broad context. According to the constitution of the International Trade Union Confederation, trade unions “strive for human rights, social justice, gender equality, peace, freedom and democracy” (International Trade Union Confederation, 2006).

Trade unionism, organised labour, seeks to represent the interests of the workers that they serve, union members, both individually and collectively (Hodder & Edwards, 2015). Core to the

¹ The nine healthcare professional associations include: Association for Oral Health Therapists (Singapore), Singapore Acupuncture Association, Singapore Association of Occupational Therapists, Singapore Chinese Physicians’ Association, Singapore Nurses Association, Singapore Optometric Association, Singapore Physiotherapy Association, Singapore Psychological Society, Speech and Language Therapy Singapore.

motivation of trade unions is the overt desire to seek social justice for the segment of workers that they represent. While the nature of social justice sought for by trade unions may vary based on evolving circumstances and needs, the notion of social justice is defensibly established upon the idea of a just society where people are treated fairly and equitably (Chng et al., 2023; Hocking, 2017) and where all citizens acquire a fair share of societal resources (Caravelis & Robinson, 2016). The rise of digital technologies has also led to some trade unions mobilising and engaging digitally with workers, as engagement and worker mobilisation can be complemented or enhanced through the adoption of digital tools (Cheong, 2022; Trenerry et al., 2022). To seek better remuneration and working conditions for workers, trade unions engage in collective bargaining. The act of collective bargaining can be conceptualised as a process of negotiation among the workers of a company represented by the trade union, with the employer, to establish terms and conditions of employment. This is with the ideal for a mutually-agreeable outcome to be achieved by both the workers and their employers.

Advanced countries with high rates of unionisation such as Iceland have demonstrated significant affirmative outcomes for their labour workforce through the presence of a collective bargaining agreement that benefits unionised workers, including substantial wage increments (Tómas, 2024). In Iceland's case, the benefit of unionisation extends beyond wages and contributes to overall economic stability and enhanced social protections.

In spite of this, trade unionism has also been traditionally looked upon with an adverse perspective. This is especially so in the case of their advocacy for better remuneration of the workers that they represent. Freeman and Medoff (1985) conceived trade unions as monopolies that have a negative impact upon the employer. This is with the perception that the trade union is deemed to have the potential to increase labour costs for the employers through wage increments sought on behalf of the workers by the trade union. In some cases, the increased remuneration may be beyond competitive levels.

However, this argument is founded upon the misconception that trade unions are unreasonably demanding when they seek better remuneration on behalf of their workers. Under most circumstances, collective bargaining for better remuneration through trade unions would have taken into consideration the financial capabilities of the employer, prevailing economy outlook, market value of the job role, as well as contributions of the workers. The purpose of championing better remuneration is to ensure that the workers are paid fairly for the work that they have done for the organisation.

Simultaneously, trade unions are also sometimes unfavourably viewed as insinuating demands against the state of affairs and cultivating a feeling of "us" against "them" among their union members (Hovekamp, 1997). This is because trade unions could be seen to be opposing the interests of employers or broader institutional systems such as government bodies. This skewed perception stems from the primary misperception that trade unions are confrontational rather than collaborative. Such a problematic argument has the potential to alienate workers from trade unions, despite the fact that trade unions are able to effectively champion broader social justice goals. It should be noted that trade unionism is increasingly more collaborative as trade unions play a significant role within social dialogues and joint decision-making with employers and government. This allows them to effectively represent the interests of the workers by communicating their concerns for the employers and government to look into and address accordingly.

Widely known as one of the most employee-inclusive labour governance models, Germany's co-determination model is able to demonstrate the positive outcome of a collaborative approach with trade unions. Through co-determination with work councils, where the employees can be represented as part of the organisation's board for medium-sized and large organisations, it leads to cooperative and high-trust industrial relations (Jirjahn, 2010).

The Sweden tripartite corporatist system that is fundamentally based upon bipartite collective bargaining further exemplifies the importance of a collaborative approach as it involves strong and close collaboration between relevant stakeholders like trade unions and employers (Gooderham et

al., 2025; Seah, 2025; Svensson, 2016). Sweden’s Job Security Councils serve to provide occupational welfare for the workers, offering services like job matching, retrenchment support, and transition services (Jansson & Ottosson, 2021; Seah, 2025). They are jointly managed by trade unions and employers, demonstrating the effectiveness of a collaborative approach with trade unions.

Similarly, Singapore’s tripartite system between trade unions, employers, and the government, contributes towards a strong mutual understanding between both employers and employees. Under the circumstances where there is a need for sacrifice and gains to be shared, consensual outcomes can be effectively attained (Ng, 2022). Moreover, it also allows for the workers’ concerns to be taken into consideration prior to the development of new economic directives, keeping in mind the concept of a just transition (Chng et al., 2023).

Yet, if the interests of the workers were mooted by professional associations, it may not necessarily be negatively construed. Alexander (1980) validated this through his argument that professionals place primary focus upon the public good, whereas trade unions emphasise private benefit. In the case of wages, while trade unions publicly advocate better remuneration, it can be misunderstood as providing private benefits to workers who are members they are representing. At this juncture, one may then ask the question: Why is it the case that the efforts of professional associations are viewed more positively?

Professional associations, which may also be taken as a form of occupational community, can be described as comprising of “a group of people who consider themselves to be engaged in the same sort of work; whose identity is drawn from the work; who share with one another a set of values, norms and perspective” (Van Maanen & Barley, 1984). This demonstrates the existence of a unified collectivistic identity among those of the same profession. Hovekamp (1997) points out that “the institutionalisation of professional codes of conduct, establishment of education and performance standards, and the diffusion and incorporation of change and innovation within the profession” is something that would arise as an outcome of interactions among the professionals who are part of the association. This is further substantiated by Fisher’s (1997) conception of the value that professional associations bring, especially in terms of spurring professional development and the knowledge base of the profession. This aligns with Alexander’s (1980) argument that there is an emphasis placed on a public good, which is defined as a good that offers collective benefits due to its non-rival nature, yet is challenging to fund due to it being non-excludable (Ver Eecke, 1999). This means that professional associations have the capabilities of benefitting the profession at large. As such, it is unsurprising that there is a more positive perception towards the professional associations when they step forward to promote the interest of the workers within the profession. They would be seen as taking action for the greater good of the profession, rather than the individual workers themselves. However, it could be argued that this is essentially no different from that of the trade unions when they seek to promote the interests of the workers that they represent.

Despite their promotion of the public good, professional associations also offer association membership, where workers of the profession have to join the professional association to be a part of them. This is a similar concept to that of trade unions, where workers have to take up union membership to be similarly considered.

This leads us to the question of whether there is a possibility for trade unions and professional associations to complement each other in their efforts to promote the interests of the workers within the profession.

Methodology

To understand the sentiments of healthcare workers within Singapore towards the trade union and healthcare professional associations, a study was conducted over a 4-month period through an online questionnaire that was disseminated via HSEU's social media platforms (namely, Facebook and LinkedIn) from June 2025 to September 2025.

Respondents

The study had a total of 73 respondents, all of whom are Singaporean healthcare workers who have an existing membership with at least one of the healthcare professional associations within Singapore. A breakdown of respondents according to the healthcare professional association that they belong to can be observed within Table 1. While the sample size is modest due to the recency of HSEU's penetration into the Healthcare Professional Associations, it can provide preliminary insights into the perspectives of these healthcare professionals.

For the purpose of this study, the types of healthcare professional associations the respondents belonged to were not restricted, so as to capture a broader range of perspectives. Among all respondents of the healthcare professional associations that participated in the study, 8 out of 11 healthcare professional associations signed MOUs with HSEU. Notably, there are three healthcare professional associations—Pharmacy Technician Community of Practice, Pharmaceutical Society of Singapore, and Singapore Clinical Research Professionals—that do not belong to the Healthcare Professionals Community with HSEU but still participated in the study. Of the 73 respondents, nine respondents hold positions on the Executive Council or serve as Office Bearers of their respective healthcare professional associations, while the remaining respondents are general association members.

Table 1

Profile of Respondents by Healthcare Professional Association

Name	Total
Singapore Nurses Association	30
Singapore Physiotherapy Association	9
Singapore Optometric Association	8
Pharmacy Technician Community of Practice	6
Pharmaceutical Society of Singapore	6
Speech and Language Therapy Singapore	6
Singapore Clinical Research Professionals	4
Singapore Psychological Society	1
Singapore Acupuncture Association	1
Singapore Chinese Physicians' Association	1
Association for Oral Health Therapists (Singapore)	1

Note. N = 73.

All respondents had at least 12 years of formal education and were aged 21 years old and above at the time of study. Based on the data, most of the participants fell within the age 31–40. Table 2 reflects the breakdown of respondents according to their age group.

Table 2

Age Profile of Respondents

Age Group	No. of Respondents
21–30	12
31–40	46
41–50	12
51–60	3

Note. $N = 73$.

Majority of respondents of this study were university graduates (75.3%), with 13.7% diploma holders and 11.0% post-graduates.

Online Questionnaire

The online questionnaire comprised three sections. Within the first section, demographic information such as age, nationality, gender, education qualification, and occupation were sought from respondents. They were also required to indicate the healthcare professional association that they are a member of.

In the second section, respondents were presented with three groups of five statements. These statements were designed to solicit their sentiments towards (a) the healthcare professional associations, (b) labour union within healthcare, and (c) and union–association partnership within healthcare. A five-point Likert scale of 1 (Strongly Disagree)–5 (Strongly Agree) was adopted to quantify the responses provided. Table 3 summarises the statements that were presented to respondents within the online questionnaire.

Table 3

Breakdown of Statements Presented to Respondents

Category	Statements
Sentiments Towards Healthcare Professional Associations	1. I believe that healthcare professional associations establish a unified culture for the profession that it represents. 2. I believe that healthcare professional associations uplift the profession that it represents. 3. I consider healthcare professional associations as the key driver of change and innovation within the profession.

Sentiment Towards the Labour Union ² Within Healthcare	4. I believe that healthcare professional associations establish the professional standards of education and performance. 5. I consider healthcare professional associations as promoting a common sense of professional identity. 1. I believe that the labour union effectively seeks social justice through their representation of healthcare workers. 2. I believe that the labour union uplifts the healthcare profession. 3. Through collective bargaining and advocacy, I believe that the labour union promotes better working conditions, remuneration, and career prospects of healthcare workers. 4. I perceive the labour union as a driving force for the promotion of training and development within the healthcare profession. 5. I perceive the labour union as promoting a collective identity through the common interests of healthcare workers.
Sentiment Towards Union–Association Partnership Within Healthcare	1. I believe that the labour union is able to complement existing efforts of the healthcare professional associations. 2. Through the union–association partnership, I believe that we will be able to better uplift the healthcare professions. 3. I foresee that the union–association partnership would strengthen the training and professional standards of the healthcare professionals. 4. I foresee that the union–association partnership would promote positive change and greater innovation for the healthcare professionals. 5. I perceive that the union–association partnership is able to enhance the sense of professional identity among the healthcare professionals.

² For the purposes of this paper, “Labour Union” can be interchangeably used with the term “Trade Union”.

Within the third section of the survey questionnaire, respondents were presented with a question that sought to understand the aspects that they believed the labour union could support to strengthen existing efforts of healthcare professional associations. They were presented with six option(s) to choose from, including an “others” option for them to provide input beyond the options presented. Respondents were allowed to select more than one option as part of their answer. Table 4 shows the question and options that were presented to respondents.

Table 4*Questions and Options Presented to Respondents*

Question	Options
What are some of the aspects that you believe that the labour union can support, to strengthen existing efforts of healthcare professional associations?	1. Championing better remuneration for the profession that the healthcare professional association represents 2. Developing career progression pathways 3. Provision of training grants 4. Empowering healthcare professionals with industrial relations knowledge 5. Professional indemnity 6. Others (open-ended)

Findings

The findings of the study will be presented in four subsections. The first three subsections reflect the sentiments of respondents towards healthcare professional associations, trade union, and union–association partnership. The final subsection shows respondents’ opinions on the aspects which they believe that the trade union can support with to strengthen existing efforts of healthcare professional associations.

Sentiments Towards Healthcare Professional Associations

Table 5*Average Rating of Respondents’ Sentiments Towards Healthcare Professional Associations*

Age Group	Unified Culture	Uplifts the Profession	Key Driver of Change and Innovation Within the Profession	Establishes Professional Standards of Education and Performance	Promotes a Common Sense of Professional Identity
21–30	4.0	4.1	4.0	4.1	4.2
31–40	4.3	4.3	4.2	4.3	4.2
41–50	4.3	4.2	4.2	4.2	4.3
51–60	4.7	4.7	4.7	4.7	4.7

Note. The overall sample size was 73 respondents, with the average ratings derived from the numerical data that respondents provided within the survey that was administered using the five-point Likert Scale, namely 1 (Strongly Disagree)–5 (Strongly Agree).

Generally, respondents possessed positive sentiments towards the healthcare professional associations. Across all age groups, respondents provided an average rating above 4.0 to the statements that examine the various aspects of what the healthcare professional association is able to cater to their association members. Table 5 reflects the average rating of respondents' sentiments towards the healthcare professional associations based on their age group.

The ANOVA two-factor test was used to determine the validity of the findings. The analysis yielded a p -value of .22, which exceeds the significance threshold of .05. To compare the variation between groups to variation within groups, the F -value was derived. It was found that the F -value for the dataset within Table 5 was 1.69. Taking both findings together, the findings did not have a statistically significant difference.

The data presented within Table 5 demonstrated that respondents believe that the healthcare professional associations, which they belong to, have been able to meet their expectations through the works that have been undertaken by the healthcare professional associations. It also demonstrated that these respondents have a strong sense of affiliation to not only their healthcare profession but also the healthcare professional associations. Moreover, it can also be observed that older respondents have more positive sentiments towards the healthcare professional associations. Perhaps, this may be due to older respondents having more professional experience and engagement with the healthcare professional associations, as compared to younger respondents.

Sentiments Towards Labour Union Within Healthcare

Table 6

Average Rating of Respondents' Sentiments Towards Labour Union Within Healthcare

Age Group	Effectively Seek for Social Justice	Uplifts the Profession	Promotes Better Working Conditions, Remuneration and Career Prospects	Driving Force for Promotion of Training and Development	Promotes a Collective Identity
21–30	3.6	3.6	3.7	3.7	3.6
31–40	4.0	4.1	4.1	4.0	4.1
41–50	4.0	4.0	4.0	3.8	4.0
51–60	4.3	4.3	4.3	4.3	4.3

Overall, respondents had mixed sentiments towards trade unions. Based on the data of the study, the results derived from the ANOVA two-factor test were not statistically significant ($F = 0.80$, $p = .55 > .05$). This shows that there is no meaningful difference between the age groups. Nonetheless, the data can still provide valuable information about the patterns and variability among the participants across the various age groups, which can be useful for further investigation.

For respondents who belong to the age groups 31–40, 41–50, and 51–60, they provided an average rating of 4.0 and above for most of the statements that were presented to them. This reflects that they may broadly consider the trade union as being able to benefit themselves as healthcare workers. Despite this, respondents within the age group of 41–50 had a more neutral sentiment towards trade union as a driving force for the promotion of training and development. This may possibly be due to the fact that this group of respondents collectively felt that the healthcare professional associations are better able to promote the professional development and

necessary education that is required for them to perform their jobs. This is in line with Fisher’s (1997) conception of professional associations in being able to motivate professional development and knowledge base of the profession. There might be other reasons underpinning such sentiment like fear of retrenchment in an era of rapidly-developing technological changes and the potential for technology to replace workers in healthcare, in areas including dermatology, pathology, optometry, or ophthalmology, but more future research would be needed to delve deeper into this area.

It is interesting to note that for respondents who belonged to the age group of 21–30, their ratings hovered between 3.6 and 3.7. This demonstrates that they have a more neutral perception towards the trade union’s ability to benefit them as healthcare workers. This neutrality may be due to this age group’s relatively recent entry into the healthcare workforce and potentially limited understanding of the relevance of a trade union within their industry under the present-day context and their current life stage. More broadly, Poon and Lam (2025) noted that younger workers might be more inclined to adopt alternative rather than more traditional work models, which implies that the younger workers’ expectations of work and career development might be slightly different compared to other age groups.

Taking the data presented within both Tables 5 and 6, it can be observed that respondents had a comparatively stronger positive sentiment towards the works of the healthcare professional association as compared to the trade union. This is unsurprising given how professional associations have been viewed in a more positive light. Given this, how then would respondents perceive the partnership between trade union and healthcare professional associations?

Sentiments Towards Union–Association Partnership Within Healthcare

Table 7

Average Rating of Respondents’ Sentiments Towards Union–Association Partnership

Age Group	Complementing Existing Efforts	Uplifts the Profession	Strengthens Training and Professional Standards	Promotes Positive Change and Greater Innovation	Enhances Sense of Professional Identity
21–30	4.3	4.4	4.4	4.4	4.4
31–40	4.3	4.3	4.3	4.3	4.3
41–50	4.3	4.2	4.3	4.3	4.3
51–60	5.0	5.0	5.0	5.0	5.0

From the data presented in Table 7, respondents across all age groups provided a rating between 4.2 and 5.0. The overall sentiment towards having a trade union and healthcare professional association partnership was much more positive as compared to the sentiments of healthcare professional association and trade union, as individual entities. The statistical analysis using ANOVA two-factor test indicated no significant difference between the age groups of respondents ($F = 0.14$, $p = .96 > .05$).

Based on the average rating between 4.3 and 5.0 for the statement concerning their belief towards the trade union as having the capabilities of complementing the existing efforts of the healthcare professional associations, it greatly shows that respondents have a collective sense of favourableness towards the partnership. Through the establishment of such partnerships, respondents also strongly believed that this would allow more to be done, especially with regards to uplifting the profession, strengthening training and professional standards, promoting positive

change and greater innovation, as well as enhancing the sense of professional identity. This can be seen from their ratings which were all more than 4.0 within Table 7.

As such, it can be observed that while there may have been a stronger sense of affiliation towards the healthcare professional associations, respondents possess a steadfast innate belief that the trade union could contribute to their profession effectively when complemented with their healthcare professional association. This shows the importance of a union–association partnership.

In view of this, the trade union would be able to strengthen the existing efforts of healthcare professional associations by potentially working closer to champion better remuneration, co-developing career progression pathways, as well as becoming an enabler for quality training and upskilling of the healthcare workers that are being represented by the respective healthcare professional associations. To determine how the trade union can value-add to healthcare professional associations, respondents were provided with a series of statements to select according to their personal belief.

Strengthening Existing Efforts of Healthcare Professional Associations

Table 8

Breakdown of Respondents' Belief Towards the Aspects that Trade Union can Value-Add to Healthcare Professional Associations

Statement	No. of Respondents who Selected the Statement
Championing better remuneration for the profession that the healthcare professional association represents	61
Developing career progression pathways	21
Provision of training grants	25
Empowering healthcare professionals with industrial relations knowledge	27
Professional indemnity	14
Others	2

Based on the data within Table 8, most respondents believed that the trade union was able to champion better remuneration for their profession. This suggests that respondents had a collective aspiration for the trade union to advocate this aspect on their behalf. Besides this, there was also a significant number of respondents who believed that the trade union could empower them with industrial relations knowledge. This implies that respondents wish to have a stronger understanding of their rights as workers and what can be done when they are confronted with workplace grievances.

As for respondents who selected “others,” they both indicated that they would like the trade union to provide a greater variety of funding and grants such as research grants, as well as have a greater voice with the Ministry of Education, Ministry of Health, and Allied Health Professions Council. This further reinforces that the advocacy role that the trade unions play is highly valued by respondents. Moreover, it also reveals how the trade union can work closely with the

healthcare professional association to enable and bring forth their professional aspirations to the governing bodies.

Discussion

Based on the overall findings of the study, while respondents are inclined to believe that the healthcare professional associations can productively perform their role, there are aspects where the trade union can value add to them.

As espoused by Haug and Sussman (1973), Rabban (1991), and Hovekamp (1997), it is possible for trade unions to work together with professional associations. In fact, the partnership between both parties can bring about mutual benefits through shared resources. This allows trade unions to effectively delve into the imminent challenges and needs that confront present-day workers, which enables the relevance of trade unions to be effectively sustained (Ng, 2022).

Taking a membership perspective, trade unions and professional associations can work together to promote mutual growth of their respective membership numbers. Workers who join the trade union may not necessarily be aware of the existence of professional associations. Even if there is a general awareness on the ground, there may be a perception that the professional association does not directly advocate better remuneration and working conditions of the workers, which is something that they may have been more primarily concerned about. For workers who join the professional association, they may also lack the awareness of what the trade union can do for them. Through the presence of a complementing effort between the trade union and professional association, the workers would be better able to understand how their holistic interests can be promoted. This would then create a win–win outcome for both the trade union and professional associations as they could then grow stronger in numbers, which puts them in a good position to champion the greater good of the workers within the profession. Notwithstanding, this could also potentially enhance the sense of collective professional identity among the workers of the profession as they would develop a stronger sense of belonging through their dual membership.

Besides this, trade unions and professional associations can also work together to collectively uplift the workers of the profession that they represent. This could include the development of career progression pathways. With the knowledge resource that professional associations possess, they are able to effectively advise the trade unions on the knowledge and skills that a worker should possess in order to be able to be promoted to the next job grade. Training and education could be offered to the workers within the profession to equip them with the necessary theoretical knowledge and practical experience. This would then ensure the quality and standard of work that the worker is able to deliver to their organisation, which could also justify the pay increment that should come with the promotion. This has the potential of effectively tackling the worry that was raised by Freeman and Medoff (1985) as the professional association can provide a more objective assessment on the degree of reasonableness of the increment that the trade union is advocating on behalf of their workers.

Conclusion

With potential partnerships between the trade union and professional associations, workers of the profession which the professional association represents can look forward to being paid fair wages as well as having better welfare and work prospects. Through collaborative efforts, these workers can be assured that there will be someone who will actively advocate for them to be paid fairly, commensurate with their skillsets and contributions to their job role as well as market value. It also provides a sense of reassurance that they will be compensated similarly to their fellow colleagues who may be of the same job grade and job title, regardless of their age, race, and gender. Moreover, these workers can also look forward to having a platform to raise matters relating to their working conditions and workplace safety. This would allow such pertinent matters to be conscientiously looked into by their management, to ensure that the working

environment is a safe place for everyone. More importantly, these workers can be certain that there would be stronger efforts to promote career progression for their job role, where they can find greater meaning with the work that they are doing. This would also allow them to recognise the importance of continuing education and training, reskilling, and upskilling to ensure that they remain relevant to the workforce.

Taking into consideration the context of Singapore's healthcare sector, the union–association partnership would pave way for more effective professional deep dives across the nursing, allied health, and ancillary worker segments. The trade union would be able to work more closely with the healthcare professional associations to understand challenges they are facing. By ensuring that they are well supported, it can have the positive impact of uplifting the profession represented. Critically, it would also bring about greater positive change and innovation for the healthcare profession being represented. As mentioned by Tay (2024), the partnership could lead to a deepened collaboration between the trade union and healthcare professional association where the healthcare sector's transformation is concerned. An aspect that is unique to Singapore's HSEU is the presence of a training academy. Healthcare Academy is a collaboration between the union, NTUC LearningHub (LHUB), and NTUC's Employment and Employability Institute (e2i) that aims to encourage continued education by the healthcare workers and equip them with the relevant skills that is needed to meet the demands of their job roles (Healthcare Services Employees' Union [HSEU], 2025; Yahya, 2018). This places them in a good position to work collectively with the respective healthcare professional associations to co-create and provide more training opportunities for the healthcare workers (Tay, 2024).

Given that Singapore is considered to be a super-aged society by 2026, with more than 21% of Singapore's population aged 65 and above (Abdullah, 2026; Chan & Tan, 2025; Chin, 2025; United Nations Economic and Social Commission for Asia and the Pacific, 2022), it is ever more critical for there to be sufficient manpower to cater to the healthcare needs of the people. Through the union–association partnership, the society can potentially benefit from having more healthcare workers staying in their profession. This can bring about strengthened reassurance that there will be a more stable pool of healthcare workers who are able to provide quality care for the community.

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BIOGRAPHIES

Michelle Ee Xiang Ng



Ms Michelle Ng is a Senior Industrial Relations Officer with the Healthcare Services Employees’ Union (HSEU). Having recognised the potential for union–association partnerships, she has successfully onboarded more than 10 healthcare professional associations under the Healthcare Professionals Community. Passionate about public policy and evidence-based research, Michelle thrives on uncovering insights that strengthen labour relations across diverse stakeholders. She is a committed advocate for fair and progressive labour practices. With experience navigating the complexities of employer–employee dynamics, she brings a unique balance of analytical rigour and people-centred understanding to her work, ensuring both strategic and empathetic solutions in industrial relations.

Steven Tiat Yang Goh



Mr Steven Goh has served as Executive Secretary of the Healthcare Services Employees’ Union (HSEU) since April 2022, leading transformative efforts that grew union membership beyond 50,000 by 2025. He forged strategic partnerships with healthcare institutions to tap into Company Training Committee (CTC) grants, boosting operational efficiency, job enrichment, and workforce retention. Under his leadership, the healthcare professional community expanded to more than 10 groups, strengthening sector-wide collaboration. Through the HSEU Healthcare Academy, he championed sector-specific training and WSQ pathways that enable career progression, job redesign, and hybrid roles, shaping a future-ready and resilient healthcare workforce.

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From Employers' Concern to Employee Action: A Self-Assessment Checklist for Flexible Work Arrangements

Yuan Zhi Seah, Joyce Tan, Huay Ling Tay, and Hui Shan Loh

Abstract

Informed by the survey responses of 367 employers and built on the qualitative data of a study with a sample of eight representative employers in Singapore, this paper introduces a checklist for employees to pre-evaluate their flexible work arrangement (FWA) requests. Based on the challenges commonly raised by employers in the study, our checklist considers four evaluation criteria, including operational feasibility, employees' reasons for requesting FWAs, employment status, and arrangement period, to determine the feasibility of their request. A further work productivity assessment is developed for employees to identify and address potential issues they may encounter during FWAs that they can use to negotiate the methods and deliverables they can offer to support their requests. We reviewed the FWA research literature and concluded that the deployment of flexi-load work arrangements may give businesses a competitive advantage in attracting diverse and underutilised labour pools.



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Introduction

In recent years, flexible work arrangements (FWAs) have garnered considerable attention, particularly during the coronavirus disease 2019 (COVID-19) pandemic, and this has accelerated the adoption of remote working. As the pandemic has waned, employers are reassessing the advantages of providing FWAs, and some businesses are reconsidering their implementation in light of potential drawbacks (S. Yeo, 2024). Conversely, businesses with management support for FWAs report increased employee attraction and retention, higher employee job satisfaction, and improved work productivity (W. L. Yeo, 2024). FWAs have been found to be effective in addressing labour shortages by tapping into underutilised labour pools, such as female caregivers and seniors, while promoting a more inclusive and equitable workforce (Michielsens et al., 2013; National Trades Union Congress [NTUC] & The Behavioural Insights Team [BIT], 2024; W. L. Yeo, 2024). Recognising these advantages, the Singapore government has actively promoted FWAs by introducing the Tripartite Guidelines on Flexible Work Arrangement Requests (TG-FWAR) in 2024, which require employers to establish procedures for handling FWA requests (Singapore National Employers Federation [SNEF], n.d.).

Several theoretical frameworks elucidate the reasons employers implement FWAs, including Resource-Based View (RBV), social exchange theory, and institutional theory, suggesting employers provide FWAs in exchange for organisational benefits or to mitigate legal risks (Antunes et al., 2023; Kelly & Kalev, 2006; Klindžić & Marić, 2019). Research primarily focuses on providing employers with recommendations to address FWA issues (NTUC & BIT, 2024) and offering comprehensive checklists to evaluate employees' FWA requests and to determine their impacts and feasibility (SNEF, n.d.; Tripartite Alliance for Fair and Progressive Employment Practices [TAFEP], 2024). However, there is no comprehensive guide for employees to review their requests (Ministry of Manpower Singapore [MOM], n.d.; TAFEP, n.d.).

Why Employers Offer Flexibility: A Review of Theory and Evidence

Competitive advantage, defined as the organisation's ability to outperform its rival companies in aspects such as talent attraction and retention, emerges as the key factor influencing employers' decisions to offer FWAs (Antunes et al., 2023). Employers who initiate the adoption of FWA practices do so to optimise employee work conditions, increasing organisational attractiveness as part of their talent management strategy (Amirul et al., 2023; Antunes et al., 2023). In contrast, FWA requests initiated by employees are employee-driven FWAs intended to improve their own work-life quality, which also promotes talent retention when approved (Klindžić & Marić, 2019).

The RBV posits that the provision of FWAs is a form of organisational capability that postulates a competitive advantage for employers to attract and retain talent through enhancing employee well-being (Antunes et al., 2023). While the institutional theory contextualises the provision of FWAs within legal discourse, where employers formulate their company policy to comply with legal employment frameworks, addressing potential discrimination and talent management regulatory challenges (Kelly & Kalev, 2006), social exchange theory suggests that the provision of FWAs helps establish a favourable exchange relationship between employers and employees, where employers anticipate employees will reciprocate the benefits through increased engagement and commitment, bolstering organisational resilience (Klindžić & Marić, 2019).

Employers' Concerns Regarding Flexibility

Despite the potential benefits of FWAs, employers often encounter common challenges during implementation. One primary concern is the nature of work roles, which can restrict the implementation of FWAs due to time- and location-related constraints on work responsibilities (Kotey & Sharma, 2016). Closely related is the perception of fairness among employees, who

may have unequal access to FWAs due to their different work roles (Amirul et al., 2023). Depending on the employees' job role requirements, employers may also fear that offering flexibility could lead to increased operational complexities, particularly in roles that require employees to interact with customers, specialised skill sets to complete work tasks, or collaboration with team members, which could jeopardise work coordination and affect overall organisational productivity (Amirul et al., 2023; Michielsens et al., 2013). On the other hand, managerial resistance to adopting FWA practices can also be driven by managers' preference for traditional work norms to safeguard their control and oversight of employee work performance through employee presenteeism (Kelly & Kalev, 2006; Michielsens et al., 2013).

While most employers are open to considering employees' FWA requests, concerns over these disadvantages have led to some employers' hesitation in implementing FWAs or even some employers rejecting requests to ensure operations remain status quo, and retaining fairness and equity (Kelly & Kalev, 2006; Seah et al., 2025). To allay common employer concerns, we created a checklist for employees to pre-evaluate their FWA requests. When employees are aware of these concerns, they can better reflect on their requests and propose solutions to address some of the identified challenges during the negotiation process while aligning with employers' expectations.

Methodology

A national research project conducted in collaboration with SNEF and supported by trade associations, including the Association of Process Industry, the Restaurant Association of Singapore, the Singapore Furniture Industries Council, and the Singapore Logistics Association, was carried out to understand the FWA situation and perceived impacts concerning the TG-FWAR. As part of the study, surveys and interviews were conducted with consenting members between September and October 2024. This approach helps employees understand how organisations interpret and operationalise FWAs, thereby offering clearer insights into the considerations that shape approval decisions. Through examining employers' perspectives, the study sheds light on the underlying rationale that guides FWA decision-making within organisational constraints. These insights can then be translated into an evidence-based checklist that ultimately benefits the employees by helping them formulate requests that are realistic and aligned with operational needs.

Survey

To understand employers' sentiments regarding the TG-FWAR enforcement, the survey examined employers' current knowledge and practices relating to TG-FWAR to assess the situation on the ground, their perceived readiness for TG-FWAR, key factors considered in FWA requests, and the support needed for TG-FWAR implementation. It also examined employer experiences and perceptions regarding three FWA types (i.e. flexi-time, flexi-place, and flexi-load) by assessing the specific benefits, drawbacks, and implementation challenges. The survey was administered to employers across 15 industries, yielding 367 valid responses (see Table 1 for respondents' demographics).

The literature review framed the development of the survey by aligning response choices with the theoretical framework on employers' motivations and common challenges in providing FWAs, and assessing whether these findings apply within the Singapore context. An example question is "Why do you provide flexible work arrangements?" with sample responses such as "attract new employees" to reflect the RBV perspective, "increase employee productivity" to exemplify social exchange theory, and "responding to government's call" to align with the institutional theory. Respondents also rated the impacts of FWAs using a 0-10 Likert scale, for example, "How would acceding to flexi-place requests affect customer experience in your company?" The survey content was reviewed by SNEF, an expert in this area, to ensure it aligns with Singapore's current FWA landscape.

Table 1*Survey Respondents' Demographics*

Industries	Number of Companies	Company Size	
		Less Than 100 Employees	100 or More Employees
Chemical	11	3	8
Electronics & Precision Engineering	17	6	11
Energy & Utilities	36	12	24
Finance	21	8	13
General Manufacturing	41	23	18
Hospitality & Tourism	25	3	22
Information & Communications	15	3	12
Maritime	8	4	4
Pharmaceutical & Health Science	16	4	12
Professional Services	26	15	11
Real Estate & Building Services	32	12	20
Retail, F&B, and General Services	35	10	25
Social & Community Services	17	7	10
Trading	32	28	4
Transport & Logistics	35	21	14
Total	367	159	208

Interview

To gather more in-depth information, semi-structured interviews were conducted with employers or HR representatives from eight companies. Participants who consented were recruited through a process separate from the survey recruitment (see Table 2 for respondents' demographics). Interviews were conducted by the researchers, specifically examining employers' experiences with managing FWAs, challenges and benefits encountered during implementation, best practices, and anticipated future impacts of FWAs. An example question on management included "What was your experience with managing flexible work arrangements requests from your employees?" and an example question on challenges included "What challenges did you encounter when managing requests for flexible work arrangements?" While this study conducted interviews with participants from only four sectors, these sectors represent major industries with substantial workforce size and current engagement in FWAs. Moreover, this limitation is mitigated by supporting survey data collected across 15 sectors.

Table 2*Interview Respondents' Demographics*

Industries	Number of Companies	Company Size	
		Less Than 100 Employees	100 or More Employees
Energy & Utilities	2	1	1
Real Estate & Building Services	1	1	0
Retail, F&B, and General Services	3	3	0
Transport & Logistics	2	1	1
Total	8	6	2

We focused on the qualitative data obtained through interviews and complemented them with the descriptive analysis from the survey responses. All interviews were transcribed and cleaned for clarity by removing filler words and repeated utterances while retaining the participants' original meaning. All transcripts were coded using MAXQDA 24 software. A phenomenological approach was used to guide the analysis of the interview data, employing inductive coding to capture employers' lived experiences with managing FWAs and their perceived organisational impacts.

Two independent coders first read all eight interview transcripts to familiarise themselves with the data. The coders then selected two distinct transcripts that represented different sectors and company sizes for initial open coding. The initial coding serves as a pilot for codebook formation, during which discrepancies were collaboratively discussed and refined to ensure coding consistency and enhance interpretive depth (Richards & Hemphill, 2018). Inter-coder reliability for the two joint-coded transcripts was high, with 85.9% code occurrence agreement and Cohen's κ was .82 for Transcript 1 and .90 for Transcript 2. The refined codebook was subsequently applied to the remaining transcript using split coding (three transcripts per coder). Periodic iterative discussions were held when new themes or sub-themes were identified. Higher-order categories within the codebook were developed through iterative assessments of grouping conceptually similar codes into broader themes (e.g. "formal requests" and "informal requests" under "communicating of requests").

As various FWA-related categories emerged during the coding process, we identified and extracted those specifically related to the criteria employees can consider when pre-evaluating their FWA requests, such as "requirements to approve FWA" and "facilitators to implement FWA." These categories were then organised across organisational, management, team, and employee levels, where applicable. The interviewee responses and descriptive survey findings then informed the prioritisation of these factors and the development of the relevant recommendations for the checklist.

