Singapore's 'wealth of talent' firms

Hidden champions driving sustainable socioeconomic outcomes

Sahara Sadik
Candice Chong
Catherine Tangen
Phillip Brown

May 2025

Publisher's note

The views and analysis presented in this document are those of the authors as researchers. The contents are intended for discussion and generating ideas, and are not necessarily the views or policy prescriptions of the Institute for Adult Learning or the Singapore University of Social Sciences (SUSS).

This publication should be attributed as Sadik, S., Chong, C., Tangen, C and Brown, P. (2025). *Singapore's 'wealth of talent' firms: Hidden champions driving sustainable socioeconomic outcomes*. Singapore: Institute for Adult Learning.

IAL Research Division

champions applied and innovative research grounded in academic rigour to provide a strong knowledge base for the development of practice in CET, sustainable economic and workforce performance, and informed policies and practices. Using interdisciplinary approaches employing both quantitative and qualitative techniques, the research covers CET system design and practices, adult education, lifelong learning, jobs, skills, careers, labour market issues, pedagogy, andragogy, and praxis, among others.

Address
11 Eunos Road 8
#07-04 Lifelong
Learning Institute
Singapore 408601
research@ial.edu.sg

For more information, see http://www.ial.edu.sg/
RD-2025-06

AN INSTITUTE OF **SINGAPORE UNIVERSITY OF SOCIAL SCIENCES**

Contents

Figures and Tables

Executive summary

This large-scale study makes a strong case for inclusive corporate practices in Singapore by identifying a high-performing organisational model—**wealth of talent firms**—that aligns business success with societal outcomes. Based on a survey of 3,801 establishments and in-depth interviews with 30 firms, the research uncovers a Singaporean variant of the *Mittelstand* or hidden champions seen in Swiss-German and Nordic economies - firms show that **inclusive talent development is sound business strategy**.

Who are these 'wealth of talent' firms?

- **Wealth of talent firms (25%)** invest in the full workforce—not just a select few—through broad-based, inclusive skill-building. They consistently turn **average employees** into high performers, delivering the **strongest business performance** in terms of growing profits, revenue and market share.

- Operating with **high-value business models** grounded in deep customer centricity, they rely on collaborative customisation—putting employees close to customers and requiring them to co-create solutions. This enables **distributed innovation** and makes **real performance**, not conformance, essential at all levels.

- Requiring high performers at scale, they recruit those with modest starting credentials and expose them to cutting-edge, high-discretion work – making these firms true **career accelerators** that boost long-term mobility of their employees. These firms also show clear signs of **skills-biased technological change**, using digital tools to enhance skills rather than reduce or deskill job roles.

- Despite these strengths, 'wealth of talent' firms are **under-recognised** in policy—an untapped opportunity to strengthen the employer pillar of SkillsFuture and scale inclusive, innovation-ready enterprises.

Other talent models in Singapore

- **War for talent (30%)**: This talent model is widely practised in Singapore, and is especially pursued aggressively by transnational corporations, high-end consultancies, and large local enterprises in Singapore. These firms operate with **high-value business models** but adopt a **narrow, high-stakes view of talent**—developing only a small elite (typically 10–20% of employees). A model of talent scarcity fosters **conformance rather than performance**, as those under scrutiny face rigid expectations and limited room for failure.

  Relying on this elite talent pool, innovation is **top-down** with minimal input from the frontline. They often practise **composable customisation**—assembling modular, sophisticated offerings based on recurring client needs—but avoiding deeper co-creation. The elite group takes on strategic innovation, while those 'below the talent radar' are **tasked with complex execution**. Despite being highly skilled, the latter group face **fragmentation of their job roles through technology**. Managers expressed concerns about the quality of innovation outcomes from such models. The declining average lifespan of companies on the S&P 500 signals that such elite-driven models may not be viable for long-term business resilience.

- **Constrained talent (18%) and Zero-talent (27%)**: These tend to be SMEs operating with **low-value business models** that create narrowly defined roles, underutilise workers, and

offer limited opportunities for advancement. They rely on **price competition** rather than innovation or skill development. Some engage in **cosmetic customisation**—surface-level tweaks to appear customer-responsive while keeping costs low. Digital tools give these firms a **new lease of life –** enabling the tapping of **high-skilled remote or gig workers** at low cost, while continuing to entrench low-cost, low-skill operations locally. This risks **further locking Singapore's SMEs into a cycle of poor job quality**, undermining their ability to compete in a more innovation-driven economy.

Policy and business implications

The analysis demonstrates that inclusive talent development is not merely a social good—it is a proven driver of superior economic performance in the Singapore context. However, scaling up 'wealth of talent' firms will require more than policies of job redesign, skills upgrading digital transformation. It calls for **fundamental business model transformation**—a shift that has yet to take root across Singapore's corporate landscape, whether among large enterprises or SMEs. The following shifts are therefore proposed:

- **Policymakers** should actively identify, groom and scale **'wealth of talent' firms** as national assets. These firms are natural partners for **advancing SkillsFuture**, fostering good jobs, strong businesses and inclusive growth. Strategies include growing consultancy capabilities that can support CEOs to make sound business, job and skills transformation decisions, alongside integrated funding for enterprise-workforce transformation. Policy incentives should be more boldly designed to support the relational business models characteristic of 'wealth of talent' firms.

- **Business leaders** must rethink outdated business strategies. In today's complex, fast-evolving economy, **elite-driven, top-down models are losing their edge** while **price-based competition traps firms in permanent weakness**. Successful firms will be those that invest broadly in their people, cultivate deep capability, and foster bottom-up innovation through inclusive, high-discretion company design centred on the customer.

1. Introduction

Genesis of the research study

This research study seeks to establish a business case for inclusive corporate talent practices in firms in Singapore, with a view towards laying a structural foundation for SkillsFuture's employer pillar.[1]

In our original study (Brown et al., 2019), we investigated reasons for Singapore's perceived 'talent deficit'. While Singapore's industrial policy attracts high-quality jobs for locals, Singaporeans are often seen as less competitive than international recruits. This is despite its strong education system that includes top-ranking universities and advanced lifelong learning provisions. Mr Chng Kai Fong, then Managing Director of Singapore's Economic Development Board that oversees execution of Singapore's industrial strategy, shared in 2019:

> We are working hard to bring the best jobs to Singapore, whether it is an engineering centre from Stripe and Indeed.com, to regional HQs of MNCs running global product lines out of Singapore…We should be seeing more Singapore corporate leaders. But the numbers have been few…The jobs and HQs are here. Our education system is rigorous. Our people are internationally exposed. *(Chng, 2019)*

In our original study, which involved interviews with nearly 150 executives across 30 firms in Singapore, China, and India (Brown et al., 2019), we found that Singapore's perceived 'talent deficit' is closely tied to corporate **'war for talent' practices**. Corporations typically designate just 10-20% of the workforce as high potentials – a select group regarded as a special 'breed of talent' that receives the bulk of development opportunities and rewards. Access to these roles is highly selective, favouring individuals deeply embedded in corporate networks, who, upon closer examination, often come from elite university backgrounds signalled by national university systems. In India and China, this is represented by the Indian Institutes of Technology and Management (IITs and IIMs) and the China-9 League of top universities, whose graduates are highly sought after and fast-tracked into top corporate positions (Brown, Sadik & Xu, 2021; Sadik & Brown, 2019). In contrast, Singapore's elite talent flows overseas to top foreign universities usually on publicly-funded scholarships (Ye & Nylander, 2015). So while Singapore's local universities rank among the best globally, their graduates do not enjoy the same premium status domestically.

Without an **institutionalised pathway into the corporate talent pipeline**, the broad Singaporean workforce will always be at a disadvantage. The two quotes below from the original study (Brown et al., 2019) show the weak positioning of Singaporeans that is common in Singapore's corporate sector:

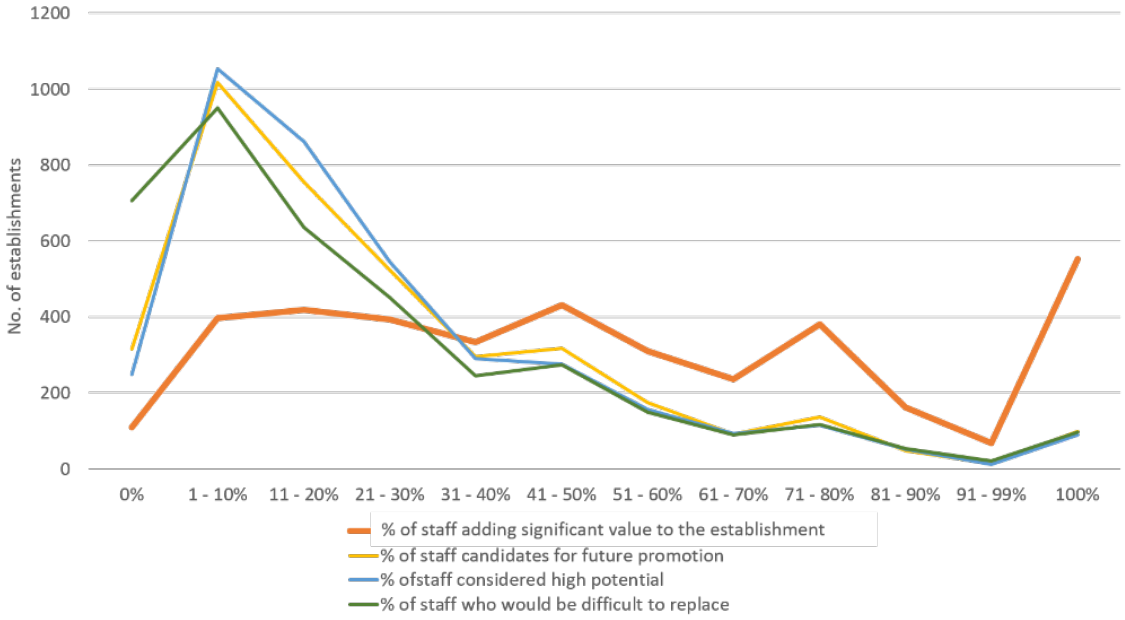
> If I'm hiring an entry level person for auditing, I want that person to be a Singaporean out of a Singapore university...If I'm looking for somebody who can bring in work in consultancy and lead the work in an area that I don't understand and know nothing about, and he has to be self-motivated to build the business independently, he will probably be in his late 30s, early 40s, white, male, English native speaker, English/Australian experience, and that's very different from the auditors. So there is a huge difference. *(HR Manager, Professional Services, Singapore)*

> People that come here, they have to fight to come here. For the locals, it is like any mediocre Singaporean...So we hired forty-plus campus graduates. We don't even look at their results. We don't even look at their university performance. They don't even have to come from an IT background, because we need to hit the numbers [to employ foreigners]. *(HR Executive, Professional Services, Singapore)*

[1] SkillsFuture aims to help Singaporeans thrive professionally, regardless of their starting points, and is viewed by Singaporean political leaders as a new vehicle for social mobility (Government of Singapore, 2024).

Further investigation using Singapore's national study of establishments conducted in 2017 – the Business Performance and Skills Survey (BPSS) – confirms the **dominance of 'war for talent' practices** in Singapore's business landscape (Brown et al., 2019). The vast majority of establishments in Singapore designate just 10-20% of the workforce as talent, even though they saw 40-60% of employees as adding significant value (**Figure 1**).

Figure 1. Establishments' response to talent dimensions in Singapore, 2017



Source: Business Performance and Skills Survey, 2017

Crucially, the original study (Brown et al., 2019) also identified contradictions in the 'war for talent' model amid rapid industrial restructuring and technological change. **Companies struggle to predict talent needs**, making identification of high potentials more challenging, and doubts emerged about the efficacy of the system. High-potentials across Singapore, China, and India observed that while senior managers rhetorically encourage out-of-the-box thinking, they **actually demand conformity in practice, which constrains performance**. This set of contradictions prompted some companies to explore alternative models, with HR leaders advocating for a **distributed expertise approach**, which they believe is better suited for fostering innovation during disruptive times, in contrast to the **traditional 'single hero' mindset** that underpin 'war for talent' practices.

An alternative model?

While the demand for a distributed expertise approach is evident, we found limited evidence of any viable models being put forward. An exception was a 60-person Singapore-based biotech company that in fact avoided hiring from elite universities or brand-name companies, as its experience showed such individuals often lacked agility due to prior training for conformity. It also avoided dedicated talent programmes, viewing all staff as talent—'people who are good at what they do'. Singaporeans were equally well-placed in this company as other foreign employees. This reflected a **distributed talent model**, seeing talent as abundant within every employee (**'wealth of talent'**), rather than scarce and requiring special identification ('war for talent'). Employees in this biotech firm felt free to propose and act on new ideas, unlike those in 'war for talent' firms who felt pressured to conform (Brown et al., 2019).

Unfortunately, our understanding of the 'wealth of talent' model remains limited, including its viability and scalability across firms and industries in Singapore in the context of technological change and broader geo-economic shifts. While inclusive talent practices that deliver strong business outcomes

– such as those observed in the Mittelstand of Germanic countries and among Denmark's 'hidden champions' – are well-documented in academic research, similar models are **inadequately researched in Singapore** (Danish Technological Institute, 2014; Lehrer & Schmid, 2020; Pahnke & Welter, 2019). This gap in knowledge motivates our research to explore whether such a firm model exists in the local context.

