OPERATING & MARKET REVIEW

CONNECTIVITY

≫ WE CONNECT PEOPLE AND BUSINESSES IN
THE DIGITAL ECONOMY.

EARNINGS HIGHLIGHTS ($ million)

	2021	2020	2019
Revenue	**1,260**	1,220	1,128
EBITDA	**288**	259	385
Operating Profit	**86**	46	210
Profit before Tax	**86**	29	196
Net Profit	**64**	13	136

PROGRESS IN 2021	FOCUS FOR 2022/2023
• Keppel DC Fund II acquired a greenfield site in Shanghai, China for the development of a data centre, Fund II's first project since its establishment. • Commenced manufacturing of the Bifrost Cable System. • M1 launched 5G Standalone (SA) network for consumers and rolled out commercial-ready 5G SA solutions for enterprises. • M1 was awarded the 2.1 GHz spectrum band by IMDA, boosting its coverage and performance for 5G in Singapore. • Announced plans to divest logistics business in Southeast Asia and Australia, including UrbanFox.	• Continue to expand Keppel's portfolio of quality data centre assets in Asia Pacific and Europe, grow subsea cable system business, and provide higher value services to customers. • Work towards completing the divestment of the logistics business. • Work towards achieving nationwide 5G outdoor coverage by end-2022. • Continue to expand M1's enterprise business, and invest in 5G capabilities and digital services & solutions. • Pursue and develop innovative solutions in collaboration with other Keppel business segments and drive value chain integration.

The Connectivity segment includes Keppel Telecommunications & Transportation (Keppel T&T) and M1, whose business activities span data centres and logistics, as well as telecommunications. In 2021, demand for Keppel's connectivity solutions continued to grow, backed by increasing digitalisation and demand for data around the world.

In addition to fueling consumer demand for connectivity, the pandemic has also accelerated the adoption of digital technology. With our track record and capabilities in data centres and connectivity, Keppel is well positioned to contribute to and ride this megatrend.

In 2021, following the strategic review of the logistics business, Keppel announced the proposed divestment of the logistics business to a third party. Keppel T&T has received bids and aims to sign definitive agreements for the divestment of the logistics business in Southeast Asia and Australia, including UrbanFox, by the end of 1Q 2022.

During the year, Keppel T&T continued to streamline its business and completed the sales of several non-core assets, namely ARIP Thailand, Trisilco Radiance, Nanhai Distribution Centre and Wuhu Sanshan Port.

DATA CENTRES

Data centres have quickly risen to become critical infrastructure for everyday life, driven by increasing digitalisation and demand for data globally. This macrotrend has been further accentuated amid the COVID-19

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pandemic, the transition to remote working, and increasing prevalence of e-commerce. Furthermore, with 5G expected to usher in the "Fourth Industrial Revolution", data centres will play a key role in enabling 5G in all applications and devices. To create a seamless wireless network connecting devices and applications, centres of data exchange will need to be located near the end-users.

In 2021, Keppel Data Centres continued to pursue expansion and seize opportunities in its target markets of Asia Pacific and Europe. In collaboration with Keppel Data Centre Fund II, it added a new greenfield data centre in China to its portfolio. Including this acquisition, Keppel Data Centres currently has six data centres under development across Singapore, China, Malaysia, Indonesia and Australia. As at end-2021, the Group's total portfolio comprised 28 quality data centres across 18 cities in Asia Pacific and Europe, including those under Keppel DC REIT.

With climate change and environmental sustainability high on the agenda of governments and businesses globally, the data centre industry continues to come

under scrutiny for its carbon footprint. In line with Keppel's Vision 2030 strategy and the increasing demand for more sustainable data centres, Keppel Data Centres is actively exploring ways to reduce the carbon footprint of its assets, including sourcing for alternative sources of power. In addition to traditional sources of renewable energy such as wind, hydro and solar power, Keppel is also exploring the use of hydrogen to power its data centres.