A Self-Assessment Checklist for Flexible Work Arrangements

The data collected highlighted key criteria employers consider when assessing FWA requests, highlighting operational and organisational realities and offering practical guidance to employees in their applications. Based on the survey, and interview data analysis, we identified four key factors critical to evaluating FWA requests, including operational feasibility, reason for requesting FWA, employment status, and arrangement period. While the fifth factor, productivity, is the second most important consideration for employers, it is critical for long-term FWAs but optional for short-term FWAs.

Operational Feasibility

Foremost, the feasibility of FWAs is contingent upon the nature of job roles, where aspects of job scope can restrict the possibility of implementing particular work arrangements (Delbosc & Kent, 2024; Michielsens et al., 2013). Consistent with our survey findings, 92.5% of employers evaluated FWA requests based on this criterion, making it the most prevalent consideration. As shared by employers, some positions necessitate on-site presence, such as frontline workers who need to attend to various stakeholders, and thus face challenges with flexi-place arrangements.

... the role just can't allow for them to do so. Those—then, we have a harder time saying yes, because you know the warehouse kind of staff, there is no way they can work from home. (Interviewee C, Retail, F&B, and General Services)

In contrast, roles that require adherence to designated operating hours, such as technicians and delivery workers, will encounter difficulties in conforming to flexi-time arrangements, especially during formal business operating hours. As such, it is crucial for employees to consider how their requested FWA will affect their ability to fulfil their job responsibilities.

Flexible timing—you can't do that either, because of the customer and the clients.... You will rather someone suit (client) timing. (Interviewee B, Energy and Utilities)

Reason for Requesting FWA

Another key consideration that employers raised was employees' reasons for requesting FWAs, where legitimate needs affecting employees' ability to balance their work and personal commitments are considered more seriously than a desire for a "more convenient" lifestyle. As reported by 74.5% of employers, the most broadly endorsed reason for offering FWAs was to bolster employee well-being, with 68.6% believing this will lead to employee retention. Essentially, a legitimate reason for FWAs helps convince other colleagues of equitable work treatment, as they are more likely to respond with understanding to these approvals. Furthermore, these employees may perceive employers' approval as a sign of compassion towards their well-being (Bonaccio et al., 2020; Chung & van der Horst, 2018).

... we'll also tell that, 'Do you mind (informing) the rest of your co-workers, (who) will be helping you?' Because obviously, we need to let him or her know that there is a valid reason why the company allows this... to understand that there is a real need, that's why we approve the FWA.... This also affects (beyond this employee), they also affect those around them to have more positive vibes about the company and being able to feel more secure. (Interviewee F, Transport and Logistics)

Employment Status

An ancillary consideration is the employment status of employees, particularly in relation to their tenure (Kelly & Kalev, 2006), with 16.8% of employers factoring this in during the review process. Employers mentioned that employees who have been with a company for a short duration are unfamiliar with the company's work environment and are considered not ideal candidates for FWAs.

Like probation staff, of course, the trust may not be there yet, so we need to be up there to monitor them. So, FWA may not be eligible for them. (Interviewee A, Retail, F&B, and General Services)

Unless employees have an urgent need for FWAs to accommodate their personal needs, it would be advantageous to consider postponing their requests until employers can assess their work ability to determine their suitability for FWAs, which is a criterion supported by 73.8% of employers.

Arrangement Period

Aside from employment status, 48.7% also assessed the requested arrangement period to determine whether additional factors need to be considered. As reported by employers, when the FWA request is for a short-term or ad hoc arrangement rather than a permanent change, they are likely to approve it without further evaluation due to the minimal impact anticipated with such a request.

For example, I want to permanently change my working hours to start from 9:00am. Instead, if it's just a one-time or ad-hoc 'thingy', you can just inform your supervisor in writing. We will just approve that. (Interviewee D, Transport and Logistics)

Additionally, employers shared that when employees actively review plans to address productivity concerns, they are more confident in acceding to these requests, as it reflects employees' accountability and maturity in handling work responsibilities.

If the person is responsible, they can really handle their time. They're very task-oriented and task-driven. Then, it makes sense (to approve the request), right? (Interviewee C, Retail, F&B, and General Services)

Impact on Productivity

According to the survey findings, the second most prevalent consideration was the impact on organisational productivity, as stated by 89.7% of employers, who are concerned about the implications of accommodating flexibility on overall business operations. As the introduction of permanent FWAs can increase operational complexity, including communication challenges among stakeholders due to changes in availability and unmanageable workloads, this can result in employees' inability to perform specific tasks that are sensitive to time or location constraints (Michielsens et al., 2013). Furthermore, communication difficulties were found to be equally concerning for flexi-time (47.8%), flexi-place (51.7%), and flexi-load (46.9%).

People come in at 7, come in at 8, 9, 10 and 11. Everybody doesn't see each other. (Interviewee H, Energy and Utilities)

Of course, it's easier for you to plan the roster for your workers. Then, I will make sure my manpower is always steady, no matter if it is day, night, or weekend. For us, to take up this flexibility, it's a challenge for operations. (Interviewee D, Transport and Logistics)

For managers, FWAs may hinder the monitoring of employee work performance when they cannot directly supervise their work due to variations in work locations or working hours (Manca et al., 2018; Michielsens et al., 2013). Survey findings indicate that flexi-place (58.3%) posed the greatest difficulties in monitoring activities, followed by flexi-load (53.9%), and flexi-time (39.7%). On a personal level, employees may also have to contend with an uncondusive remote working environment, which can affect their work performance.

Firstly, employees can seek individual measures to reassure employers of consistent work performance, such as indicating deliverables to update their work progress and ensuring responsiveness during work hours (Amirul et al., 2023; Manca et al., 2018). Furthermore, through employees' usual work performance, managers can also ascertain employees' credibility to fulfil work responsibilities when left unsupervised (Kelly & Kaley, 2006).

But they need to first give the company their time and their best effort when they are at work. This will actually help us in consideration of things that we can take care of—you and stuff like that. (Interviewee E, Retail, F&B, and General Services)

However, in situations where limited resources can impede the implementation of FWAs, employees can negotiate with the organisation regarding the support they require, such as additional manpower or equipment, with the possibility of a trade-off (Maxwell et al., 2007; Perrons, 2000).

She has opted for part-time work arrangements. She's on a 4-day work week. Of course, her salary and everything get pro-rated. (Interviewee G, Real Estate and Building Services)

Overall, the results showed that employers most frequently evaluated FWA requests based on operational feasibility (92.5%), potential productivity impacts (89.7%), the employee's reason for requesting (74.5%), arrangement period (48.7%), followed by employment status (16.8%). The relative importance of these factors was found to vary, with differences across sectors. The results highlight operational and organisational realities considered in the approval process as well as practical guidance to help employees align their requests with these considerations. Figure 1 presents a checklist for employees to assess aspects of their work and FWA requests that will impact their approval, with accompanying suggestions for addressing the issue, and Figure 2 presents an assessment tool that employees can use to actively seek alternative measures and negotiate support with their organisation to ensure productivity.

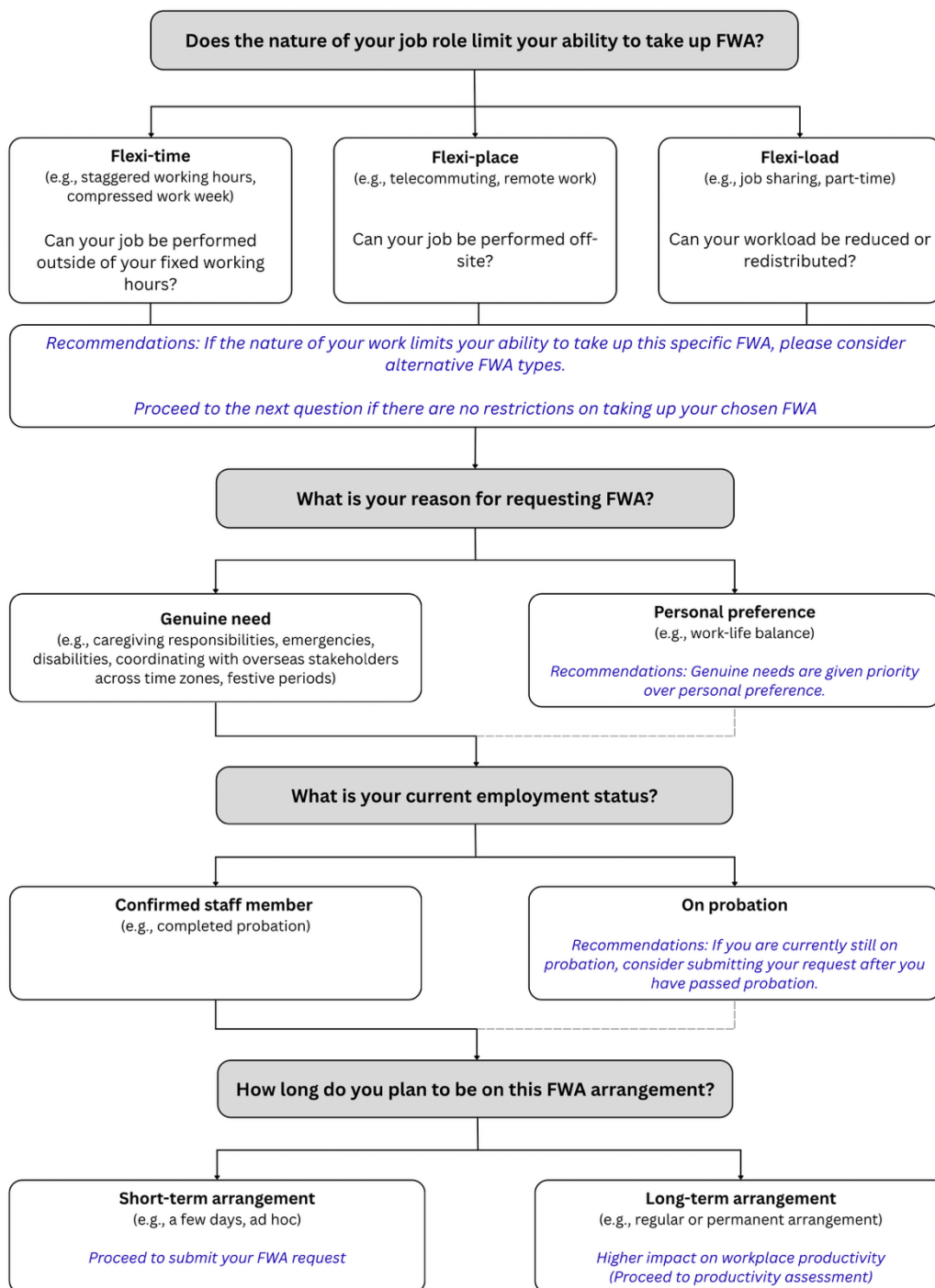
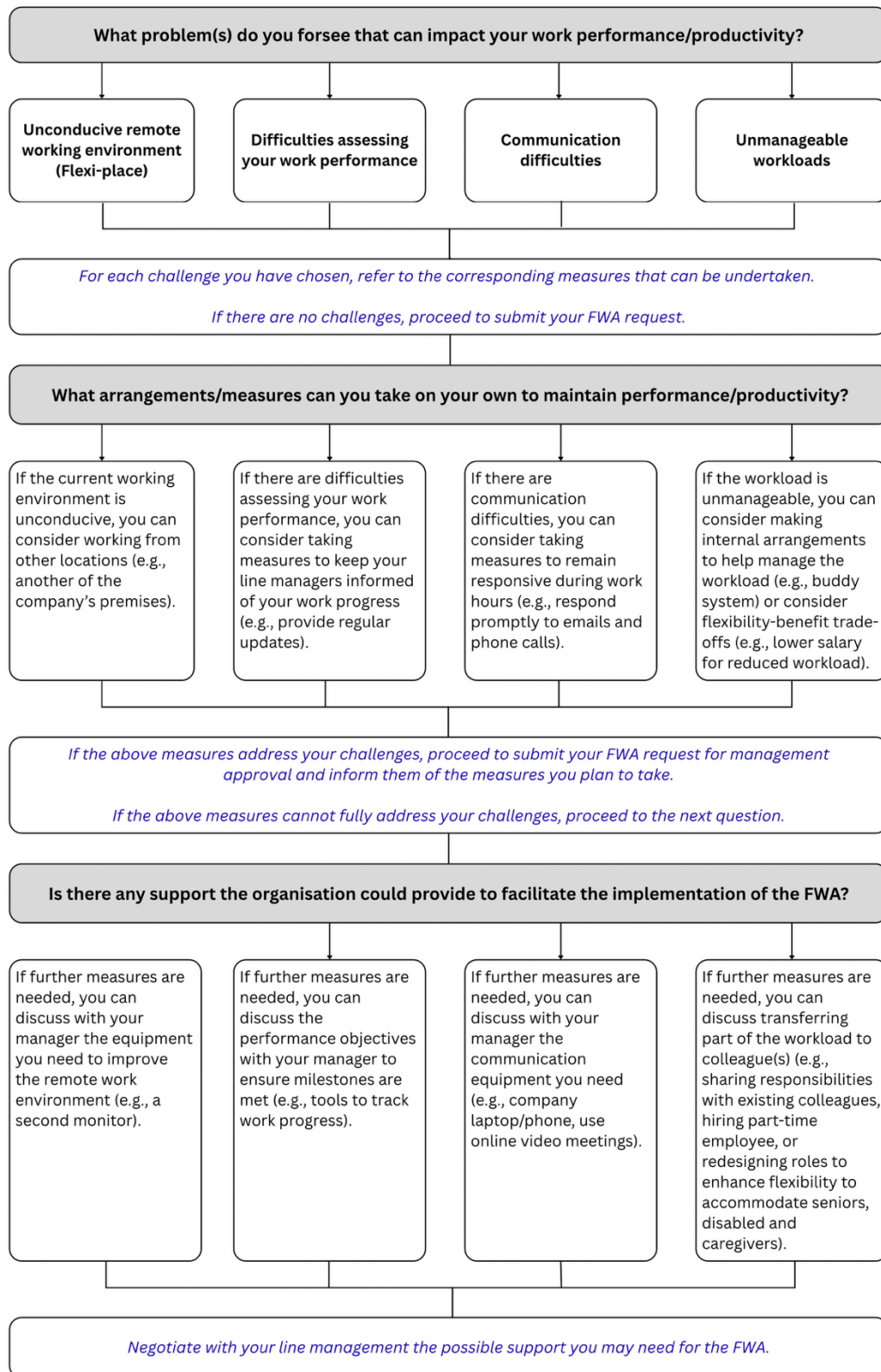
Figure 1**Self-Assessment Checklist for Employees to Pre-Evaluate Their FWA Requests**

Figure 2

Productivity Assessment Tool for Employees to Pre-Evaluate FWA Requests



Application of Self-Assessment Checklist and Productivity Assessment Tool

With several organisations and institutions revising their FWA policies and removing fixed hybrid work arrangements (Ang, 2025; Palmer, 2024), employees can use this self-assessment checklist and productivity assessment tool to evaluate and strengthen their FWA requests. For example, a permanent full-time employee working at an educational institution wishing to request staggered working hours to accommodate childcare operating hours should first determine whether their job role permits such an arrangement. If feasible, they should next assess whether their need is legitimate and confirm that no alternative arrangements are available. Additionally, being a confirmed employee may also help their request to be considered more favourably. Finally, for long-term arrangements, they can use the productivity assessment tool to identify potential issues and propose strategies to management for maintaining their work performance, whereas, for short-term arrangements, they can also consider using the productivity assessment tool to support their request by demonstrating productivity considerations.

Discussion

Although MOM and TAFEP issue guidelines for employees to review their FWA requests in line with the TG-FWAR requirements (MOM, n.d.; TAFEP, n.d.), our checklist serves as a sequential self-assessment tool. Understanding the criteria applied by employers enables employees to formulate FWA requests that anticipate potential issues and demonstrate alignment with organisational imperatives. Hence, while analysing the key criteria considered during the approval process, these findings are subsequently translated into a pre-evaluation checklist and productivity assessment tool to guide employees. As such, it reframes employers' evaluation priorities into a structured and sequenced self-evaluation process to ensure a win-win approach that benefits both workers and employers. Hence, employees can better understand how their requests are assessed, ensuring transparency and alignment.

The checklist includes key considerations employers prioritise when evaluating employees' FWA requests. However, specific constraints and concerns vary depending on the type of FWAs proposed and their individual work functionality (Kotey & Sharma, 2016; Michielsens et al., 2013). Evidently, continuation of operations is the foremost top priority for employers across industries; hence, any form of FWAs that employees plan to utilise will need to allow for the continuation of work fulfilment (Michielsens et al., 2013; Seah et al., 2025).

Employers' tendencies to approve specific reasons for FWAs align with the RBV theoretical framework of ensuring a competitive advantage to attract and retain employees, thereby protecting their human resources (Amirul et al., 2023; Antunes et al., 2023). The findings extend RBV by highlighting that organisations do not view FWAs merely as a strategic retention resource, as individual requests are also evaluated based on their anticipated impact on operational continuity and the ability to adequately support business functions. As such, FWA requests that involve legitimate reasons to ensure employees' well-being are favoured, as they enhance employee retention (Antunes et al., 2023). Concurrently, legitimate reasons also allow employers to be transparent with their approval process, supporting the institutional theory that describes compliance with legislation as a means to promote an equitable and fair workplace (Kelly & Kalev, 2006). In addition, in contrast to institutional theory, the findings show that employers balance compliance with practical organisational constraints; hence, business needs are also incorporated as integral when determining the viability of FWA requests.

Employers reviewing employment status and arrangement period criteria prefer employees who have demonstrated reliability in their work ability, and ideally for short-term arrangements (Kelly & Kalev, 2006). This is because they have established their capabilities and trustworthiness, while short-term arrangements minimise operational disruption, ultimately ensuring the continuation of business operations. However, this does not mean employees who do not meet these requirements will be rejected. Aligned with the social exchange theory, employers are also motivated to provide FWAs when they anticipate that employees will

reciprocate the benefits they provide (Klindžić & Marić, 2019). This refines the social exchange theory by illustrating how reciprocity can be operationalised through trade-offs and productivity-based negotiations. Henceforth, employees can negotiate with employers on how they will retain or increase productivity while accessing FWAs.

When requesting additional resources from the organisation, such as equipment and manpower, to support the implementation of FWAs, employees can propose a trade-off, such as reduced salary for reduced workloads. Such proposals enable organisations to either redistribute workloads to other employees or source for additional manpower, which can incur costs and increase administrative burden on the organisation; hence, trade-offs can compensate for these burdens (Kotey & Sharma, 2016; Maxwell et al., 2007; Straughan & Tadaï, 2018). These findings offer an integrated and practice-oriented understanding of these theories in contemporary workplace settings by highlighting how the interplay of RBV, social exchange, and institutional considerations collectively shapes employers' evaluation of FWAs.

Leveraging Flexi-Load to Access Underutilised Labour Pools

As reported, employers were more cautious about implementing flexi-load, with it being the least offered at 26% due to labour shortage, where recruitment difficulties limit optimal workforce capacity for business operations (Seah et al., 2025). In Singapore, the key contributor to the labour shortage issue is a combination of an ageing population and a shrinking workforce resulting from slower population growth (Manpower Research and Statistics Department, Ministry of Manpower [MRSD, MOM], 2025).

As senior workers transition to a semi-retired lifestyle, their priorities may change, as they look forward to reducing physical and mental load, while others may seek to retain their value and social identity by remaining active in the workplace (Allen et al., 2021; Atkinson & Sandiford, 2016). As such, provision of flexi-load work arrangements can allow senior workers to reduce physical work demands while retaining opportunities for gradual retirement, maintaining their autonomy and value with continuous employment (Allen et al., 2021; Chua et al., 2024; Straughan & Tadaï, 2018).

Other underutilised labour pools include people with disabilities and caregivers, with over 80% of unemployed caregivers being women (MRSD, MOM, 2025). With rising costs, dual-career families are essential to meet higher living expenses, and flexi-load work arrangements can help reduce work-family conflict by providing these caregivers access to paid employment while enabling them to attend to their family responsibilities (Chua et al., 2024; Perrons, 2000; Straughan & Tadaï, 2018; Xiang et al., 2022). Additionally, female caregivers gain greater confidence in returning to the workforce when management supports FWAs to enable work-life balance (W. L. Yeo, 2024). Conversely, people with disabilities prefer jobs that can accommodate their needs, and flexi-load arrangements can be a way to reduce demanding workloads, keeping them manageable within their capacity (Bonaccio et al., 2020; Helena et al., 2023).

From the employer's perspective, encouraging employees to use the checklist and productivity assessment helps ensure that the requests are managed more consistently, hence increasing efficiency and streamlining the process. Employers can also seek professional advice on restructuring work tasks to facilitate the development of job sharing and part-time job roles to accommodate new and existing employees, and upgrade resources to increase efficiency (Workforce Singapore [WSG], n.d.). Grants such as the Job Redesign under Productivity Solutions Grant can provide financial assistance for consultancy costs related to job redesign and workplace refurbishment costs for accommodating people with disabilities (WSG, n.d.). For employees, such tools help them feel assured that bias is reduced, allowing them to pursue FWAs in a more credible and transparent manner that is aligned with their employers' decision-making criteria and reduces misunderstandings.

Beyond benefitting employees and employers, the findings of this study also have important implications for HR practitioners and policymakers. The integration of the flowchart and

assessment tool offers a standardised and transparent evaluation, strengthening organisational trust and culture. Additionally, as they help reduce arbitrary decision-making and enhance inclusivity and equity in the approval process, the findings demonstrate clear guidelines that align with the strategic thrust of national initiatives such as TAFEP. For the workplace, such mechanisms could create enabling conditions for more inclusive and sustainable participation from seniors, caregivers, as well as persons with disabilities, while also supporting long-term talent retention.

Conclusion

Our proposed self-assessment checklist and productivity assessment tool cover a set of useful criteria for employees to assess the feasibility of their requests and address potential productivity issues before approaching their employers to negotiate their work arrangement plan. When employees proactively review their requests, they can increase employers' confidence in implementing FWAs, as proactivity reflects employees' responsibility and commitment to minimise disruptions. During the negotiation process, employers can also gain a better understanding of employees' needs and respond accordingly with the support that they can offer.

While labour shortages can constrain employers' willingness to accommodate flexi-load requests for existing employees, employers can consider leveraging underutilised labour pools who are interested in contributing meaningfully through reduced workload, such as people with disabilities, caregivers, and seniors. This can enhance organisations' competitive advantage by expanding their human resources while safeguarding employee well-being by not overwhelming existing employees with increased workloads.

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REVIEWS



Employee Benefits: Trends and Emerging Issues

Jia En Kenneth Woong and Jason Chiah Sern Chiam

Abstract

Employee benefits have evolved from traditional health and retirement provisions into a complex system of rewards that organisations use to attract, motivate, and retain talent. Rising costs, workforce demographic shifts, and changing employee expectations have compelled organisations to rethink their approach to benefits. While past research has emphasised the financial implications of benefits or their role in employee satisfaction, less attention has been paid to how benefits can be strategically aligned with strategic organisational objectives. This paper argues that organisations should reconceptualise benefits as a lever for long-term competitiveness and talent retention rather than as a cost to be minimised. Drawing on recent developments in workforce dynamics, we highlight three benefit domains of growing strategic importance: (1) learning and development opportunities, (2) family-friendly policies that extend beyond childcare, and (3) holistic well-being initiatives. We contribute to the rewards literature by offering actionable insights for organisations seeking to design benefits systems that balance cost management with the diverse and evolving needs of their workforce.



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Introduction

Employee benefits, indirect financial compensation awarded to employees for their organisational membership, have been of interest to academics and practitioners alike (Hong et al., 1995; Yamamoto, 2011). Benefits offered by organisations include health insurance, flexible work arrangements (FWAs), paid vacation, paid sick leave, employee stock ownership plans, and tuition assistance programmes (e.g. Messersmith et al., 2017). As the costs of providing these benefits have risen over the years, these will have an impact on the profitability of an organisation (Bergmann & Bergmann, 1994; Dulebohn et al., 2009). Such costs, particularly healthcare costs, are projected to further increase due to inflationary pressures (Gupta et al., 2022). Recent findings from various consulting firms such as Aon and WTW (formerly Willis Towers Watson) have also supported the argument that many organisations struggle to manage rising benefits costs (Aon, 2025; Kullmann et al., 2025). Yet, employee benefits may also include intangible components that further complicate dollar values assigned to them (Daley, 2008). Thus, scholars have cautioned against the simplified assumption that employees have homogeneous needs and attitudes towards benefits (Decker et al., 2007).

Specifically, when employees struggle to harmonise work-life responsibilities, their work motivation and engagement levels are likely to be adversely impacted (Champion-Hughes, 2001). This suggests the need for employers to place heavier emphasis on paid leave and healthcare programmes (Eaton, 2025; Ingram, 2025). Job attitudes may also be influenced by individuals' perceptions about how these benefit programmes are administered, costs to the individual, and the result of social comparisons among other issues (Pegg, 2009; Williams, 1995). As a result, organisations grapple to design competitive benefits packages to promote job satisfaction, improve commitment, and reduce turnover (Ju et al., 2008; Klonski, 2016; McKinsey, 2025). Factors such as technological advancements and workforce composition changes, further coupled with economic uncertainties, have warranted the need for organisations to redefine their rewards strategies in an effective manner (Duda & Gilmartin, 2025; Marsh & Kleiner, 1998). For instance, the use of discretionary workplace practices has also been found to promote inclusivity at work and result in favourable attitudes and outcomes for Persons-with-Disabilities as well (Booth & Lup, 2025). Organisations should strive to provide meaningful benefits that support the holistic well-being of their talents, to differentiate themselves from their competitors (Sunil, 2025).

With technological advancements reshaping the future of work (Dukach, 2022; Harbert, 2024; Souto-Otero et al., 2023), changes in workers' expectations will also drive changes in organisational policies (Masiello, 2023). Specifically, flexible benefits plans, where employees were given some autonomy to choose the type of benefits received for the work they perform, were assumed to better cater for the diverse needs of individual employees (Barber et al., 1992; Barringer & Milkovich, 1998; S.-H. Lee et al., 2008). However, the complexity of benefits design increased as the types of benefits offerings have evolved in the past decade, with over 220 distinct benefits offered by organisations today (Mayer, 2024; Society for Human Resource Management, 2025). The rewards landscape is further complicated with higher levels of uncertainty due to changes in the external environment today.

Yet, there remains limited evidence on the effective implementation of flexible benefits plans across institutional contexts, and their impact on business outcomes remain unknown (Vidal-Salazar et al., 2016). For instance, the Society for Human Resource Management (2025) identified FWAs to be perceived as important by employers today. Yet, FWAs' effectiveness could be influenced by the structure, culture, and leadership of an organisation (Rainey & Wolf, 1981; Shockley & Allen, 2007). While there has been increased recent attention on the benefits of FWAs in the post-pandemic world (S. Kim & Iyer, 2024; Tan, 2025), findings about FWAs' impact on employees' job attitudes and behaviours remained inconclusive (T. D. Allen et al., 2013; Kumar et al., 2023; Shifrin & Michel, 2022). These further underscore the limitations of benchmarking and point to the need for benefits strategies that align more closely with organisational strategy, culture, and workforce needs.

Accordingly, we contend that organisations must move beyond a transactional or benchmarking approach to employee benefits and instead adopt a strategic perspective—one that integrates benefits design with organisational strategy, culture, and the evolving needs of the workforce. Our purpose for this paper is not to provide a comprehensive review of all benefits that an employer could offer, but to highlight specific areas where benefits can be leveraged as a strategic differentiator in talent management. We focus on three specific domains that have become increasingly salient in contemporary workplaces: (a) the provision of learning and development opportunities, (b) the expansion of family-friendly policies beyond childcare, and (c) initiatives that promote holistic employee well-being. As such, we aim to provide organisations with actionable insights on how benefits can strengthen retention, engagement, and long-term sustainability. Organisations must also move beyond a compliance-driven or benchmarking approach to benefits and instead treat them as a strategic tool to attract, motivate, and retain talent.

Research and Review Methodology

This paper adopts a structured narrative review methodology to explore the evolution, trends, and emerging issues in employee benefits. The purpose of this approach is to integrate theoretical perspectives, empirical findings, and practitioners' insights to understand how benefits are transforming from traditional entitlements into strategic levers for talent attraction and retention. Given the multifaceted and cross-disciplinary nature of employee benefits, this approach is best suited to provide interpretive depth and contextual synthesis. Specifically, the academic literature provides the theoretical foundations and empirical evidence of our arguments, whilst practitioner articles and consulting reports reveal the challenges and trends facing contemporary organisations in the employment landscape today. The review followed the structured stages of planning, conducting, and reporting as outlined by Tranfield et al. (2003).

Three focal areas were identified through preliminary mapping and citation tracking: (a) well-being and employee security; (b) career development and growth; and (c) inclusion, purpose, and sustainability. Databases such as Google Scholar were searched using Boolean combinations of keywords such as “employee benefits,” “total rewards,” “strategic human resource management (HRM),” “well-being at work,” and “workforce sustainability.” Publications from 1980 to 2025 were included to capture historical developments and emerging contemporary debates. To further supplement peer-reviewed sources, consultancy reports, industry white papers, and government publications were also reviewed, given their relevance in shaping policy and practice discourse.

To ensure rigour, inclusion criteria were based on (a) conceptual relevance to employee benefits design and outcomes; (b) methodological soundness or practitioner credibility; and (c) contribution to understanding benefits as a strategic HRM instrument. Publications focusing exclusively on specific benefit categories (e.g. healthcare or pensions) without broader implications were excluded unless they illustrated generalisable trends. The selected works were analysed for key constructs such as flexibility, fairness, inclusivity, and employee well-being. A thematic coding process was applied to identify convergence and divergence across sources, guided by the principles of interpretive synthesis (B. N. Green et al., 2006). Each theme was developed inductively, tracing how employee benefits evolved in response to economic, technological, and demographic shifts. The analysis was guided by strategic HRM and total rewards theories, which posit that benefits, when aligned with organisational strategy and employee needs, enhance commitment, retention, and performance (Becker & Huselid, 2006; Brown, 2014).

In summary, the methodology provides analytical flexibility, theoretical coherence, and practical relevance. By integrating peer-reviewed and practitioner evidence, this paper contributes to advancing a nuanced understanding of employee benefits as a strategic lever that supports employee well-being, inclusion, and sustainable organisational performance.

What Do Employee Benefits Mean for Organisations Today?

The notion of strategic perspectives in HRM has long been asserted to provide organisations with a wide array of benefits such as improving fit between business strategy and organisational structures, and enhancing workforce flexibility (Becker & Huselid, 2006; Boxall & Purcell, 2000; C. A. Lengnick-Hall & Lengnick-Hall, 1988). In addition, a review of empirical studies examined by M. L. Lengnick-Hall et al. (2009) revealed that an interdependent relationship existed between strategic HRM and organisational performance. Specifically, strategic benefits programmes detail different scenarios which may reasonably affect the organisation and identify how such programmes are likely to change in such circumstances (Martocchio, 2023). Benefits, as a component of the total rewards package offered, are also increasingly valued by both the current and prospective employees of an organisation (Alpert, 1987; Schlechter et al., 2014).

Generally, there are two broad categories of employee benefits that are offered by organisations today—legally required benefits and discretionary benefits. Discretionary benefits are additional programmes offered in addition to those mandated by legal requirements. They may also be termed as voluntary benefits or fringe benefits, which help to attract applicants, retain talent, and manage costs effectively when they are implemented well (Fronstin & Helman, 2015; Nugent, 2009). Dale-Olsen (2006) also found that both direct compensation and fringe benefits were likely to reduce turnover, and they were not mutually exclusive to each other.

While these benefits are not mandated by legislation, they may remain enforceable by employees if they could be reasonably expected from their employers (Cohen, 2010; Soh, 2024). Employees are likely to form positive impressions of organisations that offer valued discretionary benefits, and this is likely to motivate individuals' performance (Balkin & Werner, 2023; Baughman et al., 2003). For instance, when individuals perceive that the organisation is committed to providing support for better work-life harmony, attraction and retention of talents are aided (Hutchings et al., 2011; Weathington & Tetrick, 2000). This is especially since individuals are increasingly expecting organisations to demonstrate support and better fulfil their responsibilities towards promoting a better work environment (Ahmad et al., 2020; Mohamad et al., 2016). Moreover, when employees perceive that the determination of benefits entitlements is procedurally fair, they are more likely to exhibit higher levels of trust in management, be more satisfied with their jobs, and be less likely to leave an organisation (Artz, 2010; de la Torre-Ruiz et al., 2019; Ko & Hur, 2014). The development of interpersonal trust in the organisation will also be likely to influence the effectiveness of HRM programmes on improving employee well-being and engagement at work (Baptiste, 2008).

Taken together, scholars have argued that discretionary benefits, when aligned with organisational strategy, serve as more than a supplementary reward mechanism. They influence employee attraction, retention, and motivation, while shaping perceptions of organisational fairness and trust. However, the mere provision of benefits does not guarantee strategic value to an organisation as it may be perceived as an entitlement from employment by individuals at work. Organisations are also facing increased pressure to design benefit programmes that are both cost-effective and meaningful to a diverse workforce. Such pressures are further intensified with a multi-generational workforce, where organisations must understand what matters most to these individuals, and what they can do to better motivate performance (Reynolds, 2005). This requires moving beyond ad-hoc offerings towards a more intentional approach to benefits as part of the total rewards strategy. Conventional approaches, such as the uniform implementation of flexible benefits plans, have also been critiqued to lack strategic relevance to business objectives (Brown, 2014). In this regard, we examine three specific areas that are critical for organisations to leverage discretionary benefits strategically. These recommendations draw on both theoretical insights and empirical findings to provide organisations with actionable ways to maximise the impact of their benefits programmes.

Employee Well-Being and Security

In the past two decades, one central trend in contemporary benefits design is the prioritisation of employees' well-being at work (Guest, 2002; Islam & Amin, 2022; Nielsen et al., 2017). This is because individuals in healthy workplaces are more likely to experience higher levels of work engagement and life satisfaction (Kossek et al., 2012; Rasool et al., 2021). Well-being, as a resource to contribute meaningfully, is determined by social, economic, and environmental conditions (World Health Organization, n.d.). It has been asserted to predict individual performance, voluntary turnover, and overall effectiveness of an organisation (Page & Vella-Brodick, 2009; Platts et al., 2022). This is because employees are likely to assess the advantages of remaining in a supportive organisation and feel morally obligated to continue contributing to support the organisational goals (Jain et al., 2009). Such perceptions can be influenced by their work environments and the extent of support or interventions provided for by the organisation (Flemming, 2024; Huo & Zhou, 2023; Juniper, 2011). These effects may also be influenced by factors such as individuals' age and job change over time (Mäkikangas et al., 2016). As such, many practitioners have sought to partner with their line managers to measure and lead well-being initiatives for their workers and mitigate adverse costs to the organisation (Juniper et al., 2009; Renwick, 2003). In addition, scholars have found that promoting employee wellness through specific interventions such as employee empowerment and job design characteristics positively impacts performance at work (Holman, 2006; Lawson et al., 2009). By contrast, employees who experience high levels of job demands daily are more likely to experience exhaustion that adversely impacts performance (Bakker, 2015).

Yet, many employees have been assessed to face high mental health risks in Singapore (Ong, 2025). Recent evidence shows that individuals who are performing complex tasks and those who are required to work excessive overtime are most susceptible to burnout, which adversely impacts both the general and mental health of employees (Toh & Sheng, 2025). Many organisations, such as McDonald's Singapore, have sought to address these through interventions, such as introducing employee assistance programmes to provide counselling and psychological support for their employees (H. M. Chew, 2025). Additionally, the National University of Singapore has also introduced a series of wellness initiatives by assigning dedicated care managers and training their employees to provide support for their co-workers (National Council of Social Services, 2024). Yet, these programmes have been criticised for demonstrating little impact to improve employees' well-being at work (J. Burke, 2024; Govind, 2024). Many organisations instead continue to prioritise productivity and performance over individuals' health and well-being at work (Bresman, 2024). Thus, scholars argued for the need for organisations to extend their focus beyond well-being programmes at work (Kossek et al., 2012; Pradhan & Hati, 2019). For instance, organisations that promote individuals' career development may likely to have a more engaged workforce (e.g. Nimmi et al., 2023). Organisations should also seek to cultivate a strong sense of belonging as these are also likely to impact engagement and turnover intentions, especially among younger employees (Wee, 2025). High levels of employee engagement, likely to boost productivity at work, may emerge as a source of competitive advantage for organisations as well (Salem et al., 2023).

