ST Engineering

ANNUAL REPORT 2019

ENGINEERING YOUR FUTURE

We bring technology and innovation together to create people-centric, multidisciplinary, smart engineering solutions for our customers.

As leaders of the aerospace, electronics, land systems and marine sectors, we bring technology and innovation together to create people-centric, multidisciplinary, smart engineering solutions for our customers in the defence, government and enterprise segments.

Our Aerospace sector is an integrated aerospace services and solutions provider with original equipment manufacturing capabilities. We offer a wide spectrum of services including airframe, component and engine maintenance, repair and overhaul, engineering and design technical services, aviation materials and asset management services.

Our Electronics sector specialises in the design, development and delivery of ICT products, solutions and services addressing the needs of smart cities for Connectivity, Mobility and Security.

Our Land Systems sector delivers advanced and customised land systems, security solutions and their related through-life support for defence, homeland security and commercial applications.

Our Marine sector provides turnkey and sustainable defence and commercial solutions in the marine, offshore and environmental engineering industries.

Our 23,000 employees use technology and innovation to solve real-world problems for our customers in more than 100 countries worldwide.

CORPORATE OVERVIEW

PERFORMANCE REVIEW

SUSTAINABILITY

CORPORATE GOVERNANCE

FINANCIAL REPORT

FINANCIAL HIGHLIGHTS

TOTAL SHAREHOLDER RETURN
16.9%

2018
11.5%

RETURN ON EQUITY
26.0%

2018
22.0%

EVA
$317.0m

2018
$306.0m

EBITDA
$1.0b

2018
$0.8b

EARNINGS PER SHARE
18.53¢

2018
15.85¢

DIVIDEND PER SHARE
15.0¢

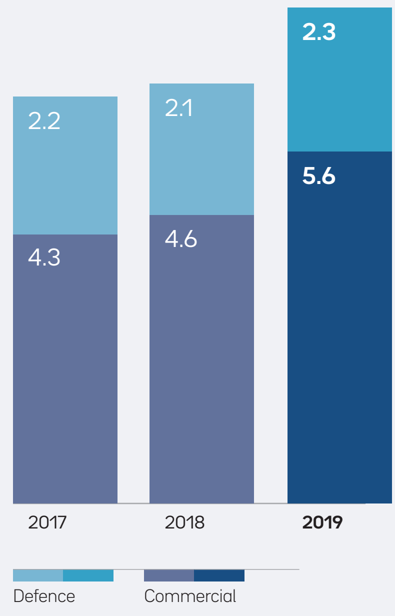
2018
15.0¢

ORDER BOOK
$15.3b

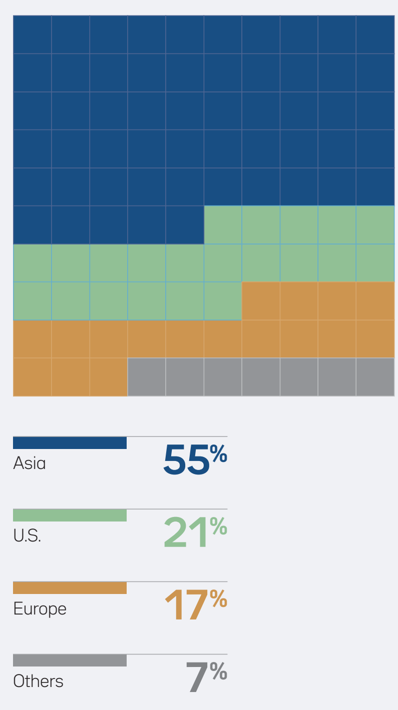
2018
$13.2b

REVENUE BREAKDOWN

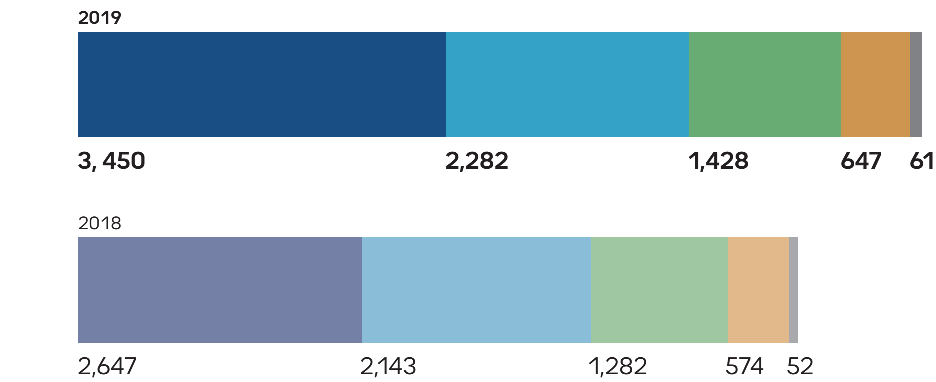
BY TYPE ($b)



BY LOCATION OF CUSTOMER

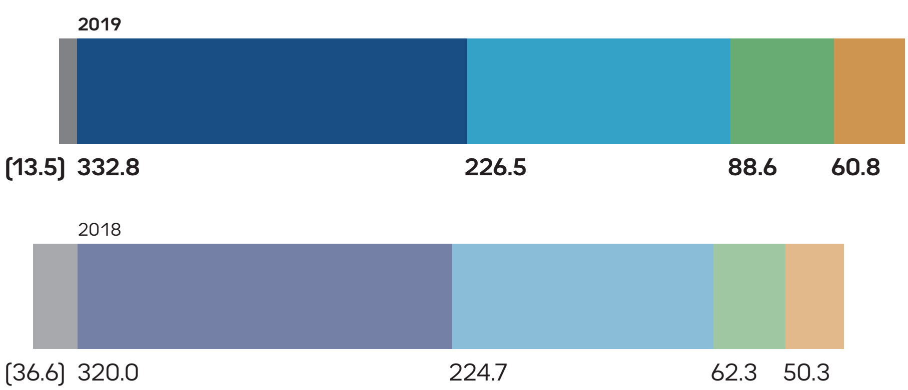


REVENUE BY SECTOR ($m)



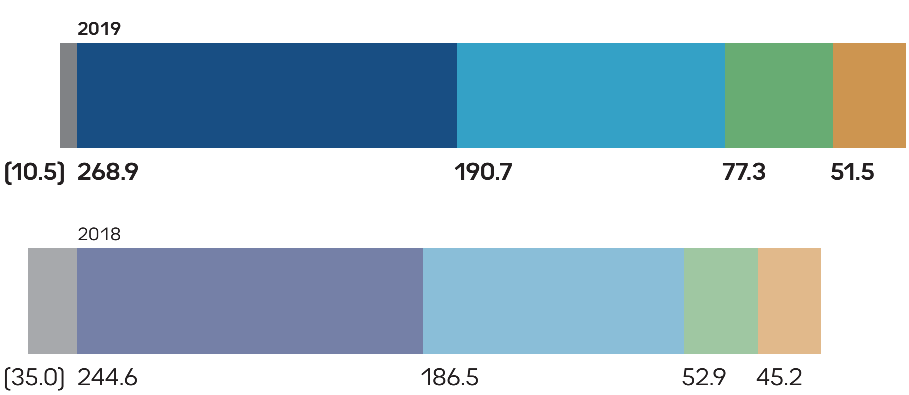
$7.9b
+17%
$6.7b

PROFIT BEFORE TAX BY SECTOR ($m)

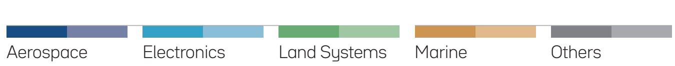


$695.2m
+12%
$620.7m

NET PROFIT BY SECTOR ($m)



$577.9m
+17%
$494.2m



LETTER TO SHAREHOLDERS

WE DELIVERED A GOOD SET OF RESULTS FOR FINANCIAL YEAR 2019, WITH DOUBLE-DIGIT YEAR-ON-YEAR GROWTH AND RECORD HIGH REVENUE AND PROFITS IN FIVE YEARS.

(L): **KWA CHONG SENG**
CHAIRMAN
NON-EXECUTIVE
INDEPENDENT DIRECTOR

(R): **VINCENT CHONG SY FENG**
PRESIDENT & CEO
EXECUTIVE DIRECTOR

Dear Shareholders

Throughout 2019, there were concerns over the health of the global economy. While we were cautious about the short-term market outlook, we were not fixated on economic aberrations, and continued to take a long-term view of our business. We believe that as long as our strategy is robust and clear, and that we continue to strengthen business fundamentals and execute well, we will build a strong organisation with sustainable value creation for our shareholders, customers and employees.

In our 2018 letter, we shared details of our five-year plan (2018-2022), the set of goals put in place to help us achieve our aspiration of becoming a global technology, defence and engineering powerhouse. We are pleased to say that a year in, we remain on track to achieving our targets.

We delivered a good set of results for financial year 2019, with double-digit year-on-year (y-o-y) growth. In addition, we posted our record high revenue and profits in five years. Group revenue grew 17% to $7.9b, Profit before tax was up 12% to $695.2m and Profit Attributable to Shareholders (Net Profit) rose 17% to $577.9m.

All our business sectors performed well. Revenue for the Aerospace sector was 30% up y-o-y at $3.5b and Net Profit grew 10% y-o-y to $268.9m, contributed largely by newly acquired MRAS[1] and end-of-programme reviews partly offset by assets impairment and absence of prior year's divestment gain. Revenue for the Electronics sector grew 6% to $2.3b and Net Profit was up 2% to $190.7m after accounting for M&A related costs. The Land Systems sector posted an 11% increase in revenue to $1.4b, and its Net Profit grew 46% to $77.3m in part due to the absence of divestment loss and impairment impact of its road construction business in India and Brazil. At the Marine sector, revenue was up 13% y-o-y to $647m on better performance of its U.S. operations and Net Profit grew 14% to $51.5m, helped by the sale of a Roll-on/Roll-off Passenger Vessel, partly offset by the impact from the arbitration settlement with Hornbeck Offshore Services.

> "Our performance in 2019 was the result of the strengths of our business, as well as our focus on strategy and execution over the past years."

Group revenue in 2019 continued to show a healthy diversification across business sectors, geography and customer types. Revenue contribution by sector was 44% from Aerospace, 29% from Electronics, 18% from Land Systems and 8% from Marine. In terms of geography, we saw a shift in revenue profile geographically, with about 45% of revenue (from 38% in 2018) derived from customers outside of Asia. Revenue from Commercial sales and Defence customers accounted for $5.6b and $2.3b of Group revenue respectively.

We had a strong momentum of contract wins with $8b worth of new wins announced in 2019, contributed in large part by our long-standing customers. These new contracts, along with others that we did not announce, have helped to sustain our order book, which stood strong at $15.3b as at end 2019. We will recognise about $5.9b from the order book as revenue in 2020.

In 2019, we invested about $295m on capital expenditure, of which 61% went into the Aerospace sector with a large part spent on capacity expansion. We ended the year with $452m of cash and cash equivalents.

We optimised our capital structure by taking on debt to finance the acquisitions of MRAS, Newtec[2] (now known as ST Engineering iDirect Europe) and Glowlink[3]. We became the first non-bank company in Singapore to tap the U.S. Commercial Paper market to good effect, borrowing U.S. dollars short-term at competitive rates and with flexible maturities.

For our shareholders, your Board of Directors has recommended a final dividend of 10.0 cents per share. Together with the interim dividend of 5.0 cents per share paid to you in September 2019, the total dividend for the full year will be 15.0 cents per share. This represents a dividend yield of 4%[4].

Our performance in 2019 was the result of the strengths of our business, as well as our focus on strategy and execution over the past years. In this letter, we will highlight significant achievements that mark our journey towards achieving our goals. The detailed business developments and updates of our business sectors in 2019 are covered in the *Operating Review and Outlook* section on pages 30 to 53.

Notes:

1. The acquisition of MRA Systems, LLC (MRAS) was completed on 18 April 2019
2. The acquisition of Newtec Group NV was completed on 1 October 2019
3. The acquisition of Glowlink Communications Technology, Inc was completed on 17 September 2019
4. Dividend yield is based on $3.72, the average closing share price of the last trading days of 2018 and 2019

LETTER TO SHAREHOLDERS

> "During the year, we focused on strengthening lines of business where we are already a global leader, or on those with potential scale and competence to be differentiated internationally."

STRENGTHENING STRATEGIC LINES OF BUSINESS

Our four sectors — Aerospace, Electronics, Land Systems and Marine — remain competitive, with established market positions across many segments. During the year, we focused on strengthening lines of business where we are already a global leader, or on those with potential scale and competence to be differentiated internationally.

In our Aerospace sector, we continued to use our strengths, global network and track record to ensure that our MRO services are well positioned for the future.

There have been discussions of the challenges faced by the aviation MRO industry brought about by structural changes such as new-generation aircraft requiring less maintenance thus leading to MRO cycles being set further apart, as well as increased competition. These developments are not new, and we have been operating competitively in this landscape for several years. While there are challenges, there are also opportunities for us. An increasing global fleet size and a continuing trend of airlines outsourcing their MRO works will drive the growth of the industry, which analysts forecast will have a CAGR of 3.5% over the next 10 years.

Our airframe MRO business continues to hold the top global position we first held in 2002, with 13m manhours in 2018 (by Top 10 Airframe MRO Provider, *Aviation Week Network*). This is a clear demonstration of our competitive strengths in an increasingly complex operating environment. It is also a result of our continuous investments in capacity expansion and capability enhancement across our network of facilities in China, Europe, Singapore and the U.S., bolstered by our Smart MRO initiatives, the continual training of our people and our focus on serving our customers.

On the engines MRO front, we met with a setback when a long-time customer, Jet Airways, entered insolvency in mid-2019. This led to the loss of a large contract amount from our order book. We were, however, able to backfill some of the capacity released as the demand for CFM engine MRO continued to be high and our services are still highly sought after.

Due to strategic initiatives taken in the past years, our shipbuilding business in the U.S. is now in a stronger position than before. We secured a contract, worth about \$1b, from the U.S. Department of the Navy for the design and construction of a multi-mission Polar Security Cutter (PSC) vessel. The contract is part of the U.S. Coast Guard's major system acquisition to acquire up to three PSCs. If the options in the agreement are fully exercised, this contract will be worth about \$2.6b. We are also in the process of modernising our yard in Pascagoula with automation and robotics capabilities, and we are hiring more people to support this project. Likewise, in Singapore, we are investing to build a new smart shipyard, adopting digitalisation that will power the entire ship repair cycle. This new yard, also in Tuas, will replace the current Tuas yard when its lease expires in the fourth quarter of 2021.

> "With the addition of MRAS, we are now even more confident of our position as a global integrated aviation solution provider with manufacturing and aftermarket capabilities."

INVESTING FOR GLOBAL SUCCESS

A major element of our strategic plan came to fruition in 2019 when we completed the acquisition of MRAS. This addition has enabled us to move into the high-value original equipment (OE) manufacturing of engine nacelle systems, in the same way that EFW, our JV with Airbus, opened doors for us to own manufacturing capabilities in composite aircraft floor panels. The MRAS integration is progressing well, and with our plans to inject our nacelle MRO capabilities into the business as part of our value creation efforts, we are now even more confident of our position as a global integrated aviation solution provider with manufacturing and aftermarket capabilities.

Our Aerospace business also set up a component MRO JV with Vietnam Airlines to take advantage of the country's competitive cost base and access to technical manpower. We are tapping on our partner's existing facilities in Hanoi and Ho Chi Minh City, Vietnam. Since September, these facilities have formed part of our global network to capture the increasing demand for MRO services in Vietnam and the Asia Pacific region.

In the same vein that MRAS propelled us into the OE business, Newtec, the Belgium-based satellite communications (satcom) company that we acquired enables us to build a global, differentiated satcom business group. Our value proposition for our satcom business was enhanced with Glowlink, which we acquired in September for its advanced satcom anti-jamming technologies that detect, geo-locate and cancel signal interference.