SkillsFuture, a key initiative aimed at enabling Singaporeans to succeed professionally regardless of their starting points, provides an important framework for exploring a structural foundation for inclusive corporate practices (Government of Singapore, 2024). Drawing on the contributions of the Mittelstand and hidden champions in Swiss-German and Nordic countries to inclusive growth, the 'wealth of talent' model—if viable—could **strengthen SkillsFuture's employer pillar** which has been a major challenge (Bedi, 2024).

Beyond addressing the marginalisation of local talent relative to foreign hires, the 'wealth of talent' model could also tackle broader job-skills challenges in Singapore, such as the **underutilisation of skills in the weak SME sector** and the **shrinking opportunities for non-degree holders** (Sadik, 2023). In short, advancing SkillsFuture's broader socioeconomic ambitions may hinge on the adoption of corporate models that integrate inclusive talent practices at their core as **institutionalised pathway that builds corporate talent**.

Research questions

The research questions guiding the study are as follows:

1. What are the practices associated with 'wealth of talent' firms in Singapore, including but not limited to its relationship to business strategy, distribution of rewards, learning & development approaches and digital transformation strategy? What is the character of the learning and development opportunities for the broader workforce in such companies? Given a 'war for talent' corporate landscape in Singapore, what accounts for the divergent approaches of 'wealth of talent' firms in Singapore?

2. How can companies be shifted from 'war for talent' to 'wealth of talent' approaches in Singapore? To what extent is the period of digital transformation a window of opportunity for encouraging companies to operate with a wider view of talent?

3. What strategies and tools will support the shifting of Singapore's corporate landscape from 'war for talent' to 'wealth of talent'? How can we monitor the progress?

The biggest challenge of this study was **methodological**—specifically, identifying 'wealth of talent' firms, which are not well-defined in Singapore's corporate landscape.

To address this, we adopted an **experimental** approach. We began with a deep dive into the BPSS dataset of 3,801 establishments in Singapore to uncover possibilities of extracting examples of 'wealth of talent' firms that are aligned to the characteristics of the biotech firm outlined earlier.

After exploring various methods, we settled on a clustering technique that led to the identification of two additional talent types—**'constrained talent'** and **'zero-talent'**. We chose to incorporate these two newly discovered talent models into our analysis, alongside 'war for talent' and 'wealth of talent' establishments. These additions did not stray from the original research questions; instead, it **enriched our understanding of the diversity in corporate talent management practices** in Singapore, strengthening the foundation for exploring how to expand the presence of 'wealth of talent' firms in the country.

Following the quantitative phase, we conducted a qualitative phase, involving semi-structured interviews with 30 firms. This presented a second challenge, as the Covid-19 pandemic required us to adjust our data collection strategy. However, the pandemic also accelerated technological adoption across various firm types and sectors in Singapore, adding considerable depth to our exploration of the second research question.

In all, we are pleasantly surprised by the results, which not only answered the original research questions but also **expanded on them in unexpected ways**.

Structure of the report

The report is structured as follows. Chapter 2 introduces the theoretical frameworks that underpin the research. Chapter 3 outlines the methodology. Chapter 4 presents the quantitative findings. Chapter 5 describes the key features of the talent models in this study. Chapter 6 presents the lived experiences of managers and workers in these firms. Chapter 7 discusses the implications of the findings for policy and business. Chapter 8 concludes the study.

2. Theoretical frameworks

Dominant understandings of talent: from human capital to positional competition

The study of how talent is defined, mobilised, and rewarded in labour markets has traditionally been dominated by **human capital theory** and **signalling theory**.

Human capital theory (Becker, 1962; Schultz, 1961; Mincer, 1958) posits that education enhances individual productivity, which is then reflected in labour market outcomes. This perspective has underpinned major policy frameworks globally, including Singapore's long-standing emphasis on educational excellence, continuous learning and skills upgrading as a driver of economic growth.

Signalling theory (Arrow, 1973; Spence, 1973) is more sceptical about the intrinsic value of education. It argues that credentials serve as a signal of innate ability, reliability, and trainability, rather than as markers of individual productivity. In this view, educational qualifications are less about skill acquisition than about providing employers with indicators of potential. Credentials signal the types of employees firms should invest in, with elite universities conveying the highest level of perceived potential, capability, and organisational fit (Binder et al., 2016; Ho, 2009; Rivera, 2015).

Despite their influence, both theories fall short in explaining persistent labour market paradoxes in Singapore. The country boasts one of the world's top-performing education systems, with students consistently excelling in PISA assessments and its universities ranked among the best in Asia. PIAAC data shows that Singapore's younger cohort (16–34 years) ranks among the top 15 globally in literacy, numeracy, and problem-solving (OECD, 2024).

Yet, employers continue to report a 'talent gap', particularly in high-skilled roles. This is especially striking given that Singapore's education system is widely regarded as the strongest in the region—yet local graduates are often perceived as less competitive than their peers from India and China, who enjoy preferential hiring (Brown et al., 2019).

Why do such mismatches persist? Neither human capital nor signalling theory adequately captures the **competitive dynamics of** how access to different types of jobs is structured.

Positional competition theory offers a different perspective (Collins, 1979; Hirsch, 1975; Brown, 2000; Brown & Hesketh, 2004). It argues that individuals do not compete in an open meritocracy but within **rank-ordered labour queues**—where educational success offers only a relative advantage based on societal rules that govern distribution of opportunities. As more individuals attain higher education, its value as a labour market signal diminishes. From the perspective of positional competition, educational systems are not equalisers but **rationing devices**—sorting individuals into hierarchical queues to determine who is selected, groomed, and fast-tracked into opportunity. Their value goes beyond skill development to how they interface with corporate recruitment structures, reinforcing competitive hierarchies within the labour market.

In **India and China**, the effects of positional competition manifest in the highly stratified higher education systems. Corporate recruitment focuses narrowly on graduates from elite institutions such as the Indian Institutes of Technology and Management (IITs and IIMs) and China's C9 League. These students are courted prior to graduation, offered stretch developmental opportunities, and fast-tracked into top corporate roles—despite no definitive evidence of their calibre (Brown et al., 2019; Brown, Sadik & Xu, 2021; Sadik & Brown, 2019). In effect, corporations choose to take a calculated bet on them, reinforcing institutional hierarchies and bypassing the majority of qualified graduates within their 'war for talent' corporate structures.

‘War for talent’ practices, therefore, represent **a form of corporate hierarchy**, popularised by McKinsey consultants as a strategy to identify and invest in a narrow elite within the workforce (Michaels et al., 2001). They argued that business success would increasingly depend on a narrow group of high performers, comprising 10–20% of the workforce. This elite group would be identified early, groomed intensively, and compensated disproportionately. Talent, under this framework, is seen as both scarce and critical—justifying income differentials, performance-based ranking, and forced distributions.

This model represents a **clear break from human capital logic**, abandoning the idea that broad investment in education leads to broad productivity gains. Instead, it concentrates value in a presumed elite—a small group believed to outperform peers with similar credentials—who are selectively fast-tracked **based on subjective judgments rather than demonstrable capability** (Brown et al., 2019).

Becker et al. (2009) extend this stratification to job types, distinguishing between ‘A’ jobs (strategic), ‘B’ jobs (supporting), and ‘C’ jobs (operational or expendable). Talent is not evenly distributed across job types—organisations are expected to direct investment where it aligns with strategy. This **differentiation of people and roles** intensifies internal inequalities and reshapes the internal labour market.

Critics argue that the **‘war for talent’ paradigm is empirically and ethically flawed**. Lewis and Heckman (2005) note the lack of definitional clarity in both the theory and practice of corporate talent management. Burkus and Osula (2011) point to the **Pygmalion effect**, where performance improves not due to innate ability but to managerial expectations. The **Matthew effect** compounds this: those already labelled as “talent” receive more resources and opportunities, reinforcing their position. Moon et al. (2016) further demonstrate that forced distribution systems harm organisational citizenship and contribute to counterproductive work behaviours over time. Our original study (Brown et al., 2019) found that the ‘war for talent’ practice rewards conformance due to the need for alignment with senior managers’ expectations. In the words of one of the respondents in the study, ‘think out of the box’ but ‘don’t rock the boat’. While more **inclusive talent philosophies** have been proposed—such as ethical framework by Swailes (2013) or development-oriented model by Meyers and Woerkom (2014)—these remain aspirational.

Corporate talent as a product of organisational design

Consequently, an alternative way to understand talent is to see it as something shaped by **how companies manage and organise their workforce**, rather than as an individual trait. Just as how companies may adopt a ‘**war for talent**’ approach—which focuses on identifying and investing in a small elite, they may also adopt a **‘wealth of talent’** approach that values the contributions and development of the entire workforce.

A **corporate talent market** involves both the supply of skilled individuals and the way companies structure demand—the business models they pursue, how they organise work, assign roles, and reward people. Success is heavily shaped on who is trusted to perform what work. How companies approach these issues influence how they distribute **training, career opportunities, and rewards** across the workforce.

Therefore, per the findings in our original study (Brown et al., 2019), talent markets inside companies are not **natural outcomes** of individual performance or education levels. In many firms we studied framed by ‘war for talent’ practices, talent management was driven by **forced distributions**—systems that classify workers into categories such as ‘high potential’ or ‘average’, based on constant measurement, ranking, and comparison. These systems often justify inequality by framing talent as something scarce and exclusive—a ‘special breed’. This reflects a more deliberate and constructed division of labour, not unlike what Emile Durkheim described in his 1893 classic *The Division of*

Labour. Avent-Holt and Tomaskavic-Devey (2010) and Avent-Holt et al. (2020) similarly put forth that workplaces are sites generating and mediating the current state of social inequalities.

Consequently, the opposite approach is also possible. Companies can adopt a more generous view of their workforce's capabilities and design work structures that **trust employees to contribute meaningfully across roles**. The 60-person biotech firm described in the original study (Brown et al., 2019) and referenced in the Introduction (p. 9) exemplifies such an inclusive model. Its institutional structuring of opportunity embraces a broader definition of talent, enabling even less formally qualified individuals to develop and thrive. In such settings, employees are given the space to grow, often achieving higher skill levels than initially expected—**not because they were pre-identified as exceptional**, but because they were **trusted and supported to build their capabilities** through meaningful opportunities.

Often such firms – when investigated in academic literature – are found in countries known for high levels of social inclusion such as in the Mittelstand in Swiss-Germanic countries and among Denmark's 'hidden champions'. Similar models are **inadequately researched in Singapore** (Danish Technological Institute, 2014; Lehrer & Schmid, 2020; Pahnke & Welter, 2019).

The presence of such firms in these settings is often attributed to the influence of broader societal structures. Yet, while emphasising the historical contexts of *Mittelstand* firms in Germany versus companies in Silicon Valley, Pahnke and Welter (2019) also highlight the **distinct business models** dominant in these settings. The authors note a key difference in product strategy in the two countries: Silicon Valley firms tend to focus on scalable, consumer-facing innovations, whereas *Mittelstand* firms specialise in deep-tech, business-to-business solutions embedded within the production systems of other companies.

Anchored in the conceptual framework that corporate talent is shaped by organisational design, this study investigates whether **Singapore may be fertile ground for the thriving of 'wealth of talent' firms**—not as rare exceptions, but as viable alternatives to the dominant 'war for talent' model of workforce stratification, even in the absence of the social inclusion structures characteristic of the Swiss-German and Nordic systems.

Corporate talent management as a mediator of technological change

Extending the view that corporate talent is shaped by organisational design, we argue that **workforce outcomes from technological change are not technologically predetermined**, but deeply contingent on how organisations structure work, allocate discretion, and define value.

This perspective **challenges much of the prevailing literature on the future of work**, which tends to frame digital transformation as an external force driven by technological possibilities. Within this techno-centric framing, three dominant strands of analysis can be identified. First, **forecasting studies** estimate the proportion of jobs at risk of automation based on task substitutability (e.g., Frey & Osborne, 2013; Arntz et al., 2016). Second, **historical accounts of skills-biased technological change** argue that technology drives inequality when education systems fail to keep pace with skill demands (Autor et al., 2008; Goldin & Katz, 2008). Third, **conceptual accounts of technological displacement** anticipate a future of widespread job loss—even among professionals—as intelligent systems increasingly perform complex tasks (Brynjolfsson & McAfee, 2014; Susskind, 2020).

What these accounts share is a tendency to treat technology as an autonomous driver of labour market transformation. By contrast, we centre the organisation as a critical site where the **social relations of production are reconfigured**, and where the impact of technology is shaped by how firms choose to design roles, distribute discretion, and define who is considered valuable.

This organisationally grounded view draws from landmark studies of earlier periods of technological change, which shows that technology adoption is often shaped more by managerial intent than by technical necessity. **Braverman (1974)** argued that Taylorist principles were used not just to improve efficiency, but to **separate conception from execution** to allow for more efficient labour control. **Fox (1974)** clarified that changes in task design often serve to **transfer discretion upwards**, not necessarily because of machines, but through organisational decisions. As he wrote:

> Situations have been frequent in which a narrowing of task range comes with the simplification of tasks by machinery or new methods, thereby transferring discretion upwards to machine designers, managers and other specialists. *(Fox, 1974: 17)*

Noble (1986) further demonstrated that similar technologies can yield very different outcomes depending on context—while computerised tools deskilled machinists in the US, they enhanced skilled roles in Germany. These foundational studies show that technological outcomes are not fixed but **contingent on organisational design choices**.