Furthermore, employees are more likely to perceive better support when they experience fair treatment at work; receive recognition and valued rewards for their contributions; have access to job resources; and feel genuine care from their managers (Ahmed & Nawaz, 2015; M. W. Allen et al., 2008; Rhoades et al., 2001). The quality of interpersonal relationships, particularly with their supervisors, at work, is a recurring theme that influences the levels of perceived organisational support (M. W. Allen, 1995; Eisenberger et al., 2002). Specifically, when employees perceive that the working environment is conducive and they are rewarded equitably based on their efforts, they are more likely to feel supported by their organisations (Rhoades & Eisenberger, 2002). Individuals are thus more likely to reciprocate with higher levels of commitment, improved well-being at work, and being less likely to leave the organisation (Eisenberger et al., 1986, 2001; Panaccio & Vandenberghe, 2009). Organisations could consider the following interventions:

- **Strategic Two-Way Communication.** As employees may have a limited understanding of the purpose, aspects, and mechanisms of benefits programmes in an organisation, practitioners must proactively engage and communicate such information with their employees (Shields et al., 2009). This is especially since many companies struggle with cost containment, and effective communication about the goals of providing employees with these benefits is likely to manage employees' perceptions about the programme (Yuen, 2004). Yet, many employees reported feelings of confusion and frustration due to complicated procedures that were shared during these communication sessions (Picherit-Duthler & Freitag, 2004). As such, communications must involve senior leadership where adequate preparation is needed, and the demographic needs of the employees must be considered for improved effectiveness (Scott et al., 2007). This may involve intentional consideration about the use of specific communication approaches and channels and anticipate employees' perceptions of them (Freitag & Picherit-Duthler, 2004). In addition, two-way communication must be encouraged, and individuals must feel psychologically safe to convey their needs for specific benefits to their managers (J. W. Day et al., 2014).
- **Employee Feedback is Critical.** Organisations may consider seeking employee input and encourage active participation using employee surveys, where individuals can provide feedback about their levels of satisfaction about the benefits programmes. Practitioners must be able to gather the needed data, further their analysis to gain insights about employee sentiments, use the data to conduct reviews of their programmes, and determine how they could better support the common needs of their employees. Organisations must also communicate their plans to further work on the feedback gathered from employees. Nonetheless, companies must emphasise to their employees about adopting a broader perspective on total rewards, beyond a narrow focus on financial compensation (Kantor & Kao, 2004). Effective benefits communication is more likely to favourably influence employees' perceptions about their employers and improve their satisfaction of the programme (Kisilevitz et al., 2006; Rabin, 1994). However, leaders must be cautious about survey fatigue and be proactive in engaging employees to develop concrete follow-up action plans to work on the feedback.
- **Enhancing Social Well-Being at Work.** As mentioned, well-being is characterised by the quality of working lives, including Occupational Safety and Health aspects, and is considered a major determinant of workers' productivity (Schulte & Vainio, 2010). As such, many wellness programmes offered aim to improve individuals' physical and mental health at work. Yet, the social connection among employees is typically neglected (Elliot et al., 2022; Killiam, 2024). Leaders have also been increasingly concerned about perceived social isolation and loneliness experienced by their employees (Charalampous et al., 2019; Holt-Lunstad, 2024). Individuals have reported higher dissatisfaction levels towards the quality of interpersonal relations at work, driving avoidance to form emotional attachment to their work groups, further deteriorating social well-being at work (Bjørndal et al., 2024).

These are likely to pose greater risk to individuals and organisations than behavioural factors such as smoking, poor diet, the lack of physical exercise, and obesity (Jordan, 2023). Individuals are also more likely to experience burnout, workplace deviance, and reduced commitment (Gerhardt et al., 2021). This is especially critical for certain groups of occupations, who, due to the nature of the employees' jobs, experience high job demands at work (Ravalier et al., 2022; Shier & Graham, 2010; Tesi et al., 2018).

As a result, organisations may consider emphasising group discussions and activities in the conduct of employee training, introducing internal mentoring programmes across levels in the organisation, and forming taskforces to tackle specific organisational issues (Daniels et al., 2017). By encouraging employee participation in decision-making, organisations are making individuals more likely to experience reduced levels of work stress (Boreham et al., 2016). These interventions will also help to improve the perceptions and social relations among co-workers and help individuals to adjust and

adapt to their work environment (Kayes, 1998). As such, employees are less likely to report cardiovascular problems, demonstrate higher levels of stress tolerance, and improve their overall performance at work (Kansky & Diener, 2017).

In sum, these interventions are likely to increase the quality of communication among various organisational members, improve the extent of collaboration, and enhance interpersonal relationships at work. These may signal that the organisations care about their employees which reduce stressors, build trust, and reinforce employee perceptions that well-being is a critical component of organisational culture.

Career Development and Growth

In the past few decades, the impact of technological advancements on employment and skills has been discussed (Brynin, 2006; Dunne et al., 1997). Such effects were found to vary across companies and industries, as each differs in the level of innovation, competitiveness of the labour markets, and structural changes needed (Blanchflower & Burgess, 1998; Mastrostefano & Pianta, 2009). Technology has also been found to displace jobs, especially for low-skilled workers who are involved in production and manufacturing jobs (Hötte et al., 2023; World Economic Forum, 2025). In addition, the increased demand for abstract jobs triggers greater demand for highly skilled workers, and the computerisation of routine tasks has reduced the demand for middle-skilled workers (Peng et al., 2018). As a result, repetitive physical tasks are substituted by higher levels of employee involvement in the use of technologies at work (Deranty & Corbin, 2024; F. Green, 2012; Upchurch, 2018). The lack of supply of qualified employees who possess such new skills required to operate these new technologies has also resulted in increased pay inequities perceived among employees in similar jobs (Bessen, 2016). These have serious implications for human resource practitioners, as they are likely to impact employee performance and voluntary turnover (N. E. Day, 2012; Summers & Hendrix, 1991; Vance & Saini, 2023). In addition, as the pace of technological advancement intensifies, organisations who struggle to source qualified talent to operate such technologies, are more likely to value their internal pool of human capital (Silva & Lima, 2017). These employees were also found to remain in their organisations for longer time periods as well.

However, many employees are less aware of how they may be made redundant due to changes in automation and technology. Therefore, organisations should seek to develop and implement systematic human resource development (HRD) initiatives that reskill or upskill individuals to manage such transitions well (Chuang, 2021; McGuinness et al., 2023).

HRD, or talent development, is a process of developing employee capabilities through formal or informal interventions to improve performance (Swanson, 1995). With technological advancements, leaders are increasingly implementing a range of initiatives to develop performance capabilities of the individual employee and overall organisation (Torraco & Swanson, 1995). This is because the workforce capabilities are likely to impact the current and future performance of an organisation, and these will also influence staffing and compensation plans (Zula & Chermack, 2007). However, it is important for leaders to understand that HRD initiatives must be aligned with the structural, strategic, and cultural factors of an organisation (Mankin, 2001). This is particularly lacking in many small and medium-sized enterprises (SMEs) where managers do not perceive HRD as a critical business activity, activities occur on an ad-hoc basis, and there is a lack of systematic procedures to evaluate the costs and benefits of these programmes (Hill & Stewart, 2000). However, this has to be balanced with the fact that most SMEs, especially the smaller ones, do not have the manpower, know-how, or resourcing to have such dedicated HRD.

Practitioners in global organisations must also make difficult, critical business decisions about the standardisation and localisation of programmes across cultures (Wang & McLean, 2007). Mankin (2001) further asserted the importance for organisations to assess the readiness and motivation of their employees to undertake these programmes. Typically, many practitioners have

sought to focus their attention on identifying training needs and designing programmes. However, it is also important for organisations to cultivate a positive and supportive climate that motivates employees to proactively engage meaningfully in learning initiatives, and this can be achieved through both extrinsic rewards and intrinsic support for growth (Garavan, 2007; Garavan et al., 2004). As a result, we recommend the following perspectives for consideration:

- **Helping Employees to Find Meaning at Work.** Traditional discretionary benefits—such as childcare support and lifestyle perks—have primarily sought to address the current needs of employees. On the contrary, effective HRD initiatives are inherently future oriented, seeking to ensure that employees possess the necessary skills in the current technological era. Career development and growth opportunities through HRD may be perceived as a discretionary benefit as it signals an organisation's commitment to its people. This is particularly the case for younger employees, who value meaningful work and supportive organisations in their careers (Gong et al., 2018a, 2018b; Kroth & Young, 2014). The meaning that these employees attribute to their work is a multi-dimensional construct, which can be influenced by individuals' personal values, expectations, beliefs, and attitudes towards work (Manuti et al., 2018). In contrast with the need to preserve work-life harmony, expectations about meaningful careers remained consistent in times of economic downturns (De Hauw & De Vos, 2010). We thus contend that organisations must deliberately help their employees to find purpose and meaning in their work.
- **Role of Leadership and Feedback.** Formal HRD interventions, such as classroom or web-based programmes, are likely to reduce perceived anxieties about skill obsolescence, which improves work engagement and job search behaviours at work (De Vos et al., 2017; Donald et al., 2024). This is especially important when technological advancements have reduced the predictability of long-term job security of the employees today (De Vos & van der Heijden, 2017). However, leaders should also proactively engage in conversations with their employees to help these individuals to find purpose in their work (Kuron et al., 2015). This is because the ability of employees to self-reflect on work events, receive feedback from their managers, and adjust their goals is likely to improve employee learning and performance (Anseel, 2017; Ilgen & Moore, 1987; VandeWalle et al., 2001). This amplifies the importance of providing the employees with informal feedback about their performance regularly on a timely basis (Larson, 1984). Organisations may also provide additional categories and quantum of benefits to employees to better incentivise performance improvements (Alvero et al., 2001; Balcazar et al., 1985). In sum, when employees are equipped with the right skillsets to perform their job, feel engaged at work, and are productive, they are more likely to perceive that such careers are sustainable (De Vos et al., 2020).

As such, organisations must seek to incorporate and frame HRD initiatives as part of the total rewards package offered to their employees. Organisations will thus be better able to differentiate themselves in the talent market and strengthen individuals' perceptions of fairness and care. Employees who are provided with such career development opportunities were also more likely to demonstrate higher levels of engagement and helpful citizenship behaviours towards others in the workplace (Gong et al., 2018a; Triana & Prihandoko, 2024). This positions HRD as a uniquely strategic benefit that contributes directly to employee well-being and sustains organisational performance. Organisations will also be better able to reframe growth opportunities as a core component of the employee value proposition which directly addresses retention, engagement, and employability in a volatile labour market.

Inclusion, Purpose, and Sustainability

The sandwiched generation at the workplace has been of interest to academics and practitioners alike in the past few decades (Hammer & Neal, 2008; Hamzah, 2022; Lin, 2023). These employees are individuals who seek to balance between competing demands from both the younger and older family members (Künemund, 2012), in addition to their work responsibilities. Such caregiving responsibilities are likely to result in varying psychological, physical, employment,

and financial outcomes for individuals who continue to participate in the workforce (DeRigne & Ferrante, 2012; Lei et al., 2023). For instance, individuals are more likely to report higher levels of psychological distress and poor health (Cheng & Santos-Lozada, 2024). In addition, financial arrangements are likely to be adversely impacted when elderly parents fall ill or when individuals are victims of a retrenchment exercise (Ang, 2015). Thus, organisations are increasingly expected by stakeholders in the business environment to help their employees to manage the stressful situation of providing care for children and aged parents (R. J. Burke, 2017; Davis & Kalleberg, 2006).

Organisations will have to proactively engage these employees to better understand the problems, their consequential impact, and the type of support that could help alleviate such burden (Pashazade et al., 2024a, 2024b). The inability or total failure to effectively support employees is likely to result in individuals experiencing higher levels of work–family conflict and emotional burnout (Malach-Pines et al., 2009). Nonetheless, we do not intend to underscore the cost burden that the provision of both traditional (e.g. health insurance) and family-friendly benefits may impose on organisations, especially smaller organisations (Roberts et al., 2004). Therefore, organisations must take proactive steps to assess the needs of their employees and curate programmes that address such needs. Some suggested strategies include:

- **Allow Quality Interpersonal Relationships to be Developed at Work.** Organisations should facilitate initiatives that allow individuals to develop quality interpersonal relationships with others at work, that could serve the purpose of having an emotional outlet or to engage in favourite activities with (Pashazade et al., 2024a, 2024b). This allows individuals to share personal experiences and challenges that they face when managing family-work responsibilities and have a support network that could serve as resources to alleviate the emotional demands that arise.
- **Introducing Family-Friendly Benefits.** Gradually in the past few decades, many organisations have acknowledged the positive effects of family-friendly benefits on workers' engagement and productivity (Mulvaney, 2011; Sands & Harper, 2007). Specifically, the availability and use of these benefits like FWAs, augmented with supervisory support, are likely to increase job satisfaction and performance and reduce perceived work-life conflict and turnover (Baird & Burge, 2018; Garg & Agarwal, 2020). Specifically, the use of flexi-time, flexi-place policies, and family leave is likely to help individuals to reduce the family-work conflict perceived (Breugh & Frye, 2007).

Like the United States, Singapore and many developed economies have observed demographic changes which have amplified the importance of eldercare assistance programmes in workplaces today (Goodstein, 1995). As such, we recommend that organisations should introduce eldercare assistance programmes. This is because caring for the aged is likely to have adverse impact on the financial, physical, social, and emotional well-being of individuals at work (Fast et al., 1999; Kossek et al., 1993). Caregiving employees, especially female employees, were more likely to experience emotional burnout (J. A. Lee et al., 2001). These individuals were also more likely to be absent from work due to these family responsibilities (Shoptaugh et al., 2004).

While eldercare programmes may improve employee productivity (Burch et al., 2019; Dembe et al., 2011; Seaward, 1999), its prevalence in practice remained low (Friedman, 1986; Griggs et al., 2020; Tennstedt & Gonyea, 1994). Only larger organisations who have a significant proportion of female employees were more likely to be aware about such work–family conflict experienced by their workers and thus were more likely offer eldercare programmes (Liebig, 1993). While there is increased government support for individuals who are middle-income earners (T. Chew, 2025), there may remain individuals who may be ineligible for government-subsidised programmes and they may not afford more costly care offered by private healthcare institutions (Bookman & Kimbrel, 2011). Employers are also concerned about the cost of offering such programmes (Dembe et al., 2008).

Thus, firms may offer eldercare leave schemes, in addition to their annual leave programmes, for their employees to meet their caregiving needs (Devasahayam, 2003). These may be further complemented by allowing for FWAs and unpaid family leave (Dembe & Patridge, 2011). Other paid time-off programmes such as pet care leave or enhanced childcare leave benefits may also benefit employees as well. When employees perceive that their organisation provides support for their eldercare demands, individuals are likely to experience lower levels of strain (Zacher & Schulz, 2015), and favourable work outcomes are likely to result.

- ***The Importance of Fairness and Consistency in Implementation.*** Organisational culture and supervisory support also influence the extent to which employees use these benefits (Ferrer & Gagne, 2013; Mandeville et al., 2016). However, rank-and-file employees reported perceived unequal access to such policies as opposed to their supervisors (J. Kim & Wiggins, 2011). Gender differences with regards to the individuals' eligibility of such benefits, as opposed to other discretionary benefits, were also observed (Lowen & Sicillan, 2009). Thus, in addition to merely offering these benefits to employees, social inclusion for employees with caregiving responsibilities must also be ensured (Casper et al., 2007). The role of supervisors, specifically their behaviours at work, is likely to influence how employees perceive and use such benefits offered by the organisation (Sprung et al., 2014). This is because employees who perceive that they are less likely to be victims of biases in performance appraisals, are more likely to utilise family-friendly benefits offered by the organisation (Butler et al., 2004).

Limitations and Directions for Future Research

As we adopted a narrative review approach to our paper, there remain limitations. Unlike meta-analyses or systematic reviews, we did not aim to provide a comprehensive review of all empirical evidence on employee benefits, nor did we aim to quantify effect sizes or establish causal relationships. Rather, the synthesis is interpretative in nature and reflects theoretical judgement in selecting studies across a diverse range of literature. While this may introduce some degree of subjectivity, it is nonetheless appropriate for an applied and practice-oriented objective—where we aim to integrate fragmented insights and offer a coherent framework for practitioners to better understand the strategic role of employee benefits.

Future scholars can extend this review by using systematic reviews or meta-analysis techniques to assess the relative effectiveness of different categories of benefits. Empirical studies—especially those which employ longitudinal or time-series designs—could be particularly useful in examining how benefits design, communication, and perceived fairness could potentially influence employee outcomes over time and across organisational contexts.

Conclusion

In the final analysis, employee benefits are no longer peripheral or transactional elements of compensation. Instead, they are central to shaping organisational strategy and employee outcomes. As this paper underscores, discretionary benefits that prioritise employee well-being, career development, and inclusive family-friendly policies can strengthen trust, engagement, and retention, while positioning the organisation for long-term sustainability. Nonetheless, this requires thoughtful design and careful implementation to achieve the desired impact on employee motivation and performance.

For practitioners, the key implication is that the use of such discretionary benefits should be viewed as a strategic investment rather than a cost to be minimised. Organisations should focus beyond *what* benefits are offered but also *how* they are communicated and administered. Clear communication, consistency in implementation, and perceived fairness are critical, as employees

interpret benefits as signals of organisational values and commitment. Misalignment between stated intentions and actual practices can undermine the positive effects of even generous benefit offerings. For policymakers, on the other hand, our findings suggest that they may play an important role to nudge organisations towards adopting a more inclusive and sustainable approach to benefits practices. These could perhaps be introduced in the form of employment standards.

Overall, this paper positions employee benefits as a practical lever through which organisations and policymakers can jointly shape more resilient and equitable employment relationships. By moving beyond transactional approaches and adopting an approach that aligns discretionary benefits with broader workforce and societal needs, stakeholders can better support both employee well-being and organisational performance in an ever-changing world of work.

BIOGRAPHIES



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Singapore's Approach to Flexible Work Arrangements: A Historical Institutional and Comparative Analysis

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Abstract

Flexible work arrangements (FWAs) have been increasingly regulated through legislation in many countries. In contrast, Singapore has opted to rely on tripartite guidelines rather than on laws to regulate FWAs. Singapore's regulatory approach may be perceived to be inadequate, as it lacks the force of law. This paper submits that Singapore's approach is currently appropriate, based on three lines of inquiry. First, the historical institutional context of Singapore is examined. This paper submits that Singapore's inherent vulnerabilities as a small state and past crises have shaped institutional practices that prefer a collaborative norm- and/or competency-based regulatory approach, resorting only to legislation where legal obligations and/or enforcement powers are needed to achieve the intended policy impact. In the context of labour and employment regulation, the tripartite approach has demonstrated its ability to achieve intended policy impact collaboratively. Second, the comparative approach is employed to ground Singapore against a broader context. This paper examines the regulatory approaches adopted by Australia and Thailand concerning FWAs and the related issues of the Right to Disconnect and Reasonable Accommodations. While Singapore has not adopted statutory approaches, the function of Singapore's non-statutory approach is remarkably similar to those under statutory approaches. Crucially, no system of regulation requires employers to grant employees FWAs. Finally, this paper concludes that there is no one-size-fits-all solution, and the right regulatory approach is highly contextual. The ultimate success of FWAs hinges on how they are deployed in the respective industries with the appropriate business models. This makes a norm- and competency-based regulatory approach suitable for Singapore.



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Introduction

Many countries have passed laws to regulate flexible work arrangements (FWAs). This includes, but is not limited to, Malaysia's Employment Act 1955, the United Kingdom's Employment Relations (Flexible Working) Act 2023, the Philippines' Telecommuting Act 2018, Thailand's Labour Protection Act 2019, and Australia's Fair Work Act 2009.

Unlike these countries, Singapore's regulators have resisted calls for laws to be passed to regulate FWAs. This very issue was raised in the Singapore Parliament, with Member of Parliament (MP) Louis Chua calling for the employee's right to request FWAs to be statutorily enshrined and Minister of State for Manpower Gan Siow Huang stating that FWAs ought to be regulated through tripartite guidelines (Parliament of Singapore, 2023). The fact that tripartite guidelines are not legally binding may create the perception that such a regulatory approach is inadequate.

FWAs are one of the most sought-after features of the modern workplace (Tang, 2024). At first blush, FWAs are a straightforward solution for improving work–life balance. However, a closer examination of FWAs reveals a complex interplay of various interests. As to the workers, a 2024 research partnership between the National Trades Union Congress (NTUC) and the Behavioural Insights Team highlighted that FWAs are a means for employees to gain the flexibility to manage caregiving responsibilities, personal well-being, and career sustainability (NTUC, 2024). However, FWAs may blur the lines between work and rest, increasing worker burnout and isolation (Boh & Ravindran, 2025). For employers, FWAs represent the means to attract and retain talent. A Ministry of Manpower Survey of Employees' Working Conditions (MOM SEWC Survey) showed that employees who required an FWA were more likely to reject or leave employers who did not offer any FWAs (Ministry of Manpower [MOM], 2024). Yet, FWAs also present challenges to workplace performance, employee appraisal, accountability, parity, and business needs. A recent survey conducted by the Singapore University of Social Sciences (SUSS) and the Singapore National Employers Federation (SNEF) noted that, as flexi-place FWAs are not feasible for all roles, the implementation of FWAs may result in reduced parity within organisations (SUSS & SNEF, 2024). From a broader public policy perspective, governments may view FWAs as a policy lever to address societal challenges, including the pressures of an ageing population and the need to promote workplace inclusion (MOM, 2025a). However, governments are aware of the need to ensure a business-friendly environment in light of global competition to attract businesses and investments. Indeed, employers have cautioned that increased demands for FWAs from Singaporean employees may prompt employers to recruit remote talent from overseas rather than hire locally (Tham, 2024).

Regulating FWAs is therefore a delicate balancing act between individual interests, business interests, societal objectives, and national economic strategy. In 2014, FWAs were advocated for through the Tripartite Advisory on Flexible Work Arrangements (Tripartite Committee on Work–Life Strategy, 2014). These efforts were complemented by the Work–Life Grant under WorkPro, which offered funding support for the implementation of FWAs, which was first launched in April 2013 (MOM & Workforce Singapore [WSG], 2020). These efforts were supplemented with the Tripartite Standard on Flexible Work Arrangements, which was launched later in 2017 (MOM et al., 2024). In 2019, the Singapore Government convened a Citizens' Panel on Work–Life Harmony (Strategy Group, 2019). Following the Citizens' Panel, the citizens offered recommendations that the tripartite partners responded to (Soon & Sim, 2020). Subsequently, after a period of consultation among tripartite stakeholders, the Tripartite Guidelines on Flexible Work Arrangements Requests (TG-FWAR) were launched in April 2024 and took effect on 1 December 2024, replacing the previous Tripartite Advisory and Tripartite Standards on the same (MOM et al., 2024).

With more than one year of lived experience at the time of writing, it is timely to review how Singapore's approach meets the diverse interests at stake.

Methods

A meaningful review of regulation requires an analysis of its underlying context. To provide a better picture, this paper adopts two methods in its review of Singapore's regulatory approach to FWAs. First, the Historical Institutional Approach is employed to analyse Singapore's history, context, and internal paths that its institutions have forged and its consequent effect on Singapore's regulatory approach. Second, the Functional Comparative Method is used to compare Singapore's approach against those adopted by Thailand and Australia.

Historical Institutional Approach

The Historical Institutional Approach is best understood as an approach for addressing real-world questions through a "historical orientation and ... with close attention to the ways in which institutions structure and shape political behaviour and outcome" (Steinmo, 2008). It rests on the premise that "human beings are both norm-abiding rule followers and self-interested rational actors." From this perspective, history is not a chain of independent events. Steinmo illustrated this premise with an analogy: Historical Institutionalists are like an "environmental biologist who believes that in order to understand the specific fate of a particular organism or behaviour, she must explicitly examine that organism or behaviour in the ecology or context in which it lives."

The Historical Institutional Approach was employed by Political Scientist Bo Rothstein to answer questions such as "why do some countries have higher levels of unionisation than others." In his analysis, Rothstein found that the structure of national unemployment insurance institutions was a key institutional factor for influencing a worker's decision to join unions (Rothstein, 1992).

Accordingly, this paper adopts the Historical Institutional Approach to answer the question "Why does Singapore use tripartite guidelines to regulate FWAs?," focusing the analysis on Singapore's history and institutional context.

Functional Comparative Method

To provide additional perspectives on the approach adopted by Singapore, this paper further adopts the functional comparative method as espoused in the seminal work *An Introduction to Comparative Law* (Zweigert & Kötz, 1998). Essentially, the functional comparative method requires function to be the *tertium comparationis* (standard of comparison) between legal systems. The core idea is that different legal systems address common problems in different ways. Thus, the research question should focus on a common issue as the *tertium comparationis*, to allow for meaningful cross-jurisdictional analysis. A key presumption of this method is *praesumptio similitudinis* (presumption of similarity), where different legal systems "find equal or at least astonishingly similar solutions—often down to the details—for similar problems in spite of all differences in historical development, systemic and theoretical concepts and style of practice" (Zweigert & Kötz, 1998).

The functional comparative method is anchored with two jurisdictions—Thailand and Australia. These jurisdictions were selected as they have both adopted statutory approaches towards the regulation of FWAs, in contrast to Singapore's non-statutory approach. Further, the legal systems of Thailand and Australia both bring meaningful counterpoints to comparison. Thailand represents an Asian civil law jurisdiction, whereas Australia represents a Western common law jurisdiction. Singapore straddles the line between the two, as it is an Asian common law jurisdiction. The choice of countries also provides a spectrum of economic development, with Thailand offering the perspective of an upper-middle-income economy, while Australia and Singapore both offer the perspective of a high-income economy (World Bank Group, 2025b). Crucially, all three countries are grappling with the shared demographic challenge of an ageing population, though the severity varies. Using the proportion of citizens aged 65 and above in 2026 as a benchmark, Australia's elderly population is projected to account for 18% of the total, while

Thailand's will represent 15% (World Bank Group, 2025a). In contrast, Singapore's share of residents over 65 is expected to exceed one in five, thereby crossing the threshold defined by the United Nations for a "super-aged" society (Prime Minister's Office, 2025). Thailand's elderly population is set to rapidly increase, with the country expected to become a super-aged society due to rural-urban migration and declining birth rates (The Straits Times, 2025; World Health Organisation, 2023). The common issue of an ageing population affects labour market participation and the regulatory approach to FWAs. Where appropriate, references to other jurisdictions will be made for illustrative purposes.

Accordingly, the paper phrases the research question as: "How do Singapore, Thailand, and Australia regulate FWAs, addressing common labour challenges despite their different legal traditions?" The research question specifically avoids descriptors such as statutory or non-statutory measures. This allows the research question to focus on the function of the various approaches taken.

Historical Institutional Approach: Singapore

Despite Singapore's current success, Singapore's leaders have consistently advanced the narrative that Singapore is vulnerable. Upon being sworn in as Singapore's fourth Prime Minister, Mr Lawrence Wong described his mission as "to continue defying the odds and to sustain this miracle called Singapore" (Wong, 2024). The characterisation of Singapore as a "miracle" illustrates PM Wong's view that Singapore is vulnerable and its achievements and place in the world are fragile. This view resonates in the Singapore workforce, which embodies a striking dualism.

On the one hand, the Singapore workforce is one of the most competitive and skilled in the world. The Global Talent Competitive Index ranked Singapore second in the world for talent competitiveness, just after Switzerland (Lanvin & Monteiro, 2023). Notably, the Global Talent Competitive Index rated Singapore as a global leader in "Global Knowledge Skills," citing Singapore's highly educated labour force and innovative economy.

On the other hand, Singapore's workforce is acutely vulnerable. As a small state reliant on global trade, Singapore is vulnerable to external geopolitical uncertainties. As Singapore Foreign Minister Mr Vivian Balakrishnan cautioned at the Aspen Security Forum, "History is replete with the carcasses of small states" (Ministry of Foreign Affairs, 2025). As a small state, Singapore must anticipate geopolitical instability and remain resilient and nimble to ensure its relevance. A similar sentiment was shared by then-outgoing Defence Minister Dr Ng Eng Hen, who likened Singapore to a "shop at an MRT station." Just as such a shop's survival and profits depend on the regular flow of trains and commuters, Singapore's prosperity is inextricably tied to global trade. Dr Ng's analogy underscores the reality that Singapore must be ready to respond to worsening global trade environments with rising protectionism and increasing tariffs (Baharudin, 2025).

Besides external challenges, the Singapore workforce faces disruptive and demographic challenges. As Singapore is a super-aged society (Prime Minister's Office, 2025), the Singapore workforce is increasingly burdened with caregiving obligations, with many workers facing the dual pressure of caring for both young children and elderly parents (Forward Singapore, 2025). Given the vulnerabilities that Singapore faces, regulation should be an enabling factor to enhance the ability of Singapore's workforce to navigate these challenges. Singapore's founding Prime Minister Mr Lee Kuan Yew emphasised the crucial role of the workforce in a 1990 speech: "The quality of a nation's manpower resource is the single most important factor determining national competitiveness" (K. Y. Lee, 1990).

Singapore's current regulatory approach to labour and employment issues cannot be understood in isolation from its history. Colonial legacies and post-independence crises indelibly shape Singapore's institutions. This institutional inheritance has shaped the narrative that Singapore must be progressive and collaborative. Accordingly, this paper relies on a Historical

Institutional Approach to provide insight into how past structures and decisions continue to shape Singapore's current regulatory stance on FWAs.

Singapore's Historical Crisis and Its Impact on Its Institutions

The years leading up to Singapore's independence in 1965 were rife with strikes and industrial unrest. Between July 1961 and September 1962 alone, Singapore recorded 153 strikes (K. Y. Lee, 2000). While strikes resulted in short-term benefits to Singapore workers, such tactics made it difficult for the Singapore government to attract investment and create employment opportunities for a growing workforce.

However, history and leadership created the incentive for parties with divergent interests to collaborate for mutual survival. On 18 November 1967, the British devalued the pound sterling from US\$2.80 to US\$2.40—causing Singapore to lose 14.3% of the value of its reserves kept in London in pound sterling (K. Y. Lee, 2000). Shortly thereafter, on 15 January 1968, the British announced the withdrawal of British forces east of the Suez Canal by 1971—popularly known as ending “East of Suez.” On the economic front, Singapore stood to lose approximately 20% of its Gross Domestic Product, which was attributed to British military spending (K. Y. Lee, 2000). On the defence front, Singapore would lose British military protection, which would carry knock-on consequences for the loss of investor confidence in Singapore.

It was against the erosion of the national treasury and the East of Suez policy that then-Prime Minister Mr Lee, at the NTUC Delegates Conference of 1968, rallied employers and workers to improve industrial relations and work collaboratively for their mutual survival. The anxiety engendered by post-independence crises framed institutional changes for industrial peace.

In the year in which the East of Suez policy was announced, the Singapore Parliament passed into law the Employment Act 1968, the Industrial Relations (Amendment) Act 1968, and made amendments to the Trade Unions Act 1940. One key change to promote a less confrontational workplace was the new requirement for trade unions to conduct a secret ballot before commencing a strike or other industrial action. The secret ballot prevented unions from conducting votes by a show of hands, in which dissenters could be pressured into supporting industrial action (K. Y. Lee, 2000).

Four years after the announcement of the East of Suez policy, the National Wages Council (NWC) was established with tripartite representation from the government, employers, and unions. The NWC set out a collaborative approach to improve worker wages on the agreed principle that wage increases should not exceed productivity increases (K. Y. Lee, 2000). The NWC thus allowed for the various interests surrounding wages to be collaboratively addressed. Workers' wages would increase, protecting their livelihood. Wages did not outpace productivity, protecting the viability of businesses in Singapore. This tripartite conversation managed wage expectations, preserving industrial peace, and promoting stable economic growth that benefits all parties.

The Development of Tripartism in Singapore

Following the establishment of the NWC, tripartism broadened beyond the issue of wages in Singapore. The United Nations' International Labour Organisation (ILO) defines tripartism along with the concept of “social dialogue,” explaining that this includes “all types of negotiation, consultation, and exchange of information between or among representatives of governments, employers and workers on issues of common interest relating to economic and social policy” (ILO, 2025). Notably, the ILO's definition of tripartism and social dialogue is focused on the nature of interactions between governments, employers, and workers. The ILO's definition of tripartism is consistent with Singapore's approach, which refers to the collaborative and inclusive approach adopted by unions, employers, and the government in workforce development. Tripartism facilitates a collaborative and inclusive relationship among all stakeholders. This multi-faceted

and collaborative approach has proved helpful to avoid zero-sum games while ensuring a productive workforce and stable society (Gan, 2023).

Singapore's tripartite approach has developed the principle of work–life harmony as a key policy goal towards workforce culture. Rather than conceptualising the issue as striking the right balance between irreconcilable differences between work and life as presupposed under “work–life balance,” work–life harmony conceptualises work and life as “interdependent elements that are increasingly intertwined” (Tripartite Alliance Limited [TAL], 2019).

However, Singapore's take on tripartism carries an additional institutional angle, which expands the ILO's definition of the same. In Singapore, tripartism is institutionalised with the incorporation of the TAL, a company limited by guarantee, being jointly set up by the institutional tripartite partners: MOM, NTUC, and SNEF. Singapore's approach elevates tripartism, presenting tripartism with institutional levers through the TAL agencies: the Tripartite Alliance for Fair and Progressive Employment Practices (TAFEP); the Tripartite Alliance for Dispute Management, and the Tripartite Alliance for Workplace Safety and Health.

Tripartite Institutions and Regulatory Levers

Singapore's approach to the institutionalisation of tripartism has enabled Singapore to take a nuanced approach through legislation, tripartite guidelines, and tripartite advisories. MOM explains that “Tripartite guidelines supplement our law. MOM can take action against non-compliance with the guidelines. Tripartite advisories outline progressive workplace practices for employers to adopt” (MOM, 2025c).

Singapore has relied on tripartite guidelines for several decades, with the first tripartite guidelines, the Tripartite Guidelines on Non-Discriminatory Job Advertisements (TG-NJA), being issued in 1999 (MOM et al., 2024). Building on the Tripartite Guidelines on Non-Discriminatory Job Advertisements and the Code of Responsible Employment Practices, the Tripartite Guidelines on Fair Employment Practices (TG-FEP) were first launched in 2007. Ever since, tripartite guidelines have been employed to address a gamut of issues, including but not limited to the re-employment of older workers, union representation for executives, and wrongful dismissal.

Where legal enforcement was considered needful, legislation was employed as a legally binding measure to protect the interests of employees. For example, section 34 read with section 21(1) of the Employment Act 1968 (EA) makes it a criminal offence for employers to fail to pay employees their salary within seven days after the last day of the salary period. Further, section 35 of the EA provides that certain vulnerable employees (workmen with a monthly salary not exceeding \$4,500 or any employee who is not a manager or executive with a monthly salary not exceeding \$2,600) receive additional protection under Part IV of the EA. Under Part IV of the EA, section 38(8) provides that an employee must not work for more than 12 hr a day (subject to statutory exceptions) and non-compliance may constitute an offence. This illustrates just one of the additional protections granted to employees under Part IV of the EA.

