THE BUSINESS TIMES

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Partnering up to solve manufacturing problems

The Advanced Remanufacturing and Technology Centre connects companies with solution providers and research expertise. BY VENGA SUBRAMANIAM

SINCE it began in 2012, the Advanced Remanufacturing and Technology Centre (ARTC) has brought together over 100 manufacturing players – over half of which are small and medium-sized enterprises (SMEs) – with researchers and academia, to co-develop technological solutions.

A research institute under the Agency for Science, Technology and Research (A*Star), ARTC provides a platform where manufacturing companies with problems can meet partners who will help them create solutions.

ARTC membership is tiered by size, with companies and solution providers at each level.

The first tier is for industry leaders and original equipment manufacturers; the second for technology and service providers; and the third for SMEs.

Besides working with ARTC on an ad-hoc basis for research and development (R&D), members can also form joint labs: a deeper form of partnership and investment on a longer-term basis, usually about three years.

ARTC's ethos is "industry pull" rather than "research push", said chief executive officer David Low. Instead of researchers pushing solutions to the market, industry players provide the "pull" of demand by approaching ARTC with specific problem statements.

Tru-Marine: Turbocharging the efficiency of engine maintenance

Devices called "turbochargers" make ship engines more efficient; in turn, Tru-Marine provides more efficiency in the maintenance, repair and overhaul (MRO) of these engine add-ons.

A turbocharger reuses exhaust gases such that the engine can achieve a higher power output. Shipping companies usually rely on routine or scheduled maintenance of turbochargers – but this carries the risk of under- or over-maintenance.

As a provider of turbocharger MRO solutions, Tru-Marine is helping to solve this problem through its predictive maintenance app, TruCare.

A pilot of this app began early this year with Pacific International Lines, involving 24 turbochargers across six of its vessels.

Tru-Marine began developing TruCare about three years ago, tapping on ARTC's technologies related to sensors, data analytics, machine learning and blockchain. German turbocharger manufacturer Kompressorenbau Bannewitz (KBB Turbo) collaborated by providing testing facilities.

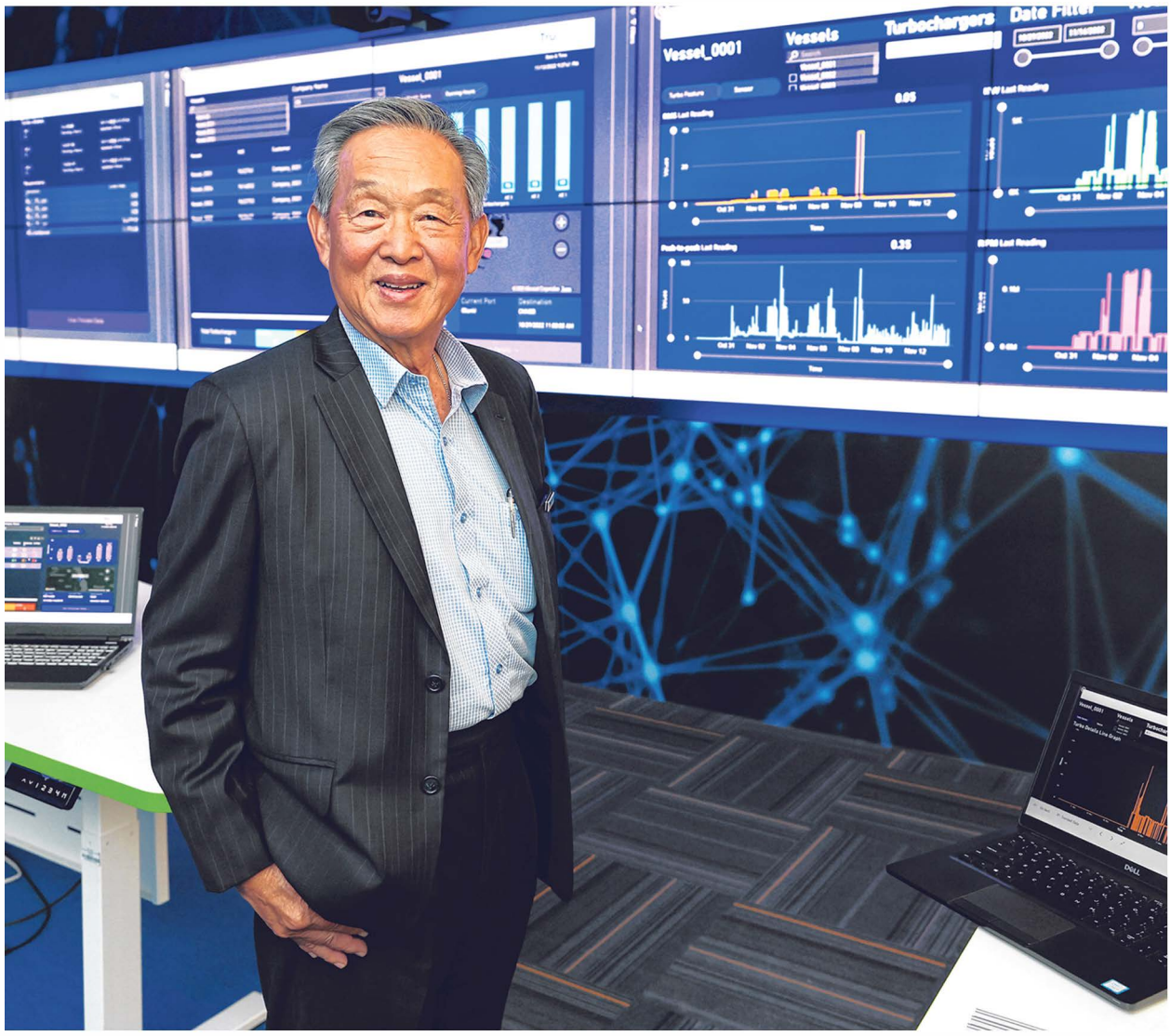
Sensors attached to turbochargers collect data about vibration, temperature, exhaust, and pressure.