Industry reports point to a surge of Low Earth Orbit (LEO) satellite constellations, with more than 5,000 LEO satellites expected to be launched in the coming years. This will push the growth of the satcom industry with demand set to rise as bandwidth opens up and costs drop. New use cases, in particular those in the aviation and maritime segments and satcom-enabled 5G Smart City applications (such as Internet of Things and connected cars) will drive the global appetite for satcom services.

This is why our acquisitions of these companies are meaningful and strategic. Through the acquisition of Newtec Group, we own unique ultra-high throughput capabilities and market leadership in the satellite broadcast segment. It complements our U.S.-based satcom business, which today is a key technology provider for global satellite operators and an industry leader in the aeronautical and maritime segments. The combination of these two will enable us to expand into new segments and geographies. Added to the technology leadership of this business group is Glowlink's proprietary technologies, tailored to protect our customers' mission-critical communications, especially in the increasingly dense satellite space.

We are in the process of integrating these businesses into one satcom business group, so that we will be able to offer a converged technology offering and a robust product offering roadmap.

Separately, Jet Talk, the JV company we set up in mid-2018, is in the process of finalising development of a fully digital, flat panel antenna system that will enhance in-flight connectivity for commercial aviation.

Because of these developments, today, more than ever, we are in a strong position to lead the transformation of the satcom industry as the adoption rate of satellites as a mainstream connectivity technology picks up. We are confident that our investments will build this business group into a global champion and help us achieve our goal of shaping the future of how the world connects.

Even after these acquisitions, we will continue to have the financial flexibility for further acquisitions, and we will keep a constant lookout for opportunities that can contribute profitable revenue streams or sharpen our competitive edge.

> "Acquisitions of Newtec and Glowlink will enable us to build a global, differentiated satcom business group."

SMART CITY GROWTH TRACKING WELL

As cities around the world face increasing environmental pressures and infrastructure needs, we have intensified our drive to provide urgently needed solutions in our Smart City verticals of mobility, security and environment.

Our Electronics sector continued to be the driver of this business while the Land Systems sector achieved commendable milestones for our Autonomous Vehicles (AV) and Robotics business, in spite of both still being nascent businesses.

On the AV front, we completed Singapore's first on-demand autonomous shuttle trial on Sentosa. Our autonomous mini-bus was built to operate in urban, mixed traffic environments involving different road users, and to perform complex manoeuvres such as navigating roundabouts. It also operates in the rain, which is a critical capability given weather conditions in Singapore. The public trials, involving a fleet of four, ran for three months.

Having established the operational feasibility of our AV bus, we are now working towards commercialising the technology, with the aim of a larger-scale deployment in Singapore. We expect our success in Singapore to serve as a reference in other markets. Already, cities in Israel and Japan have shown interest in our capabilities.

On the Robotics side, we gained traction with our first seaport autonomous material handling solutions contract to deploy 80 Automated Guided Vehicles in PSA's next-generation port in Tuas from 2021. We also had successes beyond the U.S. with our Aethon TUG autonomous mobile robots, which will be used in regional and local healthcare facilities for the delivery of food, linen and medical equipment.

LETTER TO SHAREHOLDERS

We are on track to achieving our Smart City revenue target, having reached $1.4b revenue for 2019, an increase from the $1b revenue posted in 2017. The number of Smart City projects in our track record now stands at over 700 across 130 cities.

> "We are constantly investing to enhance our role as an effective enabler of a sustainable world — using technology to address the world's most pressing problems, thereby helping our customers deal with the impact of population growth, urbanisation, climate change and many others."

CONTINUAL PURSUIT OF INTERNATIONAL DEFENCE BUSINESS

Growing our international defence business is a strategic thrust, even if it takes time to develop due to the long gestation periods for defence contracts. In 2019, we achieved a number of notable wins in the U.S.

The PSC contract for the U.S. Coast Guard was one, and we are excited by the opportunity to support the U.S. in delivering the capability necessary to meet its mission demands in the polar regions. The project is in the engineering and design phase and we expect vessel construction to start in 2021, with delivery in 2024.

We also had success with the U.S. Army. We are developing a simulation training platform for its Synthetic Training Environment, designed to augment live training. This was a meaningful win for our training and simulation business as the U.S. Army is increasingly relying on simulation training.

In Singapore, we launched our next-generation armoured fighting vehicle, the Hunter, which was commissioned by the Singapore Army and unveiled in mid-2019. The Hunter's digitalised fighting platform offers situational awareness like the cockpit of a fighter jet, befitting the honour as a centrepiece of the Singapore Army's transformation into the Next-Generation Army. We expect to deliver a steady stream of vehicles over two years from 2020. In November, we marked the completion of the construction of all eight Littoral Mission Vessels (LMV) for the Republic of Singapore Navy (RSN), when the 8th LMV, Fearless, sailed towards the homeport of the RSN after a successful sea trial.

We will press on to grow our defence business as governments worldwide continue to modernise and recapitalise their militaries.

ENABLING SUSTAINABLE CITIES THROUGH TECHNOLOGY AND INNOVATION

At ST Engineering, technology and innovation is the lifeblood of our organisation, just as they are also the backbone of sustainable cities. This is why we are constantly investing to enhance our role as an effective enabler of a sustainable world — using technology to address the world's most pressing problems, thereby helping our customers deal with the impact of population growth, urbanisation, climate change and many others.

On page 74 of our *Sustainability* report, we highlight examples of our work. In each of these cases, we enable our customers to work more efficiently and reduce costs, while mitigating the impact on the environment and helping our customers reduce their energy consumption.

We continue to collaborate extensively, which enables us to focus on our core capabilities while benefiting from the expertise of like-minded institutions and companies that are keen to co-create and develop solutions to solve real-world challenges. Our partnership with Singapore's water agency, PUB, to develop smart and more efficient water infrastructure systems, is an example of this. PUB will provide its domain expertise in water system management while we will deliver our digital technology and engineering systems expertise and experience. Our partnership with A*STAR, Singapore's public sector agency that spearheads economic oriented R&D, seeks to co-develop solutions for smart cities in four areas: robotics, smart mobility, smart communications and healthtech.

Internally, we continue to invest in our engineering capabilities and resources. We provide different platforms that drive various innovation needs — the Engineering Design Centres for

> "We recorded $1.4b worth of Smart City revenue for 2019 and our track record now stands at over 700 Smart City projects across 130 cities."

"Our employees are the bedrock of our success and we will continue to focus and invest in them so that their talent and passion will constantly drive ST Engineering to become a stronger and more responsive organisation."

product enhancement, and Strategic Technology Centres for group-wide capabilities in areas like cybersecurity and data analytics. Our Open Lab continues to serve as a space carved out for engineers to co-create and innovate.

OUR SUSTAINABILITY JOURNEY

Our commitment to sustainability goes beyond products and solutions. We have been taking steps in our journey to improve our efforts, and go beyond the rhetoric – first guided by the management-led Business Excellence Framework, to our adoption of GRI Standards, and eventually the enhancement of a board committee, the Risk and Sustainability Committee, to oversee sustainability issues.

In 2019, we placed ourselves alongside the global community with the adoption of the UN Sustainable Development Goals. We have identified six goals that are most material to us and will drive the Group towards contributing to them.

As the Group grows in scale and geography, we will increase our emphasis on embedding sustainability into the organisation, just as how we have been instilling the mindset of having the highest standards of corporate governance across our businesses.

In mid-2019, our new Risk and Assurance function overseeing governance, risk management and compliance became operational. This function serves to enhance our lines of defence, providing the Board and management with added assurance regarding the effectiveness of internal controls and risk mitigation.

Our *Sustainability and Corporate Governance* reports are on pages 66 to 107.

BOARD RENEWAL

We made changes to the Board as part of board renewal and rejuvenation. In June, we welcomed Joseph Leong Weng Keong as a non-independent, non-executive director.

Khoo Boon Hui, an independent non-executive director since 2010, resigned from the Board in April. During his tenure, he served as the Chairman of the Risk and Sustainability committee and as a member of the Audit committee. Dr Beh Swan Gin, an independent non-executive director since 2014, has decided not to seek re-election at the coming AGM. We thank these directors for their invaluable contributions over the years.

OUR APPRECIATION

In 2019, we welcomed more than 1,300 employees who joined us from our newly acquired companies. As a Group with about 23,000 employees, we know that we hold the potential to make a greater positive impact on this world. Our employees are the bedrock of our success and we will continue to focus and invest in them so that their talent and passion will constantly drive ST Engineering to become a stronger and more responsive organisation.

We thank our customers and business partners for their support and trust in us.

Finally, we want to thank you, our shareholders, for your confidence in ST Engineering as we continue our path of sustainable growth and value creation.

Sincerely,

KWA CHONG SENG
Chairman

VINCENT CHONG
President & CEO

致股东的信

> 2019 年的业绩体现了我们业务的实力，也是我们过去几年成功执行战略的结果。

尊敬的股东:

全球经济增长在2019 年全面放缓，处于疲软状态。尽管我们对短期市场前景持谨慎态度，我们仍专注于从长远的观点评量我们的业绩基本面，不受近期异常波动的影响。只要我们的战略稳健、明确，继续稳扎稳打及巩固加强业务基础，必然可为股东、客户和员工建立一个能创造长期价值的强大企业。

去年，我们分享了五年计划 (2018 年-2022 年) 的策略及一套明确的目标。步入一年后，我们仍朝设定的目标前进，积极追求和实现成为全球科技、国防与工程产业佼佼者的愿景。

我们在 2019 财政年度末取得了佳绩，不只同比增长率达到两位数，集团的收入和利润也创下五年来的新高。集团收入同比增长 17%至79亿元，税前利润增长 12%至6.95亿元，股东应占盈利 (净利润) 上升 17% 至 5.78亿元。

我们所有业务均有良好表现。宇航业务收入同比增长 30%至35 亿元，净利润同比增长 10%至 2.69 亿元;主要得益于新收购的MRAS[1] 及项目完工确认的额外收益，但被资产减值和缺少上一年度撤资收益部分冲减。电子业务收入则增长了 6% 达 23 亿元，扣除并购相关成本后的净利润增长 2%至1.91 亿元。陆路系统业务收入增长 11%达 14 亿元，其净利润则因摆脱上一年撤资损失及印度和巴西的道路建设业务减损费用的影响而增长 46%至 0.77亿元。海事业务方面，由于美国业务表现好转，收入同比增长13% 而达到6.5亿元，其净利润因得益于滚装客船的销售被 Hornbeck Offshore Services 仲裁调解案的影响而部分抵销后增长14% 至0.52亿元。

2019 年集团各业务范围、地域和客户类型的收入仍然良好而多元化。宇航业务收入占 44%、电子业务占29%、陆路系统业务占18% 、海事业务占 8%。如以地域划分，来自亚洲以外地区的客户收入从2018年的38% 增至 2019年的45%。商业业务贡献了56 亿元的收入，国防业务则对集团收入贡献了 23 亿元。

我们在2019 年签署的新合同总价值高达 80 亿元，其中大部分来自我们的长期客户。这些新合同以及我们未宣布的其他合同助提升我们2019年的订单额至 153 亿元的亮眼佳绩。我们预期在2020年将从订单中获得 59 亿元的营业收入。

2019 年，我们的资本支出额约为2.95 亿元，其中有 61% 投注于扩充宇航业务产能。截至2019财政年度末的现金和现金等价为 4.52亿元。我们成为新加坡第一家开拓美国商业票据市场的非银行公司，以优惠的利率和弹性债期短期借入美元来为收购 MRAS、Newtec[2] (现称为 ST Engineering iDirect Europe) 和 Glowlink[3] 融资，借此优化我们的资本结构。

对于股东，董事会已建议派发每股 10.0 分的末期股息。加上 2019 年9月已支付的每股 5.0 分中期股息，全年股息总计每股 15.0分, 股息收益率为4%[4]。

2019 年的业绩体现了我们业务的实力，也是我们过去几年成功执行战略的结果。以下让我们重点讲述在实现目标的过程中取得的主要成就。要了解我们各业务的发展，请参阅30 页到 53 页的“运营评鉴与展望”。

加强具战略意义的业务

我们的四大核心业务 – 宇航、电子、陆路系统和海事 – 仍然保竞争优势，在许多市场都拥有稳固的市场地位。在过

附注:

1 MRA Systems, LLC (MRAS) 于2019 年 4 月 18 日完成收购
2 Newtec Group NV于2019 年 10 月 1 日完成收购
3 Glowlink Communications Technology, Inc于 2019 年 9 月 17 日完成收购
4 股息收益率以 3.72 元为计算基础 (2018 年和 2019年最后交易日的平均收盘价)

去的一年里，我们专注于加强已具有在全球处于领先地位或具有全球规模潜能的业务，以实现竞争优势。

我们的宇航业务继续凭藉其实力和出色的业绩记录，确保我们的维机身、引擎和组件维修服务 (MRO)在未来发展中占据先机。

航空MRO行业因市场种种结构性变化所带来的挑战，例如新一代飞机维修周期因维护需求较低而拉长、和加强市场竞争，已多次被讨论过。尽管如此，我们的宇航业务在这种经营环境中仍寻找商机，在竞争方面也不落下风、屹立不摇。加上分析师预测全球机队的持续增长及航空公司外包趋势将把MRO市场在未来十年的复合年均增长率推向 3.5%，意味着航空业者仍对MRO服务有迫切的需求。

我们在2019以1千300万工时再度蝉联Aviation Week Network世界第一机身维修业者的宝座。此殊荣不仅充分展现我们在日趋复杂的业务环境中所具有的竞争力，亦显示了我们持续投入资源在各地扩充产能，培养人才和推动智能MRO方案的成果。

在引擎MRO方面，我们的长期客户 Jet Airways于 2019 年中宣布破产，迫使我们流失一笔可观的订单额，导致产能过剩。由于市场对CFM发动机MRO的需求仍然保持乐观，再加上我们的服务备受航空业者青睐，为此助于我们填补了部分过剩的容量。

在造船业务方面，我们美国的业务已逐渐回稳。对此，我们在2019年成功赢得为美国海军设计与建造一艘多任务重型破冰船 (PSC) 的合同，总值约 10 亿元。若美国海军充分实行协议中另添两艘的选项，合同价值可提高至约 26 亿元。为了更有效的支持这项造船项目，我们增聘人力并引进机器及自主系统方面的技术来助我们位于美国密西西比州 (帕斯卡古拉) 船厂步入现代化。

与此同时，我们在新加坡正在兴建一座位于大士 (Tuas) 的智能船厂，计划将来可采纳数字化技术以推高整个船舶维修周期的效率。当我们目前座落于大士另一段的船舶维修厂的租约在2021年第四季到期时，新船厂将会取而代之。

追求成果，放眼世界

2019 年我们完成收购 MRAS。此项目不仅是我们实现五年计划的一个重要里程碑，也是开拓我们宇航战略业务线，切入高价值组件原始设备制造领域的重点项目。MRAS的收购整合过程进展顺利，我们也计划注入现有的引擎短舱系统MRO技能为这业务创造更多的商业价值。凭借 MRAS和我们与Airbus合资的EFW所拥有的制造复合材料飞机地板的能力，我们更有信心能往价值链向上移动，成为一个拥有制造及售后服务的全方位宇航方案专家。

除此之外，我们的宇航业务也在九月份与越南航空合资成立组件维修公司，以善加利用该国较低的营运成本和技术人才。我们的全球网络因此增添了河内和胡志明市，加强了我们在越南和亚太地区的竞争实力。

在2019, 我们通过收购Newtec和Glowlink扩大了我们的卫星通信业务。此时，卫星通信的需求日益增加。我们并购Newtec，从中取得卫星广播领域独特的超高传输流量及市场领导地位。Glowlink则拥有能保护客户关键任务通讯量而量身定制的专有技术。这两个新添的高科技卫星通信业务与我们现有的美国卫星通信业务相辅相成。两者结合有助我们扩展至新的细分市场和地区，更有利于我们打造具有高辨识度，全球竞争力的卫星通信业务。