On other occasions, a mix of legislation and tripartite guidelines has been employed to promote fairness in employment decisions in Singapore. This is evidenced in the Workplace Fairness Act 2025 (WFA), which complements the TG-FEP, to promote fair and merit-based employment practices (Chandran & Xing, 2025).

Currently, formal requests for FWAs are regulated by tripartite guidelines, namely the TG-FWAR. The TG-FWAR defines FWAs broadly, including flexi-time (flexi-hours, staggered hours, compressed work schedules), flexi-load (job sharing, part-time work), and flexi-place (alternative work locations, including working from home) (MOM et al., 2024).

The Legal Effect of Tripartite Guidelines

The tripartite guidelines do not carry the force of law. This is consistent with the jurisprudence of legal positivism, as tripartite guidelines do not meet the “rule of recognition.” Namely, tripartite guidelines do not meet the procedural requirements for them to be recognised as law, as they are not a statute passed by Parliament (Hart, 1961). However, the positivist view of law is not without criticisms, and there are jurisprudential difficulties in defining what exactly “law” is. This is articulated in, among others, the Hart–Fuller Debate (Fuller, 1958; Hart, 1958). Nevertheless, for the purposes of discussing the tripartite guidelines, this paper works with the premise that the tripartite guidelines are not law. This is consistent with the position taken in parliamentary debates, in which the government took the position that the TG-FWAR is not “law” as implied through the rejection of a proposal for the right to request FWAs to be enshrined in statute (Parliament of Singapore, 2023).

However, the tripartite guidelines are not toothless. Parties that breach tripartite guidelines may face significant regulatory reprisals. Commenting on the TG-FEP, leading employment law scholar Ravi Chandran explained that while tripartite guidelines are not legally enforceable, there may be “indirect consequences” in the form of administrative action. This includes, among others, the withdrawal of business licences and the non-approval of work passes (Chandran, 2019, para. 4.291).

Additionally, tripartite guidelines may influence the application of the law. The Tripartite Guidelines on Re-employment of Older Employees (TG-ROE) were made pursuant to section 11B of the Retirement and Re-employment Act 1993 (RRA). The Tripartite Guidelines on Re-employment of Older Employees influence the application of section 7C(1) of the RRA, which provides that there is an exception to the requirement for employers to re-employ eligible older employees if the employer can demonstrate that there is no vacancy for the eligible older employee “despite making reasonable attempts to do so in accordance with the tripartite guidelines.” Sections 8B and 8C of the RRA further provide that the tripartite guidelines may be considered in determining the amount of compensation to be awarded to an eligible older employee in cases of unreasonable denial of re-employment, dismissal, or imposition of unreasonable terms and conditions of re-employment. The Tripartite Guidelines on Wrongful Dismissal (TG-WD) were made pursuant to section 35 of the Employment Claims Act 2016, which provides that the Minister may issue tripartite guidelines on what constitutes wrongful dismissal within the meaning of section 14(2) of the EA. The Tripartite Guidelines on Wrongful Dismissal were considered by Singapore courts in recent wrongful dismissal cases in *Longitude 101 Pte Ltd v Navinea Kanapathy Pillai* [2024] SGDC 47 and *Cisilia Oktavia Lim v Reins International (Singapore) Pte Ltd* [2024] SGMC 68. Further, tripartite guidelines may form the surrounding circumstances of contracts, which may affect the construction of contracts. The Singapore High Court in *Goh Eng Wah v Daikin Industries Ltd* [2008] SGHC 190 explained that the “surrounding circumstances, including the legal, regulatory, and factual matrix constituting the background in which the contract was drafted or the utterance made” were relevant in the construction of contracts.

Impact-Based Framework: When Does Singapore Rely on Tripartite Guidelines Rather Than Legislation

Having established that the Singapore context enables both legislative and tripartite approaches and having clarified the legal effects of each, the next question for analysis is when Singapore relies on tripartite guidelines rather than legislation.

This paper submits that regulatory decisions have been guided by the intended impact of the regulation (Impact-based Framework). Two principles apply. First, where the intended policy impact requires an immediate change in behaviour and/or consequence which may be enforced through legal obligations, legislation has been preferred. Second, where the intended impact of the regulation is best achieved through a change in mindset over time, a norm- and/or competency-based approach would be adopted with measures to manage risk.

The Impact-based Framework has been applied in several permutations in the context of labour and employment regulation.

First, where the intended labour impact is assessed to be best achieved through discrete legal rights, legislation has been preferred. For example, the Platform Workers Act 2024 was passed to patch a legal loophole—platform workers in the ride-hailing and delivery sectors did not neatly fall into the category of an “employee” under a contract of service within the meaning of important legislation such as the Work Injury Compensation Act 2019 or the Central Provident Fund Act 1953. Yet, such platform workers were not truly independent contractors under contracts for services since platforms controlled the fares and imposed rules on platform workers. This prevented platform workers from truly having the freedoms associated with independent contractors (Kok, 2024). Due to this legal loophole, platform workers were left with no work injury compensation coverage or employer contributions to their Central Provident Fund, despite lacking the freedoms that independent contractors enjoyed. Given the precise legal nature of the issue, legislation was used to create a new legal category of workers.

Second, where the intended policy impact is best advanced through gradual norm-shaping, tripartite advisories have been preferred. Tripartite advisories are focused on promoting best practices, which are competency-based in nature. For example, the Tripartite Advisory on Managing Workplace Harassment (TA-MWH) sets out best practices for both employers and employees to adopt, promoting a safe and conducive workplace. While the Tripartite Advisory on Managing Workplace Harassment does not create any legal obligation, the risks related to workplace harassment may be dealt with under a workplace-agnostic legislation, the Protection from Harassment Act 2014 (POHA). POHA provides for, among others, criminal and civil remedies for harassment.

Such norm- and competency-based approaches complement the multi-pronged approaches taken to ensure the competitiveness and resilience of Singapore's workforce. For instance, Singapore's collaborative approach was demonstrated with the government promoting NTUC's upcoming “AI-Ready SG” initiative (Low, 2025). While demographic challenges mean that more of the Singapore workforce is burdened with caregiving obligations, fresh tripartite initiatives, including the TG-FWAR, are designed to promote collaboration and dialogue to ensure, among others, that caregivers are not excluded from the Singapore workforce. This initiative has been deployed alongside other measures to develop a resilient workforce. For instance, government agencies like WSG and SkillsFuture Singapore (SSG) have been formed with the mandate to develop an ecosystem to equip the Singapore workforce with industry-relevant skills. Enterprise Singapore's Productivity Solutions Grant promotes the adoption of digital tools and automation to enhance workforce productivity (Enterprise Singapore, 2025). Additionally, there have been initiatives to develop a resilient workforce culture through the emphasis on skills-first practices, which promotes social cohesion and social mobility (SSG, 2025). While culture may be intangible, it can be shaped through tangible structural levers—such as tripartite guidelines, to which this paper now addresses.

Third, where the intended labour impact involves norm-shaping but may also be enforced as a discrete right, tripartite guidelines have been preferred. FWAs are regulated entirely under the TG-FWAR. FWAs are highly context-dependent, as the feasibility of FWAs varies widely across industries and individual job roles. From the Singapore perspective, this makes the legislating of discrete rights ineffective. Further, the success of FWA development and implementation ultimately hinges on the work environment. For example, employers may need to redesign jobs and recalibrate key performance indicators to implement FWAs effectively. Business practices of this nature are not readily regulated by legislation but can be shaped through norms. The TG-FWAR recognises the highly contextual approach required by FWAs, and thus promotes the principle that FWAs should be assessed on a “case-by-case basis” (MOM et al., 2024).

Fourth, where labour objectives require a combination of norm-shaping and discrete legal rights, both tripartite guidelines and legislation may be employed. The issue of workplace fairness was first regulated by the TG-FEP, which operated as a normative framework to shape employer behaviour by requiring recruitment and management practices to be merit-based and inclusive.

However, at the 2021 National Day Rally, then-Prime Minister Lee Hsien Loong highlighted that the issue of workplace discrimination now threatened key national priorities, including nationality, age, race, and religion, among others (H. L. Lee, 2021). Then-Prime Minister Lee announced that, further to the TG-FEP, Singapore would legislate against workplace discrimination, resulting in the WFA, which was passed in 2025. The WFA establishes, among others, enforceable rights by prohibiting adverse employment decisions based on protected characteristics such as age, sex, race, religion, disability, and caregiving responsibilities, unless exceptions apply. The interplay between the WFA and the TG-FEP reflects MOM's position that laws alone cannot root out workplace discrimination—it “requires a whole-of-society effort to foster a culture of trust and openness where issues on workplace discrimination can be raised safely and resolved amicably” (MOM, 2025d).

Singapore's Historical Institutional Practices, as Observed in Labour and Employment Issues, Also Apply to Other Regulatory Contexts

Singapore's historical institutions reflect a preference to rely on multi-pronged approaches that are collaborative in nature. The use of the law is seen as just one of many levers available. These observations are demonstrated in other regulatory contexts.

Singapore's response to current trade challenges demonstrates the centrality of collaboration and dialogue. Responding to the worsening trade climate, the Singapore government formed a multi-agency task force known as the Singapore Economic Resilience Taskforce (SERT). Recognising the interrelation between tripartism, employment issues, and the broader structural needs of the Singapore economy, the Singapore Business Federation and SNEF were appointed to SERT to represent businesses' and employers' interests. Complementing this, NTUC was appointed to represent workers, alongside multiple government agencies, to ensure that the tripartite partners collectively respond to economic challenges (Tan, 2025). SERT has proposed new initiatives to support both businesses and workers, including the Business Adaptation Grant, which provides financial support to Singapore businesses to adapt operations and strengthen supply chain resilience (Economic Development Board, 2025). As a small state with no hinterland, Singapore's businesses must thrive and provide employment, which is the primary means of livelihood for Singaporeans.

A similar dynamic is evident in Singapore's approach to Artificial Intelligence (AI) governance. While the European Union (EU) has opted to regulate AI through a single, comprehensive legislative framework viz. the EU AI Act 2024 (EU, 2024), Singapore has opted for a multi-pronged approach that blends guidelines, competency frameworks, and targeted legislation. Singapore's Infocomm Media Development Authority (IMDA), in collaboration with the AI Verify Foundation, extended Singapore's governance framework on traditional AI to address new risks posed by generative AI through the 2024 Model Governance Framework for Generative AI (MGF-Gen AI) (IMDA, 2024). The framework outlines nine dimensions, which call on policymakers, industry players, researchers, and the public to collectively take responsibility for generative AI use.

Complementing this, IMDA introduced a competency-based tool, the Starter Kit for Testing LLM-Based Applications for Safety and Reliability, which enables applications to test generative AI models for four key risks: hallucination, undesirable content, data disclosure, and adversarial prompts (IMDA, 2025). The emphasis on competency is important as the risks in generative AI are context-specific and evolving (IMDA, 2025). By embedding competency building into the regulatory approach, Singapore ensures that risks are actively managed, making regulation more impactful.

Singapore's collaborative and competency-based regulatory approach has been reinforced by legislation where necessary. For instance, the Online Safety (Relief and Accountability) Act 2025 was introduced to allow victims legal recourse for, among others, inauthentic material abuse, which is commonly known as “deepfakes.” Taken together, Singapore's approach reflects a pragmatic, impact-based balance to foster innovation while safeguarding against emerging risks.

Comparative Analysis of Singapore's Tripartite Approach With Australia and Thailand's Statutory Approaches

As earlier mentioned, Singapore's non-statutory approach towards FWAs may be criticised for a lack of legal enforceability, as noted by MP Louis Chua's parliamentary speech (Parliament of Singapore, 2023).

Additionally, the TG-FWAR does not require employers to grant FWAs. The TG-FWAR only applies to formal FWA requests made under the TG-FWAR and does not apply to informal FWA requests. Employers retain wide discretion to reject FWA requests on reasonable business grounds, phrased widely to encompass costs, productivity, and feasibility. Indeed, an employer would be entitled to reject all FWA requests on the simple basis that it would increase the costs of supervision or operation.

Further, the related legal doctrine of the "right to disconnect" is not provided for in the TG-FWAR. Where FWAs may blur the line between work and rest, the TG-FWAR offers no direct assistance to employees who may end up worse off with FWAs. There has been significant public discourse in Singapore for the right to disconnect to be enshrined in statute (Tham, 2024).

While the TG-FWAR encourages it, it does not require FWA request templates or FWA policies to facilitate requests. In effect, it provides for a procedural framework to make FWA requests without conferring enforceable entitlements to employees. It may be argued that the TG-FWAR has limited practical effect since the implementation of FWAs ultimately remains contingent on employer goodwill rather than being grounded in enforceable statutory rights.

This section explores such criticisms of Singapore's non-statutory regulatory approach using a comparative law methodology, having regard to each country's unique legal tradition and approach concerning employee protection and sustaining workforce resilience in an increasingly volatile global environment.

The legal traditions of Singapore, Thailand, and Australia share significant overlap in terms of structure and histories, but significant divergence in later developments.

Singapore, a former British colony, inherited the English common law tradition. Thus, legislation and judicial precedent are the key sources of law in Singapore. Yet, Singapore has embarked on an autochthonous approach to labour regulation through tripartism. Singapore's legal tradition reflects its socio-cultural mores that value collaboration and dialogue between workers, employers, and the government.

Australia, like Singapore, is a former British colony. Australia's legal system is likewise rooted in the English common law tradition, with legislation and judicial precedent being key sources of law. Australia's legal tradition towards labour regulation was initially shaped by compulsory industrial arbitration. In this context, the law represents a deep integration of social policy. Today, the Australian Fair Work Act 2009 constitutes the main source of labour legislation. Australia's legal tradition thus places a strong emphasis on enforceable statutory rights, with courts and tribunals playing an active role in industrial relations (Cooney, 2009).

While Singapore and Thailand are both geographically and culturally approximate as Southeast Asian neighbours, their legal traditions are distinct. Thailand is a constitutional monarchy with its legal system based on the civil law tradition. Under the civil law tradition, judicial precedent plays a less prominent role, with emphasis given to the codification of labour provisions. Thailand's Labour Protection Act contains a comprehensive set of provisions, ranging from the minimum standards for wages to menstrual leave. Union memberships and fee collection are low in Thailand, and less emphasis is paid to unions' role (Napathorn & Chanprateep, 2011).

Australia's Approach—Legislating the Right to Request FWAs and Reasonable Accommodations

The right to request FWAs has been legislated in Australia under the Fair Work Act 2009. This creates a system of discrete legal rights and obligations as well as a formal enforcement system. This stands in contrast to Singapore's tripartite guidelines approach, which is more norm-based, in the sense that the intent underlying the tripartite guidelines is to change socio-norms that affect the workforce. While a breach of tripartite guidelines may result in sanction in the form of administrative action, the intent of tripartite guidelines is not to create discrete rights at law. Before delving into the differences, this section highlights the substantial similarities between the functions of Singapore's and Australia's approaches.

First, both approaches merely provide for a process to request FWAs and do not create an entitlement for FWAs. Both Singapore's and Australia's approaches are substantially procedural in nature. Both approaches allow entitled employees to make an FWA request. Both approaches stipulate similar formality requirements for the request—it must be in writing, and the FWA sought must be specified with supporting reasons. Both approaches require FWA requests to be properly considered by the employers without creating a legal obligation for the employer to offer FWAs. The TG-FWAR requires Singapore employers to only reject FWA requests if there are "reasonable business grounds" and must communicate this decision in writing within two months of the request. Likewise, section 65A(3) and (4) of the Fair Work Act 2009 provides that Australian employers may reject FWA requests where there are "reasonable business grounds." Section 65A(1) of the Fair Work Act 2009 provides that Australian employers must communicate their decision in writing within 21 days.

Second, both legal systems take an expansive definition of FWA, without limiting it to work-from-home (WFH). FWAs are similarly defined in Singapore and Australia. Singapore's term of "flexi-time" corresponds with Australia's "changes to hours of work;" "flexi-load" with "changes to patterns of work;" and "flexi-place" with "changes to locations of work."

There are many differences between Singapore's and Australia's approaches. While the more glaring difference is that Singapore takes a tripartite approach while Australia takes a statutory approach, such a point of comparison is not an analysis of function—the chosen method of comparison in this paper.

Under Australia's statutory approach, only certain types of employees are entitled to request FWAs. Section 65(1A) of the Fair Work Act 2009 provides that an employee may request a change in their working arrangement if they require flexibility because they are: (i) pregnant; (ii) a parent of schooling children; (iii) a carer within the meaning of Australia's Carer Recognition Act 2010; (iv) a person with disabilities; (v) aged 55 or older; (vi) experiencing family/domestic violence; or (vii) caring for family/household members who experience family/domestic violence. Further, section 65(2) of the Fair Work Act 2009 provides that an employee is not entitled to make an FWA request unless the employee has completed at least 12 months of continuous service with the employer before making the request or, where the employee is a "casual employee" under section 15A of the Fair Work Act 2009, that employee must have a reasonable expectation of continuing employment by the employer on a regular and systematic basis.

Effectively, Australia's statutory approach only confers the legal right for one to request FWAs under the Fair Work Act 2009 when one can establish the traditional or "expanded" grounds of reasonable accommodations. Both Australia and Singapore have ratified the United Nations Convention on the Rights of Persons with Disabilities (CRPD). Article 27(1) of the CRPD requires, among others, measures to ensure that "reasonable accommodations" are provided to persons with disabilities in the workplace. Under the CRPD, reasonable accommodations mean "necessary and appropriate modification and adjustments not imposing a disproportionate or undue burden, where needed in a particular case, to ensure to persons with disabilities the enjoyment or exercise on an equal basis with others of all human rights and fundamental freedoms." This naturally restricts the traditional scope of reasonable accommodations to persons with disabilities as defined under the CRPD. This traditional interpretation is covered under

Australia's statutory approach towards FWAs, where a person with disabilities has standing to request FWAs on the grounds of their disability. Lately, scholars have noted that the practice of "reasonable accommodations" has practically expanded. Reasonable accommodations have gone beyond rights for persons with disabilities to include means to enhance inclusivity (Waddington, 2011). The expanded definition of reasonable accommodations is provided for in Australia's approach, which provides that employees who are, among others, pregnant, parents of school-age children, and carers may have the standing to request FWAs.

This is unlike Singapore's approach, which does not integrate the traditional or expanded approach to reasonable accommodations. Singapore will address the traditional approach to reasonable accommodations through a Tripartite Advisory (Gan, 2025). Singapore's standing requirements to request FWAs are more inclusive than Australia's in that all employees who have completed probation are entitled to make a formal FWA request pursuant to the TG-FWAR. That said, it appears that the expanded concept of reasonable accommodations can be considered by employers in the evaluation of formal FWA requests. This is featured in the TG-FWAR's illustration, which features caregiving as the reason for formal FWA requests. To further illustrate, under the TG-FWAR, a Singapore employer must properly consider a 25-year-old employee's formal FWA request for a flexi-location arrangement simply because the employee does not enjoy commuting to the workplace. However, such an FWA request does not need to be entertained under Australian law as, in and of itself, it does not meet the reasonable accommodations requirements.

That said, Australia's discrete rights approach provides more certainty than the normative approach adopted by Singapore. It is unclear if Singapore employers that require employees to meet reasonable accommodations requirements to request FWAs could be non-compliant with the TG-FWAR. The flexible approach of the TG-FWAR might envisage a scope wider than reasonable accommodation requirements. Indeed, the TG-FWAR just requires employees to request and use FWAs "responsibly." However, this uncertainty could well be the strength of Singapore's approach, as it seeks to ensure employees responsibly request FWAs, having full regard for the employer's business needs and an employee's personal interests for work-life harmony. Coupled with the principle that FWA requests under the TG-FWAR should be assessed on a case-by-case basis, the normative intent of the TG-FWAR is clearly designed to form the basis for what is, in effect, a conversation between employees and employers to negotiate a win-win arrangement that allows for both personal and business needs to be met.

Another key difference between Singapore's and Australia's approach is that of enforcement. As Australia's approach is grounded in statute, legal avenues of recourse are made available under the Fair Work Act 2009. Pursuant to section 65B of the Fair Work Act 2009, parties to the dispute must first resolve the dispute at the workplace level. Should there be no resolution, the matter may be referred to arbitration at the Fair Work Commission (FWC), where a legally binding decision will be reached. This is unlike Singapore's approach, where no legally binding decision will be meted out. Where parties are unable to resolve their dispute, one of the parties may refer the matter to TAFEP for mediation. Unlike the Fair Work Commission, TAFEP does not impose penalties or make legally binding decisions on the parties. This is not to say that TAFEP is toothless, as it may refer persistent non-compliance cases to Singapore's MOM, where administrative action may be taken against the errant party.

At first blush, Singapore's tripartite guidelines approach to FWAs may appear much softer than Australia's legislative approach by legislating the right to request FWAs. However, on a closer analysis at a functional level, Singapore's approach is not necessarily weaker than Australia's and is more inclusive. Neither country places a legal obligation on employers to provide FWAs. Both countries' approaches require employers to properly consider FWA requests following a structured format with formal written requirements and timelines. Both countries' approaches allow for some enforcement mechanism, although Australia's approach may result in a stronger legally binding decision. That said, Singapore's more flexible approach allows for more types of employees to make formal FWA requests. Thus, functionally, there are considerable similarities between the approaches of both countries. The main difference lies in the policy intent

behind the approach. Australia has opted to safeguard employee rights by entrenching the right to request FWAs in law, whereas Singapore has opted to shape the norm with the TG-FWAR to create a framework for structured conversations on FWAs between employers and employees.

Neither approach is inherently better than the other. These approaches reflect each country's underlying attitude and philosophy in resolving labour issues. Singapore's normative approach is suitable given the dualism of the Singapore workforce. As explained by Minister of State for Manpower Gan Siow Huang in 2023, "turning FWA into something rigid could be detrimental to business, and even to workers themselves" (Parliament of Singapore, 2023). The TG-FWAR's approach of encouraging structured conversations between employers and employees is thus more appropriate for the Singapore context. Indeed, by deciding not to entrench discrete legal rights to request FWAs, more Singapore employees may make formal requests for FWAs under the TG-FWAR. Additionally, the TG-FWAR does not prevent informal FWA arrangements, which may be simply verbal and done on an ad hoc basis. This flexibility of maintaining multiple approaches to FWA is helpful for the Singapore context, as it builds towards work–life harmony and thus contributes to an inclusive and resilient workforce as Singapore greys.

Thailand's and Australia's Approach—Legislating the Right to Disconnect

The right to disconnect has become an issue in many legal systems as FWAs become more commonplace, blurring the line between work and life. Many employees who are on WFH arrangements are expected to respond to work calls, messages, and emails even past official working hours. While such issues became more commonplace after the COVID-19 pandemic, which required WFH, the right to disconnect pre-dates the pandemic (Broom, 2021). Most notably, France entrenched an employee's right to disconnect in the French Labour Code, which came into effect in 2017. Under French law, employers with more than 50 employees must negotiate with employees on how the right to disconnect will be implemented to ensure respect for rest, leave, and personal life. In effect, French law serves the function of ensuring adequate employee rest by creating clear boundaries between home and work. Closer to Singapore, Thailand has legislated the right to disconnect to address the prevalence of flexi-location work arrangements. Thailand also serves as an ideal point of comparison, as it is also an Asian country facing the challenges of an ageing population.

Thailand amended its Labour Protection Act with section 23/1, which came into effect on 18 April 2023. This amendment provides for a statutory right for Thai employees to request WFH arrangements and provides for the right to disconnect if a WFH arrangement is granted. Under section 23/1(5) of the Labour Protection Act, an employee has the right to refuse all communications with the employer or his/her superior after the end of normal working hours, or upon completion of the work assigned, unless the employee gives consent in advance. Importantly, this amendment does not require Thai employers to offer WFH arrangements to employees. Rather, it provides that where a Thai employer and employee agree to a WFH arrangement, the employee will have the right to disconnect after the end of normal working hours. This right to disconnect must be documented in writing and contain details such as the working hours. Further, Thai law specifies that an employee who is on a WFH arrangement shall have the same rights as an employee who is working in the employer's physical workplace. This prevents an employer from treating an employee with a WFH arrangement unfairly compared to an employee who is working in the physical workplace. Where an employer fails to comply with Thailand's Labour Protection Act, a labour inspector may issue a written order requiring the employer's compliance. Where an employer fails to comply with this written order, the employer may be punished with a fine under section 155/1 of the Labour Protection Act.

Similarly, Australia has legislated the right to disconnect under section 333M of Australia's Fair Work Act 2009. Under the law, Australian employees "may refuse to monitor, read or respond to contact, or attempted contact" from employers and/or third parties outside of working hours unless the refusal is unreasonable. The law provides clarification as to what is "unreasonable,"

including the reason for the contact or attempted contact, and the extent to which the employee is compensated.

While Australia and Thailand belong to different legal traditions, they both have chosen to entrench an employee's legal right to disconnect. This validates the functional method's *praesumptio similitudinis* (presumption of similarity). Singapore's divergence from Australia and Thailand can be explained by the respective legal traditions. Australia, from the common law tradition, emphasises the role of courts and tribunals in resolving disputes. Australia's Fair Work Act 2009 provides a comprehensive statutory foundation for employment rights. It naturally follows for Australia to include the additional right to disconnect in its statutory framework. Thailand, which comes from the civil law tradition, relies heavily on codification. The reliance on state-led codification is needed due to the smaller role that unions in Thailand play. Thus, Thailand relies on codification to articulate rights and best employment practices. At the time of writing, there is a lack of studies investigating the effectiveness of the right to disconnect in either Thailand or Australia.

Unlike Thailand and Australia, Singapore has not legislated the right to disconnect, opting to shape its regulation around its distinctive tripartite model. Further, the TG-FWAR does not address the issue of limiting after-hours communication or protecting rest time. This appears to be a deliberate choice, especially since there have been calls for Singapore to introduce the right to disconnect. Notably, Singapore MP Melvin Yong called on the government to consider a right to disconnect law in 2020, arguing that employees ought to have protected time to rest and recharge (Ong, 2020). The MP did not merely call for the right to disconnect to be legislated. True to the spirit of tripartism, the MP referred to the then-upcoming Tripartite Advisory on Mental Well-being at Workplaces (later called the Tripartite Advisory on Mental Health and Well-being at Workplaces) (TA-MH) and expressed his hope that it would address aspects of the right to disconnect.

The TA-MH was issued on 20 November 2023. Unlike tripartite guidelines that effectively supplement the law, tripartite advisories detail progressive workplace practices that employers are encouraged to adopt (MOM, 2025c). The TA-MH addresses mental health through several recommendations, including a recommendation that employers "establish an after-hours work communication policy" to ensure employees have adequate rest outside of work hours. This addressed the concern that the MP had raised in Parliament back in 2020. The TA-MH also contains a link that refers employers to a sample workplace policy on after-hours communication, consistent with Singapore's preference for competency-based initiatives.

Focusing on function, both Thailand's right to disconnect and the TA-MH serve the purpose of ensuring that employees have adequate rest outside work hours. Thailand's approach to ensuring adequate rest for employees is focused on entrenching the discrete right to disconnect with employees. Thailand's Labour Protection Act entitles an employee to disconnect from the employer during after-hours unless the employee's prior consent is obtained. On the other hand, Singapore's approach to ensuring employees have adequate rest is to shape the workplace culture. The TA-MH does not entrench any right to disconnect. Rather, the TA-MH's linked sample policy promotes a work culture that respects employees' after-hours while recognising that circumstances may necessitate after-hours communications with employees. For instance, workplace emergencies or work exigencies may require urgent communication with employees after working hours. In such situations, flexibility is valuable. For example, when there is an after-hours workplace emergency, an employer may contact employees for urgent damage control. If an employee had insisted on the right to disconnect, the employee may have created more future work for himself or herself as there was no timely damage control. The employer may ensure the employee who responded after-hours is adequately rested by offering ad hoc and informal FWAs, such as "time-banking." Time-banking is a type of flexi-time FWA that allows employees to accumulate extra hours worked and redeem them later as time off. Such a collaborative approach protects both the interests of employers and employees, promoting work-life harmony.

This example assumes a fair and progressive employer. This assumption may not necessarily hold, as some employers may persistently contact employees during after-hours for

business-as-usual matters. Under Thailand's approach, an employee would be entitled to make a complaint to the labour inspector, who may issue a written order against the employer under the Labour Protection Act. While no such legal recourse is available in Singapore, a Singapore employee is not powerless. Singapore's approach is essentially a dialogue. An employee may raise the TA-MH as the benchmark for workplace policies in Singapore and arrange for dialogue with TAFEP. In Singapore, the workforce is a competitive market, and employees vote with their feet. Employers who do not adopt fair and progressive practices stand to lose out against similar employers who adopt such measures. Thus, there is a strong business case for employers to adopt the measures in the TA-MH. Given the prevalence of mental health issues (Teo, 2025), employers that adopt the practices in TA-MH may stand out as employers of choice.

Given the dualism of Singapore's workforce, it is important to ensure a business-friendly environment in Singapore. Yet, a business-friendly environment cannot come at the expense of the Singapore workforce. A business-friendly environment that is tempered by fair and progressive employment practices is the best solution, ultimately benefitting the Singapore workforce.

Implications for Singapore's TG-FWAR and the Way Forward

FWAs Continue to Be Desired

FWAs continue to be desired by employees in Singapore. A recent survey by Randstad revealed that half of the Singaporean workers surveyed indicated that they would leave jobs requiring them to work in the office more often (Tang, 2024). The MOM SEWC Survey showed that the number of employees who required FWAs has increased from 39.5% in 2012 to 53.6% in 2022. Employees who required an FWA were more likely to reject or leave employers who did not offer any FWAs. MOM expects this demand to grow due to increased caregiving needs in an ageing population (MOM, 2024). The MOM SEWC Survey found that employees with an FWA had a statistically significantly lower mean work stress and work burnout score compared to those who were not provided with it.

There is a trend that employers in Singapore are optimistic in their approach to FWAs. A 2024 joint study conducted by SUSS and SNEF titled "Employers' Perspective on the Tripartite Guidelines on Flexible Work Arrangement Requests" found that employers foresee an increase in demand for FWAs, citing caregiving responsibilities and improved work-life balance (SUSS & SNEF, 2024). The SUSS and SNEF study cited an example of a business in the Real Estate and Building Services that struggled to hire a security guard with no FWAs. However, once flexi-time FWAs were introduced, the business managed to hire three security guards. This study found that 81% of employers report that they are ready for the implementation of the TG-FWAR.

Of the three types of FWAs, flexi-place continues to feature prominently in public discourse. A survey by Hays Asia, a leading recruitment agency, found that although 34% of Singapore employers require their employees to spend five days per week in the office, 32% of Singapore employers require their employees to spend just three days per week in the office (Hays Asia, 2025).

Return-to-Office Is a Growing Trend

While flexi-place arrangements remain prevalent, there is a growing return-to-office (RTO) trend. Many leading employers like Amazon Web Services (Bensinger, 2024) and Grab (Ong, 2024) have implemented RTO. Notably, the National University of Singapore required all full-time staff to work from the office five days a week from 1 October 2025. National University of Singapore explained that the RTO arrangement recognises the value of "in-person interactions in the workplace" while emphasising that RTO did not mean that there are no FWAs, which may be

designed for specific jobs. The RTO decision has affected some staff, with some complaining that they found it “unreasonable” and considered it a move backwards (Ang, 2025). This demonstrates the different interests between employers and employees, highlighting the importance of dialogue and collaboration around FWAs.

Factors such as absenteeism, team cohesion, and productivity play a role in the RTO trend. As noted in a Straits Times Podcast, issues of parity and morale in the workplace play a role in the RTO trend, as not every job role allows for flexi-location FWAs (Zachariah, 2025). The SUSS and SNEF study noted that flexi-time poses challenges in scheduling meetings, ensuring adequate staffing levels, and maintaining consistent communication; flexi-place poses challenges in ensuring the security of company data and monitoring employee performance; flexi-load poses challenges in balancing workloads and maintaining accountability. These factors are not legal or regulatory factors, but business management factors. Thus, to ensure FWAs are properly developed and implemented, it is important to ensure the Singapore workforce has the necessary competencies to implement FWAs. Such competencies involve, among others, change management, and job redesign (as elaborated later in this paper).

In any event, the RTO trend is accommodated by Singapore's approach to FWA, as flexi-location is just one of the three types of FWAs covered by the TG-FWAR.

Changing Norms and Building Competencies Are the Way Forward for FWAs

The success of FWAs regulation lies not with the enforcement of the TG-FWAR but with the successful implementation of FWAs. The implementation of FWAs is highly contextual, requiring specific industry knowledge and business processes. For example, the Singapore Precision Engineering and Technology Association, a trade association, and Singapore Polytechnic's Business Innovation Centre, an institute of higher learning, collaborated to release the “Precision Engineering Sectoral Guide to FWAs” (Singapore Precision Engineering and Technology Association & Singapore Polytechnic Business Innovation Centre, 2025). This sectoral guide highlights the highly contextualised approach of FWAs in the precision manufacturing sector. One section of this guide describes how flexible shifts may be applied to achieve operational efficiency for the injection moulding of plastic components.

The true success of the TG-FWAR would be seen in the transformation of the Singapore workforce into a more inclusive workforce. The development and implementation of FWAs demand sector-specific know-how and organisational capability. Education is therefore central to advancing FWAs. By embedding FWAs into workforce training and management curricula, tripartite stakeholders can ensure that flexibility is not treated as an ad hoc concession but a structured, sustainable practice.

One area of education lies in change management (Kotter, 2014). FWAs often require shifts in workplace culture, supervisory practices, and performance evaluation methods. Managers must be trained to lead transitions effectively, balancing operational needs with employee well-being. A. N. Lee (2025) highlighted the pivotal role of supervisor support in enhancing employees' motivations and abilities to change their behaviours in the workplace.

Equally important is job redesign, which involves reimagining roles, workflows, and performance metrics to align with FWAs (WSG, 2025). FWAs cannot succeed if jobs remain rigidly structured around traditional office-based models. Training in job redesign enables human resource professionals and line managers to restructure tasks, leverage technology, and create outcome-based performance measures. This ensures that FWAs enhance productivity rather than compromise it.

FWA regulation succeeds when workplace norms are transformed, and new skills and competencies are gained by the workforce. With skills in business concepts and the right competencies, Singapore can build a resilient and inclusive workforce with FWAs. This starts with education and skills training, which SSG, the Institute of Human Resource Professionals, polytechnics, and other training providers are leading.

Conclusion

The Historical Institutional Approach highlights how Singapore's current preference for multi-pronged and collaborative approaches to regulation is shaped by the legacies of post-colonialism, the crises faced by a fledgling state, and small-state vulnerabilities. For Singapore, the law is just one lever to be deployed selectively to achieve the intended policy impacts. This nuanced approach is applied across many domain areas. Singapore has opted not to rely on a comprehensive piece of legislation for AI governance like in the EU, adopting a layered model of guidelines, competency-building, and targeted legislation. Such an approach is also deployed in labour and employment issues. Norm- and competency-based initiatives, such as tripartite guidelines and tripartite advisories, are deployed alongside legislation to achieve the intended policy impact. Singapore's tripartite way of dealing with employment issues is designed to facilitate a collaborative approach by unions, employers, and the Government to "arrive at win-win outcomes for all parties in a non-confrontational and objective manner" (MOM, 2025b). This approach is suitable for safeguarding the various interests in the Singapore workforce while ensuring that it is competitive and resilient, while accounting for its inherent vulnerabilities.

The Comparative Method highlights that different approaches towards FWAs must be assessed against the national and workforce context in which they are employed. Having examined the approach adopted by Singapore and compared it against Australia's and Thailand's respective approaches, this paper submits that Singapore's current reliance on tripartite guidelines for the regulation of FWAs is suitable for Singapore's context. Functionally, Singapore's TG-FWAR operates in a similar fashion as Australia's approach, as both establish a framework for employees to request FWAs and for employers to properly consider such requests. However, Singapore's approach is more inclusive than Australia's, as a broader group of employees is eligible to make such FWA requests. Likewise, whereas Thailand's right to disconnect emphasises a bright line between work and life, Singapore adopts a more collaborative approach through work-life harmony and competency-based initiatives through the TA-MH. This includes encouraging the development of after-hours communication policies to enable change in the workplace. Both Singapore and Thailand's regulations serve the ultimate goal to protect employee welfare.

