

# ASMI X WSG Seminar

AI in Action: Workforce  
Transformation in Marine & Offshore



Organised by:



Supported by:



**28** May 2026  
2pm - 4pm

Trade Association Hub  
Training Room T1C

# AI in Action: Workforce Transformation in the Marine and Offshore Energy Sector

How WSG can support your organisation's workforce  
transformation journey









28 May 2026



# Your Workforce Is the Multiplier – If You Invest in It

$$1 + 1 > 2$$

AI doesn't replace your workforce. It multiplies what your workforce can do –  
But only if you redesign the work and reskill the people

What the Workforce Brings		What AI Brings	
 Domain Knowledge		Speed	
 Judgement		Scale	
 Relationships		Pattern Recognition	
 Creativity		Consistency	

*The multiplier only works when both sides are strong!*

The leadership question is whether **roles**, **skills** and **workflows** are being redesigned quickly enough to work with AI.

# The Real Challenge – Not the Tool, It's the System

The pain your organisation may be feeling is not from 'too little AI'. Instead, it could be because jobs and processes that were never redesigned to work with AI.

## Common Approaches



Buy AI tools and roll them out to individual teams



Track how many AI tools were purchased and pilots launched

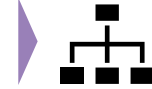


Tell staff to "go figure it out"



Hope for productivity gains

## Successful Approaches



Redesign end-to-end workflows and roles **before** scaling AI across the organisation



Track whether AI actually **reduced downtime, improved accuracy, increased throughput, and upskilled workers**







Provide **structured job redesign, clear role expectations, and supported reskilling**



**Engineer productivity gains** through intentional role transformation with measurable targets

# From today's jobs to AI-enabled work

How operations, planning, engineering and talent roles evolve

	Today	Early AI	Advanced AI
 <b>Sales/Operations</b>	Customer technical sales; Monitor assets and operations; react to issues; optimise using experience and rules.	AI copilots for monitoring and alerts; predictive insights for sales, equipment and operations.	Autonomous sales, operations and optimisation across fleets and assets; closed-loop decisions in real time.
 <b>Planning</b>	Build plans in silos; manual scheduling; limited scenario analysis.	AI-assisted forecasting and what-if scenarios; smarter scheduling and resource planning.	Dynamic, integrated planning across supply chain and operations; continuous re-optimisation.
 <b>Engineering/R&amp;D</b>	Design based on standards an experience; iterative testing; knowledge in documents.	Generative design options; simulation acceleration; AI search across technical knowledge.	AI co-engineers new solutions; autonomous simulation and testing; continuous innovation at scale.
 <b>Talent/HR</b>	Jobs and skills managed historically; training reactive; limited workforce insights.	Skills intelligence; personalised learning; AI support for recruitment and workforce planning.	AI-driven workforce strategy; dynamic skills marketplace; culture and productivity optimization.

# Where Is Your Organisation on the AI Journey?

Every company in this room is somewhere on the journey. The question is: What's your next move?



## Explorers



### Where you are

Exploring AI and understanding the basics



### What you're thinking

"Where do we begin and what's possible for us?"



### What's holding you back

Unclear use cases, uncertainty about ROI. Fear of disruption. Not sure which roles to start with.



### What you need

Identify one use case, run 1 structured pilot, get leadership support and measure outcomes.



## Early Adopters



### Where you are

Piloting solutions and building capabilities



### What you're thinking

"How do we prove value and scale what works?"



### What's holding you back

Siloed data, integration challenges, change management and skills gaps.



### What you need

Expert guidance, pilot acceleration, platform and data readiness, and capability building.



## Advanced Adopters



### Where you are

Scaling AI and embedding it across the organisation.



### What you're thinking

"How do we transform and stay ahead?"



### What's holding you back

Legacy systems, operating model constraints, and governance at scale.



### What you need

Strategic roadmap, operating model evolution, advanced governance, and redesign roles at scale.

# What To Do Next?

1



**Pick 1-2 roles to start with**

Look at your operations, planning, engineering, or back office. Where is AI impact highest and resistance lowest? Start there. Use JTM's and TalentTrack to guide your decision.

2



**Appoint AI and Workforce Transformation Champions**

Appoint 1-2 people per department who can lead job redesign and upskilling from within.

They don't need to be tech experts - they need to be trusted operators willing to learn.

3



**Utilise available resources to guide organisations on their AI journey.**



Whether it's workforce consultancy (WDG-JR), salary support for reskilling (CCP), or workforce and skills planning (TalentTrack), or the national AI playbook, there are a suite of resources available to support you in your journey.



**The AI for Enterprise Impact Playbook** – jointly developed by IMDA, WSG and SSG – helps you diagnose where you are and match to the right support.

# How WSG Supports Your Transformation

You don't have to do this alone. Here's the support available at every stage.