More recent studies affirm these insights. **Brown et al. (2011)** argue that the digital restructuring of global value chains—what they call 'digital Taylorism'—is driven less by any inherent feature of technology and more by **cost-efficiency strategies pursued by transnational corporations**. Technologies are adopted not because they require de-skilling, but because they allow it. **Head (2014)** highlights that alternative futures are possible, documenting firms that use technology to broaden discretion, deepen capabilities, and create more meaningful roles for workers.

Our study builds on this tradition to examine how different corporate talent models—particularly 'war for talent' versus 'wealth of talent' approaches—mediate the workforce impacts of digital transformation. This lens offers **two important contributions**.

First, it sensitises us to new forms of workforce risk and inequality that arise not from technology itself, but from how organisations structure talent, allocate opportunity, and implement digital systems. It highlights how exclusionary outcomes—such as limited mobility, reduced discretion, or skills redundancy—can become **structurally embedded in the very tools and workflows of daily work**, making them harder to detect and reverse over time.

Second, it enables us to **identify organisational designs and technology strategies that align business performance with more inclusive workforce outcomes**. By surfacing examples of firms that use digital tools to distribute discretion, deepen employee capability, and enable bottom-up innovation, we aim to highlight practical pathways that can be supported, scaled, and sustained in business practice.

In doing so, we shift the debate from what technology will do to jobs, to how organisations can be structured to ensure that digital transformation expands—not narrows—the space for human contribution.

Summary

The theoretical frameworks adopted in this study **challenge dominant understandings of talent and technology**. Rather than viewing talent as an innate attribute or technology as an external force, we frame both as outcomes of organisational design and strategic choice. These lenses offer a clearer analysis of how firms structure opportunities and distribute rewards—issues central to strengthening the employer pillar of the SkillsFuture movement. By identifying alternative corporate models that align business performance with workforce development, and examining how such models can be sustained amid technological and geo-economic disruption, this study aims to contribute to **fortifying SkillsFuture's long-term vision**. The next sections outline the methodology and present the empirical findings.

3. Methodology

Mixed methods

The study employs a **mixed methods approach**, combining both quantitative and qualitative data to explore the identification of 'wealth of talent' firms. This approach is essential due to the **experimental** nature of uncovering these firms, which requires **flexibility**. Mixed methods provide a unique advantage by integrating the broad scope of quantitative data with the rich, in-depth insights of qualitative research (Leech & Onwuegbuzie, 2009; Tashakkori & Creswell, 2007).

A **fully mixed sequential equal status design** is used, ensuring equal weight is given to both methods. The study begins with a **quantitative phase**, using the Business Performance and Skills Survey (BPSS) to broadly identify firms that may fit the 'wealth of talent' profile. This is followed by a **qualitative phase** that involves in-depth interviews and case studies across 30 firms, which serve to validate the quantitative findings and uncover deeper insights that may not have emerged initially.

Designing the quantitative investigation

The **BPSS**, completed between January and December 2016, is a large national face-to-face employer survey of 3,801 commercial establishments with ten or more workers in Singapore. The BPSS develops and establishes **a system of workplace indicators for diagnostic, policy and practical purposes**. BPSS researchers explained that the survey was designed so that indicators may be understood in isolation and in relation to each other (Tan et al., 2018). The survey respondents were either the business owner or a senior manager of the establishment with a minimum of 1 year's tenure.[2]

Clustering is the selected methodology for analysis of the BPSS data, given the objective of the study to identify different patterns of corporate talent management across the Singapore economy. As Everitt et al. (2011) observe, classifying a set of objects is not like a scientific theory and is best assessed in terms of its usefulness rather than whether it is 'true' or 'false'. An inspiration is the study by Holm and Lorenz (2015), which uses the agglomerative hierarchical clustering using Ward Linkage to map out the key patterns of work organisations in Europe using the European Working Conditions Survey.

Decisions on the dimensions to cluster the data were made in relation to how to validate and elaborate on the two constructs of corporate talent management in the original study by Brown et al. (2019), namely the classification of people and the framing of jobs.

Three key constructs have been selected from the BPSS survey, namely talent, skills demand and discretionary effort that are outlined below:

***Talent construct**:* The talent construct in the BPSS matches closely to the construct of the classification of people in the original study by Brown et al. (2019). Here, the focus is understanding senior managers' assessment of who is valued in the company and for what reasons. Questions were asked on (a) talent as performance (% of workforce considered as adding significant value to the establishment); (b) talent as potential (% of workforce considered as showing promise to take on more significant responsibility in the future); (c) talent as promotability (% of workforce who are

[2] Establishments were selected for sampling from a registry of live companies managed by Singapore's regulatory body, the Accounting and Corporate Regulatory Authority (ACRA). The protocol for data collection entailed the interviewer approaching the business entity at the address listed in the sampling frame and checking that the entity was eligible and willing to participate. If the establishment was non-eligible or refused to participate, the interviewer checked the eligibility of the nearest neighbouring commercial establishment before inviting them to participate as a replacement firm.

candidates for future promotion); and (d) talent as hard to replace (% of workforce considered as being hard to replace within three months if they resigned).

Skills demand: BPSS researchers define the skills demand construct as 'reflect[ing] the complexity of the jobs available in establishments by offering a broad overview of the technical and cognitive skills they require' (Tan et al., 2021: 16). What is being measured is the skills and training required of a job, rather than that possessed by employees who may not have the skills and training, or who may have exceeded the requirements. The variables are (a) initial training (% of jobs with university degree required); (b) induction training (% of jobs with induction training of more than a week); (c) industry experience (% of jobs with at least 3 years of industry experience); and (d) additional professional development (% of jobs with frequent learning or development activities). Specifically, the higher the skill levels required of jobs, the more likely it is that it is harder to separate conception and execution activities, suggesting a weak framing of jobs.

Discretionary effort: Discretionary effort has been described as 'the voluntary effort that employees contribute to the organisation above and beyond what is required to keep the job and remain functional' (Lloyd, 2008: 22). It has been conceptualised as a behavioural measurement of employee engagement that both employees and employers could report. When reported by senior managers of their workforce, it is often interpreted as an observable assessment of the workers' performance (Macey & Schneider, 2008; Barrick et al., 2015). Discretionary effort thus could co-relate to the BPSS variable of talent as performance (defined as % of workforce adding significant value to the establishment). However, performance appraisal is not neutral, and often subject to managerial bias (Bellé et al., 2017). An alternative understanding is that the construct of discretionary effort may represent management's perceptions of the workforce. Discretionary effort is thus an important construct to add to the clustering. The related variables in the BPSS survey were related to management's views of how employees exerted voluntary effort, namely (a) % of workforce going beyond the call of duty, (b) % of the workforce taking up duties of others without being asked, (c) % of workforce putting in more hours than expected; and (d) % of workforce making helpful suggestions.

The 12 variables selected for clustering are listed in **Table 1.** Before clustering, dimensions were standardised to have a mean of zero and a standard deviation of one. **Table 2** list the remaining variables of interest.

Table 1. BPSS variables for agglomerative hierarchical clustering using Ward Linkage

Concept	Construct	Variables
Talent management (immediate relevance)	Talent	• % of workforce adding significant value to the company • % of workforce with high potential • % of workforce for future promotion • % of workforce that is difficult to replace within 3 months if they resigned
Talent management (potential relevance)	Skills demand	• % of jobs with university degree required • % of jobs with at least 3 years of industry experience • % of jobs with induction training of more than a week • % of jobs with frequent learning or development activities
	Discretionary effort	• % of workforce going beyond the call of duty • % of workforce taking up duties of others without being asked • % of workforce putting in more hours than expected • % of workforce making helpful suggestions

Table 2. Other variables in BPSS of interest

Concept	Construct	Variables
Workplace context indicators	Demographics	• Sector, domicile, size
	Business strategy	• Always customise products and services • Competing for premium quality vs price competition • Frequently take many risks • Job design and technology focus more on maximising workflow efficiency than workers' skills
	Workforce engagement	• % of workforce attrition (including by occupations) • % of senior appointments were internal promotions • Opportunities for non-PMEs to form their own teams • Sharing of business info with non-PME workers
	Rewards	• % of workforce that receive company-level bonuses • % of workforce that receives individual performance-related pay • % of workforce that receives share options for employees • % of workforce with opportunity for international assignments
	Business performance	• Change in profitability • Change in sales/revenue • Change in market share
	Technology use	• Extent of being an early adopter of technology • Significant changes in tech-related work processes
	Workforce reduction	• Extent of reduction in number of workers
	Increase in skills	• Change in skills & training needs of new recruits (low, mid & high levels)

The BPSS data has two key limitations: it was collected in 2016, prior to the COVID-19 pandemic, meaning the business environment would have changed, and it lacked some essential variables essential, such as job framing. Despite these drawbacks, the BPSS survey provides valuable insights. To address these limitations, the study will use qualitative investigation to assess the external validity of corporate talent management patterns identified in the quantitative investigation. The full set of quantitative findings is reported in Chapter 4.

Designing the qualitative investigation

The qualitative investigation builds on the quantitative investigation to examine how corporate talent management and technology strategies are connected, across 30 firms – **interviewing both managers and employees**. A two-pronged approach was employed. The first approach involved selecting firms from each of the four clusters identified in the BPSS quantitative analysis (Clusters 1 – 4). A total of 15 firms were chosen through this method. The second approach involved sampling the remaining 15 firms from the researchers' contacts. The purpose is to test the utility of the four major clusters across a broader section of the corporate sector. If the BPSS clusters were accurate, we should expect to see evidence of such companies in the wider corporate population. In each of the 30 firms sampled in the qualitative investigations, interviews were planned with one senior manager and two employees. The interviews with employees allow for corroboration of the responses of senior managers.

Because qualitative data collection occurred during the COVID-19 pandemic, access to firms were constrained significantly. Only companies that had a website or whose senior managers were on LinkedIn could be contacted. The data collection method was mainly conducted via Zoom to abide

by government regulations. However, when the government allowed workplace interaction, respondents were allowed to be interviewed via Zoom or face-to-face. Most still prefer a Zoom interview. In total, 77% of respondents were interviewed via Zoom.

As the identity of the senior manager responding the BPSS survey in 2016/17 were not known to the research team, a process had to be put in place to connect with the BPSS firms (n=15). Recruitment began by identifying a senior manager through the corporate website or LinkedIn and sending an email invitation to them to participate in the study. These were usually the Chief Executive Officers (CEO) or the Human Resource (HR) managers. Upon their acceptance of the invitation, a set of guiding questions was provided, and an interview was set up. At the end of the interview, they were requested to nominate two employees for the career journey interviews.

Non-BPSS firms (n=15) were recruited using the researchers' professional and personal contacts. A process was put in place to assist with sampling the 15 non-BPSS companies. It included informal discussions with those who know the practices of the firms, a review of the websites and media articles on the firms, and an analysis of workforce profiles through LinkedIn and Glassdoor reviews. The purpose of the assessment process was not to establish the firms' corporate talent management model before data collection but rather to be purposeful in ensuring that the non-BPSS sample capture a wide variety of corporate talent management models as much as possible. Upon identification of suitable firms, a request for interview was sent to senior managers that followed the same process as BPSS establishments.

The acceptance rate for interviews by senior managers was significantly higher for non-BPSS firms (1:2) than for BPSS firms (1:7). This is understandable as direct contacts would have more trust in the researchers and, therefore, be more supportive of the study. Employee interviews had a different logic. Firms that took a more generous view of their workforce were three times more likely to nominate employees for career journey interviews than firms that took a restricted view of their workforce, regardless of whether they were recruited through the researchers' contacts or otherwise. We took advantage of the openness of firms operating with a generous view of their workforce by asking for more employees for interviews to allow us a deeper understanding of the firm.

All employees interviewed were contacted separately via email or phone once the senior managers provided the contact. A series of steps was taken to secure their consent and ensure they felt safe sharing their experience. Despite being nominated by their managers, the employees' responses were frank and candid, with elements of criticality that showed their trust in the research process.

A data collection instrument based on semi-structured interviews was used. Semi-structured interviews provide a balance between the strictly worded questions used in surveys or questionnaires and the lack of set questions used in unstructured interviews (Bryman & Bell, 2011). Questions were also posed as signalled by the quantitative analysis. For instance, the quantitative analysis found that companies with a generous view of talent had the highest attrition rate, which was an unexpected finding that required unpacking. The qualitative investigation also encompassed additional facets such as the business model, learning modalities, managerial strategies, and technology strategy.

Audio recordings were sent for transcribing. The transcript was then sent to the respondents for their review. Generally, respondents did not have many corrections to their transcripts. One senior manager respondent did not allow us to record the interview due to the firm's organisational policy though he consented to notes being taken. A set was prepared and sent to the respondent for review. **Table 3** summarises the data collected.