Finally, the context-specific nature of FWAs entails that the true success of FWA regulation lies in changing mindsets and developing business competencies to effectively develop and implement FWAs in the workplace. Indeed, countries that have used legislation to regulate FWAs do not impose a legal obligation for employers to offer FWAs. This recognises that FWAs are contextual. By focusing on developing norms and building competence, Singapore's approach to regulating FWAs is currently appropriate.

Importantly, Singapore's approach reflects an awareness that legislation is not always the optimal tool. To borrow the adage, "if all you have is a hammer, everything looks like a nail." Singapore wields diverse tools to achieve the intended policy impact. The way forward is to shape mindsets and workplace norms around FWAs, and equip the workforce with competencies to harness FWAs to ensure a relevant, resilient, and inclusive workforce that serves workers, businesses, and national objectives.

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Training, Business Transformation, and Job Redesign in Singapore: A Review

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Abstract

Globally, the world of work is being transformed. Major drivers like technological change, geoeconomic fragmentation, economic uncertainty, demographic shifts, and the green transition are expected to transform the global labour market by 2030. Closer to home, Singapore's workforce is likewise undergoing rapid transformation, especially due to drivers like technological changes and economic restructuring, demographic shifts caused by an ageing workforce, and changing worker expectations. Given these developments, training and skills development, together with deliberate job redesign, are crucial levers to keep Singapore workers resilient as businesses undergo transformation. The National Trades Union Congress, at the heart of Singapore's Labour Movement, has an important role in ensuring that these levers continue to improve worker well-being and sustain competitiveness. This literature review surveys and critically evaluates the recent literature on training and skills development, business transformation, and job redesign in Singapore. It synthesises insights from various sources, including the Singapore Labour Journal, to identify progress, challenges, and opportunities for the Singapore Labour Movement and could serve as reference for other countries that wish to learn best practices. Articles are grouped thematically to highlight key insights, policy implications, and recommendations, apprising researchers of the most significant recent findings. The insights lead to recommendations that can be explored and reflections on the Singapore Labour Movement's potential in advocacy and policy influence; close partnership with companies in job redesign and business transformation; and ways to drive greater worker participation in training and skills development as they are at the heart of companies.



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Introduction and Motivation

Globally, the world of work is being transformed. The World Economic Forum (2025) highlighted that major drivers like technological change, geoeconomic fragmentation, economic uncertainty, demographic shifts, and the green transition, individually and in combination, are expected to transform the global labour market by 2030. An estimated 100 million workers globally will need to change jobs, with 60% of companies expecting to transform their business models (McKinsey & Company, 2021; World Economic Forum, 2025).

Closer to home, Singapore's workforce is likewise undergoing rapid transformation, especially due to drivers like technological changes and economic restructuring, demographic shifts especially an ageing workforce, and changing worker expectations. In Singapore, all jobs have experienced changes in their skills requirements between 2019 and 2024, reflecting significant transformations taking place at workplaces (Workforce Singapore [WSG] & SkillsFuture Singapore [SSG], 2025). Given these developments, training and skills development, together with deliberate job redesign, are crucial levers to keep Singapore workers resilient as businesses undergo transformation. The National Trades Union Congress (NTUC), at the heart of Singapore's Labour Movement, has an important role in ensuring that these levers continue to improve worker well-being and sustain competitiveness.

Indeed, Singapore's efforts to continually prepare its workforce to meet changing conditions are recognised and studied by researchers from around the world, such as Quyen (2019) who found that Singapore adopted an inclusive approach and succeeded in developing a sustainable skills ecosystem and lifelong learning programmes that Vietnam could learn from; Valenti (2021) who studied best practices, including from Singapore, concerning lifelong learning that could be adopted to counter the growing polarisation between highly and lowly qualified workers; and Rasikhah and Adhisty (2025) who analysed workforce development innovations in Singapore so that Indonesia could learn from these innovations to improve its labour force quality and, in turn, enhance its international trade performance. This international interest is also reflected in a recent ASEAN comparative study of Malaysia, Thailand, and Singapore, which highlighted Singapore's universal levy-based Skills Development Fund as an exemplar of pooled risk, collective responsibility, and long-term national workforce planning (HRD Corp., Institute for Adult Learning, & Chulalongkorn University, 2026).

Several studies adopted a comparative approach, comparing international best practices and citing Singapore in the process. For example, the Organisation for Economic Co-operation and Development (OECD, 2025) analysed Singapore's worker retraining and upskilling efforts in comparison with those of European countries, like the Czech Republic and Lithuania. Amoud et al. (2025) also adopted a comparative approach to reimagine workforce development by taking a critical look at lifelong learning to illustrate workforce and societal development efforts in Europe, Singapore, and the U.S. As such, there is strong value to both international and Singaporean audiences in a meta-study on the current literature on Singapore's efforts to explore recurring themes and broad strategies that emerge.

This review aims to survey and critically evaluate the existing recent literature on training and skills development, business transformation, and job redesign in Singapore. It synthesises relevant insights from various sources, including the *Singapore Labour Journal*, to identify progress, emerging challenges, and opportunities for the Labour Movement as it continues to strengthen workers' capabilities and resilience in the face of evolving economic and technological changes. The lessons and insights gleaned from this review could transcend national boundaries and serve as reference for other countries that wish to learn best practices of training and skills development, business transformation, and job redesign, benefitting both workers and companies.

What makes this review different is that existing research in Singapore on training, business transformation, and job redesign is often sector-specific, with studies typically examining particular industries, technologies, or workforce initiatives. While this body of work has generated useful insights, fewer Singapore-based academic studies consider these areas together across

sectors, for a more comprehensive perspective. This review offers a broader view of how training, business transformation, and job redesign may interact within Singapore's workforce landscape. While its main contribution is integrative, it also situates these interactions within Singapore's overall tripartite system, drawing attention to the Labour Movement's role in linking these domains, as well as supporting, shaping, and advancing workforce transformation, which has received comparatively limited or explicit attention in the existing literature.

Methods

We conducted a literature review of a decade's worth of existing research and practitioners' insights papers using a structured narrative review approach, drawing from various peer-reviewed journals, including labour-focused journals like the *Singapore Labour Journal* (2022–2025). In this paper, we also drew references to credible grey literature sources like policy reports from international organisations, like the OECD and the World Economic Forum, Singapore government agencies, like WSG and SSG, as well as authoritative reports produced by university-based research institutions. Such literature was included because fast-moving labour market policy developments, workforce transformation initiatives, and skills strategies are often documented in policy reports and institutional publications, including in NTUC's reports. The review covered literature published in the decade between 2015 and 2025, coinciding neatly with 10 years since the launch of Singapore's SkillsFuture movement, to ensure that the research and recommendations were current.

Articles were identified through targeted searches in academic databases and institutional repositories, including platforms such as Google Scholar, using combinations of relevant and specific keywords, e.g. "upskilling and reskilling," "job redesign," "skills ecosystem," "skills-first," or "business transformation," and the keyword, "Singapore." Titles and abstracts were screened to identify potentially relevant studies, followed by full text review of shortlisted articles. The main criterion of this structured narrative review was to examine contextually-relevant articles that focused on worker training, skill development, job redesign, wage-productivity linkages, and labour transformation. However, sources were excluded if they focused exclusively or primarily on countries other than Singapore; were in languages other than English; or their evidence lay outside the selected review period of 2015–2025.

The approximately 70 articles eventually selected were then grouped thematically to highlight key insights and policy implications. The following broad themes and strategies emerged: worker training and skills development; job redesign and work organisation; wages, productivity, and transformation, underpinned by the Labour Movement's potential in advocacy and policy influence, partnering with companies in job redesign and business transformation, and driving worker participation as they are at the heart of companies. As many of the themes and findings are connected and interrelated, and may at times be conceptually nested, they are examined and discussed separately for analytical clarity.

Worker Training and Skills Development

Broadly, the literature on worker training and skills development is extensive, with many analyses focusing on Singapore's Continuing Education and Training (CET) ecosystem, especially Singapore's SkillsFuture movement. For context, 2025 marked the 10th anniversary of the SkillsFuture movement, launched as a national initiative in 2015 to promote lifelong learning and skills development in Singapore. In collaboration with SSG and WSG, Singapore's Civil Service College (2025) launched a special issue of *ETHOS*¹ to reflect on 10 years of the national movement.

¹ *ETHOS* is a publication of Singapore's Civil Service College. It aims to provide thought leadership, insight, and context on a range of public policy issues of interest to Singapore. It is circulated to the policymaking community in Singapore as well as a select international readership.

As labour market dynamics became increasingly shaped by rapid technological change, job fragmentation, and evolving employer demand, it became evident that a qualifications- and role-based system alone was insufficient to ensure workforce agility. This prompted growing attention to a skills-first approach, which places skills at the centre of workforce planning, hiring, progression, and transformation. On 10 October 2025, the Institute of Adult Learning (IAL), in collaboration with SSG, launched the Centre for Skills-First Practices to elevate skills-first practices in Singapore. To catalyse dialogue, surface fresh perspectives, and encourage co-creation of practical solutions to advance a skills-first ecosystem, IAL released several working papers spanning systemic, individual, organisational, policy, and ecosystem dimensions. These examined structural inefficiencies constraining a shift towards a skills-first economy (Gog et al., 2025); what individuals could do to manage their career planning and upskilling to thrive at rapidly-transforming workplaces (Tay et al., 2025); and how employers could journey towards a skills-first organisation (Ong et al., 2025). Subsequent papers further articulated the policy architecture and impact pathways required to institutionalise skills-first across industrial, labour, and skills policy domains (Ho et al., 2026), as well as the collective actions and coordination mechanisms necessary to routinise skills-first behaviours across enterprises and individuals (Lim et al., 2026).

Beyond IAL's literature, Singapore's CET ecosystem is well covered in the academic literature. In the light of the Forward Singapore movement, Loh and Yeo (2024) provided an overview of developments in the SkillsFuture movement, detailing how innovations in the skills ecosystem were shifting lifelong learning to a higher gear and enabling greater ownership of one's skills and career health. To be nimble and adaptable enough to support the timely reskilling and upskilling of Singapore's 2.5 million resident workforce, SSG worked with training, industry, and tripartite partners to better understand what skills Singapore needed as a national workforce. To achieve agility and responsiveness of the skills ecosystem, especially in a dynamic market, SSG made collective efforts with industry leaders, training providers, and skills-tech providers to strengthen the skills demand-supply coordination. Leow et al. (2023a) argued that the effectiveness of Singapore's CET ecosystem lay in its ability to provide accessible, well-coordinated, and stakeholder-aligned provisions, reconciling diverse perspectives to strengthen employability. Fung (2020) wrote that the SkillsFuture movement was a case study on how a nation evolved towards a paradigm of lifelong learning in response to opportunities and challenges brought about by changing job roles and skills, in particular the Fourth Industrial Revolution. As the gap between graduates' skills and industry's needs widened, there was impetus for a robust and responsive CET landscape to support individuals' need to learn throughout life. SkillsFuture played a major role in building a skills ecosystem that cultivated an agile workforce with the skills necessary to contribute to economic growth.

However, this does not mean that there are no areas for improvement. Several papers have noted that take-up rates of SkillsFuture-supported training remained modest (Kim et al., 2021; Wang et al., 2025). For example, through a mixed-method study on SkillsFuture-eligible Singaporean workers, Wang et al. (2025) found that workers appreciated that lifelong learning provided extrinsic benefits in career and skills development, although many faced practical barriers such as time and cost constraints. When making cost-benefit decisions on training, workers faced incomplete or unclear information on course quality, learning outcomes, and career prospects. While learners were intrinsically motivated by personal growth and fulfilment, they were discouraged by psychological barriers such as low self-confidence, particularly when considering course assessments. Both intrinsic and extrinsic motivations played a strong complementary role in training take-up, but barriers could prevent workers from acting on their motivations. Kim et al. (2021) noted that Singapore's lifelong learning policy of SkillsFuture Credit (SFC) had subpar participation rates and other implementation issues including fraudulent claims, and therefore SFC outcomes were not always aligned with policy goals. Their findings showed that, while most respondents were satisfied with SFC, low participation rates were largely driven by structural barriers of time and financial cost, and there existed a mismatch between the government-driven pragmatism rhetoric in lifelong learning and personal aspirations of respondents towards self-development. Both studies identified time and cost barriers to training participation, but differed

in emphasis: Wang et al. focused on individual motivations and psychological barriers, while Kim et al. highlighted policy and implementation challenges.

These participation and alignment challenges are also reflected in system-level benchmarking. In the Skills-First Readiness and Adoption Index jointly developed by the OECD and IAL (Manikantan & Yang, 2025), Singapore ranked 12th among 30 participating economies. While Singapore performed strongly on foundational enablers such as governance and infrastructure, its performance on training usefulness was comparatively weaker. This implies that translating training into application and tangible labour market outcomes remains an ongoing challenge. Strengthening the impact and translation of training into impactful outcomes may therefore require closer alignment between training provision and workplace requirements.

Different areas for improvement have been found in other studies too: Sung and Freebody (2017) argued that, while the historical focus on formal education, both pre-employment and continuing, provides a solid foundation for lifelong learning, potential policy gaps might exist in terms of the humanistic elements of learning, like self-actualisation.

As another example, drawing on findings from a mixed-method study, Yang et al. (2022) investigated training and learning opportunities of workers provided by business leaders in Singapore and found that, despite skills mismatches being the most prevalent form of mismatches according to business leaders, workers with skills gaps were not the top priority group of workers sent for training. Findings showed that there was unequal access to training, implying that more needed to be done. According to a Randstad (2022) survey, only one in four respondents reported that they received training and upskilling opportunities from their employers in the past year, revealing a gap between talent expectations on upskilling and what employers were able to offer. Randstad also reported that 73% of respondents agreed that career learning and development was important, and the top three training programmes that Singaporeans wanted were soft skills (56%), career development (49%), and technical skills (47%). Notably, 87% of respondents wanted to speak to a career coach and understand their future job prospects. This latter finding implies demand for services provided by NTUC's Employment and Employability Institute, WSG, and other career coaching services. Yang et al. (2023) proposed a shift towards sustained, accessible workplace learning, framed around 3Cs—workers' training and learning needs at the Core; training and learning are Critical; and learning must be cultivated in the Community through partnerships with relevant stakeholders. The 3Cs perspective emphasises career resilience, relevant skills development, and shared responsibility among government, employers, unions, and training providers to integrate continuous learning into everyday work and strengthen long-term workforce adaptability.

Non-Professionals, Managers, Executives, and Associate Professionals and Technicians (PMET) Upskilling

In this section, we focus on non-Professionals, Managers, Executives, and Technicians (PMET) upskilling, referring to Rank-and-File workers. Research illustrates that non-PMET upskilling remains uneven. Osman (2023) found that Singapore's non-PMET workers lagged behind their PMET peers in training participation and Ng et al. (2025) found that, even as training participation gaps by educational qualification narrowed slightly, they remained substantial, with degree holders most likely to attend training, followed by diploma holders, Institute of Technical Education certificate holders, and secondary educated respondents, respectively. Lower-educated workers were also less likely to receive employer funding for training, and training intention decreased monotonically among secondary-educated respondents. These participation gaps are particularly significant in the context of a skills-first transition. A skills-first approach seeks to make demonstrated capabilities, rather than formal credentials, the organising logic of labour market mobility. If non-PMET workers remain underrepresented in training opportunities, the shift towards skills-based hiring and progression risks reinforcing rather than narrowing inequalities.

Moreover, recent literature reminds us of the importance of the skilled trades in Singapore, and suggests that, in a world disrupted by AI, once-overlooked skilled trades might actually be an area with stable jobs that could be prioritised in future. In Singapore, a longstanding emphasis on professional careers has overshadowed the value of vocational career pathways (Tay et al., 2025). Thus, upskilling should still be prioritised even in non-PMET jobs, for example, through structured career models and supportive policies. In a case study on the plumbing sector in Singapore, Tan et al. (2023) showed how Career Progression Models (CPMs) could uplift the skilled trades in Singapore that faced ageing workforces and limited training opportunities. Osman (2023) discussed not only existing policy measures to encourage skills upgrading among non-PMETs, but recommendations to make training accessible to as many non-PMETs as possible to encourage higher training participation among them, including customised training that accounted for aspects like their learning styles and need for flexibility in schedules, as well as a non-PMET mentorship scheme. Collectively, research suggests that NTUC should continue advocating for more structured career models and supportive policies for the skilled trades, to continue professionalising these roles and attracting new entrants.

PMET or Graduate Work Readiness

In a world of Artificial Intelligence (AI) and other labour market disruptions, graduates, especially young graduates, now face a challenging and different world of work. For example, Chan (2025), reporting on a graduate employment survey, found that graduates fresh out of university found it harder to find full-time permanent jobs in 2024, with 79.5% of graduates securing full-time positions in 2024, down from 84.1% in 2023. To caveat, those who did find full-time jobs reported receiving slightly higher earnings, with the median gross monthly salary at \$4,500 in 2024, up from \$4,317 in 2023. There is also a decrease in the share of entry-level roles on job postings which signals a shift towards the hiring of more experienced job seekers by employers (Lee & Yang, in press).

To face this changing employment landscape, the literature suggests that training efforts must be tailored both for graduates entering new fields and even for mid-career PMETs. For example, Ng (2023) highlighted the complexity of defining and measuring future graduates' work readiness, with implications for curriculum design and employer expectations. Two practical implications from her findings were that work-ready attributes should be developed before graduates enter the workplace and an experiential and work-integrated education to develop university students' work-ready attributes should be created. As such, organisations should try to create communities of practice so that undergraduates have opportunities to interact and acquire relevant work-ready skills. Lim et al. (2024) provided a broader policy perspective by reviewing Singapore's SkillsFuture programme, noting its role in promoting lifelong learning across demographic groups. Their narrative review pointed to strengths in encouraging continuous education to meet the future of work but also highlighted challenges in equitable access and uptake, which had implications for graduate readiness as well as mid-career training. More generally, Johannis et al. (2022) also critically argued for reforming Singapore's current meritocratic system to support Singaporeans to be future ready, as well as to find purpose and meaning in the future economy.

To ensure smoother school-to-work transitions, there is a need to integrate structured early-career pathways with relevant career guidance, and indeed the Singapore Government had taken steps to address this issue. In 2025, the Graduate Industry Traineeships (GRIT) programme was launched, which can provide meaningful work placements offering valuable industry experience through structured on-the-job training, boosting employability through preparation for full-time job transitions, and a traineeship allowance co-funded by the Singapore Government and the host organisation. More of these traineeship schemes could be implemented and scaled up. These could also be complemented by personalised, data-driven career support that leverages both human expertise and AI-enabled tools. In fact, NTUC launched an AI Career Coach to guide PMETs towards suitable training courses, recommend skills-development pathways, and match them with relevant job opportunities, to enable self-directed learners to upskill effectively and stay

competitive in an AI-driven workplace. Beyond immediate job matching, such career coaching can also support individuals in developing structured career-skills-learning plans that align personal aspirations with evolving industry needs, strengthening longer-term employability within a dynamic labour market.

Collectively, the literature suggests that existing interventions may benefit worker groups unevenly. PMETs, especially graduates, may be better positioned to access structured pathways such as traineeships, career guidance, and AI-enabled tools. In contrast, non-PMET workers may face lower participation in training and less employer support, and mature workers and caregivers may benefit less where training and job redesign are not sufficiently adapted to later career transitions or their flexible work needs. These patterns point to the continued importance of NTUC's integrative role within Singapore's tripartite system in helping ensure that training and transformation efforts remain inclusive and responsive to diverse worker needs.

Workplace Learning and Innovation

One common theme that emerged strongly was the importance of workplace learning to employees as well as employers. Billett (2023) argued that innovation should involve workers directly, with everyday work serving as a platform for skill upgrading, and therefore workplace learning was relevant to enterprise transformation. Bi and Boo (2025) presented empirical evidence from nearly 2,000 Singaporean workers showing that informal workplace practices such as peer learning and learning from mistakes were especially powerful for developing critical core skills. This suggested that unions and employers should value not only structured training, but also everyday learning embedded in work routines.

Workplace learning is connected with supervisors' support and companies' leadership. For example, Lee (2025) examined employees' perception of their supervisors' training support and its relationships with their training transfer motivation, training transfer, change readiness, and job satisfaction. From a convenience sample of 297 working individuals who attended CET courses in Singapore, results revealed that perceived supervisor's training support directly and positively predicted training transfer motivation and job satisfaction. Training transfer motivation, in turn, directly and positively predicted training transfer, change readiness, and job satisfaction. Lee's study highlighted the pivotal role of supervisor support in enhancing employees' motivation and ability to transfer training into the workplace. It is therefore crucial to equip supervisors with skills and resources to effectively engage employees in training and facilitate training transfer to drive both individual and organisational growth. As another example, Tan et al. (2021) also found a positive correlation between transformational leadership and innovative employee behaviour: workers tended to be more innovative when their leaders modelled innovation and provided support and encouragement.

It is important for employers to play a part in training and skills development, as they are a major stakeholder, as well as beneficiaries of more productive workers. Leow et al. (2023b) undertook an exploratory investigation to understand how employers perceived provisions of CET offered through tertiary education institutions and how improvements might be made. Overall, 40 employers from a range of industry sectors in Singapore were surveyed and interviewed about effective CET for their employees. Leow et al. found that employers reported preferring one-on-one training in the workplace and being willing to invest in their employees' training so long as employees remained committed to their companies. Employers valued online education, but preferred that it was combined with workplace or face-to-face learning experiences. They considered effective CET trainers as those with relevant industry knowledge and teaching skills, and effective CET learners as those who were self-motivated, goal oriented, and open-minded.

Collectively, the research underscores the Labour Movement's important role in advocating for participatory approaches to workplace learning. Taken together, the literature suggests that workplace learning, supported by supervisors and positive workplace cultures, can help workers apply newly-acquired skills in their daily work, making it easier for firms to implement job redesign and improve productivity. Supervisors play an important role and employers need to cultivate a

culture where they encourage and support training as well as model good behaviours, including innovation. Given that the Singapore Government supports the national training ecosystem and promotes fair and respectful workplace practices, it is clear that the tripartite partners each have a part to play towards advancing these efforts.

Role of Mature and Senior Workers Given Population Ageing and Slowing Workforce Growth

Much of the existing literature has focused on demographic trends and the wider social, health, and policy implications of population ageing, which is to be expected (Chen et al., 2023; Straughan & Tan, 2023).

In 2024, NTUC, in partnership with the Singapore University of Social Sciences and Tsao Foundation, conducted a multi-methodology research study to paint a picture of Singapore's future industry-specific labour force profile and identify key strategies to mitigate the impact of an ageing population and slowing workforce growth (NTUC & Tsao Foundation, 2023). NTUC placed strong emphasis on enhancing the employability of older workers, including championing workplace flexibility, skills upgrading programmes, and funding schemes. However, for industries where there was a persistent manpower shortage, automation or expanding existing automation strategies could be explored, with NTUC's role to facilitate older workers' employability.

Seidmann et al. (2023) studied older workers' skills mismatches. They presented results of the qualitative phase in a 2-year project that aimed to identify emerging skills, skills gaps, and training barriers among older persons in Singapore's workforce and offered recommendations to policymakers to better support upskilling and reskilling among employees aged 55 and over. Qualitative data revealed skills mismatches resulting from the implementation of technological innovation in daily tasks, in the retail, food services, and precision engineering sectors. Learning barriers among older workers included accessibility to training, mindset and attitudes towards reskilling, fear of technology, and training applicability. Recommendations to policymakers included practical solutions to enhance accessibility to course lists and career coaches; identify opinion leaders among older workers and company managers; closer collaboration between employers and training providers for better follow-up and needs assessments; and utilise andragogical theory for training design.

A study by the Ministry of Trade and Industry (2022) found that older workers are likely to accumulate human capital as they age, which in turn enables them to command higher hourly wages, especially if they stay within the same firm. Second, a deterioration in health conditions can negatively affect older workers' ability to remain in employment, as well as to maintain their wage levels, likely reflecting a reduction in productivity at work. Third, transitioning into partial retirement, the availability of flexible work arrangements, or having the option to work as own-account workers or employers, can potentially allow older workers to flexibly adjust their hours worked without a decline in hourly wages. Finally, there is some evidence that the re-employment age has been effective in encouraging older workers to continue to work until 67. In other words, the four channels by which ageing impacted labour market outcomes were through human capital, health, preferences for retirement, and job characteristics.

Going forward, more research attention could be given to the employment experiences, workplace contributions, and manpower implications of mature and senior workers in Singapore.

Job Redesign and Work Organisation

Job Redesign in Sectoral Contexts

Job redesign to make better jobs for workers, whether by making them easier, safer, smarter, or faster, has been an important tool for companies, and on a broader scale, industries and sectors. The Singapore NTUC supports business transformation and job redesign by partnering

companies through the Company Training Committee (CTC) initiative and funding support through the CTC Grant, which provides co-funding of up to 70% for companies that have formed CTCs for their workforce and business transformation, to implement plans that will lead to better worker and business outcomes, including wage increases and structured career pathways. Before the CTC initiative was officially launched in 2019, there had already been existing interest in job redesign and strengthening career pathways, for example, from in-house designers in service sector organisations like banks and hospitals that had their own design teams (Chua & Lee, 2019); union calls to enhance incentives for job redesign initiatives in NTUC's Budget 2015 recommendations; and the development of SkillsFuture's sectoral Skills Frameworks that mapped out career pathways and job roles across key industries. The construction sector is no stranger to job redesign and training as well. The government-initiated Multi-Skilling Scheme, as exemplified by Gao et al. (2018), incentivised firms to develop the competency of experienced workers in multiple aspects of construction work. They argued that such redesign required union engagement, industry standards, and institutional support.

There have been different examples of fairly successful job redesign efforts through CTCs that have benefitted workers cited in the literature in various sectors in Singapore. For example, Tan et al. (2023) provided an example of redesign and Operations and Technology Roadmapping efforts within the plumbing sector, where restructuring roles and progression paths were necessary for long-term sustainability. Complementing these sectoral and union-led efforts, IAL has also undertaken work transformation pilots with organisations in the manufacturing and healthcare sectors, that adopt a structured task-based methodology for job redesign, focusing on deconstructing roles, identifying opportunities for augmentation, and reconstructing higher-value work aligned with evolving skills needs. This reinforces the link between job redesign, skills development, and enterprise transformation (Yang et al., 2025). The growing prevalence of job redesigning pursuits within multiple sectors in society underscores the importance of union engagement, industry standards, and institutional support for effective and sustainable outcomes for workers and companies. According to NTUC (Yeo, 2025) the outcomes from successful job redesign through CTCs include more than 3,600 CTCs formed with partner companies, with more than 500 of these companies utilising the NTUC CTC Grant for business and workforce transformation, and this has led to strong worker outcomes: impacted workers received an average wage increase of 5% above their annual increment; career development through structured plans; and/or skills allowances.

Well-Being and Working Time

One emerging area in the literature on work organisation in Singapore is mental well-being, which is gaining traction in Singapore. In a first-of-its-kind study conducted by NTUC in partnership with IAL, Toh and Sheng (2025) investigated burnout prevalence among workers in Singapore and how job demands and resources could impact workers' subjective well-being, including comparing the well-being of workers in Singapore compared to those in OECD countries to inform the development of targeted interventions. Significantly, survey data from 2,000 workers showed that burnout affected 43.7% of those surveyed. Those most susceptible to burnout are younger workers in jobs with high intensity and complex tasks, and workers doing excessive overtime work. Having good physical and mental health, and social support among married individuals, are resources that can moderate burnout experiences. Various solutions to burnout were highlighted, for example, the critical need for supervisor support; structural workplace changes including time pressure reduction alongside efficiency-focused systems that can alleviate work duties; and a supportive work culture.

Various other well-being initiatives, including sustainable workloads and the concept of a 4-day workweek, were also studied in the labour literature. On the one hand, Bajaj et al. (2023) highlighted tensions between employee well-being and business viability. This adopted the employers' viewpoint as the authors were from the Singapore National Employers Federation (SNEF), arguing that businesses needed to sustain output if a 4-day workweek were to work. On the other hand, Ang (2025) explored how some firms are experimenting with the 4-day workweek

as a mode of work organisation innovation, to reimagine how Singapore's work culture could change, providing concrete examples of how job redesign is being trialled in Singapore, showing both the potential benefits (well-being, attraction, and retention) and the challenges (maintaining output, adjusting tasks/schedules). Notwithstanding, job redesign efforts need to strike a balance between employers' and employees' needs, balancing productivity with sustainable workloads.

Inclusion and Diversity in Job Redesign

The success and effectiveness of job redesign efforts hinge on whether such efforts extend to all groups of society. Certain vulnerable social groups, such as ex-offenders, part-time workers, and individuals with mental health issues, ought to be taken into account in job redesigning initiatives. For example, Tay (2023) called attention to groups often excluded from redesign and transformation efforts that could potentially have benefitted them, focusing his paper on ex-offenders. In tackling employment challenges faced by ex-offenders, NTUC had been and remains dedicated to expanding the pool of inclusive employers, improving job retention rates, and fostering career progression. Facilitating long-term rehabilitation needed the support of tripartite partners and the broader community to collaborate and play their part. Second, Straughan and Tadaï (2016) explored the exclusion of part-time workers by asserting that job redesigning with respect to more flexible working arrangements only applied to full-time employees. Third, Shahwan et al. (2022) maintained that individuals with mental health conditions continue to face stigma in hiring practices due to the stereotypes and assumptions surrounding them. Therefore, inclusivity initiatives are crucial from a labour perspective.

Research by the Singapore Management University (2025) found that 45% of older caregivers in Singapore continue working full time while managing caregiving responsibilities, and 57% are women. While the study did not directly examine upskilling or adaptation to evolving job demands, the dual burden it documented suggests potential constraints on caregivers' ability to participate in training or career development, highlighting a risk of exclusion, if workplace and training systems do not account for caregiving intensity. These findings imply that inclusive job redesign should integrate flexible work arrangements and structured caregiver support, while skill initiatives may need to provide modular, self-paced training, and digital literacy programmes to help caregivers remain employable without compromising care responsibilities.

However, even for initiatives aimed at improving inclusivity, Lee et al. (2017) cautioned that such strategies must be carefully designed, well-structured, and properly implemented, lest they backfire and become demeaning, for example, to those with disabilities. The Labour Movement has a role in ensuring that redesign incorporates appropriate inclusion. Therefore, Singapore's NTUC must continue with its important role in advocating for even more inclusive job redesign approaches and ensuring that such changes genuinely address the actual needs of marginalised groups.

Business Transformation to Uplift Productivity and Wages

Progressive Wage Model

Many studies examine Singapore's Progressive Wage Model (PWM) closely. Unlike the conventional national minimum wage implemented in many countries like Australia, New Zealand, Germany, and France, Singapore has adopted a novel approach to protecting low-wage workers. The PWM was first proposed by NTUC in 2012, under the leadership of former NTUC Secretary-General Mr Lim Swee Say. It was an amalgamation and culmination of programmes over the years, such as the Skills Redevelopment Programme launched in 1996; the Job Re-Creation Programme in 2005; and the Inclusive Growth Programme and other initiatives. According to Peng (2019), the Singapore Government identified specific sectors with high concentrations of local low-wage workers and developed a PWM for these sectors, instead of mandating a common

conventional national minimum wage. Each PWM features ascending job tiers with corresponding wage increases to encourage upskilling and career progression among low-wage workers.

Peng and Phang (2018) succinctly summarised the PWM as an avenue that balanced wage increments for employees with productivity improvements for employers. Ng et al. (2018) highlighted the importance of tripartite coordination in curating different occupational rungs and accompanying wages for each sectoral PWM. They also observed that the PWM had prompted several restaurant owners to redesign jobs and invest in technology to reduce labour costs while maintaining or improving productivity. In short, the PWM model aligns with NTUC's broader efforts to uplift low-wage workers while encouraging business innovation.

Looking at the growing scope and impact of the PWM, Ho (2023) demonstrated how wages tied to skills and productivity could incentivise training and job redesign. One of Osman's (2023) recommendations to encourage skills upgrading among non-PMETs was to expand the PWM and make it compulsory so that a larger number of non-PMETs could benefit from a structured career and training pathway. He reflected that the root of the issue was how much Singaporeans were willing to pay for the true cost of quality services and support fair wages, which would involve recognising that each worker and trade had their own valuable, unique contributions to society.

However, it should be noted that, while PWM has received widespread attention, the close and newer concept of the CPM that was introduced by NTUC in 2023 received relatively limited attention in the literature. Yee and Kang (2025) and Tan et al. (2023) showed how CPM could uplift the skilled trades in Singapore. The Ministry of Manpower (MOM) announced in 2026 at the Committee of Supply debates that a memorandum of understanding had been signed with the Specialists Trade Alliance of Singapore to embark on a pilot to uplift the electrical trade, to develop initiatives for tradespeople, including apprenticeships and a more structured career and skills progression ladder (Tan, 2026). Beyond formal progression pathways, Tay et al. (2025) also suggest that promoting trade-based entrepreneurship and building supportive ecosystems—such as mentorship networks, professional associations, and platforms to market services—could further enhance the attractiveness and status of skilled trades. One area of future research could be to study the impact of MOM's career progression pilot and what lessons could be learnt and adapted to scale up efforts to support other skilled trades, beyond the electrical trade. While the CPM did not appear to gain traction initially in the literature, this may change in future.

Structural Pressures

The structural pressures of the external economic environment both globally and locally, leading to retrenchments and unemployment, still feature in the labour research, implying that proactive business transformation and job redesign need to happen before companies face future challenges. For example, Seah and Tan (2024) looked at retrenchment trends in Singapore and provided macro-level evidence of vulnerabilities in the labour market. Retrenchment trends highlighted the need for proactive training and redesign, as well as robust support systems for displaced workers. This paper strengthened the case for NTUC to act as both buffer and enabler during transformation, and suggested that financial assistance for involuntarily unemployed individuals would help them in their job search. Kim and Wang (2024) also added to the literature on unemployment effects. Noting the absence of unemployment insurance in Singapore, they analysed the immediate impacts of unemployment and found that retirement and self-employment rates increased, while life satisfaction decreased as a result.

However, the SkillsFuture Jobseeker Support Scheme was announced shortly after by MOM as part of Forward Singapore, implemented by WSG from April 2025 for citizens aged 21 and above, offering eligible involuntarily unemployed individuals temporary financial assistance of up to S\$6,000 over 6 months while they engage in structured job-search and training activities. It could be argued that the scheme was a result of NTUC's advocacy and push for unemployment insurance to support jobseekers. Calls for such support had been raised in Parliament since 2014 by Labour Member of Parliament Patrick Tay, who had consistently highlighted the need for unemployment assistance to help displaced workers, particularly PMEs and mature workers,

during job transitions (NTUC, 2024). This advocacy was reinforced through the joint NTUC-SNEF PME Taskforce, whose recommendations were published in 2021. The report advocated for unemployment support and benefits to support PMEs who are involuntarily unemployed, especially mature workers as they may need more support and time to return to the workforce after losing their jobs (NTUC & SNEF, 2021).

Indeed, in turbulent times with precarity surrounding the stability of jobs and employment, the Singapore Government has proven to be a reliable pillar of support to workers. Yip et al. (2021) illustrated this by examining the various government strategies to mitigate the negative effects of the COVID-19 pandemic (2020–2023) on the economy. Policies to support and provide financial assistance to lower and middle-income workers who experienced unemployment or were put on no-pay leave included the COVID-19 Support Grant and the Temporary Relief Fund. As for working employees, the government remained committed to expanding upskilling opportunities through schemes such as the SGUnited Jobs and Skills Package. The government's insistence on prioritising upskilling during economic downturns affirms Istiak's (2022) argument that cultivating a skilled and adaptable workforce can effectively cushion the detrimental impacts of economic uncertainties.