我们正在将这些业务整合为单一的卫星通信业务，以提供聚合式的技术产品和强大的产品路线图。

另外，我们于 2018 年中成立的Jet Talk 正紧锣密鼓地进入开发全数字化平板天线系统的最后阶段，该系统将可加强商用飞机上的网络连接功能。

尽管以上的收购有可观的财务支出，我们的财务资源仍然强韧，有余裕进行其他收购。为此，我们会继续寻找并购目标，以增添有利的业绩或提高本集团的竞争优势。

致股东的信

智能城市稳步增长

随着全球城市的环境压力日渐恶化及对基础设施的需求快速增加，我们已加紧力度为智能移动、智能安全和智能环境提供迫切需要的解决方案。

我们的电子业务依然是智能城市业务的主要贡献者。此外，由路陆系统业务管理的无人驾驶车，机器技术和自主系统业务已在过去一年里取得不俗进展。

我们在新加坡的圣淘沙试行了本地首个随需而无人驾驶接驳巴士。大众试搭计划共启用了四部接驳巴士长达三个月。试搭计划圆满的结束让我们更确定无人驾驶巴士的运营可行性。我们正努力将技术投入商业运用，希望在新加坡能大规模部署，并成为一个有效的成功案例，能逐渐被其他国家效法。目前，此项目已备受以色列和日本等城市关注，有望未来国际性的发展。

我们也成功获得了首份海港自动材料处理解决方案合同，於2021年起在新加坡新一代大士港口部署八十架自动引导运输车。我们的 TUG 自主移动机器人也在美国市场以外取得了成功，在亚洲区域和本地的医疗保健设施用于运送食物、床单枕套和医疗设备。

我们将继续往设下的智能城市目标迈进。同比 2017 年的10亿总营收，我们2019 年智能城市相关的总营收高达14亿，并已在130 个城市完成超过700 个项目。

继续开拓国际国防事业

成功拓展国际国防业务需要颇长时间酝酿，但这仍是我们专注的战略重点之一。2019 年，我们在美国成功拿下多个重要项目。美国海军的PSC 合同就是一个例子。该项目正处于工程和设计阶段，我们预计船舶将从 2021 年动工建造，于 2024 年交付。

我们与美国陆军的合作也大有进展。我们的训练与模拟业务正为美国陆军的综合训练环境开发专为增强实时训练效果的模拟训练平台。随着美国陆军越来越注重模拟训练，此项目对我们在这方面的进展意义重大。

> “我们不断投资，加强有效推动世界可持续发展的能力，利用技术解决世界上最迫在眉睫的问题，从而帮助我们的客户应付人口增长、都市化、气候变化等问题带来的影响。”

我们在新加坡推出新一代装甲战车Hunter，在6月份正式加入装甲部队行列。我们预计从 2020 年开始的两年内陆续稳定交付装甲车。11月份，我们为新加坡海军部队建造的八艘巡海护卫舰（LMV）已顺利完工，第八艘 LMV无畏号在海上试航成功之后已驶向新加坡海军母港。

随着各国政府持续注资，大力推行军队现代化，我们将继续推动国防业务成长。

通过技术与创新实现可持续城市

技术与创新是集团命脉所在，也是可持续城市的栋梁。为此，我们不断投资，加强有效推动世界可持续发展的能力，利用技术解决世界上最迫在眉睫的问题，从而帮助我们的客户应付人口增长、都市化、气候变化等问题带来的影响。

在我们的《可持续发展报告》第 74 页上，我们特别介绍几个实务案例。上述案例都是我们帮助客户提高工作效率、降低成本、减轻对环境的影响、减少能源消耗的具体体现。

我们也和多个技术合作伙伴与高等教育机构合作，共同研发能有效解决现实生活各种挑战的方案。我们与新加坡水务局合作开发的更智能、更有效率的水利基础设施系统，就是一例。新加坡水务局提供其专业的水资源系统管理知识，我们则贡献数字技术和工程系统的专业知识与经验。我们与率先开展经济导向研发的新加坡公共部门机构 A*STAR 合作，共同开发

四个领域的智慧城市解决方案：机器技术、智能移动、智能通讯和医疗技术。

为了继续强化内部的工程能力，我们通过不同的平台，激发各种创新需求，如为强化产品而设的工程设计中心，以及为网络安全和数据分析等领域的全集团能力而设的战略科技中心。我们的开放创新实验室将继续成为工程师共同创造和创新的专属空间。

我们的可持续发展历程

我们对可持续发展的承诺不仅限于产品和解决方案。我们通过多方面不断的改善，以实际行动兑现承诺。集团现有的可持续发展的课题，已在2016 开始由董事会组成的“风险与可持续性发展委员会”监督。

2019 年，我们采纳联合国的可持续发展目标，并将专注于最重要的六个目标，推动集团为之做出贡献。

集团规模不断增长，业务分布区域越来越广，我们更重视让集团上下秉承可持续性的理念，就如我们不断灌输所有业务部门最高公司治理标准的理念。正因为如此，我们在2019年成立了风险及鉴证部门。此部门将致力于增强我们的防御能力，为董事会和管理层评估、审阅和鉴证业务流程内部控管和风险管理。

有关我们可持续发展和治理报告，请参阅第 66 至 107 页以获取更多详情。

董事会更新

为了持续更新董事会的成员，我们做了一些人事变动。我们在六月份迎来梁颖强先生以非独立非执行董事的身份加入董事会。

邱文晖先生在 4 月卸下董事职务。自 2010 年以来一直担任公司独立非执行董事的邱先生在董事任期内曾担任风险与可持续发展委员会主席和审计委员会成员。自 2014 年担任公司独立非执行董事的马宣仁医生则决定在即将举行的股东常年大会上不再竞选连任。我们在此由衷向这两位董事致上最深的谢意，感谢他们这些年来的宝贵贡献。

衷心感谢

2019年收购的业务为集团增添了1千300名员工，使集团总员工增至2万3千人。我们将继续发展人力资本，使我们能够成为一个更成功的集团。在此，我们由衷感谢员工上下对企业成功道路上的热诚与贡献。

我们也要感谢客户及业务伙伴对我们的支持与信任。我们也要对我们的股东们谨表谢意，感谢你们对集团的坚信不疑，一直推动我们在可持续发展和长期价值创造的道路上勇往直前。

此致，

柯宗盛
主席

钟思峰
总裁兼首席执行长

BOARD OF DIRECTORS

The names of the directors holding office at the date of this report are set out here together with details of their academic and professional qualifications, age, date of first appointment as Director, date of last re-election as Director, as well as other directorships and principal commitments.

KWA CHONG SENG
CHAIRMAN
NON-EXECUTIVE
INDEPENDENT DIRECTOR

Date of first appointment as a Director:
1 September 2012

Date of appointment as Chairman:
25 April 2013

Date of last re-election as a Director:
20 April 2018

Date of next re-election as a Director:
23 April 2020

Academic & Professional Qualification
- Degree in Mechanical Engineering from the former University of Singapore
- Fellow of the Academy of Engineering Singapore

Other Directorships/Appointments – Present
Listed company
- Singapore Exchange Limited

Others
- SeaTown Holdings Pte. Ltd.
- Defence Science & Technology Agency
- Public Service Commission, Singapore
- Advisory Committee of Dymon Asia Capital Ltd

Other Directorships/Appointments – Past 5 years
Listed company
- Neptune Orient Lines Limited^
- Olam International Limited

Others
- APL (Bermuda) Ltd.
- APL Co. Pte Ltd
- APL Limited
- APL Logistics Ltd
- Automar (Bermuda) Ltd.
- Delta Topco Limited
- Fullerton Fund Management Company Ltd
- NOL Liner (Pte.) Ltd
- Singapore Technologies Holdings Pte Ltd

^ Delisted from SGX-ST in 2016

VINCENT CHONG SY FENG
PRESIDENT & CEO
EXECUTIVE &
NON-INDEPENDENT DIRECTOR

Date of first appointment as a Director:
1 October 2016

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification
- First Class Honours in Mechanical Engineering from the National University of Singapore
- Executive leadership programmes at the Thunderbird School of Global Management and the Columbia Business School
- Fellow of the Academy of Engineering Singapore

Other Directorships/Appointments – Present
Listed company
Nil

Others
- Experia Events Pte. Ltd.
- SPTel Pte. Ltd.
- ST Engineering Treasury Pte. Ltd.
- ST Engineering North America, Inc.
- JTC Corporation
- Ministry of Trade & Industry's International Advisory Panel for Advanced Manufacturing & Engineering

Other Directorships/Appointments – Past 5 years
Listed company
Nil

Others
- ST Engineering Aerospace Resources Pte. Ltd.
- ST Engineering Aerospace Ltd.
- ST Engineering Electronics Ltd.
- ST Engineering Land Systems Ltd.
- ST Engineering Management Services Pte. Ltd.
- ST Engineering Marine Ltd.
- Vision Technologies Marine, Inc.

DR BEH SWAN GIN

NON-EXECUTIVE &
INDEPENDENT DIRECTOR

Date of first appointment as a Director:
1 September 2014

Date of last re-election as a Director:
20 April 2018

Date of next re-election as a Director:
23 April 2020

Academic & Professional Qualification
- M.B.B.S. from the National University of Singapore
- Sloan Fellow with a Master of Science in Management from Stanford University's Graduate School of Business
- Advanced Management Program at the Harvard Business School

Other Directorships/Appointments – Present

Listed company
- Singapore Exchange Limited

Others
- EDBI Pte Ltd
- Enterprise Singapore
- Human Capital Leadership Institute Pte Ltd
- Temasek Foundation Connects CLG Limited

Other Directorships/Appointments – Past 5 years

Listed company
Nil

Others
- CLA Real Estate Holdings Pte Ltd (formerly Ascendas-Singbridge Pte. Ltd.)
- ST Engineering Electronics Ltd.

JOSEPH LEONG WENG KEONG

NON-EXECUTIVE &
NON-INDEPENDENT DIRECTOR

Date of first appointment as a Director:
7 June 2019

Date of next re-election as a Director:
23 April 2020

Academic & Professional Qualification
- Bachelor of Arts (Engineering) from the University of Cambridge, UK
- Master of Arts from the University of Cambridge, UK
- Master of Business Administration from the Massachusetts Institute of Technology, USA.

Other Directorships/Appointments – Present

Listed company
Nil

Others
- Defence Science & Technology Agency
- DSO National Laboratories
- Civil Service College
- Singapore Technologies Holdings Pte Ltd

Other Directorships/Appointments – Past 5 years

Listed company
Nil

Others
Nil

BOARD OF DIRECTORS

LIM AH DOO

NON-EXECUTIVE & INDEPENDENT DIRECTOR

Date of first appointment as a Director:
10 November 2015

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification
- Honours degree in Engineering from the Queen Mary College, University of London
- Master in Business Administration from the Cranfield School of Management

Other Directorships/Appointments – Present

Listed company
- GDS Holdings Limited
- GP Industries Ltd
- Olam International Limited

Others
- STT GDC Pte. Ltd.
- STT Global Data Centres India Private Limited
- U Mobile Sdn Bhd
- Virtus HoldCo Limited

Other Directorships/Appointments – Past 5 years

Listed company

Nil

Others
- Bracell Limited
- ARA-CWT Management (Cache) Limited
- Linc Energy Ltd
- SembCorp Marine Ltd
- SM Investments Corporation
- ST Engineering Marine Ltd.

LIM CHIN HU

NON-EXECUTIVE & INDEPENDENT DIRECTOR

Date of first appointment as a Director:
16 July 2018

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification
- Bachelor of Science from La Trobe University, Melbourne, Australia
- Diploma in Electrical & Electronics Engineering from Ngee Ann Polytechnic
- Fellow of the Singapore Institute of Directors

Other Directorships/Appointments – Present

Listed company
- Singapore Exchange Limited
- Kulicke & Soffa Inc

Others
- Citibank Singapore Limited
- Heliconia Capital Management Pte Ltd

Other Directorships/Appointments – Past 5 years

Listed company
- Telstra Limited

Others
- Keppel DC REIT
- Changi General Hospital Pte Ltd
- Personal Data Protection Commission

LIM SIM SENG

NON-EXECUTIVE & INDEPENDENT DIRECTOR

Date of first appointment as a Director:
15 May 2015

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification

- Japanese Government Monbusho scholar
- Bachelor in Business Administration from Yokohama National University, Japan

Other Directorships/Appointments – Present

Listed company
Nil

Others

- DBS Securities (Japan) Company Limited
- DBS Vickers Securities Holdings Pte Ltd
- Nikko Asset Management Co., Ltd
- Singapore Land Authority
- Federal Republic of Nigeria – High Commissioner

Other Directorships/Appointments – Past 5 years

Listed company
Nil

Others

- Asfinco Singapore Limited
- ASEAN Finance Corporation Limited
- ST Engineering Aerospace Ltd.

LIEUTENANT-GENERAL ONG SU KIAT MELVYN

NON-EXECUTIVE & NON-INDEPENDENT DIRECTOR

Date of first appointment as a Director:
8 June 2018

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification

- Bachelor of Science (Economics) (Honours) from the London School of Economics and Political Science.
- Master of Science (Development Studies) from the London School of Economics and Political Science

Other Directorships/Appointments – Present

Listed company
Nil

Others

- JTC Corporation

Other Directorships/Appointments – Past 5 years

Listed company
Nil

Others

- ST Engineering Land Systems Ltd.

BOARD OF DIRECTORS

QUEK GIM PEW
NON-EXECUTIVE &
NON-INDEPENDENT DIRECTOR

Date of first appointment as a Director:
15 August 2016

Date of last re-election as a Director:
21 April 2017

Date of next re-election as a Director:
23 April 2020

Academic & Professional Qualification
- Bachelor of Engineering (First Class Honours) (Electrical Engineering) from the National University of Singapore
- Master of Science (Distinction) in Electrical Engineering from the Naval Postgraduate School, USA
- Fellow of the Academy of Engineering Singapore

Other Directorships/Appointments – Present

Listed company

Nil

Others
- ATREC Pte Ltd
- DSO National Laboratories
- SMRT Trains Ltd
- Defence Science & Technology Agency
- Governing Board for the Centre for Quantum Technologies
- Agency for Science, Technology & Research Board
- Temasek Defence Systems Institute Management Board (NUS)

Other Directorships/Appointments – Past 5 years

Listed company

Nil

Others
- ST Engineering Electronics Satellite Systems Pte. Ltd.
- Temasek Laboratories@NUS Management Board
- Temasek Laboratories@NTU Management Board
- Temasek Laboratories@SUTD Management Board
- Industrial Advisory Committee School of EEE, NTU
- Nanyang Polytechnic (NYP) Board of Governors

QUEK SEE TIAT
NON-EXECUTIVE &
INDEPENDENT DIRECTOR

Date of first appointment as a Director:
1 July 2013

Date of last re-election as a Director:
21 April 2017

Date of next re-election as a Director:
23 April 2020

Academic & Professional Qualification
- Bachelor of Science (Economics)(Honours) from the London School of Economics and Political Science
- Fellow of the Institute of Chartered Accountants in England and Wales

Other Directorships/Appointments – Present

Listed company
- Singapore Press Holdings Ltd

Others
- Temasek Foundation Connects CLG Limited
- Monetary Authority of Singapore
- Pavilion Energy Pte. Ltd.
- Council of Estate Agencies
- Accounting Standards Council

Other Directorships/Appointments – Past 5 years

Listed company
- Neptune Orient Lines Limited^

Others
- Building and Construction Authority
- Energy Market Authority

^ Delisted from SGX-ST in 2016

SONG SU-MIN
NON-EXECUTIVE & INDEPENDENT DIRECTOR

Date of first appointment as a Director:
16 September 2018

Date of last re-election as a Director:
18 April 2019

Academic & Professional Qualification
- LLB (Honours) from the University of Kent at Canterbury

Other Directorships/Appointments – Present
Listed company
Nil
Others
Nil

Other Directorships/Appointments – Past 5 years
Listed company
Nil
Others
- Jurong International Holdings Pte Ltd

COLONEL XU YOUFENG
ALTERNATE DIRECTOR

Date of first appointment as a Director:
8 June 2018

Date of last re-election as a Director:
N.A.