Your Challenge	WSG's Support	What It Does
<p>“ I need to understand how AI is impacting the M&amp;OE sector ”</p>	 <p><b>Jobs Transformation Map</b> (Coming soon!)</p>	<p>Sector-specific analysis of how AI is changing job roles, with proposed reskilling interventions</p>
<p>“ I want a structured way to assess my overall AI readiness ”</p>	 <p><b>AI for Enterprise Impact Playbook</b></p>	<p>Self-assessment across 5 dimensions with matched enterprise and workforce support – developed by IMDA, WSG and SSG.</p>
<p>“ I need to know what skills my workforce has and what's missing ”</p>	 <p><b>TalentTrack (Free) and TalentTrack+ (Advanced)</b></p>	<p>Digital workforce planning tools – skills readiness assessment, gap identification, curated training recommendations.</p>
<p>“ I need help redesign jobs around AI ”</p>	 <p><b>Workforce Development Grant – Job Redesign+</b></p>	<p>Funding to work with pre-approved consultants to redesign work processes, tasks, and responsibilities leveraging AI/GenAI</p>
<p>“ I need salary support to reskill or hire for redesigned roles ”</p>	 <p><b>Career Conversion Programme – Marine and Offshore Energy</b></p>	<p>Salary support for existing employees being reskilled (JRR) or new hires placed into redesigned roles (New Hire)</p>

# Thank you

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For more information,  
please visit [www.wsg.gov.sg](http://www.wsg.gov.sg)



# Resources

## AI for Enterprise Impact Playbook



<https://go.gov.sg/aisplaybook>

## Career Conversion Programme for the Marine and Offshore Energy Sector



<https://go.gov.sg/mnoeccp>

## Workforce Development Grant – Job Redesign +



<https://go.gov.sg/wdgr>

## Talent Track / Talent Track+



<https://go.gov.sg/talent-track>



# AI Sharing - Marine and Offshore Energy



28 May 2026

# What is Artificial Intelligence (AI)?

“The science and engineering of making **intelligent machines**”

- *John McCarthy in 1955*



# AI is *NOT* new – it has been there for nearly 100 years

Foundation

1930 - 1950

## Alan Turing

Alan Turing develop the Turing Machine and Turing Test as a way to test a machine's intelligence



1966

## First Chatbot "ELIZA"

Joseph Weizenbaum developed the first "GenAI" chatbot ELIZA at MIT, simulating conversation using simple pattern matching



1980s

## Expert Systems Development

Edward Feigenbaum develop Expert systems that emulate human experts decisions



1997

## Beating a Chess World Champion

Computer program Deep Blue beats world chess champion Garry Kasparov



Industrialisation

2016

## Beating a Professional Go Player

AlphaGo beats professional Go player Lee Sedol 4-1



2010s

## Introduction of Big data and IoT

Advancement in big data and IoT cause companies to explore different business applications



Late 2000s

## Machine Learning and Data Analytics

Maritime and engineering companies start to explore how to leverage data analytics

Democratisation

2022

## ChatGPT Public Launch

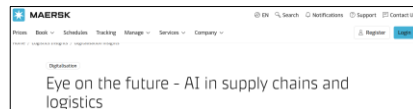
OpenAI launch ChatGPT for public use on Nov 30, 2022



2022 - 2025

## Proliferation of GenAI

Companies start investing in GenAI application



2025 - Future

## We are here!

### Rise of Physical AI

Companies exploring how AI can move from digital to physical space (e.g., Autonomous vehicles)



