

Empowered *workforce*, Thriving *workplaces*

Report by Singapore

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by Woon Cheng Peng

Deputy Director, WSH Technology and Applied Research,
Workplace Safety and Health Institute

& Deputy Director, International WSH

woon_cheng_peng@wshi.gov.sg



About Woon Cheng Peng



Cheng Peng holds two portfolios within the Occupational Safety and Health Division (OSHD) of the Ministry of Manpower, Singapore.

In his role as Deputy Director of Workplace Safety and Health (WSH) Technology and Applied Research at the WSH Institute, Cheng Peng spearheads initiatives to advance Singapore's WSH technology ecosystem and drive the adoption of effective technology solutions that enhance both workplace safety and productivity. Under his leadership, the Institute has developed and implemented national assessment tools, including iWorkHealth to assess workplace stress and stressors, and iOwnWSH for measuring organisational WSH ownership. These tools have become key instruments in shaping workplace safety and health practices and culture.

In his concurrent position as Deputy Director of International WSH, Cheng Peng works to strengthen Singapore's global position in workplace safety and health. He leads strategic initiatives to establish the nation as a centre of excellence for WSH practices, building valuable international partnerships and facilitating knowledge exchange.

Functions of the WSH Institute

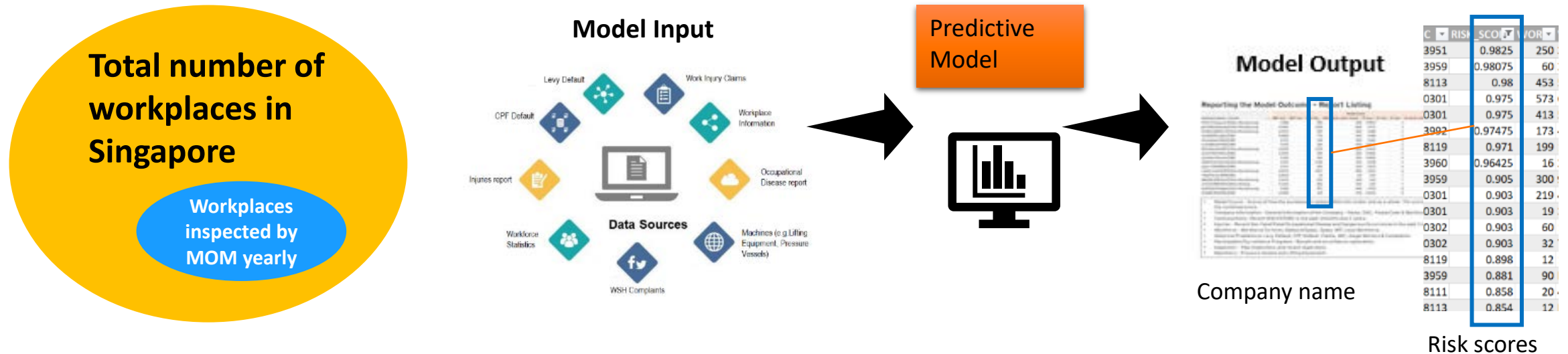
A department under the OSH Division, the Workplace Safety and Health (WSH) Institute:

- Ensures robust collection and timely reporting of National WSH statistics
- Uncovers WSH trends and risks through data
- Develops tools and interventions to shape progressive WSH practices
- Partners stakeholders in the technology ecosystem to improve WSH through industry-specific technologies