Academic & Professional Qualification
- Master of Science with Distinction in Optics and Photonics, (Science) from the Imperial College of Science, Technology & Medicine, University of London, UK

Other Directorships/Appointments – Present
Listed company
Nil
Others
Nil

Other Directorships/Appointments – Past 5 years
Listed company
Nil
Others
Nil

ADDITIONAL INFORMATION ON DIRECTORS SEEKING RE-ELECTION

	KWA CHONG SENG	JOSEPH LEONG WENG KEONG
DATE OF APPOINTMENT	1 September 2012	7 June 2019
DATE OF LAST RE-APPOINTMENT (IF APPLICABLE)	20 April 2018	NA
AGE	73	49
COUNTRY OF PRINCIPAL RESIDENCE	Singapore	Singapore
THE BOARD'S COMMENTS ON THIS APPOINTMENT (INCLUDING RATIONALE, SELECTION CRITERIA, AND THE SEARCH AND NOMINATION PROCESS)	Chong Seng has more than 40 years' experience in the petroleum industry. His leadership will continue to benefit ST Engineering and set the direction of growth for the ST Engineering Group.	Joseph's defence, communications and cybersecurity background will benefit ST Engineering in addressing the changing and challenging needs of the respective businesses.
WHETHER APPOINTMENT IS EXECUTIVE, AND IF SO, THE AREA OF RESPONSIBILITY	Non-executive	Non-executive
JOB TITLE (E.G. LEAD ID, AC CHAIRMAN, AC MEMBER ETC.)	Independent Chairman	Non-independent Director
PROFESSIONAL QUALIFICATIONS	Degree in Mechanical Engineering from the former University of Singapore	Bachelor of Arts (Engineering) from the University of Cambridge, UK Master of Arts from the University of Cambridge, UK Master of Business Administration from the Massachusetts Institute of Technology, USA.
WORKING EXPERIENCE AND OCCUPATION(S) DURING THE PAST 10 YEARS	Chairman & Managing Director of ExxonMobil Asia Pacific Pte Ltd (1969 – 2011)	Fleet Commander (2009 to 2011) Director Military Intelligence & Chief C4I (2011 to 2014) Director Security & Intelligence Division (2014 – 2019) Permanent Secretary (Defence Development) (2019 – current) Second Permanent Secretary (Communications & Information) (2019 – current) Second Permanent Secretary (Cybersecurity) (2019 – current)

QUEK GIM PEW	QUEK SEE TIAT
15 August 2016	1 July 2013
21 April 2017	21 April 2017
62	65
Singapore	Singapore
Gim Pew has vast experience in defence and management. His experience and knowledge will continue to help ST Engineering's growth.	See Tiat has vast experience in audit and business advisory background. His experience and knowledge will ensure that the audit committee has recent and relevant accounting or financial management expertise or experience.
Non-executive	Non-executive
Non-independent Director	Independent Director Chairman of the Audit Committee
Bachelor of Engineering (First Class Honours) (Electrical Engineering) from the National University of Singapore Master of Science (Distinction) in Electrical Engineering from the Naval Postgraduate School, USA	Bachelor of Science (Economics) from London School of Economics and Political Science Fellow of the Institute of Chartered Accountants in England and Wales
Chief Executive Officer, DSO National Laboratories (2004 – 2016) Chief Defence Scientist (2016 – current)	Deputy Chairman, Pricewaterhouse-Coopers Singapore (1981 – 2012)

ADDITIONAL INFORMATION ON DIRECTORS SEEKING RE-ELECTION

	KWA CHONG SENG	JOSEPH LEONG WENG KEONG
SHAREHOLDING INTEREST IN ST ENGINEERING AND ITS SUBSIDIARIES	1,084,700 ordinary shares in ST Engineering* * includes 300,000 shares held in trust by DBS Nominees	Nil
ANY RELATIONSHIP (INCLUDING IMMEDIATE FAMILY RELATIONSHIPS) WITH ANY EXISTING DIRECTOR, EXISTING EXECUTIVE OFFICER, ST ENGINEERING AND/OR SUBSTANTIAL SHAREHOLDER OF ST ENGINEERING OR OF ANY OF ITS PRINCIPAL SUBSIDIARIES	No	No
CONFLICT OF INTEREST (INCLUDING ANY COMPETING BUSINESS)	No	No
UNDERTAKING (IN THE FORMAT SET OUT IN APPENDIX 7.7) UNDER RULE 720(1) HAS BEEN SUBMITTED TO ST ENGINEERING	Yes	Yes
OTHER PRINCIPAL COMMITMENTS[1] INCLUDING DIRECTORSHIPS – PAST (FOR THE LAST 5 YEARS)	**Directorships** APL (Bermuda) Ltd. APL Co. Pte Ltd APL Limited APL Logistics Ltd Automar (Bermuda) Ltd. Delta Topco Limited Fullerton Fund Management Company Ltd Neptune Orient Lines Limited NOL Liner (Pte.) Ltd Olam International Limited Singapore Technologies Holdings Pte Ltd **Other Principal Commitments** Please see "Working Experience and occupation(s) during the past 10 years" above	**Directorships** CLA Real Estate Holdings Pte Ltd (formerly Ascendas-Singbridge Pte. Ltd.) ST Engineering Electronics Ltd. **Other Principal Commitments** Please see "Working Experience and occupation(s) during the past 10 years" above
OTHER PRINCIPAL COMMITMENTS[1] INCLUDING DIRECTORSHIPS – PRESENT	**Directorships** Singapore Exchange Limited SeaTown Holdings Pte. Ltd. Defence Science & Technology Agency **Other Principal Commitments** Public Service Commission, Singapore Advisory Committee of Dymon Asia Capital Ltd Please also see "Working Experience and occupation(s) during the past 10 years" above	**Directorships** EDBI Pte Ltd Enterprise Singapore Human Capital Leadership Institute Pte Ltd **Other Principal Commitments** Temasek Foundation Connects CLG Limited Please also see "Working Experience and occupation(s) during the past 10 years" above

[1] The term "Principal Commitments" includes all commitments which involve significant time commitment such as full-time occupation, consultancy work, committee work, non-listed company board representations and directorships and involvement in non-profit organisations. Where a director sits on the boards of non-active related corporations, those appointments should not normally be considered principal commitments.

QUEK GIM PEW	QUEK SEE TIAT
Nil	57,900 ordinary shares in ST Engineering
Quek Gim Chuah (VP Quality Management, Aerospace) is the brother of Quek Gim Pew, Director of ST Engineering	No
No	No
Yes	Yes
Directorships ST Electronics (Satellite Systems) Pte. Ltd. Temasek Laboratories@NUS Management Board Temasek Laboratories@NTU Management Board Temasek Laboratories@SUTD Management Board **Other Principal Commitments** Please see "Working Experience and occupation(s) during the past 10 years" above	**Directorships** Building and Construction Authority Energy Market Authority Neptune Orient Lines Limited **Other Principal Commitments** Please see "Working Experience and occupation(s) during the past 10 years" above
Directorships ATREC Pte Ltd DSO National Laboratories SMRT Trains Ltd Defence Science & Technology Agency **Other Principal Commitments** Governing Board for the Centre for Quantum Technologies Agency for Science, Technology & Research Board Temasek Defence Systems Institute Management Board (NUS) Please also see "Working Experience and occupation(s) during the past 10 years" above	**Directorships** Singapore Press Holdings Ltd Pavilion Energy Pte. Ltd. **Other Principal Commitments** Council of Estate Agencies Temasek Foundation Connects CLG Limited Monetary Authority of Singapore Accounting Standards Council Please also see "Working Experience and occupation(s) during the past 10 years" above

ADDITIONAL INFORMATION ON DIRECTORS SEEKING RE-ELECTION

		KWA CHONG SENG
(a)	Whether at any time during the last 10 years, an application or a petition under any bankruptcy law of any jurisdiction was filed against him or against a partnership of which he was a partner at the time when he was a partner or at any time within 2 years from the date he ceased to be a partner?	No
(b)	Whether at any time during the last 10 years, an application or a petition under any law of any jurisdiction was filed against an entity (not being a partnership) of which he was a director or an equivalent person or a key executive, at the time when he was a director or an equivalent person or a key executive of that entity or at any time within 2 years from the date he ceased to be a director or an equivalent person or a key executive of that entity, for the winding up of that entity or where that entity is the trustee of a business trust, that business trust, on the ground of insolvency?	No
(c)	Whether there is any unsatisfied judgment against him;	No
(d)	Whether he has ever been convicted of any offence, in Singapore or elsewhere, involving fraud or dishonesty which is punishable with imprisonment, or has been the subject of any criminal proceedings (including any pending criminal proceedings of which he is aware) for such purpose?	No
(e)	Whether he has ever been convicted of any offence, in Singapore or elsewhere, involving a breach of any law or regulatory requirement that relates to the securities or futures industry in Singapore or elsewhere, or been the subject of any criminal proceedings (including any pending criminal proceedings of which he is aware) for such breach?	No
(f)	Whether at any time during the last 10 years, judgment has been entered against him in any civil proceedings in Singapore or elsewhere involving a breach of any law or regulatory requirement that relates to the securities or futures industry in Singapore or elsewhere, or a finding of fraud, misrepresentation or dishonesty on his part, or he has been the subject of any civil proceedings (including any pending civil proceedings which he is aware of) involving an allegation of fraud, misrepresentation or dishonesty on his part?	No
(g)	Whether he has ever been convicted in Singapore or elsewhere of any offence in connection with the formation or management of any entity or business trust?	No
(h)	Whether he has ever been disqualified from acting as a director or an equivalent person of any entity (including the trustee of a business trust), or from taking part directly or indirectly in the management of any entity or business trust?	No
(i)	Whether he has ever been the subject of any order, judgment or ruling of any court, tribunal or governmental body, permanently or temporarily enjoining him from engaging in any type of business practice or activity?	No
(j)	Whether he has ever, to his knowledge, been concerned with the management or conduct, in Singapore or elsewhere, of the affairs of:	
	(i) any corporation which has been investigated for a breach of any law or regulatory requirement governing corporations in Singapore or elsewhere; or	No
	(ii) any entity (not being a corporation) which has been investigated for a breach of any law or regulatory requirement governing such entities in Singapore or elsewhere; or	No
	(iii) any business trust which has been investigated for a breach of any law or regulatory requirement governing business trusts in Singapore or elsewhere; or	No
	(iv) any entity or business trust which has been investigated for a breach of any law or regulatory requirement that relates to the securities or futures industry in Singapore or elsewhere,	No
	in connection with any matter occurring or arising during that period when he was so concerned with the entity or business trust?	
(k)	Whether he has been the subject of any current or past investigation or disciplinary proceedings, or has been reprimanded or issued any warning, by the Monetary Authority of Singapore or any other regulatory authority, exchange, professional body or government agency, whether in Singapore or elsewhere?	No

JOSEPH LEONG WENG KEONG	QUEK GIM PEW	QUEK SEE TIAT
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No
No	No	No

SENIOR MANAGEMENT

VINCENT CHONG SY FENG

Vincent Chong Sy Feng is President & CEO of ST Engineering and a Director of the ST Engineering Board. (Vincent's profile is on page 14)

LIM SERH GHEE

Lim Serh Ghee, 60, was appointed President of the Aerospace sector in December 2014. Prior to this, he was Chief Operating Officer from 2010 and President, Defence Business. Serh Ghee also served as Executive Vice President of Aircraft Maintenance & Modification (AMM), a business segment of Aerospace. He began his career with the Aerospace sector as a mechanical engineer in 1984 and has held many senior management appointments within the sector. Serh Ghee holds a Second Class Upper Honours degree in Mechanical Engineering from the National University of Singapore (NUS). He obtained his Master of Science in Aerospace Engineering from the University of Michigan and attended the Program for Management Development at Harvard Business School.

RAVINDER SINGH

Ravinder Singh, 55, was appointed President of the Electronics sector in January 2017 and is concurrently the President, Defence Business of ST Engineering since July 2017. Prior to this, Ravinder was President of the Land Systems sector from March 2015 to April 2017. He joined the Electronics sector in August 2014 as Deputy President, Corporate and Market Development. In his earlier career, Ravinder served as the Chief of Army, Singapore Armed Forces (SAF) and the Deputy Secretary (Technology), Ministry of Defence, Singapore. He graduated with a Bachelor of Arts in Engineering Science (First Class Honours) and a Master of Arts in Engineering Science, both from the University of Oxford, UK. Ravinder also attained a Master of Science in Management from Massachusetts Institute of Technology, USA, and attended the Wharton Advanced Management Program.

DR LEE SHIANG LONG

Dr Lee Shiang Long, 54, was appointed President of the Land Systems sector in April 2017. Previously, he was President, Defence Business of Land Systems and Deputy Chief Technology Officer, ST Engineering. Prior to joining ST Engineering, Dr Lee was Executive Director of the Institute for Infocomm Research (I^2R) where he coordinated the A*STAR effort in Digital Economy for Singapore RIE 2020 (Research, Innovation and Enterprise). He led I^2R to realise A*STAR mission for a greater social and economic impact, aligned to Singapore's Smart Nation initiative. Prior to I^2R, Dr Lee served in the SAF for 23 years. His last appointment was Chief Information Officer and Head of Joint Communications and Information Systems Department. Dr Lee holds a Master in Business Administration from Cambridge University and PhD in Mechanical Engineering from Nanyang Technological University, Singapore (NTU), and a Master Degree in Science (IT) from NUS.

NG SING CHAN

Ng Sing Chan, 59, was appointed President of the Marine sector in May 2010. Prior to this, Sing Chan was Deputy President and President, Defence Business of the Marine sector. He joined the Marine sector in 1987 as an engineer. Sing Chan left in 1991 and later became the Deputy General Manager of Pan-United Shipyard Pte Ltd. He subsequently took on the positions of President of Changshu Xinghua Changjiang Dev Co and Executive Director of Pan-United Marine Ltd (now known as DDW-PaxOcean Shipyard Pte. Ltd.). Sing Chan re-joined the Group in March 2008 as Executive Vice President, Special Projects, ST Engineering and moved to Marine as Deputy President in April 2009. Sing Chan holds a Master of Business Administration (Finance & Banking) from NTU and a Masters in Engineering from the University of Hamburg, Germany.

ELEANA TAN AI CHING

Eleana Tan Ai Ching, 57, was appointed Chief Corporate Officer of ST Engineering in July 2017 when she relinquished her role as the Chief Financial Officer, a position she had held since March 2008. She was previously Managing Director, Finance, Temasek Holdings (Private) Limited (Temasek). Prior to that, Eleana was Director of Finance at Singapore Technologies Pte Ltd (STPL) from August 2003 until December 2004, when STPL was restructured, and its assets transferred to Temasek. Prior to 2003, she had held various key finance positions in the ST Engineering Group over a period of 13 years and last held the position of Group Financial Controller of ST Engineering. Eleana holds a Bachelor of Accountancy (Honours) from NUS and attended the Harvard Business School's Advanced Management Program in 2013. She is a Fellow Member of the Institute of Singapore Chartered Accountants.

CEDRIC FOO CHEE KENG

Cedric Foo Chee Keng, 59, was appointed Chief Financial Officer of ST Engineering in July 2017. Prior to this, Cedric was Advisor (Corporate Development) of the Group since October 2016. He had previously served as Chief Financial Officer and in senior management roles in large-cap companies, and was also Chairman of JTC Corporation and SPRING Singapore. He holds a Bachelor of Science in Engineering (Naval Architecture and Marine Engineering) from the University of Michigan, Ann Arbor, USA and received his Master of Science (Ocean Systems Management) from the Massachusetts Institute of Technology, Cambridge, USA. Cedric also attended Executive Programmes at Harvard and Kellogg Business Schools.