Hanwha and HavocAI Advance Autonomous Vessels



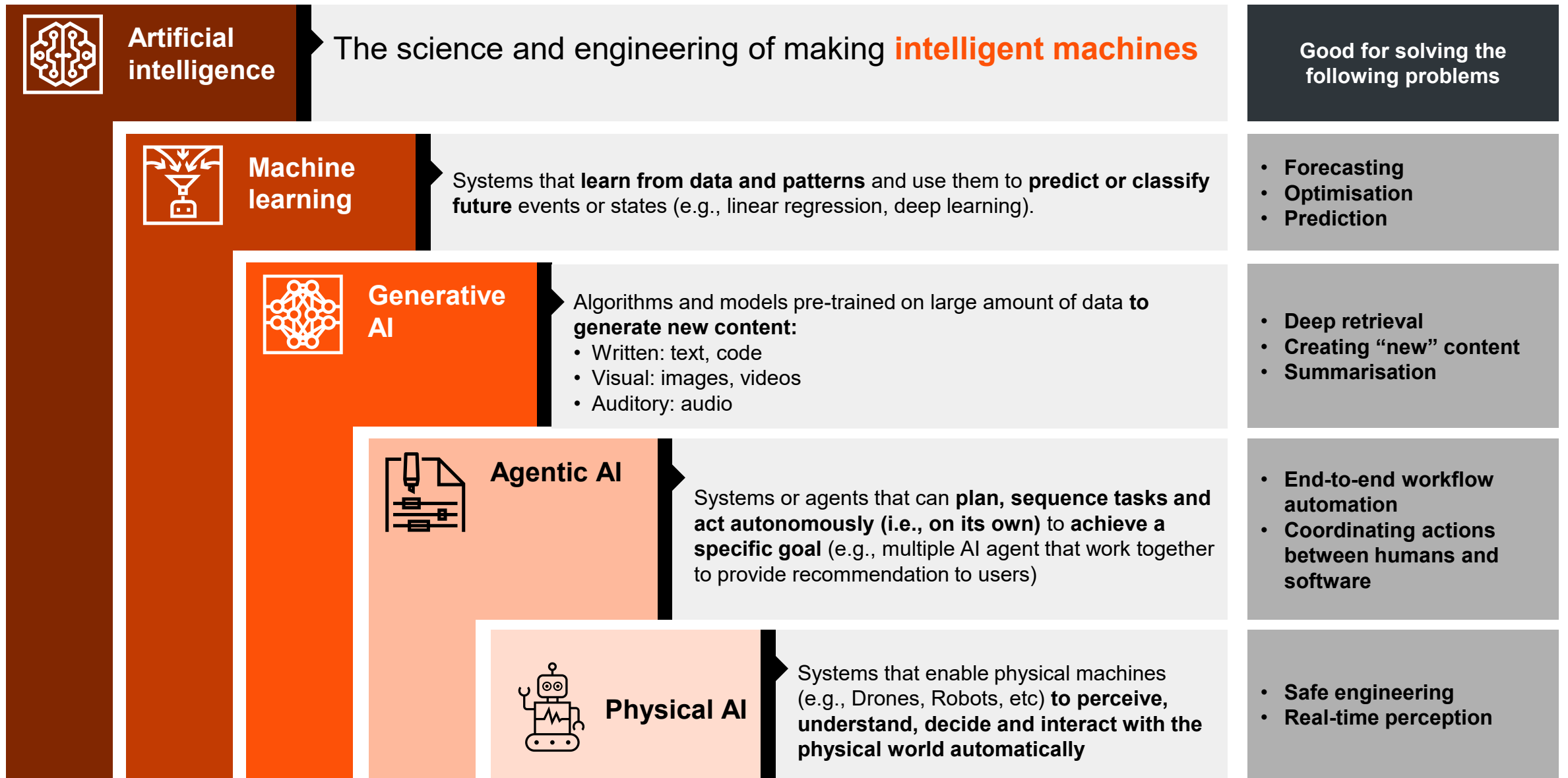
Future?

### Artificial Generative Intelligence

System that completely mimic human intellectual capabilities



# What are the different current types of AI and what can they do?



# While AI is powerful, AI is not a “silver bullet” to every problem

## AI tend to do better at jobs that require ...

1 Repetitive High Volume Task



2 Data-Driven Analysis Task



3 Pattern Recognition



## AI is not good at jobs that requires ...

1 Requires Contextual Understanding and Creativity



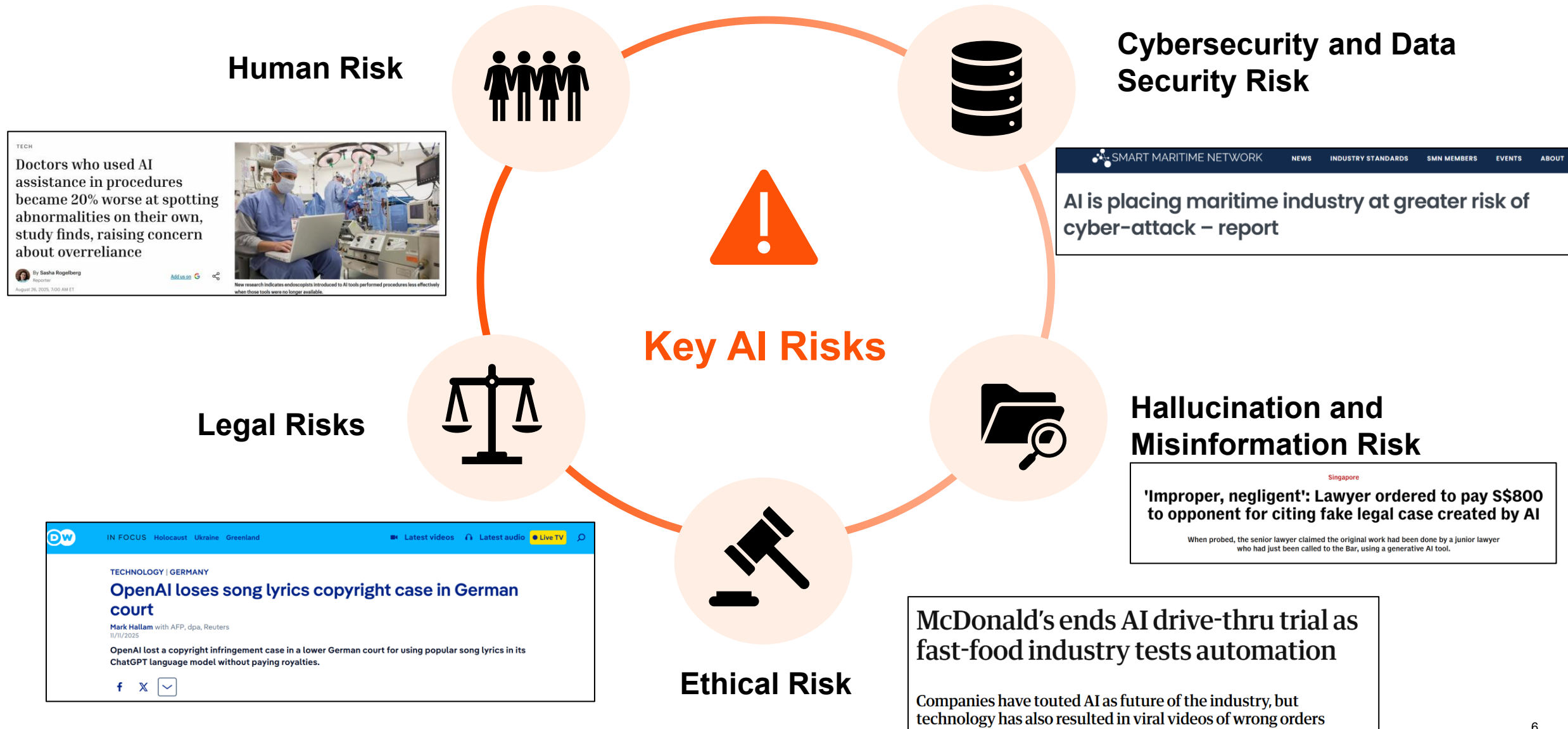
2 Emotional Intelligence and Relationships