Deploying data analytics to optimise inspection resource allocation

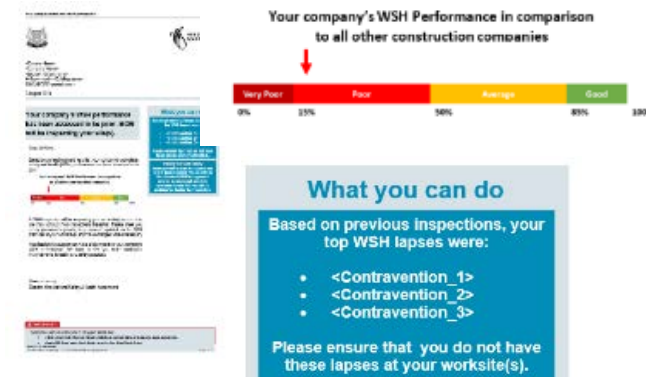
- Use predictive analytics for high-risk sectors, to identify companies with poor WSH performance
 - Companies are assigned with risk scores
 - Companies with higher risk scores prioritised for inspections
- Regular review of predictive models to improve accuracy



Using behavioural nudges to drive improvements to companies in the industry

Worksites	Profile A	Profile B	Profile C	Profile D
1	Inspect only one site a year	100%	100%	200%
≥2		60%	80%	150%

1- Varying frequency based on performance



2- Giving feedback to company management prior to inspections

WSH Management System Diagnostic Sheet

The diagnostic sheet is titled 'WSH MS Diagnosis' and includes sections for 'In line with the new and revised standards of workplace safety', 'Identifying management system failures in your company', 'Identifying system failures in your company', 'Identifying system failures in your company', and 'Identifying system failures in your company'.

3- Probing for systemic lapses during inspections

The letter is titled 'Make systemic changes to improve your WSH performance' and includes sections for 'For information', 'For action', and 'For follow-up'.

Letters to top management post inspections

4- Close feedback loop with company management

Leveraging AI/LLM to enhance incident reporting

Current state:

Requires some level of manual human intervention, where the officer will review the accident description and, if necessary, revise the Accident Type and Accident Agency after contacting the informants for more information

With AI/LLM:

Accident Details

Mr X sustained injuries after slipping & tripping over the strap of a recycling bag that was left on the classroom floor. He suffered bruises on his right knee and right palm from the fall.

(Max of 3000 characters.
You may attached further description of accident at the end of this report)

3. How did the accident happen?

Automatic classification by GenAI

* Type of accident :
Slips and Trips

* Type of equipment or agencies that led to the accident :
Others
Accident Agencies Not Elsewhere Classified

* Please Specify : Strap of recycling bag.

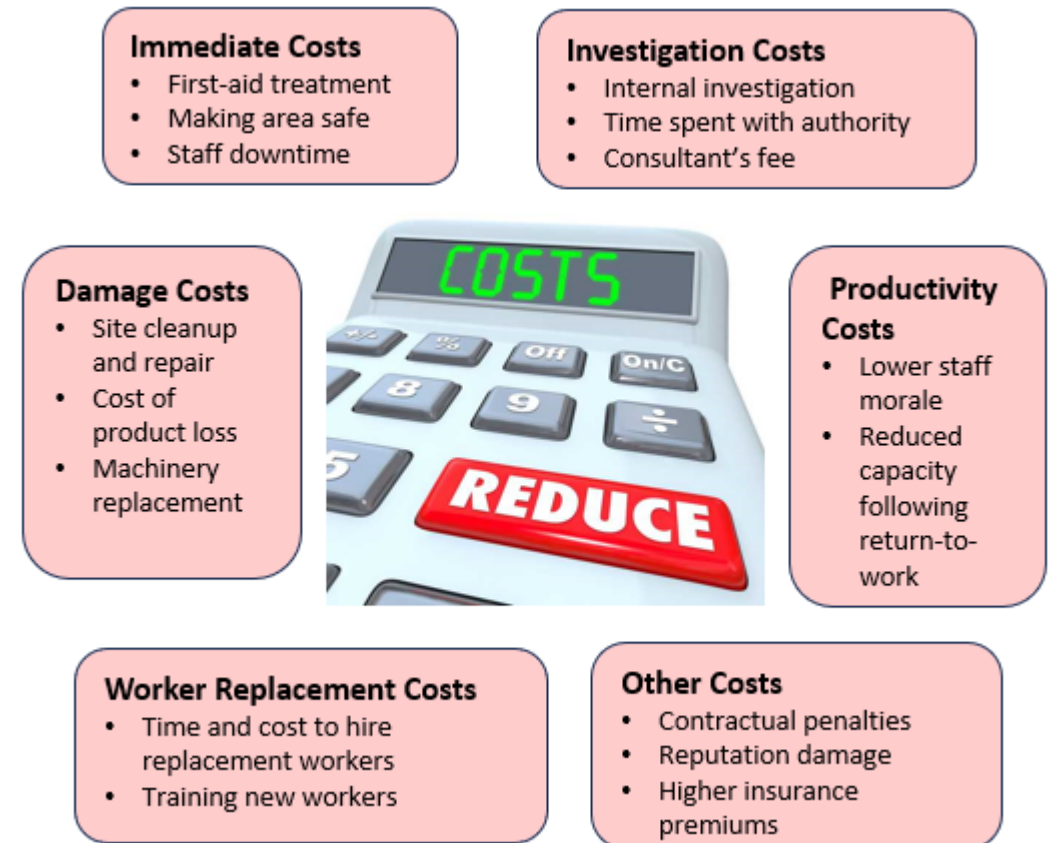
* Describe the events that led to the accident :
Give as much details as you can. For instance