INNOVATION

CREATING A SMART FUTURE

Technology and innovation is in our DNA, which underpins what we do as a global technology, defence and engineering group. From creating sustainable innovations that push the boundaries of R&D to disruptive technologies, we are constantly redefining, reinventing and innovating new pathways to growth.

Our innovation approach, backed by deep, multidisciplinary engineering expertise and capabilities, enables us to deliver game-changing solutions that put our customers ahead. Our differentiation is our ability to embed enabling technologies such as artificial intelligence (AI), cybersecurity, data analytics, robotics and autonomous systems into our solutions to give our customers a greater leap in their performance.

Our strengths lie also in our versatility to develop indigenous dual-use technology, porting our technology knowhow between defence and commercial segments. We spent 3.4% of our revenue on R&D in 2019. For our R&D investments, we continue to emphasise in dual-use applications that benefit both commercial and defence sectors.

Through strategic collaborations, we leverage collective genius in the global technology ecosystem, from startups to industry leaders, institutes of higher learning to research and government agencies.

Our holistic approach towards innovation and technology allows us to constantly expand the horizons to groom, inspire and champion new talents. We foster a culture of innovative thinking in our global workforce so that we can be an effective provider of sustainable solutions to enable our customers to contribute to a more sustainable world.

Hunter Armoured Fighting Vehicle

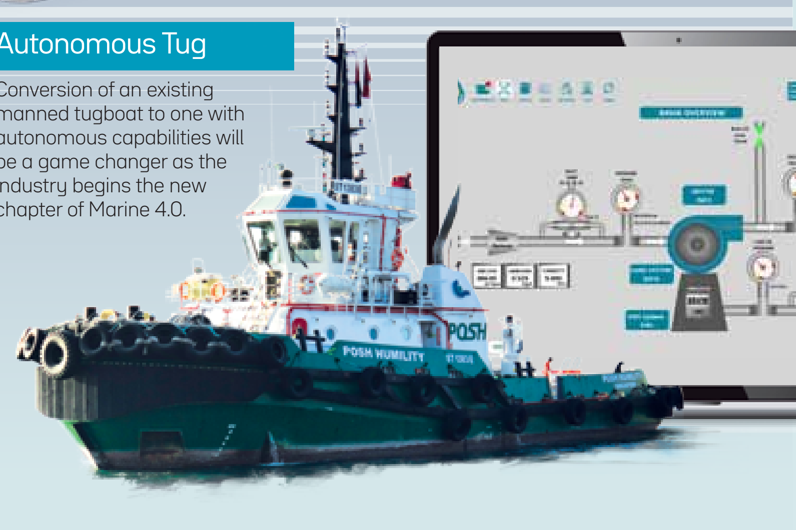
Designed and built in Singapore, the Hunter Armoured Fighting Vehicle is the first fully-digitalised platform in its fighting class integrated with advanced command, control, communications and computer systems.

SPACElite II

SPACElite II is an ultra-light economy-class aircraft seat honoured with the prestigious Red Dot Design Concept Award 2019. It maximises economic value for airlines and enhances passenger experience.

Autonomous Tug

Conversion of an existing manned tugboat to one with autonomous capabilities will be a game changer as the industry begins the new chapter of Marine 4.0.



DroScan

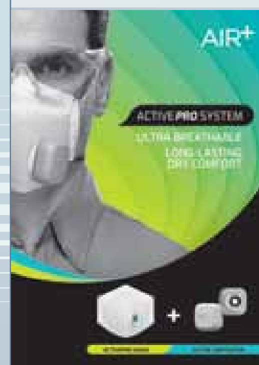
DroScan is an unmanned aerial system equipped with smart algorithms and AI to detect and classify defects during aircraft inspections.

From Diesel to Electric

Proof-of-concept to convert a diesel bus to an electric bus. The retrofitted electric bus meets European and Singapore regulations.

Airbitat Urban Cooler

The Airbitat Urban Cooler is a sustainable overhead cooling solution that is 50% more effective than conventional evaporative coolers with its Reevac™ Deep Cooling technology. This energy-efficient solution is ideal for integration with industrial and commercial spaces.



AIR+ ActivePro System

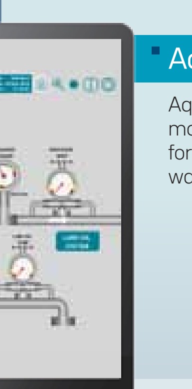
Designed for professional users, the Air+ ActivePro Mask System combines the supremely breathable micro-pleated ActivePro Mask with the powered Active Ventilator for effortless exhalation and long-lasting dry comfort throughout a work cycle.

Buried Intrusion Detection System

The Buried Intrusion Detection System is developed using our award-winning AgilFence technology to provide layered protection for critical facilities and to enhance border security.

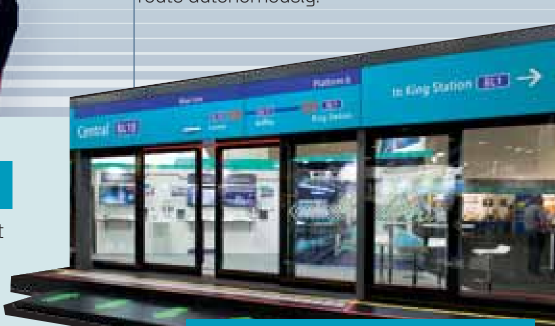
Autonomous Vessel Programme

Along with Mitsui, Maritime and Port Authority of Singapore and Lloyd's Register, we embarked on the world's largest ocean-going autonomous vessel programme, enabling a large commercial vessel to sail along a global route autonomously.



AquaNERVA

AquaNERVA equipment monitoring and control for innovative waste water treatment.



Variable Pitch Platform Screen Door

The world's first Variable Pitch Platform Screen Door engineered for cities with metro lines that serve multiple train types.

Cybersecurity Operation Centre As-A-Platform

The Cybersecurity Operation Centre As-A-Platform is a first-of-its-kind customised security operation centre solution capable of protecting, detecting, responding to and recovering from cyberattacks.

OPERATING REVIEW & OUTLOOK

AEROSPACE

WE ENHANCED OUR MRO NETWORK AND SUITE OF SOLUTIONS TO BETTER SERVE OUR CUSTOMERS AND BECOME A MORE FORMIDABLE PARTICIPANT OF THE GLOBAL AVIATION INDUSTRY.

Our German JV company, Elbe Flugzeugwerke contracted to work with Airbus Helicopters to maintain a substantial part of the German Armed Forces' NH90 fleet.

2019 REVIEW

While the growth in passenger demand slowed in 2019 compared to the previous two years amidst a decline in global trade due to rising trade tensions, the fundamentals of our Maintenance, Repair & Overhaul (MRO) business remain strong. Global passenger growth and MRO spending continued to be robust during the year, driven by tailwinds from emerging markets such as China and India.

We continued to differentiate ourselves from both incumbent players and new MRO entrants with our hallmark standards in quality and value-added services, which we were able to elevate further by incorporating smart technology into our operations. We also continued to expand our global presence and capacity to offer our customers greater convenience and value.

AIRCRAFT MAINTENANCE & MODIFICATION

We proved our mettle once again by staying as the top ranked global airframe MRO service provider for the eighth consecutive time in the biennial survey conducted by Aviation Week Network. We continued to lead the pack based on our airframe maintenance manhours in 2018, which stood at 13.0m, from 12.5m in 2016.

In tandem with the continued strong demand for airframe MRO services, we secured a number of multi-year contracts that will keep our hangars busy. These included an agreement with a major North American operator to support its fleet of more than 160 widebody and narrowbody aircraft for a period of 10 years; and another from an existing customer to support its entire fleet of Boeing 717s. Through our Germany-based JV company, Elbe Flugzeugwerke, we also landed a 10-year service contract to work with Airbus Helicopters to maintain a substantial part of the German Armed Forces' NH90 fleet by providing scheduled maintenance, 1,200 flight-hour inspections as well as on-demand repairs from early 2021.

With global air travel expected to continue its rise over the long term, we continued to expand our capacity in anticipation of strong demand for airframe maintenance in our key markets. In Florida, U.S., we entered into an agreement with the City of Pensacola to develop an airframe MRO complex in addition to our existing hangar which has been operational since mid-2018. As part of talent outreach, we set up a new scholarship programme for aviation related post-secondary education in Pensacola. This initiative is also part of our support to the local community and aviation industry.

Acquired

MRAS

and moved upstream as an engine nacelle designer and manufacturer

OPERATING REVIEW & OUTLOOK

We added five aircraft to our aircraft leasing portfolio in 2019, bringing our total fleet size to 11. We will continue to grow our portfolio of mid- to end-of-life aircraft assets that best align with our technical capabilities and service offerings, as well as complement our core MRO, Passenger-to-freighter (P2F) and aircraft modification businesses.

COMPONENT/ENGINE REPAIR & OVERHAUL

We clinched a number of multi-year contracts including a 15-year engine Maintenance By-the-Hour agreement from Japan Transocean Air to support their Boeing 737NG fleet.

To capture the opportunities arising from a burgeoning consumer middle class in Asia and its positive ripple impact on the regional aviation industry's growth, we set up our first presence in Vietnam via a JV partnership with Vietnam Airlines. The joint operation, which started in September, provides component MRO services from Vietnam Airlines' existing facilities at Noi Bai International Airport in Hanoi and Tan Son Nhat International Airport in Ho Chi Minh City.

Established presence in Vietnam with a component MRO JV

Official opening of our first component MRO facility in Vietnam.

During the year, we continued to build on our value proposition to ensure reliable and quality services for operators by entering into a long-term collaboration with Honeywell to act as a licensed repair centre for their components. As Honeywell's channel partner, we now have access to its advanced technologies and software solutions to provide one-stop component MRO services that will elevate the fleet maintenance experience of operators worldwide.

ENGINEERING & MATERIALS SERVICES

We greatly boosted our engineering and manufacturing capabilities during the year with the successful acquisition of engine nacelle original equipment manufacturer (OEM), Middle River Aerostructure Systems (MRAS), and the redelivery of the first refurbished aircraft installed with our in-house designed SPACElite I aircraft seats.

Nacelle Design and Manufacturing
The addition of MRAS boosted our network of aerospace facilities in the U.S., and expanded our support to customers with a new capability in nacelle design and manufacturing.

Integration activities of MRAS are progressing well. We are also working on expanding its MRO capabilities. This will allow us to provide customers with both manufacturing and MRO solutions across a broad range of nacelle platforms.

Passenger-to-Freighter Conversions
Our progress on the prototype A321P2F conversion went smoothly during the year.

First A321 aircraft arriving at our Singapore facility for conversion into a freighter.

We believe that the Supplemental Type Certificate which we attained from the European Aviation Safety Agency (EASA) in February 2020 will provide a strong boost to the conversion programme which has been steadily gaining traction among aviation operators and lessors looking for viable P2F solutions in the narrowbody category.

Growing interest in our A321P2F conversion programme can be seen in the General Trade Agreement that we signed with BBAM in December for several units.

Cabin Interiors and Manufacturing

We reached a new milestone in our aircraft interior business by similarly attaining EASA certification for a cabin interior modification and refurbishment programme carried out for an Asian airline's A320 aircraft. This was the first time we had fitted out an aircraft with our own in-house designed economy class seat, SPACElite I.

We rode on the momentum by launching SPACElite II, the second generation of our proprietary aircraft seat, during the year. The design swiftly received recognition for its innovation and high quality when it was honoured with the prestigious Red Dot Design Concept Award 2019.

With the first successful installation of SPACElite I and the launch of SPACElite II, we can better market our products and penetrate the aircraft seats market at a time when more airlines are demanding advanced seating solutions with optimum space usage, cost effective maintenance, along with highly durable and flexible design. There is also the proliferation of low-cost carriers looking to accommodate more passengers that we can capitalise on.

Installation of in-house designed aircraft seats for an Asian airline customer.

Redelivered first refurbished aircraft retrofitted with in-house designed aircraft seats SPACElite I

OPERATING REVIEW & OUTLOOK

Unmanned Solutions
During the year, our smart drone system, DroNet, scored its first contract to be applied in security and surveillance missions as an end-to-end solution. We also ran trials with potential customers for application in areas such as building inspection and environmental monitoring.

INDUSTRY OUTLOOK

The challenging operating environment notwithstanding the rise in global population and more affordable air travel have nevertheless lifted air travel to record levels, fuelling the largest year-on-year increase of in-service fleets since 2008. According to Deloitte, the global aerospace industry is expected to get back to its growth trajectory, recovering from its decline in 2019. While the COVID-19 outbreak at the start of 2020 may somewhat dampen that growth, the industry has shown itself to be resilient with the ability to make a recovery.

While the increasing introduction of new-generation aircraft may alter maintenance cycles, the global expansion of commercial aircraft fleets will still lead to an overall uptick in MRO activities. Airlines will prefer to partner trusted service providers with a strong track record of quality and reliable maintenance services to support their operations. That explains why we are investing in smart technology to raise productivity and safety levels to further enhance our MRO services and offer more value-added solutions to better meet the needs of our customers.

At the same time, we will continue to explore and exploit new growth opportunities in areas that has synergy with our MRO work. As the global aviation industry continues in its growth trajectory over the long term, the investments we made in upstream businesses will allow us to benefit directly as an OEM player.

Enhancing Competitiveness with Technology and Partnerships
To better leverage smart technology in four key identified areas – digitisation, data analytics, additive manufacturing and automation – we will continue to collaborate with like-minded industry partners.

For instance, to automate aircraft exteriors inspection, we teamed up with Air New Zealand to trial the use of drones which are equipped with smart algorithms and artificial intelligence to take over some of the manual tasks during inspection work.

We are also working with Air New Zealand in additive manufacturing (also known as 3D printing) for the replacement of interior parts, with the goal of creating a virtual cabin parts warehouse. We have been granted certification in Europe and will seek similar certifications to expand our parts inventory list based on customer requirements.

Another area is that of leveraging blockchain technology with industry partners such as Moog and Microsoft to create a point-of-use, time-of-need digital supply chain that will reduce downtime for airlines in their procurement of replacement cabin parts.

Scaling Up Capabilities with Original Equipment Manufacturing
As OEMs increasingly expand into aftermarket services, we are also diversifying by steadily moving into the original equipment (OE) manufacturing space. The move upstream presents a new area of growth that allows us to benefit directly as an OEM, while at the same time extract the synergistic value that comes with an integrated suite of solutions along the full value chain.

We believe such one-stop services are an attractive proposition for customers. In the instance of operators looking to refresh or expand their fleet, they can enjoy well-designed modification programmes that fit into their

MRO operations are increasingly automated to improve our efficiency and competitiveness.

Thrust reverser transcowls undergoing final assembly at our newly acquired nacelle manufacturing subsidiary in Baltimore, U.S..

maintenance schedules and choose from our in-house designed products such as aircraft seats.

Apart from cabin interiors, we are also beefing up our capabilities to provide integrated solutions in engine nacelles. We have a team in the U.S. to focus on building up our capabilities as an integrated nacelle solutions provider. We are building a component MRO facility within MRAS' existing set up and plan to start operations in the first half of 2020.

Staying the Course in Growth Areas

Air cargo demand took a hit in 2019 from weakened global trade volumes with global freight volumes at 3.3% lower compared to 2018 amidst trade tensions between China and the U.S.. However, we remain optimistic in air cargo demand over the longer term, especially within the Asia Pacific region, buoyed by burgeoning population growth and overall uptick in consumption patterns, as well as the emergence of new manufacturing hubs in countries such as Thailand and Vietnam.