Table 3. Summary of qualitative respondents

	BPSS (15 firms)			Non-BPSS (15 firms)		
	No. of firms	**Managers**	**Employees**	**No. of firms**	**Managers**	**Employees**
^Cluster 1	4	4	5	15	18	35
^Cluster 2	3	3	4			
^Cluster 3	4	6	2			
^Cluster 4	4	4	2			
Total	**15**	**17**	**13**	**15**	**18**	**34**
Via Zoom	**-**	**14**	**10**	**-**	**13**	**26**
Via phone call	**-**	**-**	**-**	**-**	**-**	**1**
Face-to-face	**-**	**3**	**3**	**-**	**5**	**7**
Total no. of firms:					**30**	
Total no. of interviews (managers & employees):					**82**	
Total no. of manager interviews only:					**35**	
Total no. of employee interviews only:					**47**	
Proportion of total interviews via Zoom:					**77%**	

^ *Refers to the four clusters derived from the BPSS cluster analysis in the quantitative component of the study. The qualitative study samples were taken from each of the four BPSS clusters (n=15) and researchers' own contacts (non-BPSS, n=15). Clusters 1-4 are not named yet as they are subjected to further interrogation in the qualitative component of the study to develop the final archetypes.*

In terms of analysis, every company is treated as a case. Each case is first analysed in relation to the senior manager's response, followed by triangulation with the employees' responses where available. Each case is then compared with other cases through a process of constant comparison. The outcome of the qualitative investigation is akin to a manual clustering of all 30 firms into four archetypes with a description of their broad practices that include corporate talent management and product and technology strategy. The next section outlines how the study's quantitative and qualitative findings are integrated.

Designing the integration of findings

Data integration is central to mixed methods research, but substantial integration is often not achieved (Fielding, 2012; Woolley, 2009). A common strategy for integration is triangulation. **Holistic triangulation** is the approach taken in this study (Turner et al., 2017), allowing for the exploration of multiple perspectives. When findings converge, triangulation helps elaborate underlying mechanisms; when they diverge, constant comparison aids in developing the most plausible explanation. **Table 4** summarises the approach taken.

Table 4. Layers in data integration strategy

Data integration strategy	Layers
Holistic triangulation	Layer 1 – Patterns of corporate talent management
	Layer 2 – Wider context of firms
	Layer 3 – Firms' digital strategy and potential impact on the division of labour

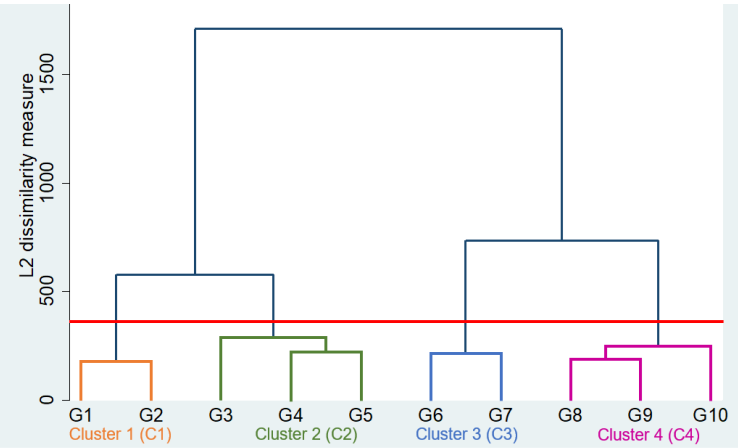
Results of the study are presented in the next three chapters.

4. Quantitative results: four clusters

Four key talent model clusters in Singapore

Although the study originally aimed to compare and contrast 'wealth of talent' and 'war for talent' practices, the methodology outlined in the previous chapter allowed us to discover multiple talent models. **Figure 2** presents the dendrogram results. Everitt et al. (2011) highlight that the value of a classification should be judged by its usefulness, rather than its truth or falsehood. After evaluating the cluster results, the decision was made to limit the analysis to four clusters (Clusters 1-4), as this provided the clearest depiction of differences between them. **Figure 3** offers a visual representation of the four clusters.

Figure 2. Dendrogram from BPSS cluster analysis using Ward Linkage



Source: Business Performance and Skills Survey, 2017

Figure 3. Cluster visualisation based on variables used for clustering

Source: Business Performance and Skills Survey, 2017

Table 5 presents detailed cluster results by variables.

Table 5. Results of average values of dimensions used for clustering by cluster

Construct	Variables	Sample mean		Cluster 1	Cluster 2	Cluster 3	Cluster 4
Skills demand	% of jobs requiring degree	3.97	21-30%	35-45%	21-30%	15-25%	5-15%
	% of jobs requiring induction training of more than a week	4.78	25-35%	41-50%	41-50%	5-15%	11-20%
	% of jobs requiring frequent learning	4.75	25-35%	45-55%	31-40%	15-25%	11-20%
	% of jobs requiring industry experience	5.39	31-40%	45-55%	35-45%	25-35%	21-30%
Discretio-nary effort	% of staff going beyond the call of duty	3.43	15-25%	26-50%	10-20%	26-50%	5-15%
	% of staff taking up duties of others	3.30	15-25%	26-50%	10-20%	26-50%	1-9%
	% of staff putting in more hours	3.44	15-25%	26-50%	10-25%	26-50%	1-9%
	% of staff making helpful suggestions	3.40	15-25%	26-50%	10-25%	26-50%	5-15%
Talent	% of staff adding significant value	6.45	45-55%	65-75%	51-60%	31-40%	21-30%
	% of staff for future promotion	3.98	21-30%	41-50%	15-25%	5-15%	5-15%
	% of staff with high potential	3.90	21-30%	41-50%	15-25%	5-15%	5-15%
	% of staff difficult to replace	3.67	15-25%	41-50%	11-20%	1-10%	5-15%

Source: Business Performance and Skills Survey, 2017

Table 6 provides the findings of the distribution of firm characteristics by cluster.

Table 6. Distribution of firm characteristics across Clusters 1 - 4

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Cluster distribution	25.0	30.5	18.0	26.5
Demographics				
SME	24.1(***)	30.6	17.4	27.9***
Multinational corporation	33.0***	29.5(***)	18.6(***)	19.0(***)
Industry				
Infocomm	40.5***	27.7(***)	19.6(*)	12.3 (***)
Financial services	39.0**	24.2 (**)	21.1	15.8(***)
Professional, scientific, technical	37.3***	31.6(***)	15.9(***)	15.2(***)
Education	32.4*	33.3	18.9	15.3(*)
Real estate, admin & support	28.5*	33.0	11.1(**)	27.4
Wholesale & retail trade	23.4(**)	27.0	19.0	30.6**
Manufacturing	18.6 (***)	27.9	18.0	35.4***
Construction	15.1(***)	35.1***	23.2***	26.6***
Accommodation, food & beverage	14.2 (***)	38.0***	16.3*	31.5***
Workforce profile				
% of professionals, managers and executives (PMEs)	25-35% +++	15-25%	21-30%	11 - 20%
% of knowledge workers	41 - 50% +++	21 - 30%	21 - 30%	15-25%
Business strategy				
Frequently take many risks *(strongly agree [4 or 5 out of 1-5])*	25.8***	32.9	14.7(***)	26.6
Design jobs for efficiency *(strongly agree [4 or 5 out of 1-5])*	26.3*	29.5	16.7 (*)	27.5

	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Always customise products and services *(strongly agree [4 or 5 out of 1-5])*	28.1***	29.0 (***)	16.8 (***)	26.1 (***)
Substantial customisation, compared to others *(strongly agree [4 or 5 out of 1-5])*	27.7***	30.2 (**)	17.0(***)	25.2(***)
Compete for premium quality products and services *(strongly agree [4 or 5 out of 1-5])*	28.6***	29.4 (***)	17.5(***)	24.5(***)
Relies on developing unique products and services *(strongly agree [4 or 5 out of 1-5])*	28.6 ***	29.9(***)	16.1(***)	25.4(**)
Work practices				
Work autonomy *(Score of 1-5 with 5 being the highest)*	3.4 +++	2.9	3.1	3.1
Opportunity for non-managerial staff to create teams *(1-Never, 2-Sometimes, 3-Often)*	1.9 +++	1.8	1.8	1.8
Employee development				
% of senior staff who are internal promotions	41-50% +++	21-30%	15-25%	11-20%
% of all staff who are learning on the job	60-80% +++	51-75%	51-75%	50-65%
% of staff with career planning	10-30% +++	10-20%	10% or less	less than 10%
% of staff with opportunity for international assignments	25-35% +++	15-20%	11-20%	5-15%
Staff rewards				
% staff earning less than $1900	11 - 20% +++	21 - 30%	15-25%(-)	21 - 30%
% staff earning more than $6000	11 - 20% +++	5-12%	5-15%	1 - 10%
% staff receiving performance bonus	51 - 60% +++	41 - 50%	41 - 50%	31 - 40%
% staff receiving company bonus	65-75% +++	71-80%	61-70%(-)	65-75%(-)
Attrition				
% of PMEs	3-8% +++	1-5%	1-5%	1-5%
% of technicians and associate professionals	6-10% +++	6-10% (-)	3-8%	6-10% (-)
% of other staff	6-10% +++	6-10% (-)	3-8%	6-10% (-)
Financial performance				
Increase in profitability	34.7 ***	29.0 (***)	18.0(***)	18.3(***)
Increase in revenue	32.7 ***	29.4(***)	18.5(***)	19.3(***)
Increase in market share	33.7***	31.5(***)	18.2(***)	16.7(***)
Technological innovation				
Early adopter of technology	28.0 ***	28.9(***)	16.7(***)	26.5(*)
Changes in work processes due to technology	33.1 ***	30.4 (***)	18.2 (***)	18.3(***)
Reduction in workers due to technology	27.7(***)	33.6***	16.6	22.1***
Increase in training for new PME staff due to changes in technology	38.6***	33.6	14.5(**)	13.3(***)
Increase in training for new technicians and associated professionals due to changes in technology	37.9*	31.4	15.2(*)	15.5(*)
Increase in training for other new staff due to changes in technology	37.1	31.0	16.3	15.6

Source: Business Performance and Skills Survey, 2017

Legend:

With Type 1 as reference:

- ***, **, *: The logistic regression identifies the Type/s that is statistically '**more likely**' related to that particular variable with significance level at p<.001, p<.01, p<.05, respectively
- (***), (**), (*): The logistic regression identifies the Type/s that is statistically '**less likely**' related to that particular variable with significance level at p<.001, p<.01, p<.05, respectively.
- +++, ++, +: The one way ANOVA with Bonferroni test identifies which Type mean is statistically different from other Types, with significance level at p<.001, p<.01, p<.05, respectively. The (-) is to show that particular result is not statistically different from the reference (Type1), while others without (-) are statistically different from Type 1.

Description of the cluster results

Cluster 1 – 'Wealth of talent' firms (25%)

- **Archetype:** Closest fit to 'wealth of talent' firms
- **Job design, skills and talent use:** These firms report the highest skills demand and strongest recognition of workforce value—65–75% seen as adding significant value; 41–50% identified as high potential, well beyond the average of 21-30% in the Singapore economy. Interestingly, the proportion regarded as high potential is likely to include non-graduates, suggesting inclusive advancement.
- **Business strategy:** Characterised by high levels of innovation, customer customisation, and development of unique products and services.
- **Work practices:** Workers enjoy the highest levels of autonomy, strong internal promotion rates, and opportunities for non-managers to create teams.
- **Employee development and rewards:** These firms lead in on-the-job learning, career planning, international assignments, and offer the most attractive reward structures.
- **Technology and innovation:** Early adopters of technology with significant changes in work processes. Rather than reducing headcount, they invest in training, especially for PMEs and mid-skilled staff—indicating a skills-biased technological change (SBTC) strategy.
- **Business performance:** Report the strongest financial performance in profitability, revenue, and market share.
- **Attrition:** Despite inclusive practices, these firms also report the highest attrition among professionals and managers (PMEs), which is a surprising finding.
- **Sectoral patterns:** Statistically over-represented in high-skill, high-value sectors such as infocommunications, financial services, professional services, education, and real estate. However, outliers exist—including F&B firms that follow this high-road model.
- **Overall assessment:** High-performing, innovation-driven organisations that integrate inclusive talent practices with business and technology strategies.

Cluster 2 – 'War for talent' (30%)

- **Archetype:** Closest fit to 'war for talent' firms
- **Job design, skills and talent use:** High demand for skills with 31-40% of jobs seen to require frequent learning. 51–60% of workers are seen as adding significant value. However, only 15–25% are considered promotable or high-potential—indicating an elite-focused strategy. Staff are not seen as exercising effort (10-20%), which contradicts the high valuation of current workforce contributions.
- **Technology and innovation:** These firms are more likely to reduce staff due to technological innovation, even though jobs that remained are upgraded.
- **Sectoral patterns:** Over-represented in construction and accommodation, food and beverage (F&B) industries.
- **Overall assessment:** A highly selective talent model that underinvests in broad workforce development.

Cluster 3 – 'Constrained talent' firms (18%)

- **Archetype:** Best described as 'constrained talent' firms, they offer some—but limited—space for workforce actualisation, with narrow job designs and minimal investment in development
- **Job design, skills and talent use:** These firms exhibit low skills demand with less than 25% of jobs requiring frequent learning, suggesting narrow and routine job roles. Workers are seen as exhibiting above-average effort (30-40%) and delivering significant contributions (21-30%), yet this is not matched by management's recognition of their future potential to the firm (5-15%).
- **Technology and innovation:** Firms show limited response to technological change and it is unclear if they would upgrade job designs using technology.
- **Sectoral patterns:** Statistically more likely to be found in construction, with fewer distinct sectoral patterns than other clusters.
- **Overall assessment:** Underutilised talent within rigid organisational design.

