



Future of Manufacturing: Crafting Skills Security and Mastering Uncertainty

Future of Manufacturing: Crafting Skills Security and Mastering Uncertainty

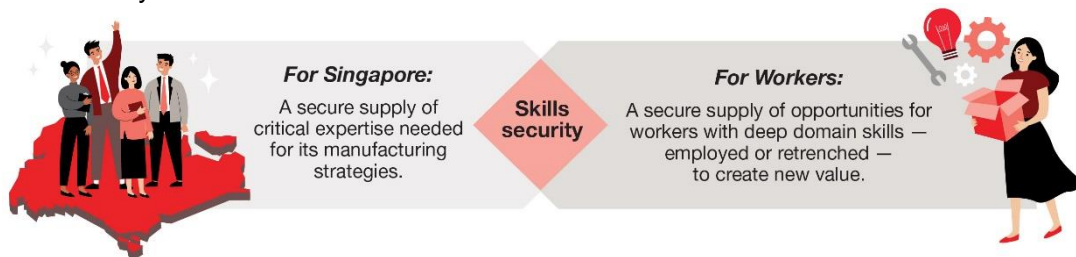
As Singapore's manufacturing sector faces renewed strengths and threats in a changing post-pandemic world, worsening global uncertainty could affect the opportunities available for workers in the manufacturing sector, as well as the required skills.

In this edition of the *Singapore Labour Research Digest*, we uncover how these challenges could impact the opportunities available for workers in the manufacturing sector. We also suggest how workers can navigate these opportunities and risks by securing the necessary skills to create strategic advantages in the sector.

Click [here](#) for the full report!

Skills Security

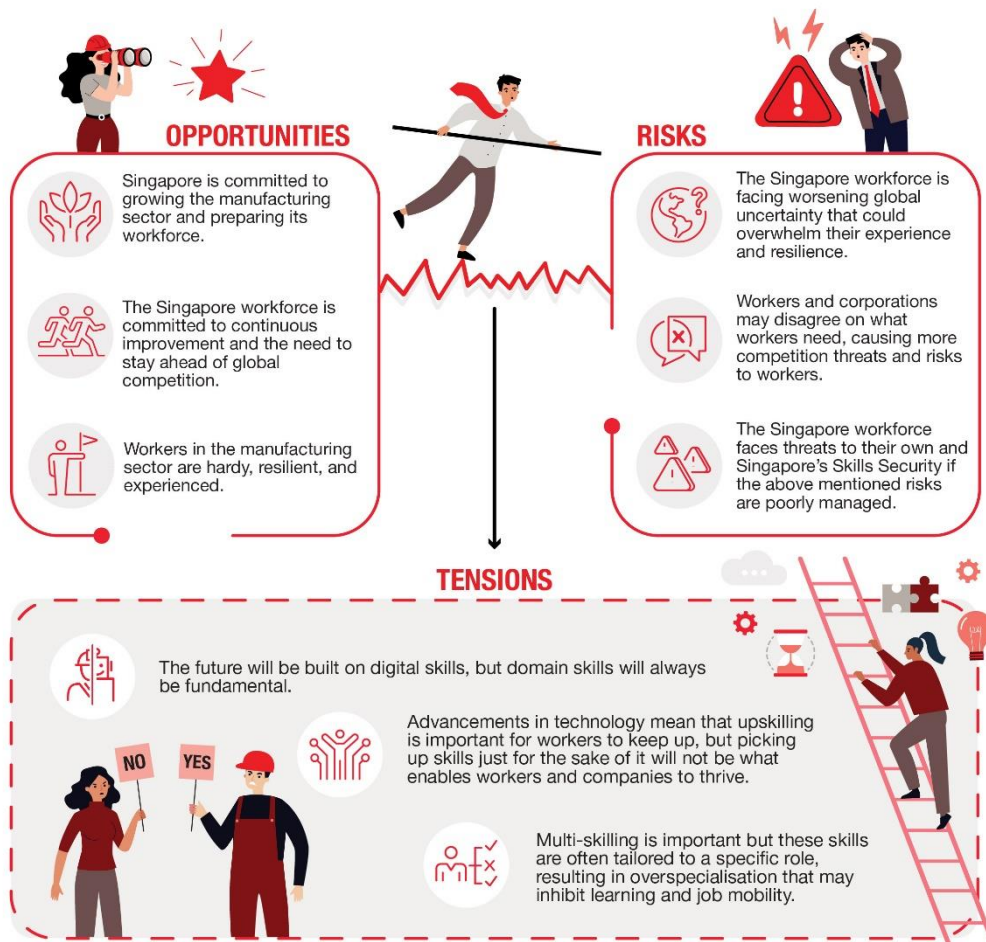
Skills security is defined at the interaction and intersection of two levels:



If we ensure this supply, we secure the stock of skills that Singapore needs for its manufacturing sector to automate, digitalise, transform, compete, and excel. But skills security is hardly discussed, much less practised.

Much to be Optimistic For, Many Risks to be Managed

We find there is much to be optimistic about in the opportunities ahead in the manufacturing sector, but also many risks that need to be managed. For workers, navigating these opportunities and risks requires resolving three tensions.



The dichotomy between the opportunities and risks above lead to workers experiencing uncertainty. If we want more workers to thrive, we must understand in-depth what they experience.

THESE TENSIONS RESULT IN UNCERTAINTIES EXPRESSED BY WORKERS ABOUT...