3 Taking and Being Responsible for Decisions



# Companies will also need to be aware of the key risks of using GenAI



TECH

Doctors who used AI assistance in procedures became 20% worse at spotting abnormalities on their own, study finds, raising concern about overreliance



By Sasha Rogelberg  
Reporter

August 26, 2023, 1:00 AM ET

New research indicates endoscopists introduced to AI tools performed procedures less effectively when those tools were no longer available.

SMART MARITIME NETWORK NEWS INDUSTRY STANDARDS SMN MEMBERS EVENTS ABOUT

AI is placing maritime industry at greater risk of cyber-attack – report

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TECHNOLOGY | GERMANY

**OpenAI loses song lyrics copyright case in German court**

Mark Hallam with AFP, dpa, Reuters  
11/11/2023

OpenAI lost a copyright infringement case in a lower German court for using popular song lyrics in its ChatGPT language model without paying royalties.

f X

Singapore

'Improper, negligent': Lawyer ordered to pay S\$800 to opponent for citing fake legal case created by AI

When probed, the senior lawyer claimed the original work had been done by a junior lawyer who had just been called to the Bar, using a generative AI tool.

**McDonald's ends AI drive-thru trial as fast-food industry tests automation**

Companies have touted AI as future of the industry, but technology has also resulted in viral videos of wrong orders

# The M&OE Sector is already investing heavily in adopting AI...

Various global M&OE companies have invested in AI projects ...

... to capture AI's value add, which will have a significant impact to the workforce and company operations

## HD Hyundai shows off AI, latest carriers at Gastech 2025

LIM JEONG-WON  
limjeongwon@donggong.co.kr

Published: 09 Sep. 2025, 14:42  
Updated: 09 Sep. 2025, 16:13

Audio report: written by reporters, read by AI



A render of HD Hyundai's booth at Gastech 2025, which began in Milan, Italy on Sept. 9 (PHD Wire/2025)