At the same time, we are also confident that our Airbus P2F programmes will gain traction. The pipeline for A330-300 conversions, our solution in the mid-sized category, for example, will be underpinned by ample feedstock when the platform's residual value comes down.

Seeding the Future with Unmanned Solutions

According to a market intelligence report by BIS Research, the global Unmanned Aerial Vehicle (UAV) market was valued at US$25b in 2018. The market can expect to see a growing deployment of UAVs owing to increasing usage across sectors from military and defence, homeland security and commercial as well as an increasing need for relaying voluminous amount of data in real time for better operational efficiencies.

The BIS Research report estimates the UAV market to grow at a CAGR of 8.45% over the next 10 years to reach about US$70b by 2029.

To push the boundaries of Unmanned Aircraft System (UAS) applications, we will continue to collaborate with industry partners and the authorities on the study and development of new guidelines, concepts and technological applications to enable Beyond Visual Line Of Sight (BVLOS) UAS operations in Singapore's urban environment including within or near an aerodrome. The first-of-its-kind authorisation that was granted to us for BVLOS operations by the Civil Aviation Authority of Singapore in February is testament to the leading position that we enjoy in advancing UAS applications in a safe and robust way.

KEY FOCUS IN 2020

Strengthen core capabilities and continue to enhance services through Industry 4.0 SMART MRO initiatives.

Stay focused on safe and quality redeliveries to maintain the support of our strong customer base.

Continue to invest in growth areas such as freighter conversions, and synergise OE and MRO capabilities.

ELECTRONICS

WE STAYED FOCUSED ON SHAPING THE FUTURE OF CITIES THROUGH TECHNOLOGY AND INNOVATION, EMPOWERING PEOPLE AND ORGANISATIONS.

Acquisition of Newtec Group and Glowlink Communications Technology

positions us for future growth in satcom.

2019 REVIEW

2019 marked 50 years of innovation for our Electronics sector. Over the years, we have helped to empower, shape and transform multiple business segments in satellite communications (satcom), mobility, public safety and security (PSS), Internet of Things (IoT), training and simulation, cybersecurity and defence. Our solutions have been deployed in more than 100 cities worldwide, garnering over 100 patents, designs and trademarks.

We believe in incorporating not just new technologies, such as Cloud, Artificial Intelligence (AI), Machine Learning and Deep Learning, but also smarter, more efficient technologies that help our customers solve real-world problems, and prepare cities for a smarter, more sustainable future.

Despite global market volatility in the past one year, we made inroads and expanded our footprint in a number of market segments through acquisitions, industry collaborations and organic growth.

Satellite Communications

Our satcom business took a major strategic leap forward with the acquisition of Newtec Group, an established Belgium-based company in the global satcom industry, and Glowlink Communications Technology, a U.S.-based provider of advanced satellite interference mitigation solutions. Harnessing their unique capabilities to create a highly differentiated global satcom business group, we are well positioned to lead in the innovation and transformation of the satcom industry, and shape the future of how the world connects.

We deepened our smart satellite connectivity business foray into the growing markets of Bulgaria, Mexico and the Middle East.

On the technology front, we successfully completed the proof-of-concept testing for our video content distribution technology that transforms multimedia streaming on mobile devices. Designed to operate over a satellite network with 4G/5G and Multi-access Edge Computing (MEC) integration, this initiative focuses on accelerating the deployment of satcom-enabled 5G telco networks.

On the defence front, we received Wideband Global SATCOM (WGS) certification for our 9-Series Defense portfolio of satellite routers and line cards operating on Evolution 3.4 software. The new certification, which was secured after stringent evaluation and testing as part of the U.S. Army's certification process, will enable enhanced military communications.

Earth Observation

We also set up ST Engineering Geo-Insights, a JV company with DSO National Laboratories to meet growing global demand for timely insights from satellite imagery data that enable better and faster business decisions for customers in sectors such as construction, maritime safety and agriculture. The JV will also tap potential business opportunities for lower cost, small satellites constellation design, development, manufacturing and operations.

We also inked an agreement with ICEYE, a global leader in small satellite synthetic aperture radar (SAR), to collaborate in the regional and global market for rapid revisit, high resolution SAR imagery and SAR-based geospatial analytics.

Mobility

Backed by our record of more than 100 rail electronics projects in 45 cities around the world, our mobility rail business continued to expand into new international markets. Contracts were secured for the delivery of our comprehensive suite of rail solutions for Mass Rapid Transit (MRT) lines in China, the Philippines, Saudi Arabia and Thailand.

We continued to play a part in enhancing Singapore's transport system with our rail electronics solutions including mobile communications network for Downtown Line 3 Extension, communications systems for Thomson East Coast Line and Automatic Fare Collection systems for various MRT lines.

At AusRAIL PLUS 2019, the largest rail event in Australia, we unveiled the world's first Variable Pitch Platform Screen Door (VP-PSD) that enables train operators to deliver enhanced commuter safety and comfort. Engineered for global cities with metro lines that are unable to install traditional PSD, the VP-PSD can automatically shift to fit multiple train types operating on a single line and interchange platforms.

We also signed a tripartite MOU to share and develop engineering capabilities in the area of rail maintenance with SBS Transit and SMRT Trains, aimed at improving rail reliability and performance.

Our road mobility business continued to grow, securing contracts to manage more than 65,000 car park lots in Singapore, and bus fleet management services for Clark, the Philippines, during the Southeast Asian Games 2019. At the Intelligent Transport Systems World Congress 2019, we showcased our Smart Junction Management System, a next-generation urban traffic junction signal control system that supports future applications of infrastructure-to-vehicle communications for autonomous vehicles. Incorporating leading technologies such as AI and edge processing to deliver dynamic junction control capabilities, the system enables traffic operators to optimise traffic network capacity and reduce disruption caused by traffic incidents.

OPERATING REVIEW & OUTLOOK

Public Safety and Security
We continued to make headway in the PSS business, securing a contract to supply a public safety agency in Asia with a next-generation emergency response management system, and an Air Traffic Control Tower Simulator system for Civil Aviation Authority of the Philippines. We were also appointed by PSA International to deliver an advanced Command Centre that enables digitalisation, automation and intelligent decision-making for Tuas port operations in Singapore.

We proved our mettle in bringing new innovative ideas to fruition with the launch of our Buried Intrusion Detection System, the world's first buried intrusion detection solution that combines highly sensitive fibre-optic sensors with advanced signal processing algorithms to provide multi-layered protection for critical facilities. It is able to secure both fenced and unfenced area borders without deploying power and electricity over long distances.

We also jointly developed with Vuzix Corporation, the world's first augmented intelligence, biometric-enabled smart glasses platform that enables hands-free applications and non-intrusive identification. Targeted at enterprises and security agencies, it can boost the productivity of mobilised frontline and field workers including emergency responders and crime fighters by up to 50% as a result of streamlined work processes.

At the International Maritime Defence Exhibition (IMDEX) Asia 2019, on showcase for the first time was our Antenna Element Compact, an anti-jam antenna system that counters signal interference targeted at the Global Navigation Satellite System of sea vessels.

We collaborated with the Maritime and Port Authority of Singapore (MPA) as one of its key partners for the Maritime Innovation Lab, a co-creation platform for innovation in areas such as automation, data analytics and intelligent systems.

In other industry collaborations, we jointly launched the Next Generation Vessel Traffic Management System Lab together with Kongsberg Norcontrol. The setup will realise the development of new vessel traffic capabilities such as an advanced data communications system for information exchange between ships and port authorities, which enables comprehensive maritime situation awareness for safety and efficiency. Other industry projects being test-bedded included an Autonomous Flotsam Clearance Vessel, Autonomous Ship Intelligence and a Smart Maritime Autonomous Vessel. These industry collaborations will enable harbour craft operators to tap on autonomous technologies to enhance their productivity and navigational safety in ports.

Internet of Things
Our IoT solution suite which integrates best-of-breed IoT technologies, data analytics and communications solutions to support applications such as smart street lighting, waste and smart utility have gained traction in the U.S.. We were appointed to deploy our smart street lighting system in Cleveland to manage the city's 61,000 street lights that serve nearly 400,000 residents. Another contract was secured in Georgia to remotely control and monitor about 50,000 street lights, enabling energy savings, enhancing public safety and improving customer satisfaction.

In addition to the U.S., we also secured smart street lighting contracts in New Zealand, Sweden and the UK.

In Singapore, we secured contracts for the installation of smart indoor lighting control solutions to maximise energy savings and operational efficiency in residential estates and carparks. We also announced the release of our Wireless Automatic Test System for Emergency Lights, which automates the manual, labour-intensive testing of emergency lights and signs in accordance with the Singapore Civil Defence Force's Fire Safety Regulation SS 563.

Training and Simulation
At IMDEX Asia 2019, we launched a new digital solution for ship management and maritime defence. The Integrated Ship Bridge Simulator, which replicates the functions in an integrated command centre, enables navy crew to hone their technical and combat skills. Features include Virtual Reality (VR) training stations that simulate scenarios such as berthing and dealing with small vessel threats.

For the iconic Gardens by the Bay in Singapore, we created three installations that infused technology and artistry into a thematic garden landscape for its new floral attraction, Floral Fantasy. These included a customised digital water curtain, a kinetic system where pendular floral balls "dance" gracefully, and Flight of the Dragonfly, a 4D multi-sensorial simulation ride. The first 4D simulation ride conceptualised and produced in Singapore, it incorporates special effects that trigger visitors' senses of sight, sound, smell and touch as they experience the simulated journey of a dragonfly's flight path through Gardens by the Bay.

The Smart Junction, a next-generation urban traffic signal control system, incorporates smart technologies that enhance road management and optimise traffic network capacity.

Cybersecurity
We continued to build on our leading position as an operator of choice in the design, building and management of the operations of Security Operation Centres (SOCs) in Singapore and the region. Included in our 15 SOCs are – MPA's new 24/7 Maritime Cybersecurity Operations Centre, and a jointly-operated SOC in Yangon with Myanmar partner, Alliance Urban Transports. Together with Alliance Urban Transports, we will also set up a cybersecurity training centre to bolster Myanmar's cybersecurity capabilities.

On the innovation front, we launched a first-of-its-kind Cybersecurity Operation Centre As-A-Platform (SOCaaP) equipped with advanced, cutting-edge technologies such as a new age Security Information and Event Management (SIEM) and Advanced Analytics Engine to protect, detect, respond to and recover from cyber incidents. Through SOCaaP, the set up of an SOC will be shortened to just under four months, from the usual over 12-month lead time required.

We further solidified our position as an internationally recognised cybersecurity solutions provider when eight of our products received the Singapore Common Criteria Scheme certification, administered by the Cyber Security Agency of Singapore. The Common Criteria certification is the de facto standard for cybersecurity product certification globally, and is recognised by 31 nations which signed the Common Criteria Recognition Arrangement.

To advance upskilling efforts of the cybersecurity industry, we entered into a partnership with SGInnovate and Tegasus International to launch Operational Technology (OT) courses under the "Cybersecurity Professional Series", to enhance the cybersecurity expertise of some 1,000 professionals needed in Singapore over three years.

Structured to align with the key pillars of the Singapore Cybersecurity Strategy and supported by SkillsFuture Singapore, the OT courses will be tailored to the needs of individuals working in the 11 Critical Information Infrastructure sectors in Singapore, especially energy, utility and transport.

Customisable digital water curtain that was designed for the Floral Fantasy attraction at Gardens by the Bay.

We are an operator of choice in the design, building and management of Security Operation Centres in Singapore and the region.

Defence
In the U.S., we secured a contract worth US$95m from the U.S. Army to develop and deliver a unified simulation platform for the Army's synthetic training environment that meets demands for next-generation collective training. Under the contract, we will produce the Training Simulation Software and Training Management Tool components for the U.S. Army's Synthetic Training Environment.

We were also appointed to deliver a comprehensive networked training capability to the Royal Air Force, with our simulation and visualisation software chosen as core components in a Defence Operational Training Capability (Air) Core System and Services contract.

We entered into a long-term partnership with MBDA, a European leader in missile systems, to provide specialised simulation software, services and support to MBDA in Italy.

We delivered the Army Tactical Engagement and Information System, which forms the heart of the Hunter, a fully digitalised, next-generation armoured fighting vehicle, in a tripartite collaborative effort with the Singapore Army and the Defence Science and Technology Agency. Its built-in modular and scalable architecture allows new functions and capabilities to be added and deployed in double quick time. For its feats in engineering and design, the Hunter bagged the top Defence Technology Prize 2019.

Transforming Global Cities with Future Technologies
In our drive to develop innovative IoT solutions and connectivity for smart cities, we inked an agreement with Nokia on key technology areas including 5G, analytics, automation and IoT.

We also signed an MOU with Chongqing Big Data Application Development Administration at the China-Singapore (Chongqing) Demonstration Initiative on Strategic Connectivity (CCI), to develop ICT training programmes that leverage technologies such as augmented reality, VR, AI and data analytics.

OPERATING REVIEW & OUTLOOK

Together with Mitsui & Co. Ltd, MPA and Lloyd's Register, we embarked on the world's largest ocean-going Autonomous Vessel Programme to jointly develop and validate navigation intelligence for autonomous ocean-going vessel operations. This will involve steering a large commercial vessel autonomously across global test locations including the Suez Canal, Panama Canal, Straits of Malacca and Singapore.

We are also collaborating with PSA Marine and MPA to design and develop a remotely-assisted pilotage advisory (RAPA). The RAPA solution incorporates IoT sensors and communications systems to enable remote pilotage from shore-based stations. Shore-based marine pilots will be provided with an augmented situational awareness of vessel navigation through real-time video imagery and vessel traffic information, assisted with a collision avoidance software.

To address the rising air traffic volume faced by global aviation markets, we launched Airport Analytics to enhance airports' operational performances through data-driven and fact-based decision-making. Leveraging its advanced intelligence capabilities powered by machine learning and AI, airport operators will be able to reduce delays in air traffic flow and congestion in airports during peak times, delivering a more seamless travel experience to passengers.

Developed the world's first Variable Pitch Platform Screen Door for Multi-Train Rail Systems

We were also partners in design and development with Tan Tock Seng Hospital and Integrated Health Information Systems in a new hospital operations command centre at Ng Teng Fong Centre for Healthcare Innovation. The state-of-the-art Command, Control and Communications (C3) went live in the third quarter of 2019, leveraging AI to optimise capacity and improve efficiency.

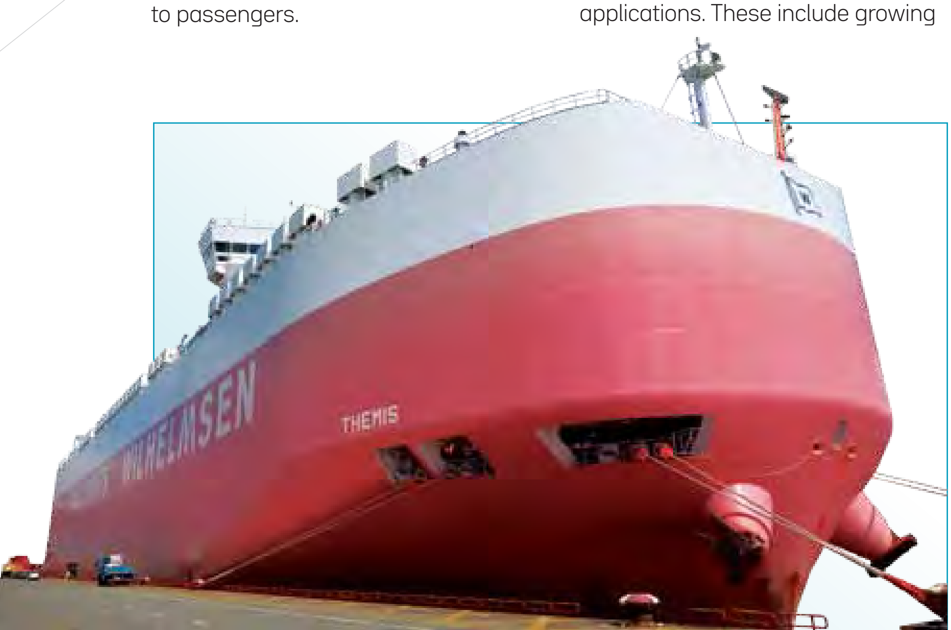
INDUSTRY OUTLOOK

Satellite Communications
Satcom is a fast-growing industry with an expected CAGR of 8% over the next 10 years. It is expected that the surge of Ultra-High Throughput Satellites and Low Earth Orbit constellations will increase bandwidth capacity and reduce operating costs, creating new demand and mass-market use cases.