- the name and type of machinery or substance involved
- the events that led to the accident
- what the injured person was doing at the time of the accident
- name of other persons involved or witnesses

1. Facilitate automatic classification of Accident Type and Accident Agency based on the accident information submitted by employers
2. Request supplementary details from the informants when information provided is insufficient
3. Staff is able to see the explanation from the large language model to justify its selection

Putting together an “Incident cost calculator” to raise awareness on cost involved in workplace incidents

- The extent of the costs of a WSH incident is often not fully understood. There are immediate and follow-on costs involved in a WSH incident.
- **Incident Cost Calculator***
(<https://www.mom.gov.sg/workplace-safety-and-health/wsh-resources>) estimates the costs associated with a workplace incident comprehensively by taking into account the different types of costs that may arise before and after a workplace incident.
- Beside helping users compute the costs of a workplace incident comprehensively, it facilitates a deeper understanding of the cost effectiveness of having WSH interventions in place.

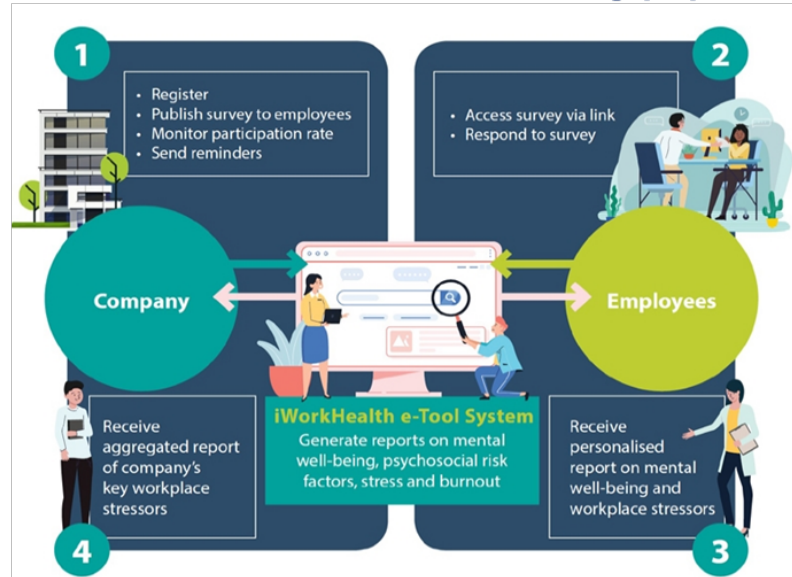


*Adapted from Finland's Work Accident Cost Calculator and Australia's Return on Investment Calculator