... economy and jobs

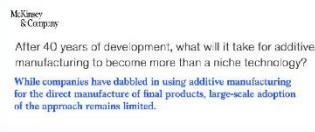


... industry's future

Less and less talent is coming into the industry. Or they may have moved to other countries, which results in less talent availability...So overall I see a weakening of the semicon ecosystem in Singapore.

(Semicon Engineer)

... growth prospects



... competition

When you talk about fully automated [in Foreign Country], is it in the same industry? What kind of process is it?

(ESC Technician)

... skills application

People feel flooded with course options: companies and workers do not know which are the relevant courses to go for. Some eventually attend these courses and get quite disappointed because they don't find that they learnt much. They can't apply much of what they learnt because the courses may be too theoretical with little emphasis on application.

(AM Engineer)

... tech application

One thing interviewees noted in comparing AM workers in Singapore with those in [Home Country]: In [Home Country] people have more hands-on experience. While people in SG may be well educated and know how the AM as technology operates, they have difficulty translating this to real-world shop-floor applications.

(AM Engineer)

... up-skilling

I think there are too many courses out there, so the workers and companies do not know which are the relevant courses that will really give them the upgrading and skills.

(AM Engineer)

... knowledge gaps

At the moment, technical sales is done by one of our materials engineers and our admin department. But they needed someone with more industry knowledge. So, things like material naming, engineering parts required for the process...became a bit of a challenge for them. This is where the gap is...

(AM Engineer)

... re-training

When you talk about re-training, it's a grey area for me. Like, where can I do, where can I start...

(ESC Engineer)

... systems risks

We can learn a lot from our colleagues and we do have update meetings, but those are not really learning in a way that if one of them is on leave for a whole week one of us is still able to step in to fulfill the role. At the moment it's still that if that person is not here today nobody else knows what to do.

(AM Engineer)

... digital tech's value

For the PE Industry, the skills that are needed right now are not necessarily AI and data analytics but the ability to transform the current shop floor by introducing automation and robots.

(PE Engineer)

Key Recommendations of Research Study

- 1 **Embed** an Interactions-Centric View* in Training Programmes to Ensure Manufacturing Excellence
 - 2 **Craft** Research Innovation and Enterprise- Pre-Employment Training - Continuing Education and Training (RIE-PET-CET) Ecosystem Work Options to Secure Singapore's Stock of Manufacturing Skills (aka a Manufacturing Multivitamin)
-
- 3 **Develop** N+1 Experiences^ to Attract Younger Graduates from Institutes of Higher Learning
 - 4 **Exploit** Combined RIE-PET-CET Ecosystems to Reduce Uncertainties Over New Growth Technologies
 - 5 **Design** Factories-for-All-Ages for Multi-Generational Workforce

* An interactions-centric view refers to a grounding in domain fundamentals and interactions essential to manufacturing excellence. Such a view is important because expertise is now distributed across people and technologies, and workers must build the meta-skills to access this distributed expertise through interactions within an ecosystem.

^ "N+1" is a terminology commonly used in the electronics industry to refer to the next-generation technological node.

Our recommendations capitalise on what Singapore has that few countries have to offer. When we succeed in making these preparations and drawing on the strengths of our workers, we can secure skills and create a strategic advantage unlike any other.



Labour Research Conference

NTUC's biennial Labour Research Conference (LRC) will be happening on 26 Sept 2024 at Stephen Riady Auditorium @ NTUC Centre, One Marina Boulevard! The conference will feature a series of presentations, dialogues and panel discussions, bringing together academics, policymakers, practitioners, unions and industry partners to engage in meaningful discussions on labour issues. Through these discussions, the conference aims to pave the way for advancing labour policies and practices. Click [here](#) to find out more about the event!

If you're interested in attending the LRC, get in touch with us at strategy@ntuc.org.sg.

A photograph of a person's hands holding a dark red, textured cover of the Singapore Labour Journal. The cover features the "ntuc" logo (National Trades Union Congress) at the top, followed by "SINGAPORE LABOUR JOURNAL" in large, bold, gold letters, and "CHALLENGE AS OPPORTUNITY" in smaller white letters below. At the bottom, it says "2024 / Volume 3 / Issue 1".

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**SINGAPORE
LABOUR
JOURNAL**

CHALLENGE AS OPPORTUNITY

2024 / Volume 3 / Issue 1

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NTUC will be launching the **third volume of NTUC's Singapore Labour Journal** in September 2024! The theme of this edition is "Challenge as Opportunity", which reflects the Labour Movement's aim to anticipate change and adapt by innovating, as well as our mettle amidst uncertainty and adversity. In this edition, we delve into pressing labour trends such as slowing workforce growth, and the need for flexible work arrangements to re-employ mature workers and caregivers. It also features insider perspectives into developments in Singapore's skills and training ecosystem and how flag carrier Singapore Airlines (SIA) Group turned to unions to manage its 30,000-strong staff during the COVID-19 pandemic. Happy reading, and may these pages inspire meaningful discourse and action in our respective fields." Click "read more" to download a copy of the previous volumes.

If you're interested in contributing an article, get in touch with us at strategy@ntuc.org.sg.

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Thank you for reading this issue of the ***Singapore Labour Research Digest!*** Through this space, we aim to initiate discussions, promote debate, and advance the understanding of labour issues. Feel free to also forward this newsletter to colleagues who may find the resource relevant to their work.

Have feedback you would like to share, or interested in a research collaboration? Get in touch with us at strategy@ntuc.org.sg.

Stay tuned for our next newsletter!

Presented by the NTUC Strategy

Find out more about the team behind the research [here!](#)

If you are not already on our mailing list and would like to receive an issue of the *Singapore Labour Research Digest*, please write to us at strategy@ntuc.org.sg.