Cluster 4 – 'Zero talent' firms (27%)

- **Archetype:** Best described as 'zero talent' firms, they operate with minimal recognition of workforce value, offering little to no space for development, autonomy, or advancement. Most likely to be SMEs.
- **Job design, skills and talent use:** Lowest in all dimensions. These firms exhibit low skills demand with only 11- 20% of jobs requiring frequent learning, suggesting extremely narrow and routine job roles. Discretionary effort is observed only in 5-15% of the workforce. Those seen as adding significant value is 21-30%, while those seen as having future potential is at 5-15%.
- **Technology and workforce strategy:** They are more likely to reduce workers due to technology, yet do not raise skill requirements with technology despite their low skills demand.
- **Sectoral patterns:** Over-represented in wholesale and retail trade, manufacturing, construction, and F&B—industries often associated with lower-skilled roles. Still, notable outliers exist, such as professional services firms with this low-talent model.
- **Overall impression:** These firms invest little in workforce development, rewards, or redesign—trapped in a low-skill, low-investment cycle.

Summary

Four distinct talent model clusters are found among Singapore firms, moving beyond the initial comparison of 'wealth of talent' and 'war for talent' approaches. Clusters 1 and 2 are high skills cluster. Cluster 1, aligning most closely with the 'wealth of talent' model, features high skills demand, strong discretionary effort, inclusive talent recognition, and the best business and innovation outcomes, including investment in employee development and technology. Cluster 2 represents a classic 'war for talent' model, with high valuation of current performance but focusing only a small proportion for developing future potential, alongside a tendency to reduce headcount with technological change. Clusters 3 and 4 represent constrained and zero-talent models respectively—marked by low skills demand, narrow job designs, and limited innovation or development efforts. Sectoral analysis shows all four clusters are present across industries, making firm-level investigation essential to understand how inclusive or exclusionary talent practices manifest within sectoral contexts. The next chapter provides an analysis of the qualitative data.

5. Qualitative findings: key features of talent model

Four talent models

There is significant convergence between the qualitative and quantitative findings of this study. Based on the integrated analysis, four distinct talent models are identified – 'wealth of talent', 'war for talent', 'constrained talent' and 'zero-talent'.

While the statistical analysis in Chapter 4 identifies correlations between business models, skills, and talent practices, the qualitative data reveals even more strikingly **how decisively the business model shapes talent practices**. Indeed, talent and skills models are not standalone systems—they are deeply embedded in how firms create and capture value. This insight moves beyond the conventional binary of high- versus low-skills equilibrium (Sissons, 2021). Our findings show that among high-skills equilibrium firms, there are starkly different ways of organising the business. It is the **underlying value creation strategy that** fundamentally determines how talent is defined, recruited, developed, and rewarded—alongside how technology is designed and deployed. The value of human capital—the skills of employees—is contingent on how organisations choose to recognise, mobilise, and integrate those skills into their operating models (Brown et al., 2020; Warhurst & Findlay, 2012). **Table 7** describes the key features in the four talent archetypes.

Table 7. Four talent model archetypes in Singapore

Archetype	Customisation Strategy	Business Model	Lived Employee Experience*	Innovation Approach	Use of Technology
Wealth of Talent (25%)	**Collaborative Customisation**	Deep partnerships with clients; frontline-led innovation	"My team shape products together with our clients, always adapting."	Bottom-up, relational, exploratory innovation	Tech supports autonomy, learning, and creativity
War for Talent (30%)	**Composable Customisation**	Elite talent creates strategy and products; rest implement	"I can't pitch ideas that might make managers uneasy, even if they are what I think customers would value."	Top-down innovation by selected few	Tech reinforces hierarchy and top-down control
Constrained Talent (18%)	**Cosmetic Customisation**	Limited product tweaks to meet client demands; cost-sensitive	"We tweak around the edges, but the system is fixed."	Efficiency-driven, siloed roles	Tech used for backend gains, not worker empowerment
Zero-Talent (27%)	**Closed to Customisation**	Uniform services; workforce seen as cost, not asset	No employee data is available but managerial views of their employees suggest: "I follow the SOP. My	Efficiency-driven, siloed roles	Technology is avoided unless essential; when used, it serves to cut labour costs, not upgrade it

Archetype	Customisation Strategy	Business Model	Lived Employee Experience*	Innovation Approach	Use of Technology
			ideas are not needed."		

**These are not verbatim quotations but paraphrased representations, constructed to reflect the sentiments and perspectives expressed in interviews.*

A deeper examination of the practices in these firms are outlined below.

Wealth of talent firms: collaborative customisers

'Wealth of talent' organisations pursue a strategy of **collaborative customization** (Gilmore & Pine, 1997). These firms treat business as a relational endeavour. They stay close to their customers and involve employees—especially those on the front lines—in shaping solutions. Technology is not used to replace human work but to enhance it: enabling employees to personalise services, identify emerging needs, and co-create innovations with customers.

In these firms, innovation is distributed throughout the organisation rather than concentrated at the top. **Job roles are designed to be open-ended and developmental,** giving employees the autonomy and tools to participate meaningfully in creating value. These are high-performance systems in which most, if not all, employees are evaluated using comparable performance markers, fostering compact and equitable reward structures. What distinguishes these firms is their **deep customer centricity**. One company described its approach as a 'land and expand' strategy—embedding itself within customers' operations to drive ongoing collaboration, ensuring they are always the top of customers' needs as a means to secure future revenue.

In this highly innovative context, managerial authority centres on motivating frontline staff and ensuring they are equipped and empowered to generate value in direct partnership with customers. They require **high-performing talent at scale** and therefore cannot rely on costly 'war for talent' strategies that pay premium prices for a select few. They attract average talent and transform them into high performers through robust development structures. The statistical finding of high attrition in this firm is in fact **a clear marker of success**—employees are in demand precisely because of the skills they acquire. In this sense, these firms function as **career accelerators**, enhancing mobility rather than restricting it. Even with high turnover, they maintain strong alumni networks and benefit from returning talent, as evidenced in interviews with employees who had either resigned or were serving notice.

War for talent firms: composable customisers

'War for talent' firms follow a **composable customisation** model. These are innovation-driven organisations, but innovation is **tightly controlled and centralised**. A small elite—typically the top 10–20%—are entrusted with developing new products, designing strategy, and driving change. These innovations are then scaled quickly to capture value, with the broader workforce expected to implement, not shape, the solution. Products can be genuinely innovative, reflecting deep technical expertise and market anticipation, but the innovation process is gated.

Employees outside this elite group, while holding roles with high professional discretion, lack the **organisational discretion** required to influence strategy or contribute to the innovation agenda. Yet even those in high-potential group feel constrained as they feel the need to adhere to managerial expectations of what innovation should look like. As one high-potential employee explained, "There are certain things that you want to do, but it seems like you do not have the authority to do".

This model of **predictable innovation** is designed to control risk by frontloading product innovation into a select group and minimising variation post-launch. While this enables speed and consistency, it can also introduce fragility. If key talent exits or misaligns with user needs, the organisation

struggles to respond. Even within the talent pool, there is a culture of upward deference. High potential smployees describe constantly monitoring what senior leaders might find acceptable, dampening the very initiative these programmes aim to foster.

Technology plays a dual role. It supports modular product development and large-scale delivery, but a major application of technology is also to restructure high-skilled jobs for cost-efficiency gains. Dashboards, automated workstreams, and algorithmic profiling narrow the space for professional judgment among those 'below the radar'. A global workforce analytics platform in one firm was described as a tool to "reverse engineer…what their core skills and specialisations are," with career paths mapped dynamically by algorithm rather than human oversight. This approach reinforces stratification: professionals not identified as talent are offered short, skills-based interventions—six-week reskilling plans—while elite staff follow bespoke 12- to 24-month development tracks.

Start-ups are not immune. Despite being flatter in structure, some **high-profile start-ups mimic 'war for talent' logics**. They handpick early employees, fast-track high potentials, and centralise innovation within founding teams, while other roles are kept to operational execution. In such firms, innovation velocity is prized—but organisational learning remains narrow and elite-driven.

Ultimately, 'war for talent' firms offer a **high-control approach to innovation**. Their strategy prioritises efficient scale and product precision, but often at the cost of adaptability, distributed creativity, and trust. Compared to 'wealth of talent' firms that embed innovation across the organisation, 'war for talent' firms build in rigidity—optimising for performance in stable environments, but risking brittleness in the face of change. The most concerning aspect of the 'war for talent' model is its tendency to **fragment high-skilled jobs** in ways that may give rise to a new form of social inequality—high-skills precarity.

Constrained talent firms: cosmetic customisers

'Constrained talent' firms operate under a logic of **cosmetic customisation**. These firms often regard minor service tweaks and backend digitalisation as evidence of modernisation. As one CEO put it, "We digitise and automate a lot of things… So we can pay workers more, and get better quality workers. At the same time, we charge clients less so we get more clients. That's the virtuous cycle". In this framing, digital tools are not used to create new customer value, but to maintain cost competitiveness—often by keeping administrative overheads low while preserving core products unchanged.

Such firms tend to see **tweaking services around standard offerings** as innovation such as strategies of product bundling or targeted discounts. Simple AI tools are deployed to sustain these strategies, automating personalised offers without redesigning the core service. While these moves are framed as customer-centric, they fall far short of the deep customer embeddedness and frontline-driven innovation seen in 'wealth of talent' firms.

This pursuit of marginal changes through technology deployment masks a deeper organisational constraint. Jobs remain narrowly designed. Technology is deployed to support compliance, logistics, and marketing automation—but not to move the firms to deliver more sophisticated product offerings. **Digital tools are strictly to make existing processes efficient**, not to shift the underlying business model.

Constrained talent firms sustain their price competition model through the strategic use of foreign manpower. One firm openly stated that its approach was to "maximise the quota of foreign workers before hiring local workers"—a tactic that entrenches the workforce in low-discretion, low-mobility roles. More recently, some of these firms have turned to **high-skilled remote workers**—particularly for roles in software engineering, customer service, and sales—as a perceived solution to labour cost pressures. While this may offer temporary relief, it reinforces the underlying logic of keeping

local talent costs down while avoiding investment in in-house capability. In effect, digital technologies risk giving this business model a new lease of life—**prolonging a low-skills, low-value equilibrium**. This dynamic may also help explain the quantitative finding that technology use did not lead to greater skills utilisation, despite the modest skill content of job roles in these firms.

In essence, constrained talent firms are not resistant to digital change—but their use of technology reflects their deeper business logic. They pursue innovation as efficiency, not transformation. While leaders may adopt digital tools and speak the language of modernisation, the organisational design continues to reinforce limited discretion, externally imposed training, and minimal career progression.

Zero-talent firms: standardised services

'Zero-talent' firms operate through a model of **closed customisation**, competing primarily on cost with highly standardised services. Even when they occupy complex sectors—such as healthcare, accounting, or manufacturing—these firms actively avoid value creation through innovation. Instead, they focus on cost containment by offering stripped-down, repetitive solutions with minimal variation across clients.

Roles are **narrowly designed and closely monitored**. Workers are valued for compliance and low-cost execution rather than contribution. As one managing director bluntly put it, "So long as you don't create a problem for the company, you are a good worker." In his view, only those who generate monetary value—such as himself—deserve the label 'talent'.

Training, when provided, is minimal and often impersonal. Firms rely on ready-trained individuals, adopting a 'buy, not build' approach to hiring. There is little effort to foster a community of practice or internal learning culture. The structure of work offers no pathway for growth or mastery. Even highly credentialed employees are underutilised, placed in roles that require minimal discretion, coordination, or innovation.

Technology adoption in these firms is shaped by **cost logic**. Technology is considered a sunk cost—adopted only when essential for survival, and typically implemented to control labour costs. This explains statistical findings of why these firms were least likely to adopt technology, but also to reduce workers when they adopt technologies without upgrading existing job roles.

Ultimately, 'zero-talent' firms represent the sharpest contrast to 'wealth of talent' firms. They do not seek to empower or develop their workforce. **They manage labour as costs, not assets**. While digital tools are sometimes present, they are embedded within a business model that offers little room for human capability to grow. Innovation, if it exists, is managerial—not organisational. And the message to workers is clear: stay in your lane, and do not slow the machine.

Summary

The qualitative findings reveal four distinct talent models—'wealth of talent', 'war for talent', 'constrained talent', and 'zero-talent'—each shaped not merely by skills demand but by the underlying business model. While statistical analysis identifies correlations between skills, technology, and organisational outcomes, the qualitative data show that how firms define, develop, and deploy talent is deeply embedded in their strategies for value creation. The next chapter presents the lived experiences of managers and employees within these firms, offering deeper insight into how business, talent and technology strategies are enacted on the ground.

6. Qualitative findings: lived realities

Moving beyond typologies and statistical comparisons, we turn to the lived realities of the four firm types—wealth of talent, war for talent, constrained talent, and zero-talent. Through the voices of founders, HR directors, software engineers, service staff, and product managers, we see how business strategy, innovation, and talent models converge—or unravel—in practice. These are not abstract categories, but **narratives of trust, constraint, opportunity, and foreclosed futures**.

Wealth of talent: "I'm trying to please the end users directly"

In **WOT-01**, a hub director explains their strategy with unusual candour: "We're trying to reengineer [ourselves for] the next 300 years." Facing an anticipated decline of their chemicals business amid saturation in professional farming, the firm has pivoted toward smallholder farmers in Asia and Africa—embedding their services in customers' daily operations, not just selling products.

The goal is not merely to sell inputs, but to help farmers increase their yield through the intelligent use of digital platforms and agronomic support. By enabling farmers' growth, the firm positions itself to grow in tandem—**turning co-development into a long-term revenue strategy**.

The developers in **WOT-01** are given full autonomy. "We make sure [employees] have autonomy over their work… that they have efficacy over what they're doing," the hub director said. This meant field visits, sensing unarticulated needs, and **room to challenge management** if the brief does not make sense.