Keppel is also examining ways to improve the energy efficiency of its new and existing data centres. Keppel Data Centres is working on developing energy-efficient floating data centres, which can utilise seawater for cooling, making it more cost efficient and environmentally sustainable when compared with traditional structures. Subject to obtaining the necessary regulatory approval, Keppel Data Centres plans to commence the development of the floating data centre in Singapore in 2022.

As part of the Group's efforts to integrate its business units and value chains in order to realise greater synergies, the OneKeppel Data Centre team was established during

Keppel plans to commence development of the innovative, energy-efficient floating data centre in Singapore in 2022, subject to regulatory approval.

the year, bringing together investment personnel and expertise from Keppel Data Centres and Keppel Capital. The OneKeppel Data Centre team adopts a cradle-to-maturity approach in evaluating opportunities across the development stages of a project, thus allowing the Group to deepen collaboration in its Vision 2030 focus areas and undertake more complex deals, drawing on the strengths of each business unit.

Keppel Data Centres will continue to collaborate with Keppel DC REIT and the private funds under Keppel Capital to proactively seek new development and acquisition opportunities in Asia Pacific and Europe. It will also work with various business units within the Keppel ecosystem to innovate and develop more energy-efficient and sustainable data centres, which can help customers reduce their carbon emissions. Through technology and innovation, Keppel Data Centres aims to reduce the power usage effectiveness of its data centres, improve design resiliency, while improving the latency for bandwidth-intensive requirements.

SUBSEA CABLE SYSTEMS

The increasing penetration of the internet together with the rising demand for wireless connectivity, especially with the rollout of 5G, have further driven global internet traffic. Over 97%[1] of the global internet traffic is dependent on submarine cables, and about half of the global internet traffic is coming out of Asia Pacific.

In March 2021, Keppel T&T entered into a joint build agreement with Facebook and PT Telekomunikasi Indonesia International (Telin) to jointly own and develop the Bifrost Cable System (Bifrost). Bifrost is the world's first subsea cable system that directly connects Singapore to the west coast of North America via Indonesia through the Java Sea and Celebes Sea, and is a complementary growth area identified under Keppel's Vision 2030.

Bifrost presents many potential areas for synergy across Keppel's business units, including offering enhanced connectivity for Keppel Data Centres and M1. Keppel T&T is also working with Keppel Capital to

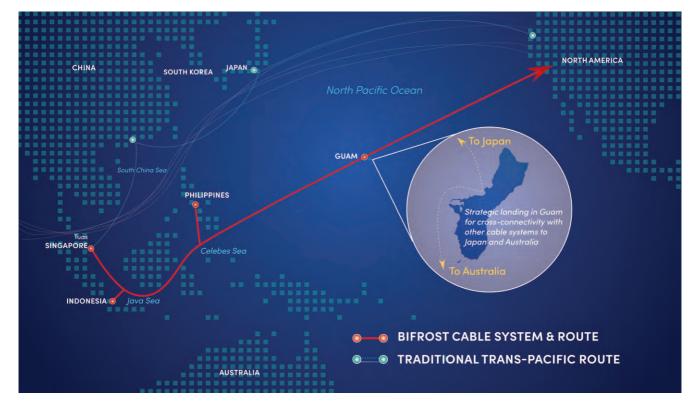secure funding from co-investors for Keppel's fibre pairs.

During the year, Keppel T&T made good progress on the Bifrost project, having secured leading Philippine internet service provider, Converge ICT Solutions, as its first customer, as well as commenced the manufacturing of the cable system. Keppel continues to see strong demand for its fibre pairs and is confident that most of them would be committed before the cable system is completed in 2024.

The global submarine cable systems market is projected to grow to US$23 billion by 2026, representing a CAGR of 10.5% from 2021 to 2026[1]. In particular, big cloud players such as Google, Apple, and Microsoft are increasingly investing in Asia Pacific as a hub for submarine cable infrastructure. To tap this burgeoning market, Keppel T&T is actively exploring

[1] Markets and Markets: Submarine Cable Systems Market Report – Global Forecast to 2026.