The Labour Movement's Potential

Advocacy and Policy Influence

By linking insights from the various themes to wider policy debates, the Labour Movement can be better informed and have empirical backing to advocate for holistic, industry-relevant, and customised upskilling programmes, especially for vulnerable groups.

Although NTUC can push for reforms, the Singapore Government also has a role to play. For example, to improve lifelong learning take-up, Wang et al. (2025) recommended lowering practical barriers to training by further addressing cost and time constraints. Curating high-quality information on course quality and prospects, supported by career or skills coaching, will help with choice. Psychological barriers may be reduced by minimising stressors such as assessments, while supporting personal fulfilment-based training may create spillovers for career-oriented training, given the complementarity between both motivations. Developing a self-directed learning mindset from young, while encouraging adults with behavioural nudges, may help bridge the gap between training intention and action. As another example, Ang (2025) added to the evidence base that work organisation innovations (like compressed workweeks) are being considered or trialled, and NTUC might be able to advocate for pilot programmes, safeguards, and frameworks to ensure that such innovations and job redesigns do not degrade worker outcomes while concurrently maintaining business performance.

NTUC can also push for stronger alignment between training investments and wage progression, ensuring returns for both workers and firms. Especially in the context of a skills-first transition, NTUC's role extends beyond advocating greater training participation. As a tripartite partner working closely with both workers and enterprises, NTUC is well placed to help align skills development with job redesign and business transformation efforts. Through platforms such as CTCs and sectoral engagement, NTUC can surface on-the-ground skills gaps, encourage structured progression pathways, and support more effective skills utilisation at the workplace.

By facilitating social dialogue and partnership, NTUC can also contribute to embedding human-centred approaches to technology adoption, ensuring that transformation efforts strengthen rather than narrow opportunities for workers. In this intermediary and integrative role, the Singapore Labour Movement supports a more coherent and inclusive skills-first ecosystem, where training, work design, and wage progression are more closely aligned.

Partnering in Job Redesign and Business Transformation

From the research, it is clear that the Singapore Labour Movement has many strengths that can be tapped into. For example, Seah (2025) reviewed the NTUC Job Security Council and argued that the ecosystem could be strengthened with technology and consolidate resources to support job redesign and business transformation; skills upgrading; and placement and progression. Indeed, it is the case that NTUC has been able to partner companies more closely in job redesign and business transformation, for the benefit of workers. Tan and Liw (2022) explored how NTUC, through CTCs and the broader, integrated NTUC ecosystem, continued to achieve its core purpose of advancing workers' interests while helping companies to meet their business outcomes.

As seen in sectoral examples, unions are well-placed to negotiate job redesign that can protect worker well-being while supporting business transformation.

Driving Worker Participation in Training and Skills Development

Many articles on workplace learning and innovation stress the importance of worker involvement in change. NTUC can amplify this by embedding the workers' voice in transformation strategies, for example, through the CTC concept.

Many studies clearly demonstrate that driving worker participation in workplace learning can nurture positive outcomes in terms of greater productivity, innovation, and overall performance. Tan (2024) reported a positive relationship between workplace learning and stellar employee performance. Tan and Sim (2022) demonstrated the significance of workplace learning in cultivating Small and Medium Enterprises employees' innovative capabilities by linking greater participation in workplace learning to increased initiation, application, and continuation of innovation in work practices. Companies can also drive worker participation by giving employees greater autonomy. Yang and Lee (2024) found that employees with greater autonomy and ownership are more motivated to explore opportunities and pursue initiatives to innovate. Beyond providing ample avenues for workplace learning and allowing more employee autonomy, Yip et al. (2024) brought to attention the importance of employees' well-being and asserted that employees with good mental well-being tended to be more productive, creative, innovative, and collaborative, contributing more meaningfully to the company. Bi and Boo (2025) argued that learning on the job, such as learning from experience or receiving guidance from experienced coworkers, was a more effective form of learning compared to structured training workshops. They stressed that a collaborative workplace community was crucial for fostering critical skills and development.

Collectively, the literature suggests that NTUC requires close collaboration with employers, institutes of higher learning, and government agencies, as we drive worker participation in training and skills development, including through the vehicle of CTCs.

Constraints for the Labour Movement

While the Labour Movement can champion and facilitate initiatives related to training, job redesign, and business transformation, its ability to translate research insights into impactful workforce or workplace change may still be shaped by broader institutional and labour market conditions. First, within Singapore's tripartite system, NTUC works alongside the government and employers, so progress in areas such as training, job redesign, and workplace transformation often requires their support, consistent with the principles of the tripartite model. Second, as NTUC works with employers to implement training and job redesign initiatives, worker outcomes may vary across sectors and firms depending on operational contexts and organisational readiness. Third, worker participation in training may remain uneven due to practical and behavioural factors noted earlier in the literature. Taken together, these considerations suggest

that NTUC may need sustained engagement, coordination, and continued advocacy to help translate policy intentions into practical workplace outcomes.

Concluding Reflections

In conclusion, training and skills development, job redesign, and transformation are interdependent and interrelated. Without training and skills development, redesign fails; without redesign, transformation stalls; without transformation and rising productivity and company growth, training becomes irrelevant. Through academic and grey literature, as well as practitioners' perspectives papers, this review examined both theory and practice, including ground perspectives. The Labour Movement's unique position allows it to integrate these different levels of perspectives into practical strategies for supporting workers across sectors.

There is also great scope for greater empirical research into new structural, organisational, and individual-centred areas that would benefit Singapore workers.

- For example, some structural areas could be studying how a skills-first ecosystem would look like and how it could lead to better alignment of training and jobs. After all, this area is relatively newer in the academic literature and could benefit from research questions such as:
 - How might a skills-first approach reshape hiring practices, job design, and career pathways within Singapore's labour market?
 - To what extent can a skills-first ecosystem improve alignment between training provision and employer demand for skills in Singapore?
 - What institutional arrangements or policy mechanisms would be required to operationalise a skills-first ecosystem within Singapore's tripartite system?
- Some organisational areas could be how companies could support potentially vulnerable groups of workers like caregivers returning to work or offer ground-level insights into the impact of redesigning jobs for workers in transition like fresh graduates entering their first careers, or mature or senior mid-career workers. Some potential research questions could be:
 - What organisational practices most effectively support workforce participation among caregivers returning to employment?
 - How do job redesign initiatives affect career entry outcomes for fresh graduates and career transitions for mature or senior mid-career workers?
 - What role can Singapore's NTUC and the Labour Movement play to encourage employers to support or enable effective workplace learning and on-the-job training?
- Some more individual, worker-centric areas could include studying specific vulnerable worker segments like persons with disabilities or studying worker self-identity and psychological motivations that promote or support training and skills developments, to strengthen inclusivity and meeting real needs on the ground. As such, some potential research questions could be:
 - What psychological and behavioural factors influence workers' willingness to participate in training and lifelong learning?
 - How do workers from vulnerable groups, such as persons with disabilities, experience workplace training and job redesign initiatives?
 - What incentives or support mechanisms most effectively encourage sustained worker engagement in skills development?

In the final analysis, Singapore's tripartite approach to training, job redesign, and transformation has positioned its workforce for resilience amid rapid change, like the rise of AI

and automation. Yet continued success requires deeper understanding through empirical research across structural, organisational, and individual dimensions. By integrating ground perspectives with scholarly insights, the Labour Movement can bridge policy and practice, ensuring that transformation remains inclusive, human-centred, forward-looking, and responsive to diverse needs, considering Singapore's ageing population and various worker segments, like caregivers and mature workers. A systematic review of emerging studies and global comparisons will also help identify enduring principles and guide adaptive strategies, enabling Singapore to sustain competitiveness while advancing worker well-being and lifelong learning in an evolving economic landscape. It is only through evidence-based, empirical research, and understanding the latest developments in the evolving landscape that Singapore's NTUC can continue advocating for and supporting every worker for better wages, better welfare, and better work prospects, because every worker matters.

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PRACTITIONERS' INSIGHTS



Shaping Rewards for Tomorrow's Workplace

Fermin Diez and Jia En Kenneth Woong

Abstract

Employers are reimagining compensation and benefits amidst rapid changes in work, technology, and workforce expectations. Traditional one-size-fits-all pay models and job evaluation systems are increasingly ineffective in addressing employees' needs for personalisation, skills development, and well-being. Drawing on recent research and practice, this paper provides practitioners' insights into the future of rewards. We argue for a shift beyond performance-based pay toward linking compensation to skills and career growth, adopting flexible and inclusive pay strategies for contemporary workforces, and positioning well-being and benefits as strategic differentiators. By balancing external competitiveness with internal equity through improved pay transparency, employers can create sustainable and motivating reward systems.



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Introduction

In recent years, academics and practitioners alike have begun to conceptualise how the future of work would be, where various factors—such as demographic ageing, changing family structures, evolving social expectations of fairness and inclusion, and rapid technological advancements—are likely to impact employment and the way employers manage their workforce (Kraus et al., 2023). Researchers have also sought to examine the future of personnel practices, such as employee selection (e.g. Aparna & Kumar, 2025; Rajoli & Manoharan, 2025). As a result, there has been growing interest in state-of-the-art interventions such as job redesign for hybrid and remote roles, the expansion of flexible work arrangements (FWAs), and the integration of digital collaboration tools to sustain productivity and engagement (Gomes et al., 2025; Hamouche, 2021). Specifically, employers increasingly perceive the need to engage their employees across work design, well-being, development, and rewards to support sustainable performance and foster a supportive organisational climate to reduce turnover intentions (Gomes et al., 2025). However, there remains limited evidence that guides practitioners to re-examine compensation models which are increasingly influenced by the external environment (Dulebohn & Werling, 2007). This is especially since some employers, mainly in North America and Western Europe, have scaled down their use of traditional job evaluation methods, and switched to market pricing and other external benchmarking to determine pay levels (Armstrong & Brown, 2018; Lim et al., 2016). The use of such traditional job-based reward systems, which typically compare internal relationships among jobs and their relative value to the organisation, may be increasingly obsolete in the face of the changing business environment (Diez, 2024).

Emerging trends—including demographic shifts such as ageing workforces and dual-earner households, social shifts such as rising expectations for fairness and inclusion, and technological advancements that enable remote and platform-mediated work—have reduced the effectiveness of conventional one-size-fits-all pay models in terms of critical employee outcomes such as engagement and productivity (Martin, 2023). Recent academic reviews have also identified performance-based pay and pay transparency as areas requiring closer examination in light of their potential effects on employee motivation and fairness (Arnold et al., 2023; Fulmer et al., 2023; Fulmer & Shaw, 2018), while labour organisations and international bodies have raised related concerns about wage inequality, social protection, and the transparency of reward practices (International Labour Organization, 2021).

As a result, employers must thus review their pay strategies—to meet the employees' expectations of personalised pay, enhanced well-being, and emphasis on career development—while balancing cost pressures faced by the employers (Bravery & Ryan, n.d.; Nadeem et al., 2024). This is further coupled with the increased attention on, and prevalence of, gig workers over the past decade (e.g. Friedman, 2014; Kuhn & Galloway, 2019; Nica, 2018). These workers have traditionally been excluded from the provisions of conventional employee benefits, such as workmen compensation and retirement benefits as well. Yet, these individuals are increasingly comprising a larger proportion in the workforce.

As a result, we believe that employers must create pay packages that would effectively motivate and engage their workforce. This paper seeks to contribute practical insights into how employers can redesign compensation systems to remain competitive, equitable, and sustainable in the future of work. Specifically, we assert the need to pay employees based on both skills and performance, strengthen protection for the long-term sustainability of gig workers, integrate employee wellness as a holistic rewards strategy, and embrace pay transparency at work. We suggest that such pay strategies are likely to increase the overall effectiveness of rewards in attracting, retaining, and motivating for employee performance at work. In this paper, we adopt the definition of “total rewards” provided by Milkovich et al. (2016) as the holistic package of base pay, variable pay, benefits, and non-financial recognition that employees receive from their work.

Additionally, we aim to provide some case studies gathered from both local and multinational enterprises who have effectively reconceptualised their rewards philosophies and practices in light of the future of work. We pay particular attention to two groups of workers whose experiences

stress-test legacy pay models: remote workers in global teams, and gig workers at the margins of standard employment. These groups highlight how new models of labour and work can outgrow traditional reward structures, with important implications for both employers and policymakers if rewards systems do not keep pace.

Beyond Performance Pay: Linking Rewards to Growth and Skills

With the diverse workforce in contemporary workplaces, individuals may differ in terms of their motivational needs about the various components of their pay packages. The notion of flexible pay has thus since been conceptualised in the literature, where organisations may redistribute compensation dollars based on individual preferences (Schuster, 1972; Weather, 1976). This is because the traditional one-size-fits-all approach could be perceived as rigid by employees. Instead, the perceived autonomy granted by flexible pay plans may intrinsically motivate employees and drive better work outcomes as well (Dysvik & Kuvaas, 2011; Muecke & Iseke, 2019). Shopify, a Canadian e-commerce organisation, had since implemented flexible compensation in view of cost pressures and changing market conditions. Employees were allowed to reallocate among various components of financial compensation offered based on their individual needs and preferences (Warren, 2022). For instance, employees who anticipate a greater need for medical attention may seek to reallocate a proportion of their monthly basic salaries for enhanced medical coverage. This had reduced the need for the organisation to engage in workforce downsizing (The Business Times, 2022), which may consequentially result in declined morale and engagement issues of the survivors (Armstrong-Stassen, 1994; Woong, 2024).

However, we acknowledge that employers may be concerned about managing compensation costs and equity across such varying pay packages. This is especially since labour costs are projected to increase and firms may be pressured to engage in pay cuts and downsizing strategies to improve their market competitiveness (Conerly, 2024; Matthews, 2021). Such pressures are contrasted with the employees' expectations of merit increases, yet these may not necessarily result in motivating for improved pay satisfaction nor better performance (Campbell et al., 1998; Pearce et al., 1985; Salimäki & Jämsén, 2010). Furthermore, there remain concerns with the conventional performance-based pay plans, such as:

- The use of subjective assessments in performance appraisals (Gerhart, 2017), which may give rise to perceived inequity in resulting distribution of rewards; using subjective performance assessments can weaken the perceived link between effort and rewards, especially when performance criteria are not clearly defined or communicated, leading to perceptions of arbitrariness in merit decisions (Trotter et al., 2017);
- Limited motivational impact of the use of extrinsic rewards, as opposed to intrinsic motivation which is more sustainable (Deci, 1971; R. Singh, 2016). Extrinsic rewards may have limited motivational impact when employees perceive them as small, unpredictable or unrelated to what they personally value, which can reduce the intended incentive effect of performance-based pay (Kuvaas et al., 2020);
- Employees' perceptions that managers practiced favouritism in allocating rewards among team members (Lowery et al., 1996). These perceptions of manager bias when allocating performance ratings and pay increases can undermine trust in the system, and damage perceptions of distributive and procedural fairness (Colquitt, 2001);
- Employees who compare the effort and outcomes that they receive relative to other co-workers in the workplace may instead be demotivated from work as opposed to what such incentive plans were intended for (Larkin et al., 2012). Specifically, such comparisons—especially when pay differences are visible but not well explained by leaders—may fuel dissatisfaction and demotivation, even when absolute pay levels are competitive (Festinger, 1954; Nickerson & Zenger, 2006);

- Perceived wage inequality by individuals from different demographic groups at work (Gittleman & Pierce, 2014). This perceived inequality can erode organisational commitments to diversity, equity, and inclusion when employees believe that structural biases in performance ratings and pay-setting processes remain unaddressed (Homan et al., 2020); and
- Overall resistance to change by the individual employees may arise when there is a change in business strategy and performance standards (Schay & Fisher, 2013). Resistance to change may arise when business strategies and performance standards are revised but employees are not given a clear rationale, adequate support or sufficient time to adapt, causing changes in pay outcomes to feel arbitrary rather than strategy-driven (Kotter, 2012).

In practice, flexible pay designs can be layered on top of, or alongside, performance-based plans: flexible pay reallocates how the total package is delivered across components, while performance pay determines how much is awarded based on results.

Notably, all these factors may limit the motivational effects of performance-based plans on the employees. Thus, employers must re-evaluate the feasibility of continuing the use of such pay plans.

Nonetheless, we do not intend to undermine the importance of extrinsic rewards as a motivator for better performance. Instead, we contend that performance-based incentives may be effective in motivating for better performance, when employees perceive fairness in performance evaluations and in determining the size of these incentives (Eskew & Heneman, 1996; K. L. Scott et al., 2008).

In addition, we propose relating pay increases to skills and competencies development, rather than relying mainly on tenure or last year's performance rating. In our usage, skills-linked pay suggests that an individual's position within a pay range reflects the critical and scarce skills which they have demonstrated effectively in their roles, beyond compensating individuals for their tenure and seniority in the organisation. Performance-based bonuses may then continue to be used to reward for performance outcomes, while skills-linked base pay will recognise individuals for their capability and better ensure sustained employability. Connecting skills acquisition to visible pay progression provides employees with a clearer economic reason to invest in learning, addressing a common concern that training efforts often fail to translate into better wages.

Implementing skills-linked pay in practice requires at least three building blocks. First, employers need to develop an agreed skills or competency framework which clearly identifies the capabilities which are mission-critical to the organisation. Second, practitioners must develop skills assessment tools, beyond self-reporting measures which may suggest room for biases and inflationary ratings. Third, the skills information needs to be integrated with existing, mostly job-based market data so that pay ranges remain competitive. For many organisations in Asia, employers may opt to use skills data to better inform movement within existing pay grades and ranges, rather than attempting a wholesale shift to a pure skills-based pay architecture. This is more likely to boost receptivity and acceptance by the employees, and their representatives as well.

Individuals who have performed well and demonstrate strong potential for further development in the organisation should be awarded higher pay raises than their peers. Specifically, the use of "development zones" embedded in pay grades will allow new hires to be placed at the lower end and individuals will gradually progress further as they develop their capabilities further at work. These zones refer to dividing salary grades in three or four segments, reserving the higher segment for those employees who are ready now for a promotion, and subsequent lower zones according to the skill sets or promotion readiness of employees, whereby the lowest segment is for those new on the job and still developing skills, or for those who, even after enough time on the job, have not proven capable of developing the necessary skills to perform the job adequately. Placement and movement between zones should be informed by performance calibration sessions, talent

reviews, and discussions about succession plans, beyond annual merit cycles, and the criteria for moving across zones should be clearly defined and calibrated to minimise bias.

Such practices will complement succession planning initiatives and allow employers to better retain and develop identified individuals for critical positions in the organisation (Traynor et al., 2021). As a result, leaders could potentially observe prolonged employee tenure and improved employee productivity at work (Samoilenko & Stukalina, 2024).

Compensation in a Hybrid Work Environment and a Gig-Driven World

Over the past decades, employers may observe increasing numbers of employees who work internationally which requires special consideration to compensation issues (Maley et al., 2020; Sims & Schraeder, 2005; Suutari & Tornikoski, 2001). For instance, employers faced pressures to balance standardised plans with the needs of a heterogeneous workforce (Warneke & Schneider, 2011). Complexity of these issues is further aggravated with the increased employee preference for FWAs, which is largely driven by the pandemic and technological advancements (Felstead & Henseke, 2017; Haan & Holznienkemper, 2023).

With remote work, global employers today ponder about the need to differentiate pay based on the geographical location where such employees are based at. Some companies, such as Google, have introduced location-based pay calculators that adjust salaries when employees relocate to lower-cost areas, sometimes resulting in pay cuts for those who move away from major cities (Reuters, 2021). Other employers have moved towards more location-agnostic pay models, keeping salaries constant regardless of where employees live, and argue that this supports attraction, retention, and diversity (Biu & Grimaldi, 2021; Christian, 2022). In practice, employers are experimenting with different approaches, and each model has implications for perceived fairness, cost, and the ability to hire and retain talent across locations.

Specifically, in Singapore, some HR practitioners have questioned the need to continue to pay their remote employees for travel allowances, which were initially intended to reduce such commuting expenses incurred by their employees while working in physical offices (Choo, 2021). Whilst employers may prefer to eliminate these payments to reduce costs, evidence from remote work studies suggests that employees are sensitive to perceived losses in their overall package, and may view the removal of allowances without clear justification as unfair (Charalampous et al., 2019; Şentürk et al., 2021). When pay satisfaction issues are further coupled with perceived threats to career advancement and feelings of isolation at work, studies have found that employee well-being and engagement can deteriorate, which in turn is associated with lower productivity (Charalampous et al., 2019; Şentürk et al., 2021).

In addition, the rise of the gig economy has also posed questions about how employers may utilise this talent pool for their business activities (Arunprasad et al., 2022; Kuhn et al., 2021). There remain questions about the relevance of traditional HR practices today, how employers should seek to manage them ethically, and to build positive relations at work (Brocq & Hughes, 2023; Connelly et al., 2021). Currently, the identified concerns for these workers will be their access to affordable healthcare, disability insurance, financial risk exposure due to variable income, and retirement plans. Thus, employers must consider new ways to build a positive work culture, maintain overall pay equity, and drive effective performance in the organisation. Some of such practices may include the adoption of fair pricing models, contribution to retirement funds, provision of support for caregivers, and strengthening the capabilities of these workers (Tay et al., 2025).

In Singapore, gig workers, who include freelancers and self-employed individuals, represent a growing yet underserved segment of its workforce. Recent research by the National Trades Union Congress (NTUC) highlighted shared pain points such as income volatility, lack of access to portable benefits and limited opportunities for skills development across diverse freelancers and self-employed groups (Tay et al., 2025). These findings reinforce the need to consider how reward and protection mechanisms can better support such workers over the life course. It is useful to distinguish between professional freelancers performing PMET-type work and rank-and-file gig

workers in sectors such as delivery and private-hire driving, as their baseline earnings, their exposure to risk, and their relative bargaining power with service buyers are likely to differ, which may suggest that policy and employer responses may thus need to be differentiated.

Well-Being and Benefits as Strategic Differentiators

New forms of work and more FWAs, including remote and hybrid roles, have reduced some barriers to entry for previously under-represented worker groups such as caregivers, some persons with disabilities, and older workers. Consequently, today's workforce is more diverse in life situations and, as a result, workers may differ in how they value the various components of their pay packages.

As the composition of the workforce changes, a strategic approach to designing and managing employee benefits is needed for better talent attraction and retention (Milkovich et al., 2016). As asserted by G. Lim et al. (2016), a challenge for employers today is to effectively manage the growing costs of benefits and position employers' offerings to achieve the strategic goals of the organisation. This is especially critical, given the wide array of benefits offered today—including healthcare plans, retirement benefits, work-and-family benefits, tuition reimbursement (Dulebohn et al., 2009). Scholars have concurred that in addition to fairness perceptions that result from benefits communication (Laundon et al., 2019; Williams, 1995), the motivational impact of benefits on work-motivation also varies across individuals of differing demographics (Dencker et al., 2007; Hong et al., 1995).

Therefore, employers must seek to understand the dynamic needs and preferences of their employees whilst ensuring that their benefits remain externally competitive in the market. In recent years, there has been a growing emphasis on mental health of employees at the workplace (Khalid & Syed, 2024). However, we contend that individuals' health extends beyond mere mental health and includes physical and social well-being at work (World Health Organization, n.d.). Yet only a small proportion (19%) of employers are strategically investing in the well-being of their employees, and this oversight adversely impacts productivity and performance (Whiting, 2025). From a rewards perspective, this implies that financial security and benefits design are part of worker well-being, alongside support for mental, physical, and social health, and that total rewards should be managed as a key lever for organisational well-being rather than only as a cost item.

As a result, we propose that employers should consider the following points when they redesign their benefits offerings:

- Lifestyle benefits may be offered to address the individuals' wants. Examples include tuition assistance, wellness programmes, mobile allowances, and birthday leave (Goh, 2017). Easing employee access to amenities and the outdoors is more likely to encourage increased levels of employees' physical activity and sense of connectedness at work (Srivastava et al., 2024).
- Employees who desire more benefits, in addition to their existing benefits, may be subject to an adjustment to the financial compensation received (White, 2014). This is a feature of flexible benefits, which has only one-third prevalence among Asian employers (A. Singh & Tan, 2022).
- Social programmes at work may be introduced to allow individuals to build positive workplace relationships with their peers, communing with their managers, and reconnecting with their family (Farrell & Geist-Martin, 2005). This is especially since some work events, such as loneliness and violence at the workplace, may adversely impact the quality of sleep and physical health of individuals at work (Magnavita & Garbarino, 2017).
- As wellness programmes were found to reinforce institutional norms of stress in the workplace, changes in workplace behaviours may be necessary to integrate wellness

into the everyday fabric of organisational life (Goetzel et al., 2014; Harrison & Stephens, 2019).

Overall, the flexibility of such benefits programmes should be maintained. This may be achieved in several ways, and it depends on the budget availability, creativity, and the degree of complexity that the organisation desires to fulfil the needs and aspirations of its diverse workforce.

Growing Importance of Pay Transparency

In recent decades, academics and practitioners have debated about the need for improved pay transparency at workplaces and its disadvantages today (Colella et al., 2007; Cullen & Pakzad-Hurson, 2023; Pallister, 2023). Proponents argue that greater visibility of pay ranges and decisions can reduce unexplained wage gaps, strengthen perceptions of fairness, and support better alignment between pay and contribution (Avdul et al., 2023; Gutierrez et al., 2025). Critics caution that transparency may increase administrative complexity, fuel envy and poaching, and contribute to wage compression if managers feel constrained in differentiating pay, especially when performance measures are ambiguous (Arnold et al., 2023; Hartmann & Slapničar, 2012). In practice, many employers are experimenting with intermediate approaches such as publishing pay ranges while keeping individual pay details confidential.

Based on Aon's Asia Pay Equity Survey 2023–24, more than 75% of surveyed employers globally cited increasing importance of pay transparency in the region (Ha, 2024). This has been cited to be of increasing demand by employees, especially in the current digital age where information about pay is easily accessible online (K. Lim, 2024; Risher, 2014; Trotter et al., 2017). To further contextualise our discussion, we will refer to pay transparency as the practice of employers openly communicating information about pay to both current and prospective employees (Sardar et al., 2023).

Despite high levels of interest, pay secrecy policies remain prevalent among employers and wage discussions at the workplace remain a taboo (e.g. Ang & Tan, 2024; Rosenfeld, 2017). While there remain concerns about pay transparency in Asia (Masige, 2024; Scott et al., 2020), it is important to reconsider the position that practitioners adopt. This is because the lack of pay disclosures by employers was found to result in adverse impact on minority groups (Caulfield, 2021). Furthermore, empirical evidence has shown that pay secrecy adversely impacts job attitudes of the employees, such as increased perceptions of inequity, reduced job satisfaction, and job performance is affected (Bamberger & Belogolovsky, 2010; Belogolovsky & Bamberger, 2014; Futrell & Jenkins, 1978; Smit & Montag-Smit, 2018).

As a result, we propose that employers consider the following points for an effective transition to embrace pay transparency at the workplace:

- The shift towards pay transparency must be done in gradual phases and in a systematic manner—where managers should begin by assessing the current position of the organisation, deciding its desired end-state, and monitoring the implementation process for potential risks to its workforce (Heisler, 2021).
- As compensation is typically used to differentiate between various levels of performance, managers should be cautious about delinking pay from performance in its entirety (Arnold et al., 2023; Avdul et al., 2023). Productivity and performance are more likely to increase when employees are informed about the potential for pay raises as a result of their contributions and when it is communicated clearly (Gutierrez et al., 2025).
- Managers must clearly communicate the evaluation criteria used to assess performance and provide opportunities for their employees to understand how merit decisions are made (Trotter et al., 2017). Perceived fairness of the process by which pay is determined can moderate the relationship between pay transparency and employee motivation at work (Hartmann & Slapničar, 2012).

- Employers should invest in building manager capability for pay conversations and in using analytics to monitor pay equity and unintended consequences over time, so that increases in transparency are accompanied by robust governance and support.

Conclusion

While some of such reward approaches remain less prevalent in practice today, leaders will be increasingly pressurised to reform their compensation models as workforce expectations shift, work-life boundaries are increasingly blurred, and focus increases on skills-based employment. Organisations which modernise their compensation systems will be better positioned to compete for skilled talents, reinforce fairness perceptions, and motivate for improved performance at work.

Specifically, our recommendations aim to reshape employment relationships in contemporary organisations. First, the increasing emphasis on skills-based pay and employee well-being will reward and motivate employees to enhance the relevance of their skillsets and promote sustainable employment in the organisation. Second, these changes further demonstrate management's commitment to employee development, promoting fairness, and rewarding meritocratically in the workplace. Third, the integration of employee wellness in total rewards strengthens the employers' support for diverse needs of their workforce and promotes sustained performance at work. In sum, these recommendations are likely to offer greater support for both traditional and gig workers, better position organisations in the competition for skilled talents, and promote equity and fairness in the workplace.

Ultimately, the future of rewards remains to be explored through the coordination between both employers and their employees. We do not intend to document mere mainstream ideas of rewards, but offer evidence-based design principles that organisations are able to pilot, adapt, and scale within their own contexts and culture. By embracing skills-based progression, promoting transparency in rewards, and considering the holistic wellness of employees, organisations will be better able to build rewards systems that are fair, motivating, and better aligned with the future of work.

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Recognising Contributions, Sharing Communities: Public Attitudes and Practical Considerations on Migrant Worker Integration in Singapore

Ryan Patrick Pai

Abstract

Migrant workers (MWs) are an important part of Singapore's national fabric, contributing to the country's development. Yet, within this diverse workforce, those employed in the construction, marine shipyard, and process sectors often remain largely invisible to the public. In recent years, public recognition of their role has grown. Against this backdrop, this study adopted a mixed-methods approach, drawing on an online survey of 200 respondents and 15 qualitative interviews to assess ground sentiments towards MWs and related policy considerations. The findings indicate that most respondents recognise the essential contributions of MWs and are generally comfortable sharing public and neighbourhood-level spaces with them. However, support becomes more cautious when policies involve higher personal costs or close residential proximity to MW dormitories at the block level. This suggests that while symbolic acceptance is relatively strong, practical and economic considerations may continue to shape Singaporeans' attitudes. These findings offer insights for practitioners and policymakers seeking to strengthen community-level integration in ways that are responsive to public comfort levels and grounded in Singapore's social context.



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Introduction

Migrant workers (MWs) are important to Singapore's economy, filling essential roles that underpin the nation's continued growth. According to the Ministry of Manpower (MOM), there were about 1.59 million foreign workers in Singapore as of June 2025 (MOM, 2026a), a significant figure considering the country's overall population of about 6.11 million. Among them, around 460,000 workers are Work Permit holders in the Construction, Marine Shipyard, and Process (CMP) sectors, a group that forms the backbone of Singapore's infrastructure and industrial output.

Unlike Employment Pass holders, who represent mobile skilled foreign professionals, this paper focuses on MWs, particularly Work Permit holders in the CMP sectors, whose temporary labour cycles reflect different workforce dynamics and integration considerations. Their transience is reinforced by spatial arrangements: they often live in large dormitories away from residential heartlands, work at sites with relatively limited local interaction, and may spend leisure time in designated Recreation Centres (RCs) for MWs, deliberately designed to maximise operational and logistical efficiency, even as government policies support their well-being within the context of housing, healthcare, and social interaction. Their concentrated living and leisure spaces both contribute to their largely invisible presence in local communities and offer practical opportunities for purposeful engagement initiatives that can foster social connection. This raises the broader question: how can social inclusion be promoted when individuals are transient, yet their presence as a group remains ongoing and integral?

In recent years, MWs' lives have become more visible in Singapore's public sphere, particularly through social media campaigns, mainstream media coverage, and online discussions. Expressions of gratitude appear more prominent (Atmosphere_Calm, 2025; Chua, 2025; Yoko, 2025), although digital conversations also reveal ongoing practical concerns (Malay Mail, 2025; Yusof, 2024) about shared spaces. Against this backdrop of greater public visibility, this study examines whether increased exposure has translated into meaningful shifts in attitudes, comfort levels, and perceived social distance between Singaporeans and MWs.

Methods

This study adopted a mixed-methods design combining an online survey ($n = 200$) and semi-structured interviews to achieve both breadth and depth. It captured broad attitudes among Singapore Citizens and Singapore Permanent Residents on constructs such as gratitude, perceptions of migrant work, comfort, contact, and media exposure. Attitudinal items were primarily measured using five-point Likert scales ranging from "strongly disagree" to "strongly agree," alongside selected multiple-choice and checkbox questions. Where appropriate, indirect framing was employed to minimise socially desirable responses. Snowball sampling was employed, and the survey was anonymous. To complement the quantitative findings, 15 interviews were conducted—10 Singaporeans and five MWs selected purposively for diversity—to explore lived experiences in greater depth. Ethics approval was obtained from the Institutional Review Board of Nanyang Technological University; participation was voluntary; and confidentiality and anonymity were assured for all respondents.

Findings and Discussion

Unless otherwise stated, percentages reported for Figures 1–8 combine "Strongly Agree" and "Agree" responses from five-point Likert scale items and are rounded to whole numbers; totals may not equal 100% due to rounding.

Gratitude and Perceptions of Migrant Work

The survey revealed high levels of expressed gratitude towards MWs and broadly positive perceptions of their role in Singapore. Findings showed near-universal expressions of gratitude (94%, Figure 1) for the work that MWs do in Singapore, with a large majority (91%, Figure 2) agreeing and strongly agreeing that Singaporeans should show greater appreciation for their contributions. A substantial majority (73%, Figure 3) of respondents felt that MWs should be considered part of Singapore's social community. At the same time, support was notably lower (55%, Figure 4) for policies that might entail higher costs for Singaporeans.