This deep customer proximity is not incidental—it is a key driver of the business model. By embedding their workforce in clients' real environments, **WOT-01** positions itself as an essential partner rather than a product vendor.

Across town at **WOT-02**, a similar 'land and expand' strategy is taking place in an infocomm firm supporting the manufacturing industry. Consultants sit on-site with clients, **trusted to expand business through deep understanding**. "We get a small piece of business and then we prove ourselves," the managing director explains. "If we know what they ask won't work, we challenge and clarify." It is a high performance system but one that is accompanied by shared gains. One manager shares, "We ask our consultants to deliver output in 8 hours that clients' internal engineers cannot match in 12 hours." Employees benefit from zero overtime, gaining work-life balance—a form of shared reward that goes beyond monetary compensation.

In **WOT-03**, the head of product at a commoditised medical device company—who previously worked in 'war for talent' firms where managerial preferences often overrode data and professional judgment—shares that he has come alive since joining the firm. For the first time, he can **act on data directly to meet customer needs**, without managerial interference. "Here, I have data… I can speak to my users directly… I'm not trying to please someone else. I'm trying to please the end users directly."

Autonomy is not confined to leadership roles. A software engineer in **WOT-03** describes a workplace where "you can bring in ideas and they are respected… it's a very flat organisation." Proof-of-concepts regularly emerge from the shopfloor and are tested **without top-down gatekeeping**.

Even customer service roles—often held by non-degree holders—took on strategic weight. Technology is not used to control and monitor, but to **empower frontline staff to build enduring customer relationships**. One employee explained: “In other platforms, every time a customer calls, it’s someone new. But here, the same person responds—and remembers [with technology]. That’s why we need a customer relationship management tool: to remember, to build trust.”

These voices reveal a business model where **service is not standardised but evolving**, where technology augments—not replaces—judgement, and where employee discretion is not a reward, but a necessity. “Everyone is attending to each other,” a UX researcher in **WOT-01** reflected. “It’s a very collaborative environment.”

Such design not only supports innovation—it **accelerates careers**. One **WOT-01** employee shares that he struggled to find employment because of a weak résumé. After just three years at the firm, he has been recruited by a prominent start-up. “I couldn’t even get callbacks before. Now I get approached regularly,” he says. His rise is not based on credentials or association with brand-name companies, but on meaningful exposure to high-impact work. Indeed, ‘wealth of talent’ firms **do not wait for talent—they grow it**. And they do so in a way that benefits both firm and worker.

As one HR director in a leading fintech startup, **WOT-04**, shares: “Inclusive talent strategy is not a corporate social responsibility (CSR) activity. It’s our business model. We need people who understand our customers and can think with them—not just execute tasks.”

In these ‘wealth of talent’ firms, **business value is co-created with employees and customers alike**—through shared insight, adaptation, and frontline innovation. This shared value approach keeps performance high, even in industries under pressure, by **turning ordinary employees into extraordinary assets**. Crucially, it is also what drives sustained business performance—because the true engine of the business is its people.

War for talent: “We’re here to execute their vision, not question it”

In **WFT-01**, a prestigious engineering multinational, being selected for the high-potential talent programme is a badge of honour—and a heavy load. “Only 50 of us get chosen globally each year,” says one Singapore-based engineer. “You get mentored by senior leaders, flown across offices. It’s intense.” But even within this elite tier, **innovation comes with constraints**. “I had an idea for a customer-facing app,” he recalls, “but I knew management would reject it. It offered too much transparency. So I dropped it.” Another engineer describes his role as “trying to guess what senior management wants, all the time.”

In **WFT-02**, a global professional services firm, the disconnect runs deeper. Frontline employees—many of whom are highly qualified—find their roles increasingly standardised through top-down digital workflows. Despite strong credentials, those not identified as ‘talent’ are placed into a process of **algorithmic upskilling**. One HR director described this system as delivering “specialisation at scale,” driven by a workforce analytics platform that reverse-engineers employee skills based on past project data. The algorithm, she admits, “is a bit of a black box,” but it is treated as more objective than professionals’ own input. Those below the talent radar are fast-tracked through six-week learning tracks; meanwhile, identified talent receive 12- to 24-month development programmes.

Technology in this context is not being used to augment professional autonomy—it fragments high-skilled roles and concentrates decision rights upstream. The platform enables senior managers to “have the same lens on the data,” leading to “the same sets of conversations” about staff who are tracked via dashboards. **Judgement is mediated by systems**, not exercised in practice.

At **WFT-03**, a large Singaporean retail conglomerate, the fragmentation is mirrored at both ends of the skills spectrum. Frontline sales staff are issued iPads to collect customer data, but not to use it.

“They do not use it to improve service,” the HR manager explains. “Just to collect inputs for central analysis.” There is **little effort to equip frontline employees** with tools that would enable them to improve service or grow in their roles. As the HR director puts it, “There’s only so much you can do for the frontline”, a sentiment in sharp contrast to the experience of frontline workers in **WOT-03**.

Ironically, the company has invested heavily in foreign digital specialists for strategic roles—platformisation, customer analytics, digital marketing—based at HQ. But after several years of digital transformation, the firm has begun to reassess. “We now realise our real strength was our physical stores all along,” a senior executive notes. This belated insight underscores the risk: in **chasing elite talent and centralised intelligence**, the firm has weakened its operational core.

Even born-digital firms are not exempt. At **WFT-04**, a fast-growing platform-as-a-service provider, the long-term goal is to minimise reliance on in-house developers by cultivating a community of external contributors. “We still need developers today,” one manager admits, “but over time, we want more reusable templates so users can do it themselves.” What begins as innovation may end in erosion. Developers are valued only to the extent that they can **standardise their own future obsolescence**.

Together, these cases reveal a shared pattern. In ‘war for talent’ firms, **technology enhances the work of the elite**. Low-skilled roles are untouched by digital capability-building, while high-skilled non-elite roles are decomposed and directed through dashboards and analytics. Innovation is gated. Discretion is centralised. The firm, though rich in credentials, becomes thin in learning.

Constrained talent: “We tweak around the edges, but the system is fixed”

Not far from Singapore’s industrial belt, **CT-01** runs a fast-growing cleaning services business. Its young CEO has big ambitions—digitise operations, reduce admin costs, and use the savings to pay workers more. He’s built an internal platform, hired remote sales and customer service teams in the Philippines, and streamlined scheduling and billing. Cleaning services are now closer to the customer with an app, but **local jobs are not enhanced**.

The firm presents itself as forward-looking. Older workers are offered permanent roles, and processes have been largely automated through scheduling software and backend systems. The CEO sees this as a win-win: “We digitise and automate a lot of things… So we can pay workers more, and get better quality workers. At the same time, we charge clients less, so we get more clients. That’s the virtuous cycle that you need.”

But the automation is **built on a fixed view of roles**. When errors occur—wrong site assignments, unclear timing—they cannot be corrected by workers themselves. There is no structured pathway to move beyond execution.

The CEO is clear about the division of labour: “A 60-year-old Ah Ma will never become a software engineer.” He imagines a system where departments “operate like APIs”—efficient, transactional, and minimally human. The firm has grown rapidly, but the **growth has not translated into quality job redesign**. Older workers clean. Executives manage. Data flows, but discretion does not.

In **CT-02**, a business supplies firm competing in a price-sensitive market, the shift to digital strategy is in full swing. “We used to have salespeople knocking on doors,” the head of technology explains. “But now, that’s not doable… We need someone who can pull customers without leaving the office chair.” In the past, account managers customised bundles—offering discounts, free items, and service perks. Now, these same features have been translated into code. “Let’s say, you buy 12, you get one free… buy 36, and there’s another discount,” he explained. “It’s a lot more complicated”—but all now handled by the backend.

Machine learning and recommender systems have been introduced to simulate responsiveness. But the sales and marketing team is **excluded from shaping the tools or gaining expanded responsibilities**. “There are a lot of capabilities we want to have,” the tech lead said, “but whether we can afford the people is a different matter.” Yet, even among the core team managing platform functions, **fixed delivery roles remain**. One UX-trained employee shares, “My role is actually executing… just updating the product.”

CT-03, an insurance firm serving SMEs, also positions itself around customer care. “The advisory is going to make us different,” the CEO says. But when it came time to develop a chatbot, he assiged the project to junior staff, avoiding the involvement of senior advisors whom he felt were “too expensive.” “The younger ones can see the technology but not the big picture,” he explains. “The older ones can see the big picture but not the technology.” The chatbot fell short. “It’s quite annoying. I’m trying to get rid of it,” he says.

Even employees with strong technical capabilities find themselves constrained. One staff member, trained in business analytics, is tasked with cleaning data but not applying insights. “To make use of the insight, you really have to be a product expert,” he said. “But first you must understand what products the company has and what clients actually need.” That level of access—**strategic, integrative—is not available to him**.

These are not firms resisting change. They speak the language of innovation. But beneath the surface, their **business models are designed to contain—not expand—value creation**. Cost competition remains the dominant logic, supplemented by surface-level strategies to be closer to customers. Employees are valued but with little room to shape new opportunities and grow their roles. Digital tools offer a new lease of life for sustaining price-based competition**—**but not for transforming how work is done or value is created.

Zero-talent: “So long as you don’t create a problem, you are a good worker”

In a compact office behind a medical centre, the HR manager at **ZT-01**, a managed care organisation, is excited about a new leadership programme.

“We’re grooming doctors to become CEOs,” she beams. “It shows clients that our management has clinical credibility.” What about the rest of the 1,000-strong workforce?

Across **ZT-01**’s vast network of clinics, nurses, patient care aides, claims processors, and even general practitioners carry out essential work—but receive little systematic development. **The goal is not to deepen expertise, but to reduce variation.** “You need someone on the ground to give you a panel of clinics that would help you steer the direction of your medical costs,” the HR manager explains. The company’s value proposition lies not in medical innovation, but in cost control and operational reporting.

Technology reinforces this logic. Digital tools are used not to enhance judgment or frontline insight, but to automate claims processing and generate analytics for corporate clients. Growth comes through mergers and acquisitions, not workforce capability. The firm calls itself “manpower-light, tech-heavy.” Innovation exists—but it lives in **dashboards and reporting systems, not in people**.

ZT-02, a small accounting and compliance firm, shares the same ethos on a smaller scale. “For us, the margin is very low, but you can survive,” says the managing director. “We attract clients by being cheaper.” The firm operates with two full-time employees and relies heavily on freelance support when needed. There is no investment in internal capacity, and new technology is introduced only if it directly reduces cost. “You must not fall behind,” the director notes, referring to changes in government tax systems. But even as automation tools begin to replace his firm’s core services, he

explores solutions alone. Staff are not consulted. “They come in if necessary,” he adds**. Upskilling is not part of the business plan**—it is seen as unnecessary overhead.

ZT-03, a local manufacturing firm for the semiconductor supply chain, applies the zero-talent logic to manual labour. Preparing for factory expansion, the managing director is clear about his hiring strategy: “I don’t need a degree; I don’t need a diploma. If I can get an auntie whose hands don’t shake, she can do the job.” The work—polishing probe cards under a microscope—is delicate, repetitive, and highly standardised. The **job requires patience, not ideas**. “Eventually, we only selected two,” he says. “Why no Singaporean wants to take the job? I don’t know.”

He rules out male workers (“not patient enough”), young Singaporeans (“not the right temperament”), and automation (“the parts are too fragile”). His future workforce will likely be older Malaysian or Vietnamese women. They will be paid to perform a task—not to grow, learn, or lead. “So long as you don’t create a problem for the company, you are a good worker,” he says.

Across these firms, **the model of price competition persists**. Technology is used to tighten control or eliminate costs. Even highly skilled professionals are considered disposable unless they contribute directly to executive credibility or investor returns. Employees are not seen as potential—they are seen as cost. In zero-talent firms, business performance is not built on people, but engineered around them.

Summary

This chapter steps inside the firm—through the voices of workers, managers, and founders—to reveal how **talent is shaped not by HR policy but by business purpose**. Across radically different contexts, we see how discretion is granted or withheld, how digital tools enable or constrain, and how frontline experience is either cultivated or controlled. The lived realities expose what strategy decks obscure: that **talent is not a standalone domain, but embedded in how businesses create and capture value**. Whether employees are seen as co-creators, executors, or costs is not just a managerial mindset—**it is the business model in action**. And in that model, the most powerful signal is not what leaders say about talent, but how the organisation lets people act.

7. Discussion: Strengthening the employer pillar of SkillsFuture

Assessment of findings and implications for SkillsFuture

The analysis in the preceding chapters affirms that inclusive talent strategies are not only socially desirable – they are **economically viable in Singapore**.

The **'wealth of talent'** model, first surfaced in Singapore by Brown et al. (2019) as a singular case study, has been found to be the talent model in 25% of establishments in Singapore's Business Performance and Skills Survey I. This study not only confirms that these firms adopt an inclusive approach to talent development, but also extends the evidence by showing they report the **strongest business performance**—being the most likely to report increases in profits, revenue, and market share.

As the evidence shows, **corporate talent is a product of organisational design**. 'Wealth of talent' firms employ workers with less than stellar credentials and develop them into high-performing employees who become attractive to other employers. This accounts for their above-average attrition rates in these firms—an outcome that is not unhealthy, but rather a sign of their role as **career accelerators**, adding significant value to their workers' professional trajectories. **Non-graduates** too have greater opportunities in these firms.