## Seatrium and A\*STAR to Explore New Energies and AI in Offshore and Marine Applications

16 APRIL 2024



For Enterprises

3x

Higher growth in revenue per worker

4.8x

Increase in labour productivity growth in Singapore



For Individuals

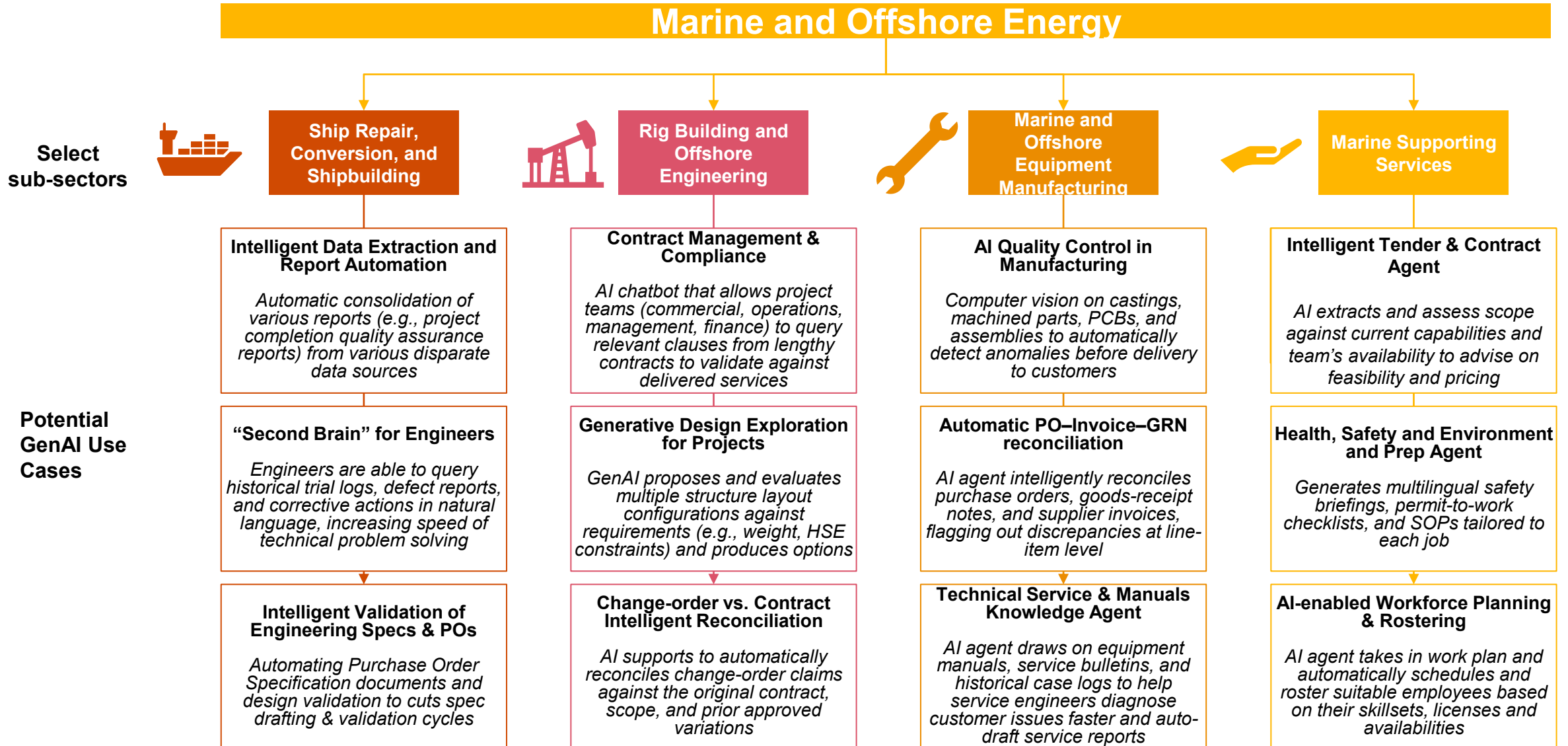
66%

Faster skill change in AI-exposed jobs

~78%

Wage premium on average for AI-related skills

# ...with plenty of AI Use Cases already identified



# Potential funding support to help you on the AI journey through ECI Programme

- Administered by Digital Industry Singapore, in partnership with the cloud service providers (e.g., AWS/Azure)
- Government will fund up to 70% (max S\$105k funding) of consulting services (company needs to fund the other 30%) and also cloud credits and training support
- Run from FY2025 to 2026 (e.g., June 2026); use case should be completed in 6 to 9 months
- One application per corporate group unless nature of business are significantly different among subsidiaries
- Application to be done by the company with DISG via Corppass with a use case, naming a consulting partner (e.g., “PricewaterhouseCoopers Risk Services Pte Ltd”) and with a cloud service provider
- **Criteria:**
  - i. Interested companies should have:**
    1. A business entity registered, incorporated and physically present in Singapore;
    2. CEO or equivalent-level sponsorship;
    3. At least 10 headcount based in Singapore
    4. Software/AI & Data capabilities: A local tech team of 2 or more headcount. This can comprise of software engineers, AI engineers, and/or data scientists roles;
    5. Experience in building custom AI solutions for a Proof-of-Concept and/or wider deployment;
    6. Accessible data sets to be worked on for the use case; and
    7. Financial ability to ensure project completion.
  - ii. Ideal use cases should focus on leveraging AI to achieve at least of one of the following objectives:**
    - i. Process improvement;
    - ii. New product development;
    - iii. Research and development; and/or contribution to the broader ecosystem.
  - iii.** The proposed use case must demonstrate impact to the company and/or industry and lead to the establishment of AI team(s) within the company.

# How to get started?

## Practical Next Steps

### 1 Identify AI Use Cases

Conduct current state assessment to identify pain points and wish list

### 2 AI Use Case Roadmap

Prioritise potential AI Use Cases to craft an AI Use Case Roadmap to guide the company AI transformation

### 3 Develop MVP for 1 Use Case

Based on the AI Use Case Roadmap, start with development of a MVP for 1 use case and AI Blueprint to support the AI use cases (e.g., change management, resources required)

## Funding Opportunities

Companies can leverage the **Enterprise Compute Initiative (ECI) Grant (ending in June (AWS) and July (Microsoft Azure))** to reduce project cost. Through this programme, companies will receive...

Up to **70%** funding

Which means that cost for companies will only need to cover ...

**30%** of initial cost



“

*We should not let uncertainty hold us back – or we will fall behind. AI is here to stay. We cannot ignore it or wish it away. Instead, we must approach it with confidence and purpose.*

*Companies that embrace AI will stay competitive and thrive. Workers who invest in AI skills will have better opportunities and stronger career prospects.*

”

- **Prime Minister Lawrence Wong's  
May Day Message 2026**

# Thank you!



**Tommy Tan**  
*Digital Solutions*  
*PwC Singapore*

[Tommy.pl.tan@pwc.com](mailto:Tommy.pl.tan@pwc.com)

+65 8183 6922

Connect with me via [LinkedIn](#)

pwc.com

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# From Carbon to Silicon

How Mencast Transformed Its Workforce with AI  
(Without Hiring Data Scientists)