Combined with the integration of satellite with 5G networks, this will result in an increasing supply of capacity and lower bandwidth costs, unlocking new markets and applications. These include growing needs for IoT and Machine-to-Machine connectivity and applications for surveillance, data gathering and big data analytics. In the mobility market segment, there will be increased demand for end-to-end solutions for areas such as commercial aviation, maritime and connected cars.

The combined business from our recent acquisitions of Newtec Group and Glowlink Communications Technology places us in a stronger position to participate in the future growth of satcom and the Smart City arena.

Mobility
With the global demand for urban passenger commutes set to double by 2050, according to the International Transport Forum, mobility solutions for the cities of tomorrow catering to rail, mass transit and road users have to be highly dependable, responsive and user-friendly. Service reliability will have to be a key performance for metro rail operators who can employ sensors, camera drones, big data analytics and AI to predict and identify potential faults. Pre-emptive maintenance works



Steering the largest and first-of-its-kind commercial vessel in the high seas autonomously, under the Autonomous Vessel Programme.

can then be carried out, hence reducing downtime and delays from equipment failures.

On roads and highways, intelligent traffic management systems (ITMS) will play bigger roles in helping cities better manage and ease urban congestions occurring globally. Effective use of technologies can help to optimise road networks where constant expansion is limited. With the innovative use of AI, video and data analytics, cities will be able to derive greater value from their ITMS investments.

Public Safety and Security
Each year, governments, public safety agencies and critical facility owners face new security concerns, from rising rates of unpredictable intrusions to increasingly frequent and destructive natural disasters. Rising to meet these challenges will require security officials and first responders to embrace new and innovative solutions that better protect their community.

Innovative technology will continue to be at the forefront of public safety practices, as new developments are made in the implementation of AI, automation and high-speed connectivity. Our comprehensive PSS solutions which are implemented in over 15 cities around the world, incorporate such leading-edge technologies to provide a holistic response to counter security threats effectively.

Internet of Things
Interest in remote monitoring and control is flourishing in IoT, making this one of the fastest-growing technologies that support various Smart City applications such as environmental monitoring, smart parking, Electric Vehicle charging, crowd sensing and traffic monitoring. This market is expected to reach approximately US$300b by 2025 at a CAGR of about 22.6% between 2019 and 2025, according to Zion Market Research.

With our deep domain expertise and knowledge in smart city applications, data analytics and IoT capabilities, we are well-positioned to benefit from the steady growth of this business segment.

Training and Simulation
There has been increasing awareness on the use of virtual training and simulation in areas such as flight simulation, healthcare and transportation training, e-learning, applications in the military, digital manufacturing and maintenance, among others. With advances made in technology, a virtual environment can be as close as the real thing helping to speed up training, enhance effectiveness while lowering costs. Driven by the need to reskill and upskill the workforce, the market is expected to grow at an annual rate of 16.8% reaching $329b by 2022. With our proven capabilities and track record in training and simulation, we stand in good stead to benefit from this growing market segment.

Cybersecurity
As more of our vital infrastructure becomes connected and vulnerable to digital attacks, data breaches involving the leak of personal information are becoming more frequent and bigger in scale, governments and enterprises are increasingly pursuing a more cohesive security technology architecture, and retooling their SOC.

According to Research and Markets, the global SOC market is expected to grow at a CAGR of 11.5% over the next five years, reaching $61b by 2025, with the Asia Pacific region holding high growth potential.

Having delivered more than 15 SOCs for government agencies and commercial enterprises internationally, and launched an industry-first SOC solution in 2019, we are well placed to help our customers maintain a secure environment while ensuring continuity of their business operations.

Smart Digital Building
With 68% of the population projected to be living in urban areas by 2050, the need to create smarter and more sustainably built environment for people to work, live and play better is more critical than ever.

With technological innovation set to transform structures that form the foundation of cities and their development, we are able to utilise technologies such as AI and data analytics to deliver more energy efficient and optimised built environment. With AI and smart buildings combined together, we will be able to help building managers improve structural reliability and minimise harmful environmental impact.

Whether through enhancing mobility and connectivity anytime, anywhere, fortification of critical infrastructure and digital assets, or ensuring environmentally sustainable outcomes, our solutions can enable a safer, more liveable city and enhance sense-making for faster, smarter and more informed decisions.

KEY FOCUS IN 2020

Penetrate into new and growing Smart City markets globally.

Continue to innovate and embed data analytics, AI and cybersecurity into our products and solutions.

Strengthen core engineering competencies and end-to-end capabilities.

OPERATING REVIEW & OUTLOOK

LAND SYSTEMS

WE GREW AND STRENGTHENED OUR EXPERTISE IN ROBOTICS AND AUTONOMOUS SOLUTIONS, MAKING HEADWAY IN THE HEALTHCARE, HOSPITALITY, MANUFACTURING AND PORT INDUSTRIES.

2019 REVIEW

It was a busy year as we strengthened our capabilities and grew complementary competencies of our growth focus areas in both the defence and commercial arenas.

Delivery of Hunter, the first digitalised AFV in its fighting class

Defence Business

A highlight of the year was the delivery and commissioning of the Hunter Armoured Fighting Vehicle (AFV) for the Singapore Army. Hailed as a centrepiece of the next-generation armoured fighting vehicle in its class, the Hunter was commissioned by Singapore's Defence Minister Ng Eng Hen on 11 June, marking another milestone in the lineage of AFVs that are designed and built in Singapore.

First conceptualised in 2006, the Hunter is possibly the world's first digitalised fighting platform in its fighting class, offering the same level of digitisation as the cockpit of a fighter jet. It incorporates advanced features such as 360-degree field of vision, common crew station that allows the commander and gunner to swop functions and an open modular vehicle electronic architecture that enables seamless upgrades and insertion of new software and technology. Another significant feature in the Hunter is its drive-by-wire capability which lays the foundation for future development of unmanned and autonomous military vehicles. For these innovations, the Hunter received the top Defence Technology Prize 2019.

In March, we showcased the capabilities of the latest Bronco during a mobility demonstration held in Ivalo, Finland. Guests and media were invited to the two-day demonstration where they witnessed the All Terrain Tracked Carrier glide effortlessly and quietly through thick snow, icy slopes and uneven terrain in Arctic temperatures. The participants also had the opportunity to test-drive the 16-tonne vehicle and were impressed by the comfort of the ride and ease of driving it.

The Bronco impressed with its effortless performance through thick snow, icy slopes and uneven terrain in Arctic temperatures.

OPERATING REVIEW & OUTLOOK

In a separate development, we participated in several live firing demonstrations, including the Estonian Defence Force's annual exercise "Spring Storm", to showcase the versatility and performance of the ADDER Remote Weapon Station (RWS) in various operational scenarios and mission sets. Armed with a 40mm Automatic Grenade Launcher and 12.7mm Heavy Machine Gun, the ADDER RWS, compatible with both tracked and wheeled vehicles, impressed visitors with its ability to engage targets, both stationary and on the move, under day and night conditions.

We also unveiled our latest suite of 120mm ammunition designed for use with smooth-bore mortar systems. The range includes the 120mm precision GPS-guided mortar bombs, and family of Extended Range munitions.

We also completed the development and testing of an upgraded version of the 120mm Super Rapid Advanced Mortar System (SRAMS). Named Mk II, it has an all-electric elevation and traverse of 180 degree left and right, with a rapid firing rate of 10 rounds a minute.

In addition to the new capabilities, we continued to showcase our core systems and solutions at major international defence and technology exhibitions such as IDEX in Abu Dhabi, LAAD in Rio, DSEI in London and the AUSA Annual Meeting and Exposition in Washington, DC.

Robotics and Autonomous Systems

Our Robotics business not only recorded new deployment sites in familiar industry segments like healthcare and hospitality, but also in new segments including seaport, manufacturing and retail.

We received our first contract for autonomous material handling solutions to supply 80 Automated Guided Vehicles (AGVs) to Singapore's container port operator, PSA Corporation Ltd (PSA), and integrate the AGVs into the operations of its next-generation port in Tuas. Port operations will commence in phases at Tuas Port from 2021. The AGV can transport two 20ft or a 40ft container (weighing up of 65 tonnes) and is fully automated. It can travel at a top speed of 25km/h, and is powered by an eco-efficient electric power system, hence resulting in low levels of emission and noise. Separately, we were also awarded a contract to design and supply 18 AGV battery chargers for PSA container terminals.

Our robotic solutions made headway in Singapore, with a contract to supply 32 units of Aethon TUG Autonomous Mobile Robots (AMRs) to the new Woodlands Health Campus. The TUGs will deliver food, linen, medicine and material within the entire campus, helping to ease the load on manual operations. The project will be deployed in two

The successful completion of the public trial on Sentosa Island marks a significant milestone for our AV bus development. We are working to bring our expertise to Israel and Japan.

Together with the Ministry of Transport and Sentosa Development Corporation, we launched Singapore's first on-demand autonomous shuttle public trial on Sentosa Island.

Received more than 5,000 passengers for Singapore's first on-demand autonomous shuttle trial on Sentosa Island

phases with the first phase to be completed by June 2020, and the remaining in 2022.

In addition, we were also awarded a grant from Agency for Science, Technology and Research, to develop and implement an Intelligent Surgical Inventory Management (iSIM) platform with SingHealth. When completed in 2020, the iSIM can accurately predict the tools for various surgical processes based on doctors' preferences and surgical requirements. The TUGs, fitted with integrated robotic arms, will then deliver pre-packed surgical tools to the operating theatres. In the U.S., we also received a contract from a large hospital for 46 TUGs across two campuses.

Working with the Ministry of Transport (MOT) and Sentosa Development Corporation, we launched Singapore's first on-demand autonomous shuttle public trial, marking a significant milestone since on-road testing of the autonomous vehicles began in June 2018. The successful public trial ran from August to November 2019. Using the *Ride Now Sentosa* mobile app or booking kiosks, visitors to Sentosa were able to book a ride on one of four autonomous vehicles to five selected destinations on the island.

Raising our AV capabilities another notch, we unveiled the STROBO portfolio brand of autonomous bus platforms at the ITS World Congress 2019 in Singapore. Designed to meet urban traffic requirements and weather conditions, the STROBO Bus will offer customers more choices based on their operational requirements.

The STROBO Series 12 bus, with a carrying capacity of 26 seated and 54 standing passengers, is currently undergoing trials on an extended route in Singapore between Sakra Region and Jurong Island Checkpoint until early 2020. Two of these buses will then undergo further operational trials to demonstrate their ability to provide selected feeder and trunk bus services in Singapore.

Separately, we are working to introduce a AV shuttle in Israel. The vehicle will undergo platform testing and certification in preparation for operational deployment. On the autonomous vehicles front, we are looking to bring our expertise and capabilities to other cities seeking sustainable and scalable mass transportation solutions.

Commercial Business and Specialty Vehicles

We continued to build on our strong track record in supporting the Land Transport Authority (LTA) of Singapore. We were awarded the tender by the LTA to deliver 50 three-door double-decker buses. This award followed positive feedback from commuters during trials held from March 2017 to January 2019. The 50 buses will be progressively delivered from 2020.

OPERATING REVIEW & OUTLOOK

We commenced delivery of 111 Euro 6 two-door double-decker buses in 2019. On schedule too is the production of 20 single-decker electric buses which will be delivered progressively from 2020. We also completed the first proof-of-concept diesel-to-electric conversion of a single-decker bus in November 2019.

We also continued to develop innovative features to support the needs of bus commuters. Following a one-year trial of our locally-developed stroller restraint system, Singapore's MOT announced that with the positive feedback received, all public buses will have the stroller restraint system installed by 2020. Other innovative initiatives include DriveSafe, an internal and external warning system to alert both vehicle drivers and road users that can enhance situational awareness and road safety.

For these and other efforts, we won the Best Collaboration Partner Award at the 2019 Land Transport Excellence Awards ceremony in April.

Our Specialty Vehicles companies in the U.S. continued to turn in positive performances in 2019, notwithstanding a challenging operating environment. As part of our ongoing review and portfolio rationalisation exercise, we divested our specialty vehicles business in India and wound down operations in Brazil.

INDUSTRY OUTLOOK

Harnessing Technology for Greater Growth

We are focused on delivering existing programmes including the Hunter AFV for the Singapore Army.

Amidst the competitive defence landscape, we continue to respond to users' needs and requirements, and develop innovative solutions to address emerging requirements from existing and new customers. We continue to invest in our 40mm munitions, soldier systems and autonomous robotics technologies for manned and unmanned operations, integrating technological advancements such as data analytics and cybersecurity into existing systems to improve both efficiency and effectiveness.

With the increasing pace of Industry 4.0 adoption, people and machines will become more interconnected. This is accentuated by an increasing need for automation in countries with ageing populations and rising labour costs.

Our Robotics business will continue to strengthen its presence in core industries like healthcare and logistics, while growing its footprint in retail and hospitality and other new market segments.

We continue to deliver the city buses orders secured in 2019, and see to the delivery of the first 20 electric buses in Singapore. In addition to trialling electric bus operations, we are also ready to support the LTA to test the conversion of mid-life diesel buses to all-electric systems.

In rail engineering, we expect to continue partnering OEMs to develop key local capabilities for rail systems and component maintenance to support rail transport operations.

Internationally, continuing trade tensions between the U.S. and China

About 1,000 TUGs deployed worldwide

TUGs are used to facilitate and support automation in intra-logistics in hospitality, healthcare, manufacturing and commercial segments.

Mr Khaw Boon Wan, Singapore's Coordinating Minister for Infrastructure and Minister for Transport, posing for a photo with our partners from LTA, SBS Transit, SMRT and engineers from our Electronic Card Repair Facility during a visit to understand the in-country capabilities to support rail transport operations.

have led to higher tariffs and more trade uncertainties. However, we foresee a stable demand due to necessary investments in a broad segment of U.S. infrastructure contributing to flat growth in the short term for our U.S. specialty vehicle companies. In the longer term, infrastructure demands of smart cities will add new opportunities for growth in the road construction segment.

FORGING PARTNERSHIPS FOR GREATER COMPETITIVENESS

We continue to cooperate with leading defence companies that possess complementary capabilities in design, development, production and marketing that will strengthen the defence industrial base in Singapore, as well as expand our presence in overseas markets. With Rheinmetall, we will explore opportunities to jointly develop and build protection systems and armoured tracked vehicles. We also signed an MOU with the Saudi Arabian Military Industries Company to identify areas of collaboration for the modernisation of Saudi Arabia's defence forces.

In Singapore, we work hand-in-hand with our SME partners to develop the breadth and depth of technology and engineering capabilities necessary for a robust defence eco-system.

We also formed a consortium of industry leaders to explore the commercialisation and export of our AV bus solutions for fleet deployment at city level. The partners include bus OEMs, operators and technology companies including BYD, Linkker, Siemens, SBS Transit (SBST), Willers, SafeRide and RideOS.

We are also exploring the sales of autonomous vehicles to Japan, in partnership with Japanese bus operator, Willers.

To foster greater knowledge sharing and strengthen local rail maintenance and engineering capabilities, we signed a MOU with public transport operators SBST and SMRT Trains to share engineering knowledge and capabilities in various areas to add depth and breadth to our collective maintenance and engineering expertise. One of the areas for collaboration is electronic cards which is a critical component of our MRT train systems.