The business strategies of 'wealth of talent' firms in Singapore closely mirror those of the Mittelstand and 'hidden champions' in Nordic and Swiss-German economies—firms known for deep customer-centricity supported by the high-discretion involvement of their workforce. These models are often assumed to be the outcome of uniquely historical or institutional conditions rooted in strong traditions of social inclusion. This study challenges that assumption. Such firms do exist in Singapore—not because of similar institutional legacies, but because the model itself is a viable business strategy. What remains lacking, however, is the **broader societal ecosystem needed to sustain and scale** this approach—one that can nurture, reinforce, and mainstream inclusive, high-discretion business strategies while disincentivising extractive or exclusionary alternatives. Boushey & Rinz describe such approaches as blocking the low road and paving the high road in business transformation (Boushey & Rinz, 2022).

Known as **collaborative customisation**, the business model of 'wealth of talent' firm requires the broad workforce to innovate directly with customers, with managerial function designed to facilitate this high discretion. Unlike the business-to-business focus described by Pahnke and Welter (2019) in German Mittlestand, we observe from the data that such **strategies can also be applied in consumer-facing sectors**—as seen in 'wealth of talent' firms in the food & beverage and medical technology industries. This suggests that any type of firm—whether a TNC, SME, or start-up—can adopt this business design. With platform technologies, firms can now operationalise relational business models at scale—making them a credible alternative to extractive or transactional models. **While industry differences exist, they are not deterministic**. 'Wealth of talent' firms are found across a wide range of sectors.

This study also provides strong evidence that **organisational design mediates** technology decisions. Quantitative findings show that only 'wealth of talent' firms exhibit **skills-biased**

technological change—using technology to complement and enhance workforce capabilities. In contrast, 'war for talent' firms shed high-skilled labour while upgrading selected existing staff. 'Zero-talent' firms likewise reduce headcount without upgrading the remaining workforce, despite already operating with a low skills base. 'Constrained talent' firms, according to qualitative data, maintain their cost-driven strategies by offshoring professional work while keeping low-skilled roles in Singapore—preserving a low-cost, low-complexity operating model.

At only 25% of establishments, 'wealth of talent' firms is a small segment in the corporate landscape, signalling that the employer pillar of SkillsFuture requires significant strengthening. Yet the argument emerging from this study is not merely a social one—**it is fundamentally economic**. The evidence is compelling: 'wealth of talent' strategies are strongly associated with superior business outcomes. Conversely, there is also indicative evidence of the relative weakness of the other firm types.

'War for talent' strategies, for instance, were described by respondents as problematic—organisational resources are concentrated on a narrow elite, but with limited payoff. Creativity across the broader workforce is stifled, as employees feel pressured to align with managerial expectations rather than respond to what customers actually need. This view of constraints on innovations aligns with evidence of **shrinking lifespan of S&P 500 companies**. McKinsey reports that the average lifespan of companies listed in S&P 500 dropped from 61 years in 1958 to 18 years in 2016 (Hillenbrand et al., 2019). This may reflect how elite-heavy firms struggle to adapt to complexity, as they fail to harness the collective intelligence of their workforce or embed innovation into everyday operations.

At a macro level, the OECD has similarly noted that despite rising levels of education and investment in digital technologies, **productivity growth has stalled** across many advanced economies (OECD, 2016). In Singapore, this challenge is especially acute in the SME sector, which is statistically most likely to operate on a 'zero-talent' model characterised by a low-skills equilibrium that constrains the nation's economic potential (Bhaskaran & Chiang, 2020).

Taking the findings to stakeholders

As part of the process of disseminating the findings, we took the findings to enterprise leaders, consultants and policymakers.

- **Who is ready for change?**

A total of 20 enterprises were engaged comprising TNCs, large local enterprises, SMEs and start-ups. Enterprises across the spectrum found the findings **thought-provoking and worthy of serious consideration**. The evidence of that 'wealth of talent' firms consistently outperformed peers in profitability, revenue and market share was a **crucial conversation starter**.

TNCs recognised their innovation challenges—internal inbreeding, bureaucratic bottlenecks, and lack of ground-level creativity. SMEs resonated with the difficulty of sustaining their businesses amidst profound technological and market changes. Start-ups start recognising that many of the best practices advanced in start-up circles may actually work against innovation and performance.

Yet, TNCs, while having a high recognition of the limits of their 'war for talent' model, appear to be the **hardest to move**. Their talent strategies are often dictated from global headquarters, leaving limited room for strategic change in Singapore.

Large local enterprises hold significant potential, given that headquarters operations are based in Singapore. However, as many expand globally, **they often emulate TNC practices**—investing in high-potential programmes and elite recruitment. Shifting away from this model requires a major

strategic pivot and the courage to challenge deeply entrenched assumptions within senior leadership, **a move often seen as politically and organisationally difficult**. Yet, enabling change in this segment is vital to anchoring Singapore's long-term economic resilience.

Enterprises **most open to transforming are SMEs**. Many recognise that price-based competition and superficial adjustments are no longer sustainable, and they are more open to experimenting with new approaches. Among them, **'constrained talent' SMEs show the greatest potential for change**, driven by a strong customer focus and a less rigid view of workforce capability. The key will be building their confidence and risk appetite to transition toward higher value-added models.

Startups also exhibit a strong willingness to innovate on their talent model, but their **high failure rates** call for more nuanced and targeted forms of support (The Business Times, 2024).

Ultimately, **creating the conditions for change** across all firm types is essential if Singapore is to shift towards a more inclusive and innovation-driven economy.

- **How to change?**

Consultants – business, organisation and L&D practitioners – highlight key challenges for change. They value the **multidisciplinary perspective** this study's findings bring, and the ability to connect different moving parts, which they see as a strength. Of the consultants, business consultants resonate with the findings the most. Movements like Corporate Rebels and high-discretion companies such as Haier and Bayer reflect a growing global shift toward value creation anchored in employee empowerment—**a counter-cultural response in the corporate world** to traditional top-down models (Minnaar & de Moree, 2020; McKinsey, 2021, Groysberg & Yucaoglu, 2025). 'Wealth of talent' findings corroborate such approaches.

However, consultants point to a critical gap: the **absence of a clear change framework and accessible, evidence-based methods** that enterprises can readily adopt in Singapore. Consultants also emphasise the need to build multidisciplinary teams to support organisational design. However, they observe that **existing funding mechanisms are siloed**—separated into business, job redesign, skills, training and technology grants—which encourages specialisation among consultants. This fragmentation directly undermines the holistic, integrated approach needed for effective organisational redesign—the kind embodied by 'wealth of talent' firms, where business, talent, and innovation strategies must align seamlessly. **Fragmented capabilities** present a significant barrier to scaling transformation efforts across the corporate sector. Consultants also **cautioned against using talent** terms as it may inadvertently position the change initiative as related to HR practices, whereas the findings suggest the need for broader organisational redesign integrating business, talent, innovation and talent strategies.

Policymakers responded positively to the study's findings but opined that organisational design is a firm-level decision beyond their direct influence. Existing grants are structured independently of a firm's business model, focusing instead on firm type—such as SMEs, start-ups, or large enterprises—regardless of the strategic direction they pursue. This reveals a **disconnect** between the ambition to support enterprise transformation that is inclusive and the current policy instruments available to enable it. This diffusion of responsibility reflects a deeper policy challenge: **the capacity to engage with firms as complex social systems**. Without coordinated policy support—such as integrated, multidisciplinary grants and the building up of consultancy capabilities—firms with genuine intent to transform will lack the practical guidance and institutional backing needed to follow through.

Crucially, the study suggests that broader national ambitions in Singapore to build a **skills-first labour market** and **develop alternative career pathways** may be realised without directly addressing the role of corporate players that are capable of creating such opportunities at scale. Without intentionally expanding the pipeline of firms adopting inclusive and developmental business models, the wider system risks failing to meet its goals—regardless of how well-meaning policy initiatives are.

Based on the study's findings, it may even require **building a different kind of economy**—one not driven by **top-down innovation, but by bottom-up value creation** that enhances labour while delivering stronger economic outcomes. This is closely tied to Singapore's ambition to become an innovation-intensive economy. While Singapore consistently scores high on innovation inputs—on par with countries like Switzerland and Finland, according to the Global Innovation Index (2024) — its innovation outputs are not strong, suggesting a gap between investment and realised value. This study's findings suggest that to excel, **national policy must pay closer attention to the business models that shape innovation**. Predictable, top-down innovation—often associated with elite firms—may appear attractive, but it is ultimately limiting. It constrains the broader potential of the workforce and narrows the pathways through which innovation can emerge. The declining lifespan of S&P 500 companies, as highlighted by McKinsey, presents a sobering reality (Hillenbrand et al., 2019).

The contrast between consultants' perspectives and those of policymakers highlights a critical gap: the need for Singapore to invest in **practical operating models** that enable enterprise-level transformation. Finland's Work2030 programme offers a strong example—focusing on workplace reform, co-created innovation practices, and organisational renewal through foresight, capability building, and applied research, all delivered in business-friendly and labour-enhancing ways (Finnish Ministry of Social Affairs and Health, 2023). Similarly, Swiss-German and Nordic countries make substantial investments to help enterprises sustain high-value, worker-centred strategies over the long term (European Commission, 2016).

Trialling in the Adult Learning Collaboratory

The **Adult Learning Collaboratory** (ALC), an initiative of the Institute for Adult Learning and SkillsFuture Singapore, offers a practice-based approach to fostering adult learning innovations (Institute for Adult Learning, 2025). It brings together firms, researchers, and ecosystem partners to co-design, prototype, and test new enterprise models.

Building on insights from this study, the ALC has launched an initiative called ***New-Age Business Transformation*** to develop practical operating methods for enterprise–workforce transformation. A pilot approach is currently being designed for trial with 10 enterprises, comprising the following:

- **Strategic Diagnostics**
  A diagnostic tool is being created to benchmark firms against BPSS data to help firms visualise their current configuration, and identify the pathways for change towards 'wealth of talent' firms. This tool facilitates strategic dialogue at the CEO level.

- **Case Study Inspiration**
  Carefully curated examples from local 'wealth of talent' firms and global innovators (Haier, Bayer) are shared to help firms reimagine what is possible.

- **Build–Measure–Learn Experiments**
  Firms are encouraged to conduct low-risk pilots focused on strategic shifts. Each cycle generates data, builds confidence, and allows for contextual adaptation.

- **Consultant Development**
  A network of consultants capable of integrated solutioning is being built. This includes capability development in business modelling, organisational design, and workplace learning.

- **Peer Learning and Community of Practice**
  Peer-to-peer learning across firms will be trialled to strengthen shared understanding and accelerate innovation diffusion.

- **Platform for Scale**
  A digital infrastructure is being developed to support collective learning, data-sharing, and scaling of successful practices.

The above approach recognises that **enterprise transformation must be relational, iterative, and context-sensitive**. Results are expected by January 2026.

Limitations

This study draws on 2017 data, which may not fully reflect the current distribution of firm types. However, the findings remain robust when complemented by qualitative insights from interviews conducted in 2021–22. Although BPSS2 faced pandemic-related constraints and analysis focused solely on SMEs, its results align closely with this study. The top-performing SMEs demonstrate a strong integration of business and people strategies (Tan et al., 2025). Yet only 1 in 10 firms exhibit this quality suggesting a need for more enduring intervention. A **third wave of enterprise data collection**—BPSS3—is now needed to track progress and support evidence-based policymaking.

Summary

Inclusive talent strategies are **not only socially desirable but economically advantageous**, as this study shows. 'Wealth of talent' firms—just 25% of establishments—consistently outperform peers by aligning talent, innovation, and business strategy. Yet most firms remain anchored in less effective models, while policy tools remain fragmented. SMEs demonstrate strong openness to change, and large local enterprises hold significant untapped potential. Consultants affirm the findings but stress **the need for integrated, multidisciplinary frameworks and funding**. In response, the Adult Learning Collaboratory is piloting *New-Age Business Transformation* to develop scalable, practice-based models for enterprise–workforce transformation.

8. Conclusion

This study establishes **a business case for inclusive corporate practices in Singapore**, showing that inclusive, innovation-rich firms—often associated with Swiss-German or Nordic economies—can and do emerge in Singapore through deliberate strategic design by firms.

At the heart of the findings are **'wealth of talent' firms**. These high-performing organisations practise **collaborative customisation**, keeping close to their customers and involving employees—especially frontline staff—in co-creating solutions. Technology is not used to deskill, but to enable greater personalisation, insight, and innovation. Roles are expansive and developmental, and discretion is extended across the organisation, including to non-graduates. Managers play a coaching role, and fair rewards are ensured across project lifecycles. As a result, these firms report the **strongest business performance** across revenue, profits, and market share, and function as **career accelerators**—even for mid-tier and overlooked talent. High attrition is often the result of market demand for these well-developed employees.

In contrast, '**war for talent'** firms practise **composable customisation**. Innovation is tightly managed by a top tier—typically 10–20% of staff—while the rest remain in **high-skilled, execution roles**. These firms are often well-resourced and seen as digital leaders, but their innovation model is elite-driven and increasingly fragile. The result is a predictable but rigid model of innovation that limits workforce development and increases substitution risks. Technology use often narrows the task range for those below the talent radar, leading to shedding of jobs alongside transferring discretion upward to managers or to machines. Concerns have been raised about the long-term viability of such elite-driven approaches.