**Dr Chia Boon Tat**

CTO, Mencast Marine

**Ms Lee Hwee Teng**

Manager, Mencast Marine

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AI in Action: Workforce Transformation in Marine & Offshore

28 May 2026 | ASMI Trade Association Hub | 2:00 PM - 3:00 PM

# Marine Propeller Design, Manufacturing and Repair

- 45 years of expertise in marine engineering
- 200 employees
- 10,000+ propellers delivered

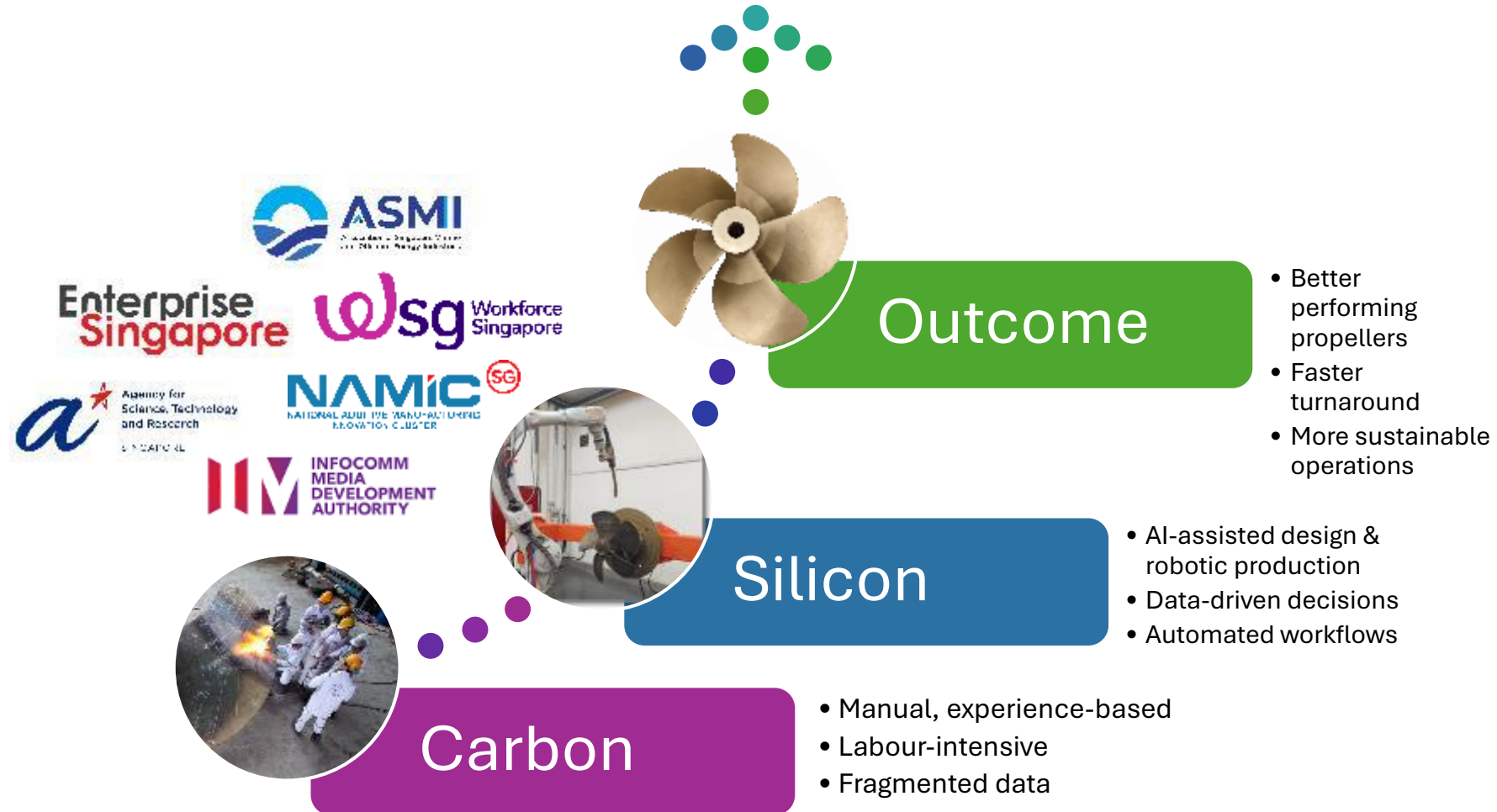
Our strength: Deep hands-on engineering knowledge built over decades

The reality: The traditional way of designing and manufacturing propellers is no longer enough