Figure 1

Gratitude Towards MWs' Contributions

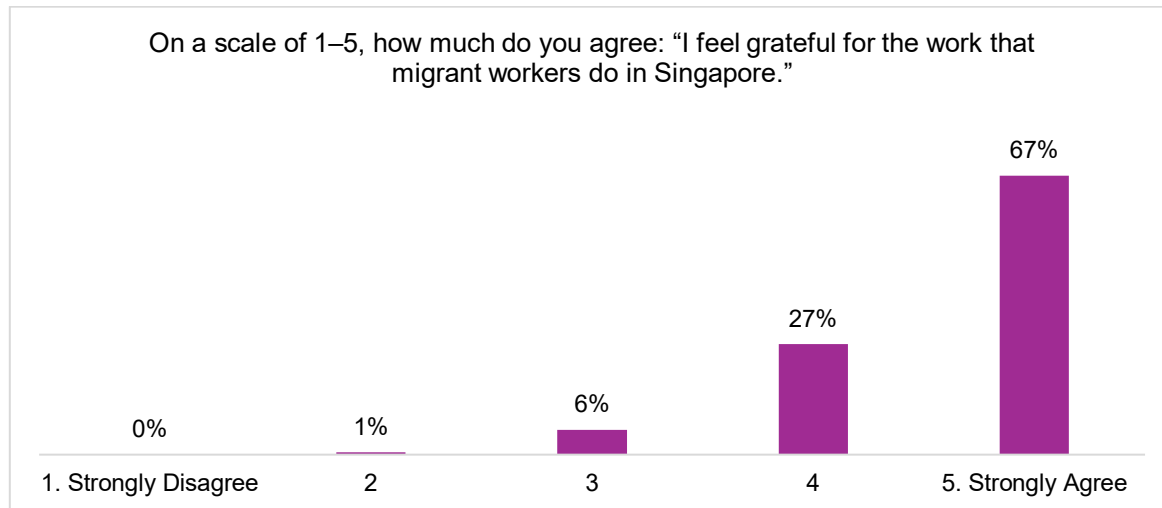


Figure 2

Support for Greater Appreciation

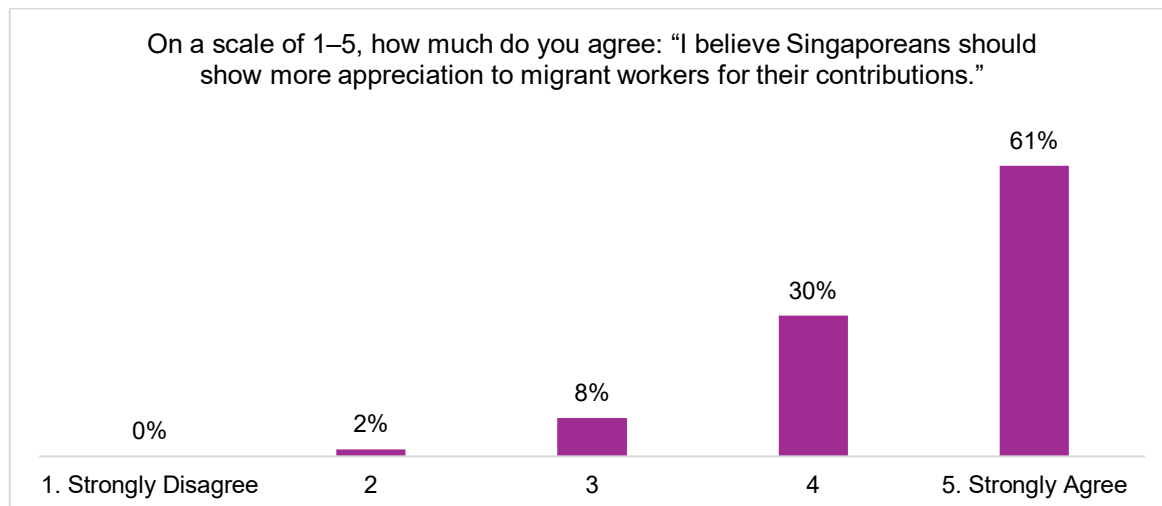


Figure 3

Inclusion of MWs in the Community

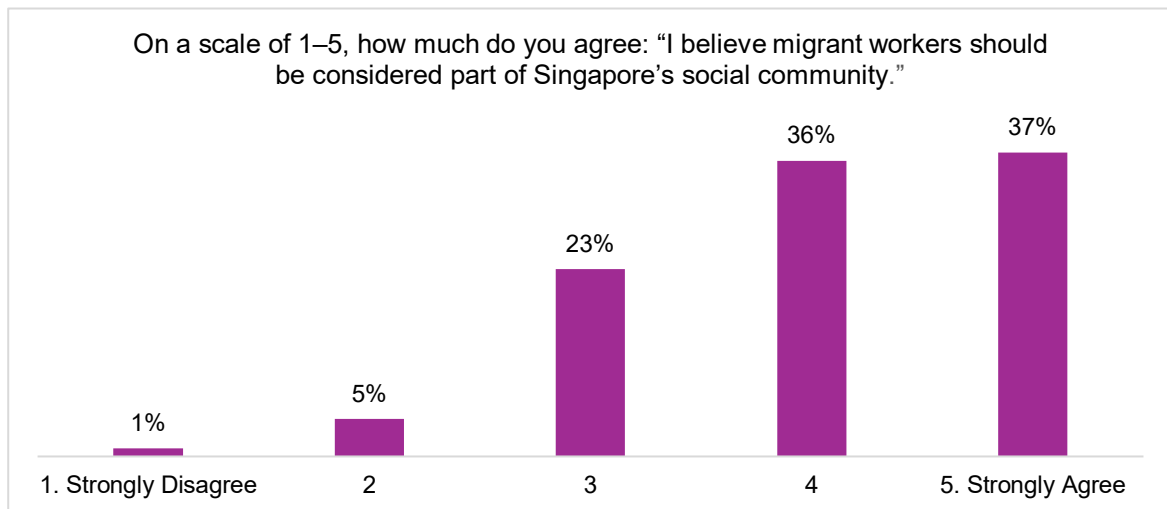
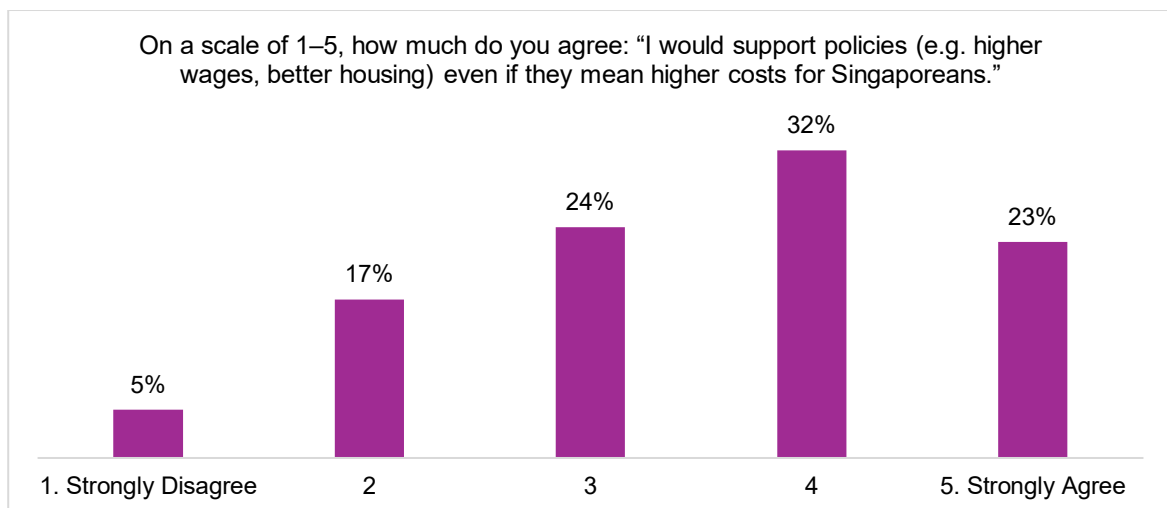
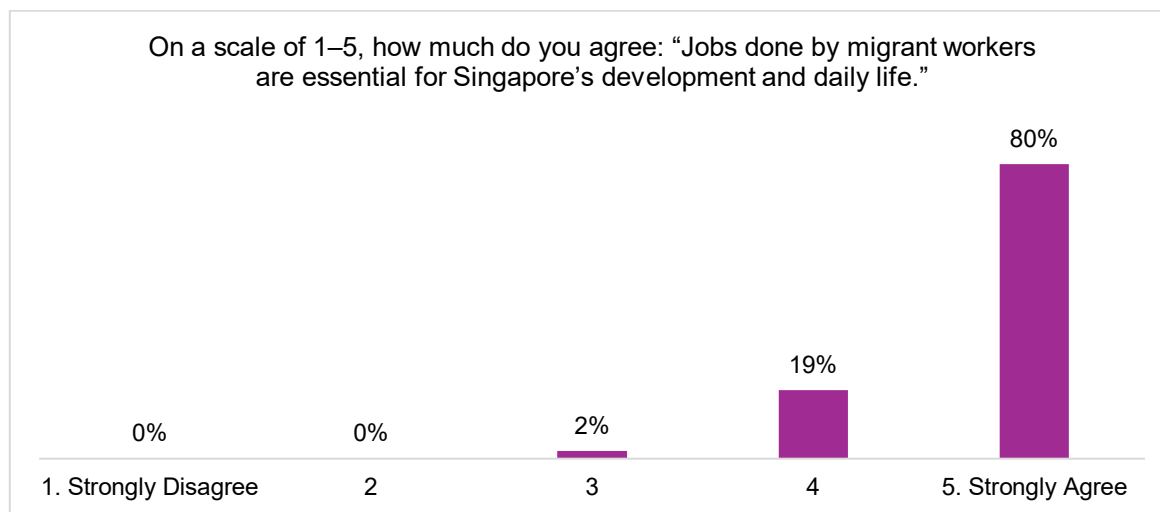
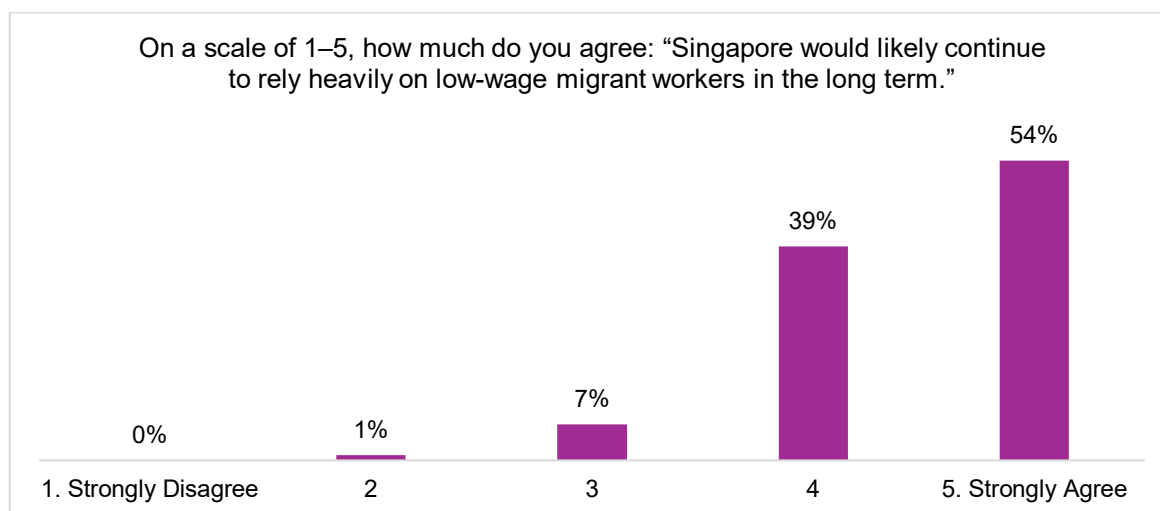


Figure 4

Willingness to Bear Higher Costs



Respondents also overwhelmingly recognised how essential MWs are in Singapore’s development and daily life (99%, Figure 5). Consistently, the vast majority (93%, Figure 6) agreed that Singapore is likely to continue relying on low-wage MWs in the long term, highlighting the perception of the enduring necessity of this workforce.

Figure 5*Perception of How Essential MW Contributions Are to Singapore***Figure 6***Long-Term Reliance on Low-Wage MWs*

Taken together, the results suggest that appreciation for MWs is widespread and grounded in awareness of their economic role but moderated by sensitivity to cost and trade-offs. This points to a distinction between symbolic and material support—a pattern consistent with the value-action gap, where positive attitudes do not straightforwardly translate into concrete backing when personal costs are made salient (Blake, 1999). Importantly, this gap does not appear to stem from ignorance of MWs' contributions, as most respondents demonstrated a clear awareness of their economic role. Instead, it reflects the limits of moral recognition as a driver of material commitment.

Comfort and Proximity

Only a small minority of respondents agreed or strongly agreed with feeling uncomfortable around MWs in public spaces such as parks, hawker centres, and the MRT (15%, Figure 7) suggesting broad openness to sharing public spaces. A majority (67%, Figure 8) also supported MWs having access to the same medical facilities rather than separate ones.

Figure 7

Comfort Around MWs in Public Spaces

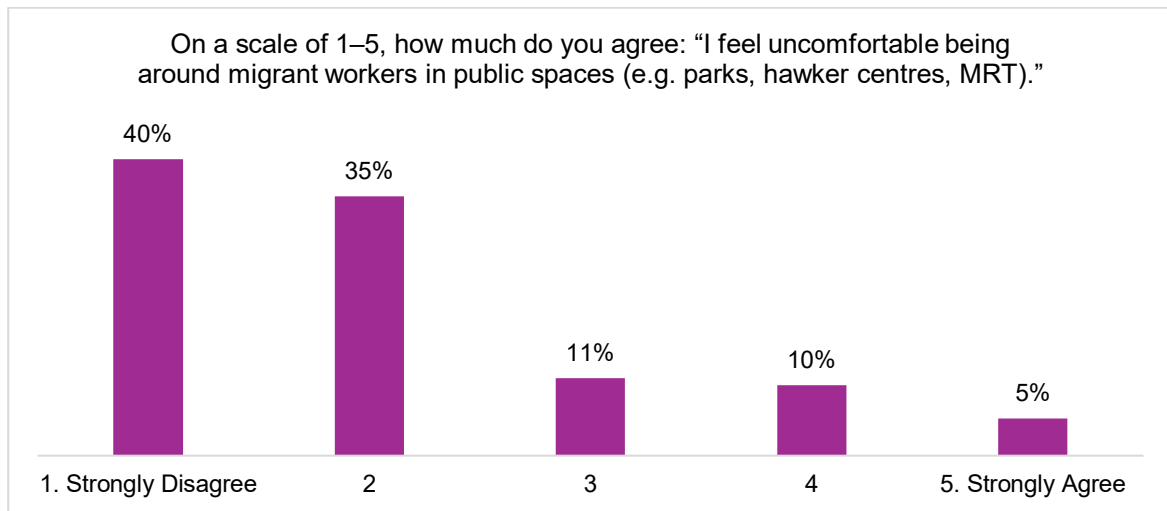
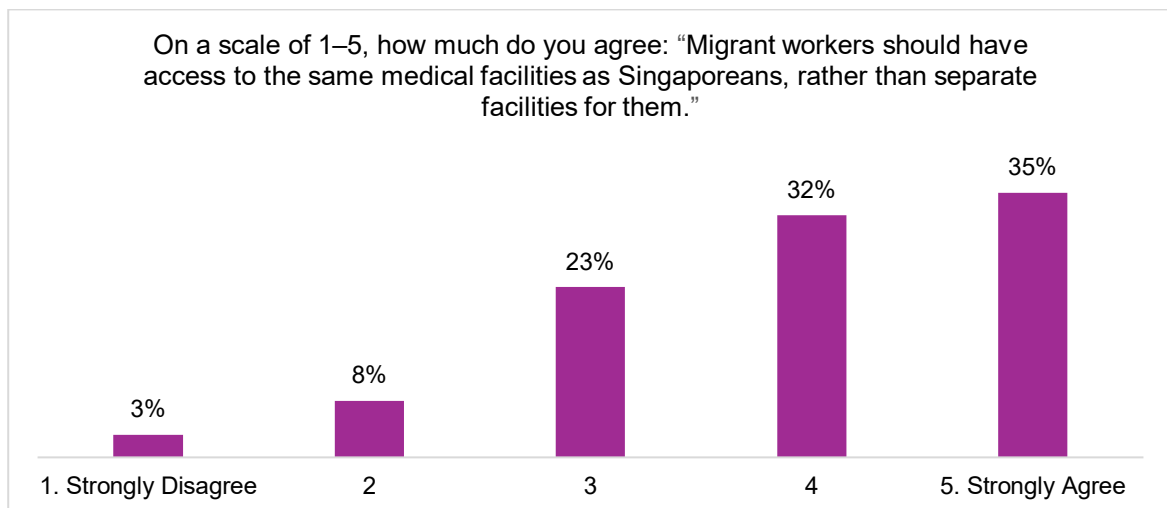
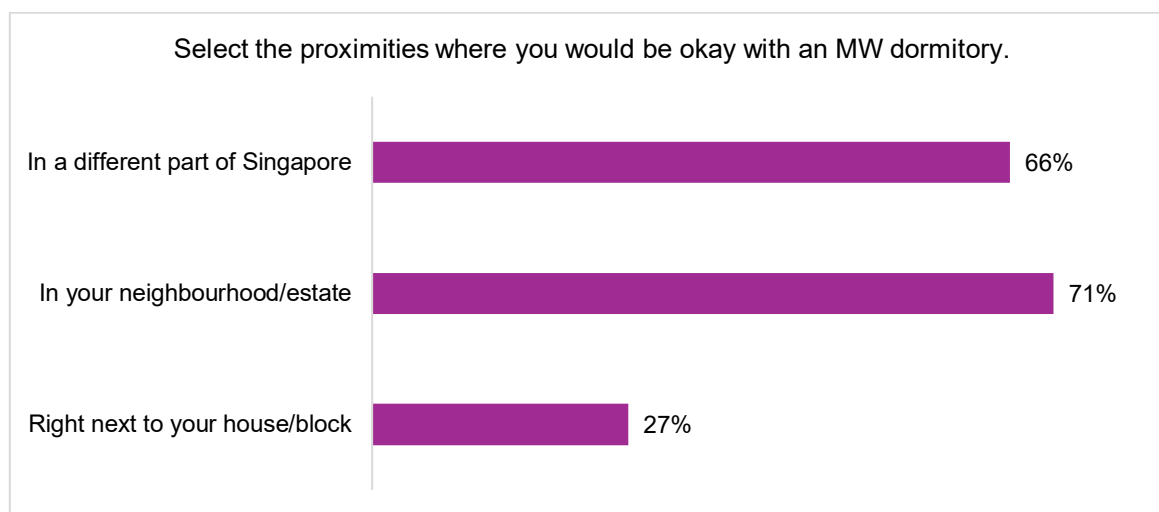


Figure 8

Comfort in Sharing Medical Facilities With MWs



However, when it comes to residential proximity, respondents were more selective. While a majority were comfortable with MWs’ dormitories located within the neighbourhood (71%), fewer supported dormitories adjacent to their block (27%), again reflecting practical limitations (Figure 9). Discomfort was largely driven by pragmatic considerations such as overcrowding, cleanliness, safety, noise, and the sufficiency of facilities and resources.

Figure 9*Acceptable Dormitory Proximity*

These concerns were not only raised by Singaporean respondents but also echoed by MWs themselves in interviews. One MW shared:

Dormitory, they are very noisy. Because there are many people. One family, no sound many many, when five family, sound many many... Our dormitory now currently have the total one thousand men... so one thousand men ah, talking talking very loud... if you build near the city ah... people will feel disturbed right...even the Saturday and Sunday also... sometime men drinking, shouting, throwing rubbish anyhow... many times I see... myself I feel better ah, not very far, not very close.

This perspective mirrors residents' concerns, suggesting that discomfort around proximity is grounded in lived realities rather than pure perception.

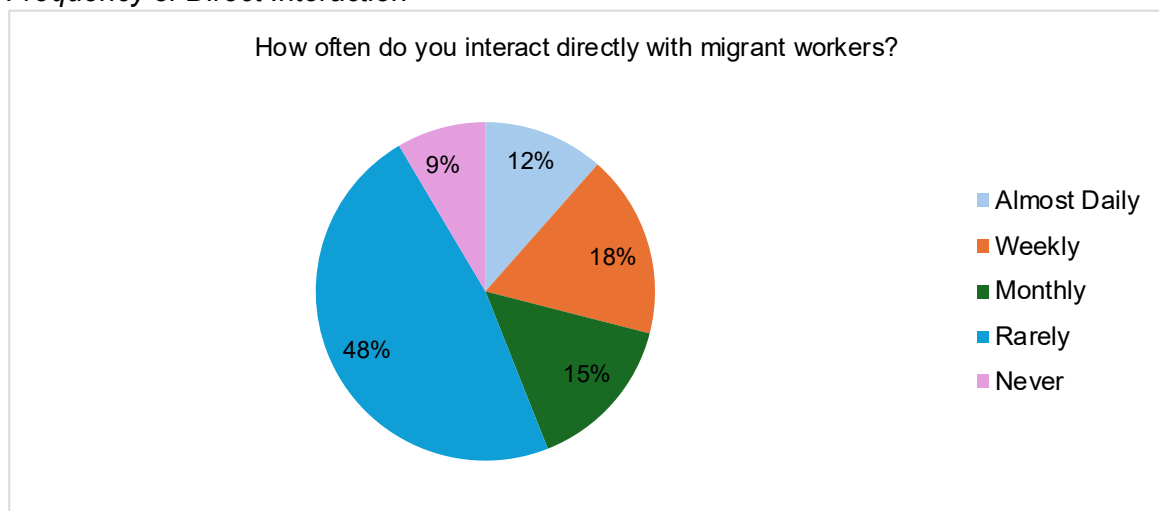
Overall, these findings suggest that Singaporeans are generally open to sharing public spaces with MWs but are more sensitive to immediate residential proximity. Comfort levels appear shaped largely by practical considerations, underscoring the role of thoughtful planning and community engagement in supporting social cohesion. Measures, such as the mandatory Settling-In Programme for non-Malaysian CMP and manufacturing Work Permit holders (MOM, 2025), aim to familiarise MWs with Singapore's social norms, laws, and support systems. By orienting newly-arrived MWs on employment rights, public health practices, and everyday systems, it may help address practical concerns that shape attitudes towards living in closer proximity.

Contact and Experience

While proximity influences comfort levels, the depth of direct contact with MWs also plays an important role in shaping perceptions. The Contact Hypothesis offers a complementary explanation for the value-action gap identified earlier: where meaningful interaction with MWs is limited, support is more likely to remain at the level of abstract goodwill rather than translating into tangible backing (Allport, 1954). Survey results indicate that direct interaction with MWs is relatively limited for most respondents. Nearly half (48%) reported interacting with MWs rarely, while smaller proportions indicated weekly (18%), or monthly (15%). A small percentage of respondents reported never interacting directly with MWs (9%) (Figure 10).

Figure 10

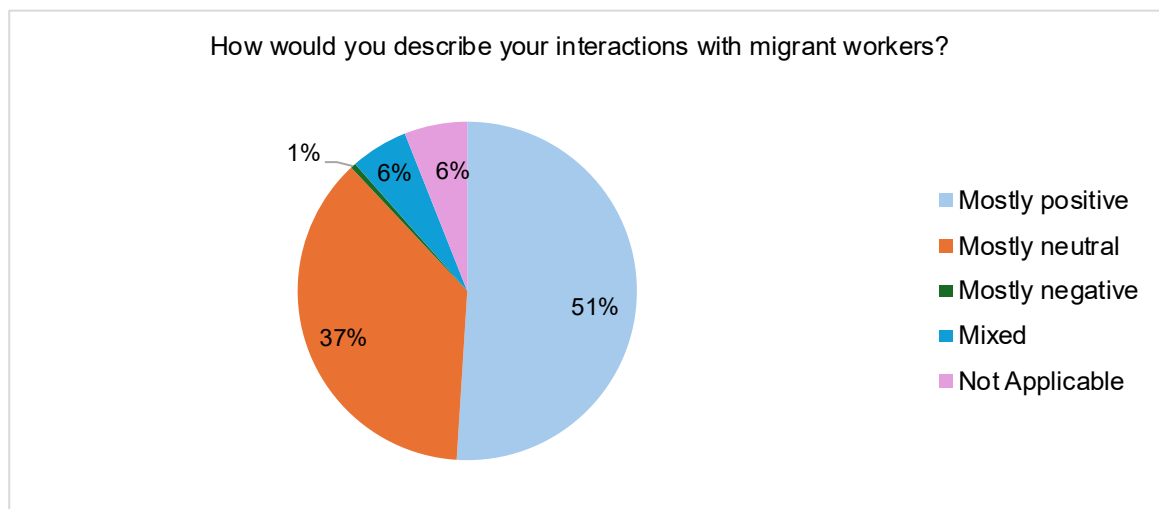
Frequency of Direct Interaction



When asked how they would describe these interactions, most respondents reported mostly positive experiences (51%). A small minority (6%) reported mixed experiences, and an even smaller proportion (1%) described them as mostly negative (Figure 11).

Figure 11

Quality of Direct Interactions



Only a small number of respondents reported knowing MWs as neighbours, colleagues, casual friends, or close friends. Most respondents interacted with MWs in cleaning and other service-related roles. These patterns indicate that Singaporeans' contact with MWs is largely limited to visible, transactional encounters and seldom extends to the CMP sectors. Even within these roles, the frequency and depth of interactions remain low, suggesting that meaningful personal contact with MWs in general is uncommon.

However, interview findings suggest that deeper, non-transactional relationships are possible under the right conditions. Of the five MWs interviewed, one notable exception provides insight into the potential of high-quality engagement. One interviewee described joining a local recreational basketball club in which the majority of his teammates were Singaporeans. He referred to them as his friends and displayed team photographs and other shared activities, reflecting genuine social connection and equal-status engagement. He remarked:

They [Singaporeans] are very good... I go play basketball... they are very kind persons, they are very friendly persons... I have local friends, three of them.

This example illustrates how sustained, informal interaction in shared social settings can foster more meaningful relationships beyond transactional encounters. Building on this baseline, structured engagement initiatives could foster stronger connections and social cohesion, moving beyond transactional interactions towards more substantive relationships.

Considerations and Limitations

While the study provided insights into Singaporeans' expressions of gratitude towards MWs and how these relate to manpower policies and community initiatives, its limitations should be acknowledged. Survey participants were recruited through the researcher's networks, and this convenience sampling may reflect individuals with greater familiarity or exposure to MW experiences. Future research could broaden participation to include a wider cross-section of the general public, including those who may be less familiar with MW communities, and examine more concrete indicators to measure existing initiatives. Such efforts would build on current findings, providing deeper evidence to guide ongoing improvements in fostering meaningful engagement and social cohesion.

Recommendations

Enhancing Government-Led Engagement

The findings suggest that Singapore's current manpower policies and engagement initiatives for MWs generally reflect public attitudes and comfort levels. As such, radical reforms are neither necessary nor advisable. Instead, the goal should be to enhance the depth and quality of engagement within the current ecosystem. The recommendations suggested are thus evolutionary rather than revolutionary, aiming to refine, rather than overhaul, the present frameworks.

To contextualise the recommendations, it is worth highlighting major government efforts that underpin Singapore's approach to MW engagement. Foremost among these many efforts was the establishment of the Assurance, Care and Engagement (ACE) Group under MOM, initially formed during the COVID-19 pandemic to provide **Assurance** to MWs living and working in dormitories (Zheng, 2020).

Post-pandemic, ACE Group became a permanent division, expanding its mandate to deliver **Care** through its extensive presence in dormitories and to enhance **Engagement** with MWs, employers, dormitory operators, and the broader Singaporean community (Ng, 2021). Key initiatives include revisions to the Foreign Employees Dormitories Act to improve living standards and healthcare programmes such as the Primary Care Plan.

Complementing ACE Group's work, the Friends of ACE (FACE) volunteer programme, initially established in 2021, provides on-the-ground support to MWs (Kok, 2021). FACE volunteers help build trust, share timely information, and assist with outreach efforts. With around 1,000 active volunteers across dormitories and housing types, FACE has played a key role in strengthening peer support and bridging communication between MWs, dormitory operators, and MOM.

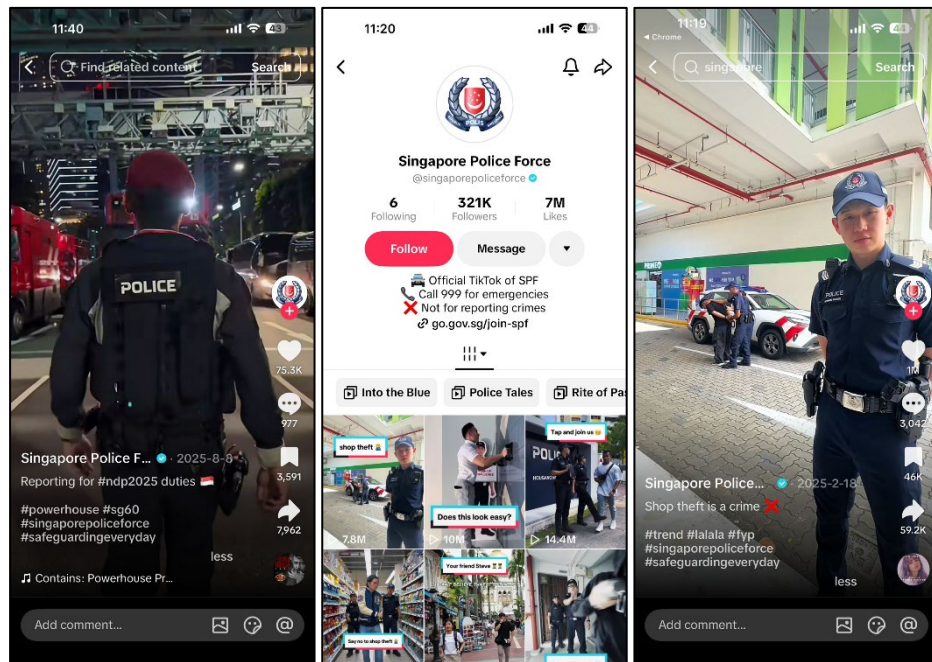
Beyond welfare and support, equally central to MWs' well-being are the spaces where they spend their rest days. RCs have served as one-stop hubs since the first RC launched at Soon Lee in 2009, with expansions following the Little India Riot in 2013 and post-COVID enhancements. Most recently, MOM announced plans to introduce a Recreation Hub model and

pilot satellite RCs to bring recreational options closer to where MWs reside. Notably, Mr Dinesh Vasu Dash, Minister of State for Manpower, acknowledged in his 2026 Committee of Supply speech that physical infrastructure alone is insufficient and what truly makes MWs feel at home is the assurance that Singaporeans accept and appreciate their contributions (MOM, 2026b). This recognition motivates the recommendations that follow, which seek to foster more meaningful social integration between MWs and the broader community.

While these government efforts have made significant impacts to the lives of MWs, their reach in engaging the wider public could be further expanded to inspire greater participation. One avenue for expanding this reach is social media. A stronger media presence, leveraging trends on social media platforms similar to successful campaigns by the Singapore Police Force (SPF) (Goody Feed, 2025; Yang, 2025) and Singapore Civil Defence Force (An, 2024; Ganesan, 2025) would be beneficial. By adopting formats and soundtracks that are already popular on social media, these campaigns benefit from the algorithm's preference for trending content, increasing visibility and the likelihood of going viral. This approach could similarly be adopted by MOM and ACE Group to reach a wider audience and foster public interaction more organically (Figure 12).

Figure 12

Screenshot of SPF's TikTok Profile



While such online content plays a meaningful role in shaping public perceptions and generating positive sentiment, awareness alone is insufficient—sustained, offline engagement is equally critical to bridging the gap between symbolic appreciation and material support. To this end, MOM announced the merger of FACE and the Migrant Workers' Centre Ambassadors into a unified programme (Rashid, 2025), consolidating volunteer numbers and capabilities to expand engagement beyond information dissemination and peer support. While both networks traditionally focus on supporting MWs in their day-to-day challenges, the unified programme can now explore initiatives that bridge MWs and local communities, addressing a gap in regular, sustained interactions.

For instance, the programme could implement monthly engagement sessions at various MW RCs, where small-scale, recurring activities encourage meaningful interactions between locals and MWs. Innovative approaches such as a model where MWs take the lead in preparing and serving their traditional food to local groups (e.g. students or the elderly) can foster reciprocity, break down stereotypes, and encourage mutual understanding in a low-friction, manageable

format. Such initiatives would complement existing large annual events like International Migrants Day, providing consistent opportunities for social cohesion and collective engagement.

Reimagining Non-Governmental Organisation Programmes

Building on these government-led initiatives, Non-Governmental Organisations (NGOs) such as Migrant Workers' Centre, Humanitarian Organisation for Migration Economics, and ItsRainingRaincoats can consider complementing their existing charitable work with programmes that reframe the narrative of engagement, moving beyond traditional charity-focused models to position MWs and Singaporeans as equal participants, fostering mutual learning and meaningful interaction, without compromising their core mandate.

NGOs can strengthen integration by designing activities that actively involve MWs in planning and execution, rather than positioning them solely as beneficiaries. Co-creation programmes (such as communal dinners, heritage tours, festival outings, or collaborative cultural projects) can include locals on a voluntary, self-funded basis, emphasising mutual participation. By involving MWs in shaping these experiences, these initiatives foster genuine interaction and a sense of shared ownership between participants.

Small-scale, recurring activities are key to building sustained relationships, trust, and familiarity over time. Leveraging existing community spaces, such as MW RCs and neighbourhood Community Clubs, NGOs can facilitate regular, low-barrier interactions that bring MWs and locals together in informal, supportive environments. These spaces can host workshops, skill-sharing sessions, or joint recreational activities that encourage repeated engagement and deepen connections. By embedding such initiatives within familiar, accessible community settings, NGOs can reinforce a culture of inclusion and ensure that integration is both meaningful and enduring.

Together, government and NGO initiatives can create a more holistic approach to integration—one that directly addresses the gap between symbolic appreciation and material support by fostering the kind of direct, humanising engagement that translates goodwill into genuine inclusion.

Conclusion

In conclusion, Singaporeans do recognise and value the important contributions of MWs, expressing appreciation for their work and role in society. At the same time, Singapore faces practical challenges such as land scarcity and resource constraints, which are reflected in attitudes and policy decisions. Hearteningly, the preference for total social segregation appears very low, and where concerns arise (such as dormitories located adjacent to residential blocks) they are largely driven by pragmatic limits of shared services and facilities. Existing government and NGO initiatives have already established a foundation of engagement and support. Building on this foundation, the recommendations offered in this study suggest targeted, low-friction refinements to further enhance integration and expand meaningful interactions between locals and MWs.

Beyond these practical insights, the findings underscore the broader importance of fostering genuine social inclusion in societies navigating diversity. In an era increasingly defined by social fragmentation and polarisation, inclusion serves as a counterbalance, upholding trust, empathy, and understanding across communities. Strengthening inclusion is not only a moral imperative but also a cornerstone of societal resilience, ensuring that communities remain cohesive amid widening economic and cultural divides. Singapore's experience demonstrates how managed diversity sustains stability through a calibrated form of integration that aligns with societal comfort levels, offering lessons for other plural societies seeking to foster social cohesion alongside the practical requirements of a densely populated society.

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I would like to sincerely thank all respondents who shared their perspectives, providing the insights central to this study. I also appreciate ItsRainingRaincoats and the Migrant Workers' Centre for connecting me with migrant workers, whose experiences helped contextualise and enrich the findings.

BIOGRAPHY



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Mr Ryan Patrick Pai is Principal Manager at the Institute for Adult Learning, where he drives the implementation of the Training and Adult Educator Professional Pathway (TAEPP). He has spent much of his career in the public service at the Ministry of Manpower, which shaped his interests in manpower policy and public service delivery. He holds a Master of Public Administration from Nanyang Technological University, and his research interests include migrant worker policy, social inclusion, and tripartite labour relations.

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Transforming Healthcare by Leveraging NTUC Company Training Committee Transformation Initiatives and AI Innovation

Steven Tiat Yang Goh, Krist Chengkai Liao, Don Choon Hwee Yap, Wendy Wan Peng Ng, and Bella Ting Lin

Abstract

Singapore's healthcare sector is undergoing a profound transformation driven by the Healthcare Services Employees' Union and the National Trades Union Congress' (NTUC's) Company Training Committee initiatives. Amidst rising challenges such as an ageing population, manpower shortages, and sustainability pressures, unions have emerged as strategic enablers of change. This paper explores how the Healthcare Services Employees' Union, in collaboration with NTUC entities like NTUC Industry Training and Transformation department, NTUC's Employment and Employability Institute, and NTUC LearningHub, has championed workforce empowerment through digitalisation, Artificial Intelligence (AI) innovation, and structured career development. Two key outcomes illustrate this transformation: Project SMART Ward with VitalScout wearables, which streamlined nurses' workflows and enhanced patient safety, and the AI Readiness Index (AIRI), which assessed organisational preparedness for AI adoption and guided targeted upskilling. Through the case study of Ng Teng Fong General Hospital, we highlight the union's pivotal role in driving technology adoption, enhancing job quality, and building a resilient healthcare workforce.



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Introduction

Singapore's healthcare system, while globally recognised for its high quality and efficiency, faces mounting challenges due to demographic shifts and sustainability demands (Ministry of Health [MOH], 2025b). Singapore's population is ageing rapidly. By 2030, around one in four Singaporeans will be aged 65 or above (MOH, 2024). The demand for healthcare services and manpower will continue to increase (MOH, 2025a). In tandem, the healthcare system faces a shortage of manpower (Heng & Ng, 2023; MOH, 2025a).