>> **M1 is harnessing the low latency and network slicing attributes of 5G SA to provide next-generation 5G-powered solutions that have the ability to improve efficiency while meeting customers' needs.**

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M1 is making good progress in the rollout of its 5G SA network coverage in Singapore, and expects to achieve nationwide outdoor coverage by end-2022.

opportunities to develop other submarine cable systems that will connect to other continents using Singapore as a hub.

DIGITAL CONNECTIVITY

In line with the Group's asset-light business model under Vision 2030, M1 unlocked value from $580 million worth of network assets in 2021. Capital freed through the transfer of network assets will be utilised for investments in 5G capabilities and digital solutions. M1 will continue to expand and offer its range of solutions and services to its enterprise customers, including small and medium-sized enterprises.

Today, consumers demand not just ease of connectivity and access to data, but also lower latency and higher speeds, which will drive the demand for 5G. According to Allied Market Research, the global 5G technology market, which was valued at US$5 billion in 2020, is projected to reach almost US$800 billion by 2030, growing at a CAGR of 65.8% from 2021 to 2030.

In 2021, M1 expanded its customer base to 2.2 million, up from 2.1 million in the previous year. The number of mobile customers grew 4% to 1.9 million as at end-2021. Notably, its postpaid customer base grew 6% yoy to 1.7 million as at end-2021, which is the second largest postpaid customer base in Singapore. Meanwhile, M1's fibre customer base increased 3% in 2021 to 235,000 customers.

In 2021, M1 continued to step up its efforts to power personalised experiences without limits, making significant headway in the rollout of its 5G SA network for all consumers.

M1's True 5G network was launched in an exclusive market trial in July 2021, which enabled all users to enjoy the revolutionary benefits of 5G SA. By adding the 5G Booster pack to their mobile plans, customers can experience faster speeds, close to real-time network responses and enhanced connectivity. M1, in partnership with Samsung, was also the first in the world to offer elevated call experiences via the Voice over 5G New Radio service on M1's 5G SA network. M1 has made good progress rolling out its 5G SA network where it achieved 50% outdoor coverage as at end-2021, and expects to achieve nationwide outdoor coverage by end-2022.

Following the consumer market trial, M1 was the first in Singapore to launch 5G SA commercialised enterprise solutions. As part of its rollout of 5G SA solutions for enterprises, M1 and Keppel Land unveiled a suite of intelligent solutions for Marina at Keppel Bay. Harnessing the low latency and network slicing attributes of 5G SA, the solutions demonstrated M1's readiness in providing next-generation 5G-powered solutions that have the ability to improve efficiency while meeting customers' needs.

To further M1's 5G ambition, M1 is partnering Workforce Singapore to upskill and train close to 10% of its entire

workforce to build a pool of talent with up-to-date skills in 5G and emerging technologies through on-the-job training and relevant training courses.

M1 is also growing its Enterprise business and has embarked on regional expansion with the acquisition of Glocomp Systems, a digital solutions provider in Malaysia. Following the acquisition of AsiaPac Technology, which focuses on cloud services, the addition of Glocomp marks M1's continued expansion of its cloud and managed services business, providing strong synergies while further strengthening M1's enterprise digital service capabilities.

With the enhanced portfolio, M1 will drive opportunities and harness synergies within the Keppel Group to strengthen value propositions and create more business solutions to capture the B2B Connectivity and Information & Communication Technologies segments in the region.

With its wide range of end-to-end solutions for businesses and consumers, M1 will continue to work with technology companies and government agencies to drive 5G development. Some examples of the initiatives include the Infocomm Media Development Authority's open testbeds, where M1 is supporting businesses in developing, adopting and commercialising 5G solutions. M1 will also continue contributing towards enhancing Keppel's suite of solutions, as it explores more 5G-enabled business and collaboration opportunities across the Group.