# Mencast's Transformation Journey

SUPER PROPELLERS THAT TRANSFORM  
VESSEL PERFORMANCE AND ECONOMICS



# The 4-Tier AI Transformation Framework

*Not an AI project - a company-wide transformation.*

01

## AI Work Companions

Everyone uses AI for daily tasks

- HR, admin, sales, finance, engineering
- No coding required

02

## Digital Knowledge Hub

45 years of engineering data structured and usable

- Engineering, finance, operations

03

## AI-Powered Engineering Design

AI-assisted propeller optimization and performance prediction

- Engineers become AI-assisted designers

04

## AI-Driven Manufacturing

Additive manufacturing with AI process control

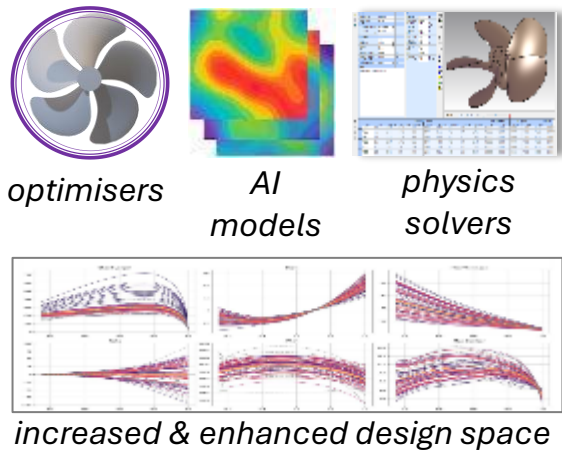
- Operators become AI-enabled technicians

We did not hire AI experts.  
We transformed our existing workforce.

From digital intelligence → to real-world execution  
(Tier 3 → Tier 4 closes the engineering loop between design and manufacturing)

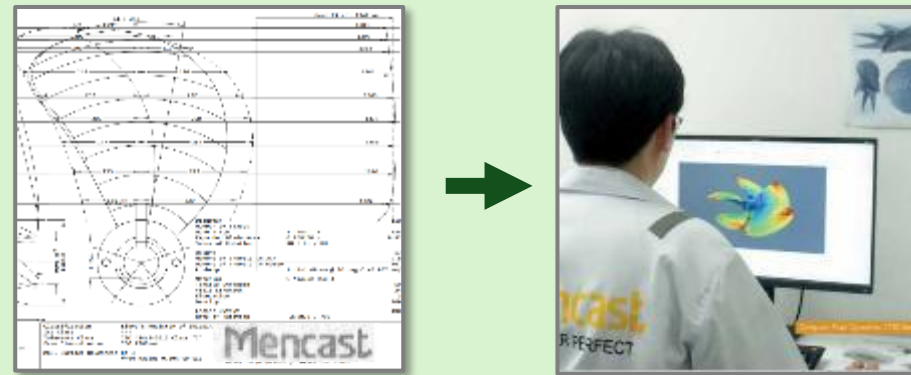
# Tier 3 AI-Powered Engineering Design

## How it works



- AI models trained on decades of design data
- AI models interact with optimisation engines and physics solvers
- Thousands of design combinations evaluated rapidly

## What changed for engineers



### Before:

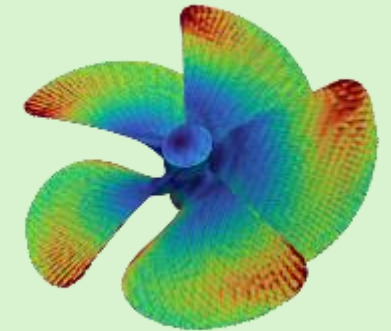
- Manual iteration
- Limited design exploration
- Experience-dependent



### After Transformation:

- AI-assisted optimisation
- Large design space exploration
- Focus on decision-making, not trial-and-error

## Impact

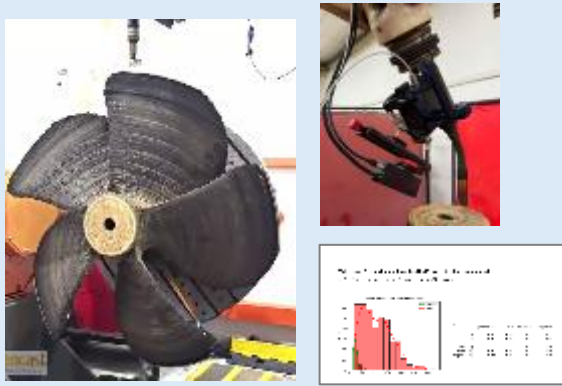


*design to achieve  
10% fuel savings*

- Design time reduced from weeks to hours
- Better-performing propellers
- Design for real operating conditions, not just theory

# Tier 4 AI-Driven Manufacturing

## How it works



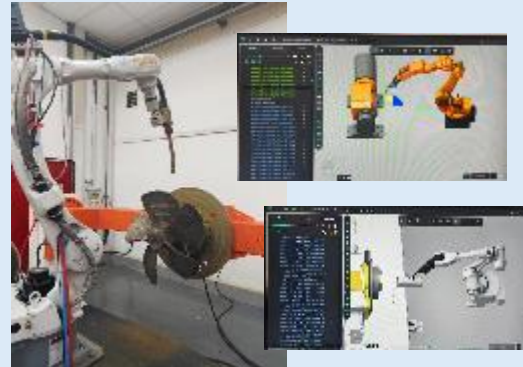
- Large-format metal additive manufacturing
- IoT sensors + Edge AI for real-time monitoring
- AI-driven feedback loop for process control

## What changed for the workforce



### Before:

- Foundry and sand casting
- Manual inspection, and finishing
- Skill dependent on years of experience



### After Transformation:

- AI-assisted production using robots
- Data-driven quality control
- Operators become process controllers

## Impact



- More consistent quality
- Faster production cycles
- Seamless integration from design to manufacturing

## Key distinction

Tier 3 operates in the *virtual world* (design and simulation)  
 Tier 4 brings AI into the *physical world* (real-time control of manufacturing)

Strategy alone does not  
transform a company.