The app analyses such data to detect anomalies, then informs marine vessels when their turbochargers need to be serviced or overhauled.

"This translates to cost savings and longer usage of the asset, and because of improved fuel efficiency, vessel owners can also reduce their carbon footprint," said deputy chairman and senior adviser Lim Soon Hock.

Besides helping vessel owners go green, Tru-Marine has its own environmental, social and governance (ESG) efforts.

All six board members have gone through ESG training, and the company has an ESG council headed by its chief executive officer.



Tru-Marine deputy chairman and senior adviser Lim Soon Hock says the company wants to create a platform to connect service providers with vessel owners and operators.

Becoming the Alibaba of the marine industry

On the ground, the company is installing solar panels in its facilities, keeping air-conditioning temperatures no lower than 24 deg C, using energy-efficient LED lights, and going paperless.

Its next step in ESG compliance is introducing life-cycle management for its products and services, to reduce overall carbon emissions and even create carbon credits.

"Our customers are also asking us for carbon credits," Lim noted.

"We have to offer carbon credits which are auditable, and we don't want to be faulted for greenwashing. This is a long and complex journey, and as an SME we take it one step at a time."

The TruCare app is now being rolled out through agreements with major players such as KBB Turbo and Japanese multinational company Mitsubishi Heavy Industries.

But Tru-Marine hopes the app can go beyond predictive maintenance in its next phase of development, also in partnership with ARTC.

Said Lim: "Our aspiration is to be the Alibaba of the marine industry for the repair, refurbishment, and re-manufacturing of turbochargers, in support of the circular economy."

Just as e-commerce platform Alibaba brings together sellers and buyers, the aim is for TruCare to become a platform that connects service providers with vessel owners and operators.

Besides monitoring their turbochargers, TruCare users will be able to choose from MRO services and components being sold via the app.

Tru-Marine has an estimated 40 per cent of the Singapore market in providing turbocharger MRO solutions for marine, offshore, locomotive and power plant applications.

It is thus familiar with industry pain points, such as the time taken to solve turbocharger problems, said Lim.

"A big challenge has always been 'cycle time' for repair – how quickly can you get it done?" This depends on the availability of manpower and spare parts, he added.

If ship owners can be connected swiftly to suppliers, that would help to tackle this issue.

"TruCare is going to be a game changer for Tru-Marine. We are essentially moving from a company-centric approach to an industry-centric approach," said Lim.

Instead of Tru-Marine itself serving many customers, the intended TruCare platform will benefit the entire sector, connecting multiple industry players to multiple suppliers.

The company serves ports in eight locations across five countries: Singapore, Dubai in the United Arab Emirates, Rotterdam in the Netherlands, Houston in the United States, and four locations in China – Tianjin, Shanghai, Zhoushan and Guangzhou.

"Our aspiration is to be the Alibaba of the marine industry for the repair, refurbishment, and re-manufacturing of turbochargers, in support of the circular economy."

Lim Soon Hock, Tru-Marine

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