'Constrained talent' firms pursue **cosmetic customisation**—offering minor tweaks to standardised products and services. While they simulate responsiveness, there is limited redesign of work or investment in people. Digital tools are used for cost-cutting rather than capability-building. Jobs are narrowly defined, training is generic, and recruitment challenges persist, particularly among graduates who seek more meaningful roles.

'Zero talent' firms follow a **price competition model with minimal use for worker creativity**. Technology is either avoided or used for automation alone. Roles are transactional, training lacks context, and there is no workforce development agenda. These firms reflect a low-road strategy with no commitment to upgrading work.

Technology use is not neutral across these models—it amplifies the underlying business logic. Only 'wealth of talent' firms consistently use it to upgrade jobs. Yet they represent just 25% of firms. Without broader business model transformation, Singapore's digital transition may worsen inequality, especially for high-skilled professionals in 'war for talent' firms.

Scaling 'wealth of talent' firms requires strategic alignment and decisive policy support to advance the goals of SkillsFuture. Business leaders are most responsive to messages centred on **business performance and future viability**. The firms most open to transformation are often **SMEs** that are grappling with the limits of their current models. In contrast, TNCs are constrained by headquarters policies set abroad, while many local enterprises are locked into emulating TNC practice. A major gap is developing **practicable operating methods** to shift enterprises, which is underway in the Adult Learning Collaboratory.

In conclusion, this study demonstrates that **social inclusion is not a cost**—it is **a strategic choice** that, when embedded in value creation, drives sustained competitiveness benefiting **business, economies and societies**.

References

Arntz, M., Gregory, T., & Zierahn, U. (2016). *The risk of automation for jobs in OECD countries: A comparative analysis* (OECD Social, Employment and Migration Working Papers, No. 189). Paris: OECD Publishing. https://doi.org/10.1787/5jlz9h56dvq7-en

Arrow, K. J. (1973). Higher education as a filter. *Journal of Public Economics*, *2*(3), 193–216. https://doi.org/10.1016/0047-2727(73)90013-3

Autor, D. H., Katz, L. F., & Kearney, M. S. (2008). Trends in US wage inequality: Revising the revisionists. *The Review of Economics and Statistics*, 90(2), 300–323

Avent-Holt, D., & Tomaskavic-Devey, D. (2010). *The relational basis of inequality: generic and contingent wage distribution processes. Work and Occupations*, 37(2), 162–193.

Avent-Holt, D., Hällsten, M., & Cort, D. (2020). *Occupational status and organizations: Variation in occupational hierarchies across Swedish workplaces. Research in Social Stratification and Mobility*, 70, 100423.

Barrick, M. R., Thurgood, G. R., Smith, T. A., & Courtright, S. H. (2015). Collective organizational engagement: Linking motivational antecedents, strategic implementation, and firm performance*. Academy of Management Journal*, 58(1), 111–135.

Becker, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, *70*(5, Part 2), 9–49. https://doi.org/10.1086/258724.

Becker, B. E., Huselid, M. A., & Beatty, R. W. (2009). *The differentiated workforce: Transforming talent into strategic impact*. Boston, MA: Harvard Business Press.

Bedi, S. (2024, 10 Sep). Employer buy-in crucial for success of SkillsFuture Level-Up Programme. *The Business Times*. Available at https://www.businesstimes.com.sg/opinion-features/employer-buy-crucial-success-skillsfuture-level-programme

Bellé, N., Cantarelli, P., & Belardinelli, P. (2017). Cognitive biases in performance appraisal: Experimental evidence on anchoring and halo effects with public sector managers and employees. *Review of Public Personnel Administration*, 37(3), 275–294.

Bhaskaran, M., & Chiang, N. (2020). *Singapore's poor productivity performance*. Academia.sg. Available at: https://www.academia.sg/academic-views/singapores-poor-productivity-performance

Binder, A. J., Davis, D. B., & Bloom, N. (2016). *Career funneling: How elite students learn to define and desire "prestigious" jobs. Sociology of Education*, 89(1), 20–39.

Braverman, H. (1974). *Labor and monopoly capital: The degradation of work in the twentieth century*. New York: Monthly Review Press.

Brown, P. (2000). The globalisation of positional competition? *Sociology*, 34(4), 633-65.

Brown, P., & Hesketh, A. (2004). *The mismanagement of talent: Employability and jobs in the knowledge economy.* Oxford: Oxford University Press.

Brown, P., Lauder, H., & Ashton, D. (2011). *The global auction: The broken promises of education, jobs and incomes*. Oxford: Oxford University Press

Brown, P., Lauder, H., & Cheung, S. Y. (2020). *The death of human capital? Its failed promise and how to renew it in an age of disruption*. Oxford University Press

Brown, P., Sadik, S., Lauder, H., Souto-Otero, M., Sung, J., & Freebody, S. (2019). *Talent management in an age of digital disruption: Implications for skills policy*. Singapore Institute for

Adult Learning.

Brown, P., Sadik, S., & Xu, J. (2021). Higher education, graduate talent and the prospects for social mobility in China's innovation nation. *International Journal of Education Research*, 109, 101841.

Bryman, A., & Bell, E. (2011). *Business research methods* (3rd ed.). Oxford: Oxford University Press.

Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. New York: W. W. Norton & Company.

Burkus, D., & Osula, B. (2011). Faulty intel: How corporate "war for talent" assumptions ruin performance management. *Journal of Applied Business and Economics*, 12(5), 122–128

Chng, K.F. (2019, 1 December). Why aren't there more Singaporean CEOs? *Channel NewsAsia*. Available at: https://www.channelnewsasia.com/news/commentary/singapore-corporate-leader-ceo-job-opportunity-employment-advice-12130602

Collins, R. (1979). *The credential society: An historical sociology of education and stratification*. New York: Academic Press.

Danish Technological Institute. (2014). *The hidden champions: the Danish industrial motor of growth*. Danish Agency for Science, Technology and Innovation. Available at: https://www.dti.dk/the-hidden-champions-the-danish-industrial-motor-of-growth/33938

De Smet, A., Steele, R., & Zhang, H. (2021, July 27). *Shattering the status quo: A conversation with Haier's Zhang Ruimin*. McKinsey & Company. Retrieved from https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/shattering-the-status-quo-a-conversation-with-haiers-zhang-ruimin

Durkheim, É. (1893). *The division of labor in society*. Translated by W. D. Halls. New York: The Free Press, 1997.

European Commission. (2016). *The role of social partners in the design and implementation of policies and reforms*. Brussels: European Commission.

Everitt, B. S., Landau, S., Leese, M., & Stahl, D. (2011). *Cluster analysis* (5th ed.). Chichester, UK: John Wiley & Sons.

Fielding, N. G. (2012). Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of Mixed Methods Research*, 6(2), 124–136.

**Finnish Ministry of Social Affairs and Health (2023*). WORK2030 - Development programme for work and wellbeing at work*. Available at https://stm.fi/en/work2030-development-programme-for-work-and-wellbeing-at-work

Fox, A. (1974). *Beyond contract: Work, power and trust relations.* London: Faber & Faber.

Frey, C. B., & Osborne, M. A. (2013). The future of employment: How susceptible are jobs to computerisation? *Technological Forecasting and Social Change*, 114, 254–280.

Gilmore, J. H., & Pine, B. J. (1997). The four faces of mass customization. *Harvard Business Review, 75*(1), 91–102.

Global Innovation Index. (2024). Global Innovation Index. Available at https://www.wipo.int/en/web/global-innovation-index

Goldin, C., & Katz, L. F. (2008). *The race between education and technology*. Cambridge, MA: Harvard University Press.

Government of Singapore (2024). *SkillsFuture*. Available at https://www.skillsfuture.gov.sg/aboutskillsfuture

Groysberg, B., & Yucaoglu, G. (2025). *Radical transformation at Bayer: Dynamic shared ownership*. Harvard business school case 425-061, April 2025.

Head, S. (2014). *Mindless: Why smarter machines are making dumber humans*. New York: Basic Books.

Hillenbrand, P., Kiewell, D., Miller-Cheevers, R., Ostojic, I., & Springer, G. (2019). *Traditional company, new businesses: The pairing that can ensure an incumbent's survival*. McKinsey & Company. Available at: https://www.mckinsey.com/.../Traditional-company-new-businesses-VF.pdf

Hirsch, F. (1975). *Social limits to growth*. London: Routledge and Kegan Paul.

Ho, K. (2009). *Liquidated: An ethnography of wall street*. Durham, NC: Duke University Press.

Holm, J. R., & Lorenz, E. (2015). Has "discretionary learning" declined during the Lisbon Agenda? A cross-sectional and longitudinal study of work organization in European nations. *Industrial and Corporate Change*, 24(6), 1179–121.

Institute for Adult Learning. (2025). Adult Learning Collaboratory. *Available a*t https://www.ial.edu.sg/adult-learning-collaboratory-alc/

Leech, N. L., & Onwuegbuzie, A. J. (2009). *A typology of mixed methods research designs. Quality & Quantity*, 43, 265–275

Lehrer, M., & Schmid, S. (2020). Strategic discipline: Inconspicuous lessons from Germanic Mittelstand firms. *Journal of Business Strategy, 41*(4), 3–9. https://doi.org/10.1108/JBS-10-2019-0205

Lewis, R.E. & Heckman, R.J. (2006). Talent management: A critical review. *Human Resource Management Review*, 16, 139-154.

Macey, W. H., & Schneider, B. (2008). The meaning of employee engagement. *Industrial and Organizational Psychology*, 1(1), 3–30.

Meyers, M., & van Woerkom, M. (2014). The influence of underlying philosophies on talent management: Theory, implications for practice, and research agenda. *Human Resource Management Review*, *23*(4), 305-321.

Michaels, E., Handfield-Jones, H., & Axelrod, B. (2001). *The war for talent*. Boston, MA: Harvard Business Press.

Michie, J. & Sheehan, M. (2005). Business strategy, human resources, labour market flexibility and competitive advantage. *The International Journal of Human Resource Management, 16(3), 445-464.*

Mincer, J. (1958). Investments in human capital and personal income distribution. *Journal of Political Economy*, 66, 281-302.

Minnaar, J., & de Morree, P. (2020). *Corporate rebels: Make work more fun*. Corporate Rebels Nederland B.V.

Moon, S.H., Scullen, S., & Latham, G.P. (2016). Precarious curve ahead: the effects for forced distribution rating systems on job performance. *Human Resource Management Review*, 26(2), 166–179

Noble, D. F. (1986). *Forces of production. A social history of industrial automation.* Oxford: Oxford University Press

OECD. (2016). *OECD compendium of productivity indicators 2016*. Paris: OECD Publishing.

OECD. (2024). *Do adults have the skills they need to thrive in a changing world? Survey of Adult Skills 2023*. Paris: OECD Publishing. https://doi.org/10.1787/b263dc5d-en

Pahnke, A. & Welter, F. (2019). *The German Mittelstand: Antithesis to Silicon Valley entrepreneurship? Small Business Economics*, 52, 345–358.

Rivera, L. A. (2015). *Pedigree: How elite students get elite jobs*. Princeton, NJ: Princeton University Press.

Sadik, S. (2023). *Corporate talent management, digital technologies and the future of work*. PhD Dissertation, Cardiff University.

Sadik, S., & Brown, P. (2019). Corporate recruitment practices and the hierarchy of graduate employability in India. *Oxford Review of Education*, 46(1), 96–110.

Schultz, T. W. (1961). Investment in human capital. *The American Economic Review*, 51(1), 1-17.

Sissons, P. (2021). The local low skills equilibrium: Moving from concept to policy utility. *Urban Studies, 58*(8), 1543–1560. https://doi.org/10.1177/0042098020967290

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, *87*(3), 355–374. https://doi.org/10.2307/1882010

Susskind, D. (2020). *A world without work: Technology, automation and how we should respond.* London: Penguin Books.

Swailes, S. (2013). The ethics of talent management. *Business Ethics: A European Review*, 22(1), 32-46.

Tashakkori, A., & Creswell, J. W. (2007). *The new era of mixed methods. Journal of Mixed Methods Research*, 1(1), 3–7.

Tan, J., Freebody, S., Chia, Y., & Sung, J. (2018). *Business Performance and Skills Survey (BPSS).* Singapore: Institute for Adult Learning.

Tan, J., Sadik, S. and Sheng, Y.Z. (Upcoming). *Business Performance and Skills Survey 2*. Singapore: Institute for Adult Learning.

The Business Times (2024, 19 Feb). *90% of startups worldwide fail; but data for South-east Asia incomplete.* Available at https://www.businesstimes.com.sg/startups-tech/startups/tech-asia/90-startups-worldwide-fail-data-south-east-asia-incomplete

Turner, S. F., Cardinal, L. B., & Burton, R. M. (2017). Research design for mixed methods: A triangulation-based framework and roadmap. *Organizational Research Methods*, 20(2), 243–267.

Warhurst, C., & Findlay, P. (2012). More effective skills utilisation: Shifting the terrain of skills policy in Scotland. *SKOPE Research Paper No. 102*. University of Oxford, ESRC Centre on Skills, Knowledge and Organisational Performance. https://www.researchgate.net/publication/267381449

Woolley, C. M. (2009). Meeting the mixed methods challenge of integration in a sociological study of structure and agency. *Journal of Mixed Methods Research*, 3(1), 7–25.

Ye, R. & Nylander, E. (2015). The transnational track: state sponsorship and Singapore's Oxbridge elite. *British Journal of Sociology of Education*, 36(1), 11–33.