Developing tools to support companies in managing workplace stress and WSH Ownership

iWorkHealth: A Company-administered online assessment tool on workplace stress and stressors

To identify workplace psychosocial risk factors for the multi-ethnic Asian working population

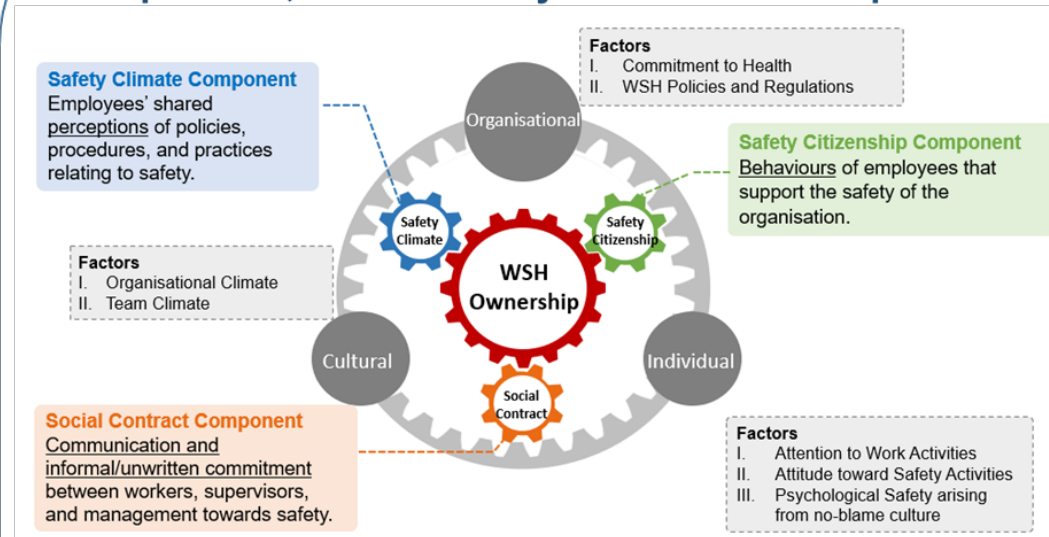


- Launched in February 2021
- Available in English
- Translation of tool into Chinese, Tamil and Bengali



iOwnWSH: A Company-administered online assessment tool for measuring WSH ownership

WSH Ownership Construct - 3 WSH Ownership Components, influenced by 7 WSH Ownership Factors



- Launched in August 2023
- Available in English, Chinese, Tamil, and Bengali



Pursuing WSH Tech solutions to address emerging priority areas

Aging workforce and workforce health

Robotics solutions automate specific tasks, reducing worker exposure to Slips, Trips and Falls (STF) and Work-Related Musculoskeletal Disorder (WRMSD) risks.

Exoskeletons reduce strain for manual work activities.

Smart wearables such as smartwatches and smart helmets continuously monitor vital signs (heart rate, temperature) to provide early warnings for workers at risk.

Health monitoring apps provide employers and worker early indication of chronic diseases.

Heat Stress

Ice slushy is a scientifically proven solution to prevent heat stress.

Cooling vests and clothing help to regulate body temperature of workers and increase heat tolerance.

Advancement in AI

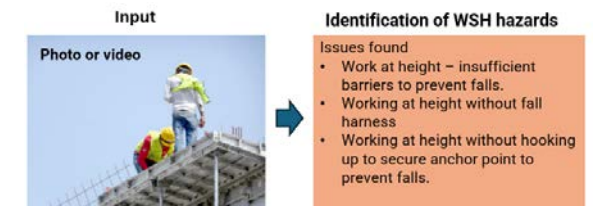
Harnessing AI's transformative potential to pioneer global-leading solutions that enhance both workplace safety and operational productivity – **SafeSite VA** and **AIspot**.



Exoskeleton trial by MOM/OSHD's Registry & Records team



Ice slushy machine deployed at construction site



Use of Generative AI for hazard identification



Thank you