**People do.**

Supported by WSG's Career Conversion Programme (CCP)

# Proof That Transformation Is Possible Without Hiring AI Experts

## Before

- No AI or programming background
- Engineering role, not a data scientist
- Typical employee profile in the marine industry
- Manual processes for data and reporting

## After

- AI power user across multiple domains
- Data transformation lead for 45 years of records
- App developer via LLM-assisted coding
- Driving cross-functional AI adoption

**Trigger: WSG Career Conversion Programme (CCP) - exposure to AI tools and structured support**

AI transformation does not start with hiring experts. It starts with enabling your existing people.

# Stage 1: AI as a Daily Companion

Starting with LLM chatbots for immediate productivity gains across everyday tasks.



## Writing & Communication

Emails, proposals, reports drafted faster with AI assistance



## Analysis & Research

Quick technical research, data interpretation, literature review



## Problem Solving

Troubleshooting, brainstorming, and structured thinking



## Cross-Team Support

HR policies, finance queries, admin tasks - AI helps everywhere

# Stage 2: Unlocking 45 Years of Data

## The challenge:

Decades of propeller design data locked in PDFs, legacy formats, and paper records.

## The work:

Built Python extractors to parse, validate, and structure [~300] project files into standardised JSON – tedious and repetitive work that would have taken months manually.

## The result:

A searchable, structured database of propeller performance data - the foundation for AI/ML training and enterprise-wide analysis.

***Without this data transformation, our AI design and manufacturing would not be possible.***



# Stage 3: From User to Builder

*LLM-assisted coding to build tools the company actually uses.*

## Propulsion Matcher

B-Series propeller matching tool for engineering design

Engineering

## Software Output Converter

Automated PDF-to-DOCX report generation with Mencast branding

Engineering

## Meeting Porter

Multi-LLM transcript analysis with action item extraction

Cross-functional

## HR Chatbot

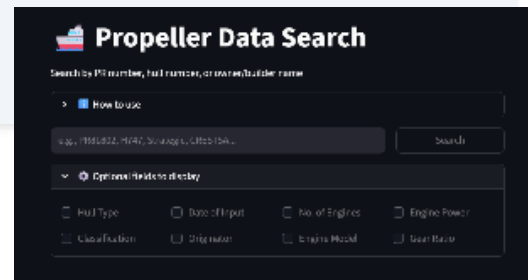
Policy query bot deployed on Microsoft Teams

HR

## Propeller Search

Searchable interface over project JSON files

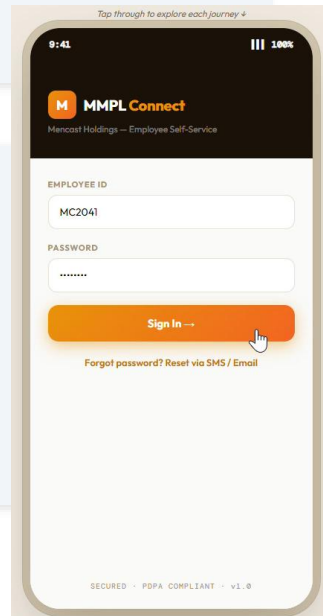
Engineering



## Finance

Additional dashboards and automation workflows

Finance



# What Changed - and What It Unlocked



## Tasks That Took Days Now Take Hours

Propeller geometry extraction

**[1 week] manual > [2 hours] with AI**

Project report conversion

**[X hours] manual > [X min] automated**

Data extraction per project file

**[X hours] manual > [X min] automated**



## A Capability That Did Not Exist Before

45 years of propeller performance data was locked in PDFs and paper records.

Now it is structured, searchable, and ready for AI/ML training.

**This is the foundation that makes Tiers 3 and 4 possible.**



## It Is Spreading - Without Being Pushed

A finance colleague - with no tech background - independently built a claims processing app with OCR and cloud database.

**No IT ticket. No external developer.**

**The people closest to the problem are the best ones to solve it.**

**You do not need to hire AI engineers to start your AI transformation.**

**Give your people the right tools and they will surprise you.**

# Three Takeaways

**1**

## AI adoption is about people, not technology

The right framework empowers everyone - from admin to engineering - to participate in AI transformation.

**2**

## Start simple, build systematically

Tier 1 AI companions create momentum. Tier 2 data work creates the foundation.  
Tiers 3-4 deliver business outcomes.

**3**

## Real engineering outcomes are possible today

AI-optimised propeller design and additive manufacturing are [already delivering / on track to deliver] measurable results.

# Thank You

*At Mencast, AI is not a tool we use.*

*It is how we are redesigning our products, our processes, and our people -  
from carbon to silicon.*

Dr Chia Boon Tat | [chia@mencast.com.sg](mailto:chia@mencast.com.sg)

Ms Lee Hwee Teng

R&D | Mencast Marine | [www.mencast.tech](http://www.mencast.tech)

Questions?