Healthcare also contributes significantly to global carbon emissions, surpassing shipping and aviation (National University Health System [NUHS], 2024). This makes it a critical player in climate action in terms of achieving green sustainability standards. Singapore's healthcare sector is actively addressing green sustainability challenges, particularly in waste management, energy consumption, and supply chain sustainability (NUHS, 2024).

Accordingly, Singapore healthcare institutions must therefore adapt to ensure both long-term sustainability and manage rising healthcare costs. Expenditure is expected to rise significantly, with projections indicating that government spending could hit close to \$30 billion in Singapore dollars by 2030 (Begum, 2023; Khalik, 2025). To manage costs, Singapore has introduced the capitation funding model under the Healthier SG initiative, shifting healthcare financing from a volume-based to a population-based approach (MOH, 2024). Since April 2023, Singapore's three healthcare clusters have adopted a capitation funding model, where each cluster receives funding based on the age bands of its assigned 1.5 million residents. The rates ensure budgets remain stable or slightly higher than before, and as the population ages, clusters will receive proportionally larger budgets to meet increased care needs (MOH, 2023). While this model promotes preventive care and cost efficiency by incentivising healthcare providers to intervene earlier and upstream to keep patients healthy, challenges remain in ensuring equitable healthcare access, incentives for providers, and long-term sustainability (MOH, 2023).

As Singapore's healthcare system advances, Artificial Intelligence (AI) is emerging as a transformative force that has the potential to address operational challenges and enhance patient care. From AI-powered tools that streamline administrative workflows to predictive analytics that support clinical decision-making, these innovations promise greater efficiency in terms of time, manpower, and cost savings, while offering potentially improved outcomes (CNA, 2024a, 2024b).

However, successful integration of AI requires building trust and promoting digital literacy among healthcare professionals (CNA, 2025). Unions play a critical role in this transition by advocating for workforce upskilling, ensuring fair implementation, and positioning AI as a tool to augment rather than replace jobs—safeguarding employment while enabling healthcare workers to deliver higher-value care.

This is particularly relevant given the high prevalence of burnout among healthcare professionals in Singapore. For example, Tan et al. (2022) found that 71.3% of 6,048 health professionals in Singapore surveyed experienced high burnout in at least one dimension—emotional exhaustion (feeling drained and fatigued), depersonalisation (developing a sense of detachment or cynicism towards patients), or reduced personal accomplishment (feeling ineffective in one's role). Notably, 16.2% were affected across all three dimensions, indicating a severe and pervasive form of burnout that compromises both personal well-being and professional performance. Workers in emotionally demanding roles, such as doctors and nurses, are especially vulnerable (Brotheridge & Grandey, 2002). In this context, AI-powered workload management and scheduling tools can help alleviate administrative burdens, optimise task allocation, and reduce excessive overtime, thereby supporting both productivity and well-being (Henkin, 2023; Toh & Sheng, 2025).

Methods

The Healthcare Services Employees' Union (HSEU), together with various National Trades Union Congress (NTUC) ecosystem entities and the Healthcare Academy,¹ plays a pivotal role in enabling this transformation. Through the Company Training Committee (CTC) initiative, HSEU collaborates with healthcare institutions to support end-to-end transformation initiatives via Operation & Technology Roadmaps (OTRs), AI adoption, and curated training aimed at enhancing workforce transformation and business growth. CTCs are enterprise-level platforms co-created by unions and employers to drive job redesign, skills upgrading, and technology integration, ensuring that workers remain employable and businesses stay competitive (NTUC, 2023; Tan & Liw, 2022). Job redesign involves restructuring roles to incorporate technology and higher-value tasks, while transformation initiatives focus on aligning workforce capabilities with emerging industry needs (NTUC, 2023; Tan & Liw, 2022). Today, the Tripartite Jobs Council, as the successor to the NTUC Job Security Council, further strengthens this ecosystem by connecting displaced workers to new opportunities and supporting companies in implementing progressive workforce strategies (Seah, 2025). These collaborative efforts exemplify how unions, employers, and government can jointly leverage AI and structured workforce transformation to safeguard jobs, enhance productivity, and improve healthcare delivery.

Operation and Technology Roadmapping Method

OTRs are structured planning tools designed to help organisations align business strategy with technology and workforce capabilities (Tan & Liw, 2022). In Singapore, OTRs are facilitated by NTUC Industry Training & Transformation (IT&T) specialists certified by the Agency for Science, Technology and Research (A*STAR). The concept is adapted from Cambridge University's *Fast Start to Technology Roadmapping (T-Plan)* methodology. Typically conducted over three to five sessions, the process guides teams through:

1. **Strategic Analysis**—defining organisational goals and competitive positioning.
2. **Identifying External and Internal Drivers**—analysing market trends, regulatory changes, and internal capabilities.
3. **Defining New Products or Services**—aligning innovation with strategic priorities.
4. **Mapping Technology and Talent Requirements**—determining skills and technologies needed to deliver offerings.
5. **Final Charting** – integrating all elements into a visual roadmap for implementation.

Through a collaboration between Ng Teng Fong General Hospital (NTFGH) and HSEU, the VitalScout Smart Ward initiative was conceived from a series of OTR workshops facilitated by NTUC IT&T. During the initiative, wearables continuously track vital signs (respiration rate, heart rate, oxygen saturation, and blood pressure) and automatically feed real-time data into the hospital's Electronic Medical Records system. This reduces the need for manual vital signs monitoring, frees up nurses' time for direct care, and enables quicker clinical interventions. Thanks to this CTC project, 56 Enrolled Nurses and 333 Registered Nurses benefitted from structured Career Development Plans. At the same time, as part of the OTR transformation efforts, both Public Healthcare Institutions (PHIs) assessed their AI Readiness Index (AIRI).

¹ Comprising NTUC Industry Training & Transformation, NTUC's Employment and Employability Institute, and NTUC LearningHub.

AI Readiness Index Framework

AIRI, developed by AI Singapore,² is an industry-focused framework that helps organisations assess their preparedness for AI adoption and implement targeted programmes to accelerate their transformation journey. It crystallises and distils critical success factors for AI adoption, based on hundreds of engagements that AI Singapore has conducted with companies across different industries, sizes, and AI readiness levels. AIRI allows business units and organisations to assess their AI readiness and identify the gaps between their current and desired state. It enables organisations to understand suitable approaches to adopt AI and implement targeted programmes to increase their AI readiness. AIRI 2.0 evaluates an organisation's AI readiness across five interconnected pillars and twelve dimensions, each measured at four levels: AI Unaware, AI Aware, AI Ready, and AI Competent. Organisations may score differently across dimensions, and together these pillars provide a comprehensive, holistic assessment of preparedness for AI adoption. Ultimately, AIRI translates abstract concepts into concrete actions to help organisations accelerate their AI adoption. AI Singapore uses AIRI to help companies identify which of NTUC's programmes can be leveraged to accelerate their AI journey (NTUC, 2023).

In addition, as part of the post OTR implementation, NTUC's Healthcare Academy, a strategic partnership between HSEU, NTUC's Employment and Employability Institute, and NTUC LearningHub supported NTFGH for training customisation to support workforce upskilling. Over 2 years, Healthcare Academy partnered with the National Healthcare Group to develop AI-driven training programmes for over 24,000 healthcare workers, focusing on sustainability, workplace safety, and AI integration (NTUC, 2024a, 2024b).

Results

Operation & Technology Roadmaps Results

The VitalScout project is also the result of NTFGH's collaboration with HSEU and NTUC IT&T in May 2022 through the OTR, where experienced facilitators conducted a 6-week workshop on the Project SMART Ward. A total of 50 ideas were conceived through the workshop, and one of them (VitalScout) was the team's top priority to be rolled out in 2024.

VitalScout is a wearable smart device that reduces the need for periodic vital signs monitoring and improves monitoring, documentation, and interventions for patients. VitalScout provides remote and up-to-date real-time data which will be fed automatically into the Next Generation Electronic Medical Record where EPIC, a software platform, makes the information accessible by the NTFGH. Alerts will be triggered when the patient's parameters are out of the target range. This prompts nurses and clinicians to check and analyse the patient's condition instantaneously, thereby keeping patients safe with continuous monitoring and well-coordinated care.

Since its implementation in December 2024, there has been 100% deployment of the VitalScout project in 10 NTFGH inpatient wards; the deployment can potentially save up to 9,539 hr (or 4.4 Full Time Equivalent workers) on monitoring the vitals of ill patients. This time saved allows our nurses to focus on direct patient interactions such as improving patient mental well-being, patient education on personal health management and patient support beyond the hospital stay. The project's goal is to extend the devices' implementation across all 24 NTFGH inpatient wards by March 2026, following the successful phased roll-out as part of the hospital's ongoing efforts to leverage technology for better patient care and operational efficiency. The project can potentially benefit 10% of NTFGH's patients, as well as up to 842 nurses across all general wards.

² A national programme launched in 2017 to strengthen Singapore's artificial intelligence capabilities and drive social and economic impact.

Regarding workforce transformation, the successful implementation of this project provided an enhanced Career Development Plan for 56 Enrolled Nurses and 333 Registered Nurses.

Artificial Intelligence Results

Concurrently, AIRI was used to assess NTFGH’s organisational preparedness for AI adoption. As shown in Table 1, NTFGH scored 2.7, indicating an “AI Aware” status. This assessment, facilitated by HSEU and NTUC, highlighted the union’s role in guiding institutions towards targeted AI solutions and workforce upskilling. NTFGH can identify potential use cases for AI applications and consume ready-made AI solutions. The recommendation from the AIRI will be for NTFGH to explore ready-made, end-to-end, Commercial Off-The-Shelf AI solutions as shown in Table 2.

Table 1
Readiness Scores Across Key Domains for Ng Teng Fong General Hospital

Category	Organisational Readiness Score	Ethics and Governance Readiness Score	Business Value Readiness Score	Data Readiness Score	Infrastructure Readiness Score	Avg Score
Public Healthcare Institution (Ng Teng Fong General Hospital)	2.0	2.5	3.3	1.7	4.2	2.7

Note. Scores reflect readiness levels across five domains relevant to AI and automation adoption in public healthcare.

Table 2*AI Readiness Levels and Organisational Characteristics Based on AIRI Framework*

	AI Unaware	AI Aware	AI Ready	AI Competent
Average Score	Less than 2.5	2.5–3.4	3.5–4.5	Greater than 4.5
Interpretation	Organisation might hear about AI, but is unaware of AI applications.	Organisation is aware of AI applications and could identify potential use cases.	Organisation has the capabilities to integrate pre-trained AI models into products or business processes.	Organisation has the capabilities to develop customised AI models and solutions for specific business needs.
Characteristics	Wait for vendors to convince organisation with use cases and business value of AI. Consume ready-made AI solutions.	Actively seek AI solutions to address business needs. Able to identify potential use cases for AI applications, and consume ready-made AI solutions.	Evaluate and seek AI Application Programming Interfaces, Software Development Kits and pre-trained AI models for use within business.	Have strategy and roadmap of AI deployment for organisation.
Recommendation	Increase AI literacy of organisation.	Consume ready-made, end-to-end, Commercial, Off-the-Shelves AI solutions.	Prepare organisation to adopt and integrate AI solution. Broaden understanding of AI to whole of organisation.	Deepen organisational AI capabilities. Broaden understanding of AI to whole of organisation.

Note. Adapted from the AI Readiness Index (AIRI) by AI Singapore.

Table 3 presents readiness scores across five domains for various healthcare institutions. The AIRI results were launched as a sampling for six organisational respondents comprising three PHIs and one Private Healthcare Institution, one Dental Clinic, and one Vision Care Clinic. From the results compiled, the three PHIs scored an average between 2.59 and 2.01 (between AI Aware and AI Unaware), while the Private Healthcare Institution, Dental Clinic, and Vision Care

Clinic scored lower in most categories with an average score between 2.28 and 1.25 (AI Unaware).

From a transformation perspective, this indicates that these private organisations might hear about AI but are unaware of its applications. They are described by AIRI as organisations that “*wait for vendors to convince [them] with use cases and [the] business value of AI.*” This highlights the need to increase AI literacy among these organisations.

Table 3

Readiness Scores Across Healthcare Categories

Category	Organisational Readiness Score	Ethics and Governance Readiness Score	Business Value Readiness Score	Data Readiness Score	Infrastructure Readiness Score	Average Score
Public Healthcare Institution A	3.0	1.7	1.7	2.5	4.2	2.6
Public Healthcare Institution B	3.0	3.3	1.7	1.7	3.3	2.6
Public Healthcare Institution C	1.0	1.7	3.3	2.5	1.7	2.0
Private Healthcare Institution D	2.3	1.7	1.7	3.3	2.5	2.3
Private Dental Clinic E	3.3	1.7	1.7	1.7	1.7	2.0
Vision Care Clinic F	1.7	0.0	1.7	0.8	1.7	1.2

Note. Scores reflect institutional readiness across five domains relevant to AI and automation adoption in healthcare. Institutions have been anonymised with letters to ensure confidentiality.

Discussion

Unions like HSEU are uniquely positioned to bridge the gap between technological advancement and workforce readiness. Their deep engagement with frontline workers enables them to identify real-world challenges and co-create innovative and practical solutions. By embedding union representatives in transformation planning, healthcare institutions benefit from insights that ensure that technology adoption aligns well with worker needs and patient care priorities.

Moreover, HSEU's proactive stance in promoting AI literacy and digital skills training reflects a broader strategic vision: to future-proof the healthcare workforce. Through initiatives like the Healthcare Academy, unions are not only facilitating training but also shaping curricula that reflect emerging industry demands. This ensures that workers are not left behind in the AI and digital transition, but instead are empowered to lead it.

Cross-sector collaboration is another hallmark of HSEU's approach. By fostering partnerships across public hospitals, community care providers, and private clinics, HSEU is creating a shared ecosystem of innovation. This reduces silos, accelerates learning, and promotes scalable solutions. The AIRI assessments, while preliminary, offer a valuable diagnostic tool for tailoring transformation strategies to each organisation's readiness level.

HSEU's work underscores the importance of institutional support for union-led transformation. The NTUC CTC Grant (Employment and Employability Institute, 2024) which provides support of up to 70% of the qualifying costs for a business transformation initiative, is a critical enabler. However, sustained success will require continued investment and recognition of unions as strategic partners in national healthcare planning. As Singapore navigates an ageing population and rising healthcare costs, HSEU's role in shaping a resilient, skilled, and future-ready workforce to meet future demands will be more vital than ever.

Conclusion

Through 21 completed CTC projects and over 23 OTR sessions from May 2022 to October 2025, HSEU and NTUC have demonstrated the value of union-led transformation. One example would be the NTFGH transformation: Project SMART Ward with VitalScout wearables that led to two key outcomes for nurses—wage increments and career development plans. As Singapore's healthcare sector evolves with emerging technologies as a transformative force, unions must remain at the forefront, advocating for worker-centric innovation, enabling higher-value roles, and ensuring that technology serves both operational goals and human dignity.

BIOGRAPHIES

**Steven Tiat Yang Goh**

Mr Steven Goh has served as Executive Secretary of the Healthcare Services Employees' Union (HSEU) since April 2022, leading transformative efforts that grew union membership beyond 50,000 by 2025. He forged strategic partnerships with healthcare institutions to tap on Company Training Committee grants, boosting operational efficiency, job enrichment, and workforce retention. Under his leadership, the healthcare professional community expanded to more than 10 groups, strengthening sector-wide collaboration. Through the HSEU Healthcare Academy, he championed sector specific training and WSQ pathways that enable career progression, job redesign, and hybrid roles, shaping a future ready and resilient healthcare workforce.

**Krist Chengkai Liao**

Mr Krist Liao focuses on advancing workforce and business transformation within the health and community care sector, partnering organisations to strengthen capability building. He contributes to initiatives that support upskilling and career mobility for workers. As a Senior Industry Training Officer with NTUC's Industry Training & Transformation, Krist drives Company Training Committee efforts and sectoral projects to improve productivity, job quality, and workforce readiness.

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Mr Don Yap is a Principal Industry Training Officer and Essential Domestic Services (EDS) Cluster Lead supporting HSEU. With background in developing workforce strategies and industry collaborations, Don has contributed to advancing healthcare innovation, digital transformation initiatives, and workforce upskilling that integrate advanced technologies into care delivery.

**Wendy Wan Peng Ng**

Ms Wendy Ng, Principal Industry Training Officer at NTUC, partners with organisations and agencies to drive business transformation and workforce development. Supporting HSEU, she facilitates strategic planning, connects stakeholders to funding and training resources, and helps organisations build future-ready workplaces.



Bella Ting Lin

Ms Bella Lin is a Senior Industry Training Officer supporting HSEU. With a Master's in Counselling, she is driven by an empathetic approach to transformation, synthesising the “human element” of innovation to strengthen both workforce well-being and Singapore's social fabric.

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NTUC AI Career Coach: Redefining Career Coaching Support for Jobseekers in a Disruptive World

Brian Tan

Abstract

The National Trades Union Congress' (NTUC) Employment and Employability Institute (e2i) began its Artificial Intelligence (AI) journey by prioritising productivity and service efficiency, responding to rising client volumes and increasing case complexity. A two-step approach was adopted to address both internal operational needs and external client demand. First, NTUC's e2i developed an AI-driven solution to enhance career coach efficiency, enabling greater focus on higher value work such as deeper client engagements and serving more clients weekly. This led to the eventual development and launch of the Virtual Career Coach in 2024 as a digital assistant for career coaches. Second, building on backend enhancements to the Virtual Career Coach, NTUC's e2i introduced a front-facing AI tool for job-ready jobseekers who did not require in-person consultations. This expanded service accessibility anytime and anywhere via mobile devices and laptops, supporting self-help for digitally confident users, particularly youths and Professionals, Managers, and Executives. Overall, NTUC's AI Career Coach has reshaped career assistance delivery while complementing human coaching expertise.



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Introduction: Global and Local Context

With the rapid rise of Artificial Intelligence (AI), many jobs across industries around the world are being disrupted. Recent articles about Big Tech companies and global banks—such as by Dhar (2025) and Bhaimiya (2025)—report that technology adoption has been frequently cited as a reason for these job cuts.

In Singapore, a recent International Monetary Fund study by Khan (2024) stated that the country's labour market comprising largely high- and semi-skilled workers is highly exposed to AI. The occupations most affected—Professionals, Managers, Executives, and Technicians (PMETs)—have high potential for AI integration. With PMETs making up 63.7% of Singapore's workforce (Ministry of Manpower, 2024), many workers may face displacement. The reality now is clear: both organisations and workers cannot ignore how AI is re-shaping the way things are done, including how workers search for their next job.

The National Trades Union Congress' (NTUC) Employment and Employability Institute (e2i) is a major stakeholder in the national placement ecosystem and faces increasing pressure to help jobseekers connect workers “to offer job security through job-matching, career guidance and skills upgrading services” (NTUC e2i, 2025). Over the past three years, the number of career and job centres grew from two at the start of 2023 to 27 touchpoints as of end-2025. This meant that current operating processes had to be re-engineered to be more efficient and productive.

Taking these developments together, the impetus then was to address the impending skills gaps with AI disrupting the labour market, and assisting jobseekers, especially those displaced by AI and technology, to job-match them into another role. This eventually led to the formation of the Tripartite Jobs Council to tackle these issues. This Council, an updated initiative of the earlier NTUC Job Security Council (Seah, 2025), has rolled out a framework to address the onset of AI on workers and companies. Specifically, the NTUC AI Career Coach (AICC) is one of the key tools to facilitate the process of helping workers get matched to better jobs. I argue that by embracing AI into our organisation and for workers to start using AI, this has led career services and career coaching to be transformed to be future-ready, thereby empowering workers in their career journeys.

Methodology

For this paper, NTUC's e2i's Career Services and Partnerships Group reviewed the data from its Virtual Career Coach (VCC) and AICC databases and findings from its engagement sessions. The VCC refers to a digital assistant for e2i's Career Coaches while the AICC refers to a front-facing AI tool that supports jobseekers in their career journey. The project team behind the development of the VCC and AICC was consulted. For example, data on the usage of VCC and the NTUC AICC were obtained from the internal system dashboards provided by the project team.

Impetus for a Viable Solution

NTUC's e2i began its AI journey by focusing on improving its productivity and efficiency. In reaching out to help jobseekers through the 27 career touchpoints around Singapore, e2i Career Coaches had to handle the high volume of jobseekers seeking career guidance; skills advice to remain in the job role; or a job and job placement support. Jobseekers are very diverse and step forward at different stages of job readiness. For the purposes of this paper, jobseekers were grouped into two broad categories, job-ready individuals requiring basic assistance, and those who were not job-ready and therefore required deeper conversations to uncover employability solutions. This meant spending substantial time with each jobseeker to identify their shortcomings and could include understanding what they want to achieve in their careers, knowing their gaps, taking steps to address their gaps, or even helping them to rebuild their resumes. These were important conversations which can be complex, and time should rightfully be spent to help these individuals become job-ready, but it was time-consuming. e2i Career Coaches had to summarise

the conversations to be administratively entered into the National Career Coach system (a national system for all Career Services agencies appointed by Workforce Singapore), conduct research for the client, and arrange follow-up sessions.

Meanwhile, for jobseekers who were job-ready, a large proportion of them generally needed a little push by tailoring their resumes to the job they were planning to apply for, find out where the job opportunities were, and receive a little assistance prior to their actual job interview with the employer. Some of these jobseekers had also shared that they just needed a quick session rather than wait for an appointment which could normally take 1–2 weeks to fix. However, the standard approach at the start for both job-ready and non-job-ready groups resulted in inefficiencies.

A two-step solution was crafted to address both the internal and external issues. The first step was to find an AI-driven solution as a means to help our e2i Career Coaches become more efficient so they could concentrate on higher value work such as having deeper conversations with clients and meet with more clients in a week. Second, NTUC's e2i explored ways to support clients who did not require face-to-face appointments, usually for a relatively straightforward conversation with our e2i Career Coach. If jobseekers wanted to look for a job, there were already job sites such as the MyCareersFuture job portal and other job sites through social media. However, these sites were clearly insufficient to address the needs of the jobseekers and they still felt the need to book an appointment with NTUC's e2i. Thus, something more than a job site providing job vacancies was necessary to help the job-ready jobseekers.

Integrating AI Into the Career Coaching Ecosystem

By 2023, several AI initiatives globally were rapidly evolving, including the public release of ChatGPT. Several countries also experimented with AI-enabled career guidance and digital employment support, for example digital assistants to support self-service needs like Workforce Australia's digital assistant (Workforce Australia, n.d.) and AI-based chatbots in several European countries like Finland, Iceland, and Lithuania (Organisation for Economic Co-operation and Development, 2024). Although concerns about AI hallucinations, bias, reliability, and misuse existed, it was clear that AI was here to stay. News and studies reported that AI has made improvements to many aspects of work such as in productivity and efficiency. A study by the London School of Economics' Inclusion Initiative and Global Consulting firm Protiviti found that employees who used AI had productivity gains which worked out to be savings of on average about one workday per week (Protiviti, 2025). A McKinsey Report (2025) also showed that nearly all employees (94%) were familiar with generative AI tools, and many millennials (between the ages 35 and 44) who were team leads and managers in companies were the most active generations of AI users. It was becoming more germane to have AI in businesses as an internal and customer-facing tool. The same McKinsey Report also warned that leaders should start thinking about integrating AI into their businesses or risk falling behind.

Enhancing the Capabilities of the e2i Career Coaches

To cope with rising volume of clients and case complexities, NTUC's e2i turned to AI for its solution. The VCC was developed and launched on 4 October 2024 as a digital assistant for the e2i Career Coaches (Wong, 2024). The VCC consolidates job listings from the national jobs banks and other job banks, provides skills upgrading advisory and recommends relevant courses based on their scores on the self-profiling tool, RIASEC (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional), all on the same platform. In addition, the AI-based VCC, which was earlier trained by many real cases, continues to learn from new cases and feedback from e2i Career Coaches. Case summaries by the VCC became better, search results and the analysis on the best steps forward improved, thus reducing the administrative workload and freeing career coaches to focus on deeper conversations.

As I noted elsewhere,

The integration of AI into career coaching is not about replacing human interaction but enhancing it. By handling administrative tasks, providing data-driven insights, and expanding the scope of industry knowledge, AI allows career coaches to do what they do best—connect with clients on a deeper level and offer personalised, strategic guidance (Tan, 2025).

Jobseekers have since provided positive feedback on their interactions as conversations between jobseekers and the e2i Career Coaches became more meaningful. Taken together, the VCC has boosted the career coaches' efficiency and enabled a deeper engagement with the jobseekers thereby helping jobseekers to better prepare for their career journeys. During the period when the VCC was launched, the number of e2i Career Coaches also increased in parallel by around 50% (from end-September 2024 to December 2025). By the end of December 2025, the VCC has supported more than 10,000 unique jobseekers.

Empowering Jobseekers With AI

As the VCC was enhanced backend, NTUC's e2i then focused on supporting the job-ready jobseekers who might not require an in-person appointment with the e2i Career Coach. Building on the VCC, a front-facing AI-based tool was developed to help this group of jobseekers. Moreover, NTUC's e2i's services could also be made available anytime and anywhere as long as they had connectivity on their mobile phones or laptops, thereby bringing the career services even closer to the communities and into the homes of the jobseekers. Jobseekers are then able to self-help when they need help. The primary audience would be jobseekers who are comfortable with using technology and these were the youth and PMEs. Developing an AI tool for jobseekers was also in part to fulfil the broader goals of allowing workers to gain access to AI tools.

Development for the public-facing module of the AI-based Career Coach, now known as the "NTUC AICC" (or AICC), started shortly after the release of the VCC. In the design of the AICC, the intent as far as possible was to match the same level of assistance and career guidance which the e2i Career Coach provides. Eventually, career guidance should lead towards recommending potential job opportunities and skills upgrading. The VCC was the foundation for building the AICC—links to the national jobs bank, the skills framework, and courses available online were made to ensure that AICC's recommendations were based on real-time vacancies and courses, and RIASEC profiling was incorporated into the analysis for the recommendations. In addition to the career guidance provided by the AI, jobs recommendation, and skills upgrading advisory services on the platform, employability tools were added to directly assist jobseekers in their resume and interview practice. In summary, a jobseeker could upload his or her resume, use the RIASEC tool, chat with the AICC and obtain jobs and skills recommendations. Where required, jobseekers could also enhance their resumes and use the AICC to prepare for their upcoming job interviews.

During the User Acceptance Test, more than 600 PME jobseekers as well as graduating students at Institutes of Higher Learning were engaged. Based on the surveys conducted immediately after each User Acceptance Test session, the most popular application within the AICC was the AI-enabled resume builder followed by the skills upgrading recommender. User satisfaction rates were also high, and users found the features relevant and useful. After enhancements and ensuring that cybersecurity and data protection measures were in place, the beta version of the NTUC AICC was released in July 2025. The AI in the AICC will continue to learn from the feedback of jobseekers using the system, and from the interactions with the jobseekers. While the system is not perfect, over time and with sufficient data, the AICC will improve and be more helpful for jobseekers.

Figure 1*Screen Captures of the NTUC AICC*

Note. NTUC's e2i's AICC.

There have been good early results demonstrating AICC's positive impact. To date, for the AICC and its subsequent launch at NTUC's Ordinary Delegates Conference (Loh, 2025; Low, 2025), around 5,000 unique users have used the AICC for their career journey as of end-December 2025. Jobseekers were accessing the AICC at all times of the day, especially after office hours where NTUC's e2i's career and job centres were closed. Early internal data have shown that there were a number of users who subsequently found a job with the help of the AICC. The early results were promising and showed that the AICC is gradually becoming an important part of jobseekers' career journeys. It is still too early to ascertain whether these users subsequently make an appointment to meet an e2i Career Coach since the career journey may take on average 3 months or longer for some but anecdotally, some jobseekers have shared that they have received what they needed from the AICC and therefore did not feel the need to make an appointment with e2i. Broad plans for the future have been laid out and the initial stages of development have started. One of the immediate goals is to enhance connectivity and integration with partners from the ecosystem. Some of these include job databases and the Singapore Government's Careers and Skills Passport, a personal digital career and training repository that helps Singaporeans take charge of their career health and better track their careers and skill development.

AI and Career Coach Conversations and Considerations

While the VCC has helped to improve the capabilities and productivity of the e2i Career Coaches and not replace them, there were concerns that career coaching conversations should be human-led, not AI-led. The coach's role is to help a valued client or in this case a jobseeker from where they are to where they want to be (Evered & Selman, 1989). The journey may not be straightforward and may require human experience and intuition to be able to assist. Bachkirova (2024, p. 8) argued in the context of organisational coaching as it was still in its early days of development that, "an 'AI pseudo-coach' does not have the potential to be a person that matters in coaching relationship." Moreover, according to Brock (2019, p. 170) on the modern coaching environment, "...coaching is customised to the coach, the person being coached, the context, and the specific conditions that led to coaching. The fluid nature of the modern coaching environment requires every coach to rely on intuition, creativity, and flexibility, as well as a solid base of foundational knowledge."

Conversely, AI can sometimes provide unbiased and direct feedback more effectively than humans. Research by Zou et al. (2024) showed that when the coach is not involved in the process, getting harsh feedback from a machine is easier than from a person. Zou et al. (2024) noted in quoting Tourish and Hargie's (2012) work that there were tendencies for humans to be selective and biased when they learn from others. A systematic literature review on AI for coaching by Passmore et al. (2025) concluded that the use of AI can be effective, useful, and accepted. The authors further added that AI will increasingly match the abilities of humans in the future. Thus, there are concerns on relying on AI to be the be-all and end-all but similarly, there are advantages of using AI in the area of career coaching.

Nonetheless, as technology continues to develop and mature over time, the discourse on whether AI can function as well as a career coach will continue. Chakravorti (2024) summarised it nicely by stating that there are trust issues with AI and he asserted that:

Currently, the focus is on training AI models to become more like us. Let's not forget that we must also train the humans. They must learn to recognize what causes the AI trust deficit, accept that it will remain, and understand how best to step in to fill the void.

As Haas (2025) wrote, "as new technologies continue to emerge, the future will belong to those who can build and contribute to AI systems that not only exhibit intelligent behaviour but also respect and enhance human cognitive abilities." The AICC will continue to help jobseekers to find jobs and career progression opportunities and the e2i Career Coach will continue to assist those who require more dedicated human support and intervention.

Conclusion and the Way Forward

The coming years will be critical to workers as AI adoption continues to evolve and accelerate in Singapore. Jobseekers and workers must continue to adapt and embrace new technologies to stay relevant. As part of the Tripartite Jobs Council, NTUC's e2i will continue supporting workers through its initiatives and tools like the AICC in their job security and to stay relevant. By exposing AI such as the AICC to jobseekers, jobseekers become more familiar and comfortable with AI as part of their job search and lifelong learning journey. Nevertheless, amid embracing AI, the human e2i Career Coach will still continue to support the jobseekers. I have shown that the VCC as a digital assistant has empowered e2i Career Coaches by increasing their capabilities and efficiency, resulting in more jobseekers being helped and the AICC has started inroads to help jobseekers to find jobs and be more AI-ready. In conclusion, AI is disrupting the way work is done, but it has also empowered workers—both the jobseekers and e2i Career Coach—in redefining how career assistance is provided and has shaped the way career coaching can be ready for the future.

BIOGRAPHY

Brian Tan



Mr Brian Tan is the Director for Policy, Planning, and Innovations in the Job Security Directorate, NTUC, where he looks at policies and initiatives to help workers to get better jobs, be better workers, and have access to better matching opportunities. In his role, he works closely with stakeholders to reflect workers' concerns and advocates for workers' interests. Previously, he was the Deputy Chief Executive Officer at NTUC's Employment and Employability Institute, where he oversaw the career and job centres, jobs and events systems, as well as the community and partnerships teams.

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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 has served as Secretary-General of the National Trades Union Congress (NTUC) since May 2018, leading Singapore's Labour Movement with a steadfast commitment to advancing workers' wages, welfare and work prospects. He championed the establishment of Company Training Committees in 2019, strengthening collaboration between unions and management to drive business and workforce transformation. Recognising the impact of Artificial Intelligence on the future of work, he also championed the NTUC AI-Ready SG initiative to help workers thrive in an AI-enabled economy. In addition, he drove the establishment of the Tripartite Jobs Council, bringing together the Government, employers and unions to support company transformation, workforce training and worker transitions. Beyond economic resilience, Mr Ng has strengthened the social safety net for workers and their families. He has been a strong advocate for the NTUC-U Care Fund, which supports lower income union members and their families through life's unexpected challenges. Under his leadership, the NTUC Community Fund was launched to extend support beyond union members to vulnerable families, children and seniors in the wider community. Mr Ng has also broadened NTUC's outreach to support diverse segments of the workforce, including young workers and professionals, managers and executives (PMEs).

In the Singapore General Election 2025, Mr Ng was elected Member of Parliament for Jalan Kayu Single Member Constituency. In July 2026, he was appointed as Minister in the Prime Minister's Office. Prior to leading the Labour Movement, Mr Ng served as Minister in the Prime Minister's Office, Minister for Education (Schools), and Second Minister for Transport. He also had a distinguished 29-year career in the Singapore Armed Forces, culminating in his appointment as Chief of Defence Force. Mr Ng holds a Bachelor of Science in Electrical Engineering and a Master of Arts in International Relations.



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Mr Patrick Tay is the Assistant Secretary-General of the NTUC and Member of Parliament for Pioneer Single Member Constituency (SMC). He is also the Director of NTUC Strategy and Legal. He also co-chaired the PME Taskforce with the Singapore National Employers Federation in 2021. Besides that, he is the Executive Secretary for United Workers of Electronics & Electrical Industries (UWEEI) and is also Deputy Chairperson, REACH Advisory Panel.

Representing workers and the Labour Movement, Mr Patrick Tay is the Supervising Lead for the Labour Movement's Financial and Professional Services Cluster. He also sits on the NTUC Industrial Relations, Membership and Training Councils and is the Chairman of the Ong Teng Cheong Education Trust Fund Management Committee. In addition, he also sits on several government boards, national institutions, and tripartite committees. He is currently co-chair of the Financial Sector Tripartite Committee (FSTC) and the Tripartite Workgroup on Human Capital Capability Development.



Professor Robbie Goh

Provost

Singapore University of Social Sciences, Singapore

Professor Robbie Goh was appointed Provost of the Singapore University of Social Sciences in October 2021. He was formerly with the National University of Singapore, most recently as Dean of the Faculty of Arts and Social Sciences. He has degrees from the National University of Singapore and the University of Chicago. A literature and cultural studies scholar by training, Professor Goh has also published widely in other fields such as religion, urban studies, and film and popular culture. He is a former board member and second vice-president of the Metropolitan YMCA, and has also served as chairman (LCEC Chair) of the Cairnhill Methodist Church, member of the Social Service SkillsFuture Tripartite Taskforce, member of the Charity Council, and member of the Institute for Adult Learning council, and on other arts advisory and social services committees.



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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).



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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). His other current Tripartite appointments include the National Wages Council since 2006 and Director of the Institute for Human Resource Professionals (IHRP); his past appointments include the Chairman of the Tripartite Implementation Workgroup on Employability of Older Workers (Retirement and Re-employment) and Board Member of the 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 and joined C. Melchers Group of Companies in Singapore in 1997. C. Melchers is a diversified trading, development, and services company established in 1806, headquartered in Bremen, Germany and with offices across Asia. He is married with four children.



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Dr Beh Swan Gin is the Permanent Secretary of the Ministry of Trade and Industry. 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.

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Dr Mathews' research on work includes studies on low-income workers, retraining efforts, work-life harmony, and in the last few years, platform workers and their protection. He is also an advocate for inclusive workplaces. Together with his colleagues at the IPS Programme of Race, Religion and Intergroup Cohesion, he researches and conducts workshops to increase awareness of diversity and inclusion issues. Dr Mathews sits on various committees and boards in the government and the people sector.



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