Growing a Sustainable Future

In line with our growing emphasis on sustainability, we already offer low-carbon transport solutions, which include the Euro 6 two-door double-decker MAN bus and single-decker electric buses.

To better support customers who are moving towards the use of clean energy and sustainable green transportation, we expanded our Smart Mobility portfolio with an exclusive distributorship with BYD, a leading manufacturer of electric vehicles, for its T3 Electric Van and T9 Electric Truck.

The successful retrofitting of the diesel single-decker bus, that is at the middle of its life cycle, to an electric one could also offer an effective solution to quicken the pace of attaining a 100% cleaner energy public bus fleet by 2040, as outlined in the Land Transport Master Plan.

KEY FOCUS IN 2020

- Pursue local and international defence programmes, as well as develop new solutions to address emerging requirements with our combat vehicles, 40mm solutions, soldier systems and autonomous robotics technologies.
- Ramp up AV bus deployment in Singapore and explore opportunities to bring our expertise and capabilities to other cities seeking sustainable and scalable AV bus solutions.
- Expand Robotics business in core industries like healthcare and logistics, while growing our footprint in retail and hospitality and other new market segments.

OPERATING REVIEW & OUTLOOK

MARINE

WE FOCUSED ON STRENGTHENING OUR OPERATIONS AND PROFITABILITY IN 2019, AND BAGGED ONE OF OUR BIGGEST WINS WITH THE POLAR SECURITY CUTTER CONTRACT FOR THE U.S. NAVY.

The Super Swift series is able to reach speeds of up to 70 knots.

2019 REVIEW

Amidst rising global tensions, requirements for advanced naval assets to counter new threats continued to drive the growth of the global market for warships and naval vessels in 2019. Growth was catalysed by the rise in defence budgets in Asia Pacific and the Middle East. According to Technavio, the market is expected to grow by US$14.4b from 2020 to 2024, at 9% CAGR. Demand was also driven by a rise in maritime crimes which has compelled naval forces to upgrade their fleet.

There was an increase in demand for multi-purpose Offshore Patrol Vessels, that could patrol, police, perform search and rescue, and monitor pollution control. There was also a growing interest in the area of unmanned systems with larger platforms equipped with higher payloads and greater autonomy.

In the offshore sector, 2019 saw an improvement in the utilisation rates of Offshore Support Vessels (OSV), especially Platform Supply Vessels. Newbuild demand in this sector continued to be slow with global excess capacity. This was potentially driving capacity reduction in higher build cost locations, and increased acceptance of utilisation of lower cost build locations. We saw continued restructuring efforts in this segment with the end nowhere in sight.

The increased awareness in climate change drove the way governments and shipping companies looked at their business models. Demand for vessels supporting the renewables segment increased steadily and drove significant newbuild opportunities. With numerous crew transfer, service operations and windfarm installation vessels under construction or in early stage concept development, the interest in these types of vessels grew across shipyards.

The high speed aluminium vessel market continued to show segments of activity in 2019. Fleet replacement and expansion activities in the Fast Crew Boat (FCB) market in the Middle East and West Africa drove demand, coupled with increased interest in adding walk-to-work function to smaller (less than 40m) FCBs. These markets historically took extended periods of time to convert oil major tenders to newbuild contracts, but increased tender activity was observed from the main operators in these markets.

The Crew Transfer Vessel (CTV) segment, as part of the renewables market, continued to have a high degree of tender-driven activity and interest, but was slow in translating into newbuild contracts. However, with some of the crewing contracts awarded in both Europe and Taiwan, newbuild contract awards are expected in the new year. Competition for these contracts continued to be Indonesia, Singapore, Vietnam and the UK. The large ferry market continued to have high profile activities with major players signing new contracts. The high-speed craft ferry (less than 40m) market was buoyant, but typically it focused on cost, individual builds and were built on stock.

FOCUSED ON GROWTH & TECHNOLOGY

Putting the spotlight back on the Singapore operations, news on the sale of the Roll-on/ Roll-off Passenger Vessel (ROPAX), *MV Nova Star* to Polish ferry operator, Polferries, broke in the last quarter of the year. Having had the vessel on bareboat charter for deployment of service on the Gdańsk-Nynäshamn line since September 2018, Polferries sealed the purchase of the vessel as part of a broader agreement.

We spent the year executing our strategy formulated in 2018. Briefly, the strategy touched on the following key areas:

- Strengthen our core and enhance product offerings for the future
- Grow the environmental engineering business
- Adopt smart technologies to improve operational efficiencies
- Grow recurring income streams in segments like ship and rig repair, environmental engineering

As part of the continuous efforts to enhance our offerings in new designs and products, we launched during the biennial International Maritime Defence Exhibition and Conference (IMDEX) Asia 2019, our Vanguard Series, a one-design multiple-class combatant to support international maritime security. Because of its highly scalable and modular design, the Vanguard allows operators to exercise more flexibility in the ship's deployment, including space for carrying unmanned vehicles for warfare or other peace time operations.

We also unveiled the Super Swift series for homeland security. The Super Swift series is a range of ultra-high speed aluminum vessels designed for interdiction, interception and patrolling.

OPERATING REVIEW & OUTLOOK

Singapore's Minister for Defence, Dr Ng Eng Hen, touring our booth at IMDEX Asia 2019.

Customised for military and law enforcement applications, each vessel design features an Air Cavity Hull that enables the craft to reach high speeds of up to 70 knots.

In yet another outreach activity, we participated in the biennial maritime exhibition, Norshipping 2019, held in Norway in June. Norshipping was an effective platform for us to meet potential clients especially from the oil and gas, fishery and cruise expedition industries, and reconnect with old ones whom we have had the pleasure to serve. At the show, we exhibited the world's first Combination Container Roll-on/Roll-off (ConRo) vessel powered by LNG which we built in our U.S. yard and launched in late 2018.

NEXT-LEVEL INNOVATION & SMARTNESS

Our in-house innovation, AquaNERVA, also debuted in the year when we joined forces with a partner to prepare for the digitalisation of operations and management of the Ulu Pandan Water Reclamation Plant (WRP) in Singapore. In this project, AquaNERVA was one of two digital solutions deployed to boost water security and quality at the Ulu Pandan WRP, which was the first such facility in Singapore to benefit from these advanced technology solutions.

In the product portfolio of Unmanned or Autonomous Systems, we pushed our innovation frontiers when we embarked on an initiative in conjunction with the Maritime and Port Authority of Singapore on the conversion of a manned tug boat to one with autonomous capabilities. The tug was retrofitted with our autonomous kit and our smart ship management system, NERVA SMS[2]. The new retrofit would result in enhanced operational, productivity and cost efficiency for ship owners and operators.

We are investing heavily in the use of smart technologies to drive operational efficiencies. In smart engineering, we now possess a full suite of design software and capabilities to ensure a seamless connection between each discipline of engineering in a 3D and virtual world. Simulations can be carried out using digital twin technology, and walk-through of complex machinery spaces can be done without physical mock-ups. Collaborative platforms are also used to ensure smooth interactions with customers in the review of designs and engineering calculations.

Construction of a new smart yard in Tuas, Singapore has begun, and when completed in 4Q2021, will replace the existing Tuas yard whose lease expires in the same year. The new Tuas yard's digital thread encompasses Smart Engineering, Smart Work Place, Smart Manufacturing, Smart Asset Management and Smart Warehouse. This framework will help us balance newly acquired capabilities on a firmly digitalised foundation to benefit our customers. For instance, the new Tuas yard will boast technological advances such as stable and reliable pervasive connectivity that creates seamless digital connectivity for data exchange, data analytics and situational awareness to improve yard safety and work efficiency. Wearable technology will be deployed to enhance the tracking of people, machines and materials, such as round-the-clock monitoring of workers who are working in confined spaces to ensure their safety. Smart Asset Management will leverage artificial intelligence and machine learning through the use of Internet of Things to ensure our assets are managed and maintained for optimal performance.

SHIPBUILDING WINS

We made global headlines when we bagged one of the Group's biggest defence contracts in history from the U.S. Department of the Navy (USN) for the design and construction of one unit of Polar Security Cutter (PSC) or Cutter 1. When completed, Cutter 1 will be the first U.S. Coast Guard's heavy icebreaker to be constructed in the last four decades. The contract came with an option for two more units.

In just a little over a month following the award of Cutter 1, our U.S. yard became one of four U.S.-based companies to be awarded a contract under the Common Hull Auxiliary Mission Platform (CHAMP) programme worth over US$2.8m. The Navy implemented the CHAMP study to find a replacement for several types of auxiliary ships that were rapidly approaching the ends of their service lives.

Before that in February, we were awarded the first of four options for the construction of the Auxiliary Personnel Lighter Small (APL(S)) Class berthing barges by the USN. The original contract awarded in 2018 was for the design and construction of two firm units, with an option for another four. This brought the total value of this contract awarded to our U.S. yard to US$118m. Keel laying for the three vessels started in June, and completion is expected over the second half of 2020 and in early 2021.

Won one of our biggest defence contracts

for the design and construction of a Polar Security Cutter from the U.S. Navy

We also bagged the contract for a preliminary/contract design for the National Oceanic and Atmospheric Administration Auxiliary General Oceanographic Research Variant awarded by Naval Sea Systems Command. This was for the firm-fixed-price groups for the shallow coastal, continental shelf, and worldwide ocean survey and data collection requirement ships Phase One.

Amidst much fanfare, we celebrated the naming and launch of the Q-LNG tug and barge in our U.S. yard, graced by two U.S. Senators and a Congressman, a rare occurrence. The vessel was celebrated as America's first offshore LNG Articulated Tug and Barge (ATB) unit, which had been designed to meet the requirements of American Bureau of Shipbuilding (ABS) and the International Gas Carrier code as a LNG bunkering barge. The anticipated delivery of the ATB unit is in the first half of 2020.

SUCCESSFUL GLOBAL DELIVERIES

In the year, successful deliveries by our U.S. yard included the 499-passenger/70-vehicle ferry, *Powhatan*, to the Virginia Department of Transportation, and the ABS-class tug for Bouchard, *Evening Breeze*.

Back to our yards in Singapore, the Floating Power Plant (FPP) awarded jointly with Siemens commenced construction in the first quarter of this year, and was launched successfully in the last quarter. Named *Estrella del Mar III*, the FPP was ordered by Seaboard Corporation subsidiary Transcontinental Capital Corporation (Bermuda), and will be deployed in the Dominican Republic in 2021 as a highly efficient power generation facility that brings clean and green energy to the Republic's people.

At around the same time, a key milestone to mark the long-standing collaboration with the Singapore Civil Defence Force was the commissioning of the Heavy Fire Vessel (HFV) at a ceremony presided by Home Affairs and Law Minister, K. Shanmugam. Designed and built jointly with consortium partner, Penguin International, the HFV or 'Red Sailfish' is touted as the world's most powerful firefighting vessel.

We commenced plate-cutting on the first few vessels for Police Coast Guard Patrol Boat programme from mid-2019. Final delivery of the vessels is expected throughout the months between May and December 2020.

Shown here at launch from the dock of our U.S. shipyard, the Q-LNG 4,000 is America's first LNG ATB.

Fortitude and *Dauntless*, the 6th and 7th Littoral Mission Vessels (LMV) for the Republic of Singapore Navy (RSN), were both delivered in the second half of 2019. The 8th LMV, *Fearless*, which was launched in early 2019, sailed towards the homeport of the RSN in November after a successful sea trial, marking the completion of all eight LMVs.

On the international defence front, we continued to pursue naval shipbuilding opportunities from customers in Latin America, the Middle East and North Africa. We have gained a strong foothold in these markets and anticipate new opportunities to open up in 2020, although competition remains stiff as we are pitted against well-established European shipyards with wide-ranging designs, as well as shipyards in China and South Korea who are able to offer credit export facilities.

SHIP AND RIG REPAIR HIGHLIGHTS

The commercial shiprepair market remained highly competitive with pricing and scheduling as top-of-mind considerations for ship owners and operators. With the effects of low oil prices looming in the market, offshore segment customers remain vigilant in their spending for vessel maintenance in view of abundant capacity. Overall, 2019 saw opportunities for fleet expansion as owners explored possibilities to refresh ageing fleet and overcome new International Maritime Organisation regulations.

Superyachts and seismic survey vessels were amongst the more buoyant sectors of the repair and refit market in Singapore in 2019. Driven by positive demand, we completed a number of superyacht projects as well as general drydocking work. A key highlight was the arrival of *Motor Yacht A* in June 2019, a superyacht designed by Phillip Starck and reputed as the world's most talked-about vessel. Intricate repair and maintenance work was required at various parts

OPERATING REVIEW & OUTLOOK

The Heavy Fire Vessel undergoing a sea trial. It is touted as the 'world's most powerful firefighting vessel'.

of the vessel, including the engine room, tanks, hull, crew cabins and superstructure windows, all completed on schedule to meet exceptionally high international standards.

In the conversion segment, we embarked on the transformation of *REM Aquarius*, where a 600-metric ton Platform Supply Vessel (PSV) was converted to a Seismic Survey Vessel. The tug, *REM Andes*, which worked in tandem with the PSV, was also retrofitted to a seismic gun boat. Environmental retrofits was another area with positive opportunities.

In our U.S. rig repair business, we have renamed our subsidiary as ST Engineering Halter Marine and Offshore, which has over 100 employees and serves more than 20 customers globally. We tapped our strong relationships with various drillers and operators such as Rowan, Helix, Enterprise and Diamond to maintain the momentum in the face of a slowly recovering oil and gas sector. A noteworthy accomplishment was the completion of a major upgrade on *Ocean Blackhawk*, an ultra-deepwater drillship.

ENVIRONMENTAL ENGINEERING PURSUITS

Our environmental engineering capabilities underpin the Group's Smart City solutions and growth strategy specifically for the pillar of Smart Environment with solutions for water and wastewater management, as well as solid waste management.

Construction of the Jurong Island Desalination Plant (JIDP) continued to be the focus in this segment, since the project broke ground in 2018. When fully operational in 2H2020, JIDP is expected to produce an additional 30 million imperial gallons of desalinated water for Singapore daily.

During the year, we continued to capitalise on our Engineering, Procurement & Construction and Operations & Maintenace engineering expertise and experience from JIDP to pursue water, wastewater and solid waste management opportunities in China and Vietnam.

INDUSTRY OUTLOOK 2020

In 2019, the industry downturn had driven the merger of a few key Chinese and South Korean shipyards, which was expected to constitute nearly half of the global shipbuilding market to forge a new reality for the industry, increasing competition further in a lackluster market. Outlook for the marine industry in 2020 is expected to remain soft, but underlined with positive opportunities in niche segments.

Shipbuilding

For the commercial shipbuilding segment, we will continue to focus on highly specialised vessels such as fishing vessels and floating power plants. We will also pursue opportunities in high speed ferries and crew boats, given that these segments are teeming with opportunities. The European yards are also seeing an increase in the construction of specialised vessels such as expedition vessels, cruise ships and Service Operations Vessels (SOV). The recovering oil and gas industry is fuelling demand for FCBs, and demand is expected to return to Malaysia, the Middle East and West Africa, albeit slowly. CTV demand will also see an uptick in Europe, with continued offshore wind farm installations and projection.

In the U.S., the renewables segment will continue to show signs of growth in demand for CTVs and SOVs. LNG-powered vessels, bunkers and ATBs will soar in demand as LNG leads the way towards a low-carbon future.

In global defence, we see a trend shifting towards multi-role naval vessels for maritime security, as well as an increase in demand for higher speed and smaller crafts for maritime and homeland security. We endeavour to step up efforts in these areas in pursuit of suitable opportunities.

Completed the LMV programme

of eight warships designed and constructed for the RSN

Ship and Rig Repair
Positive signs in certain niche segments for shiprepair will continue to benefit specialised yards in Singapore.

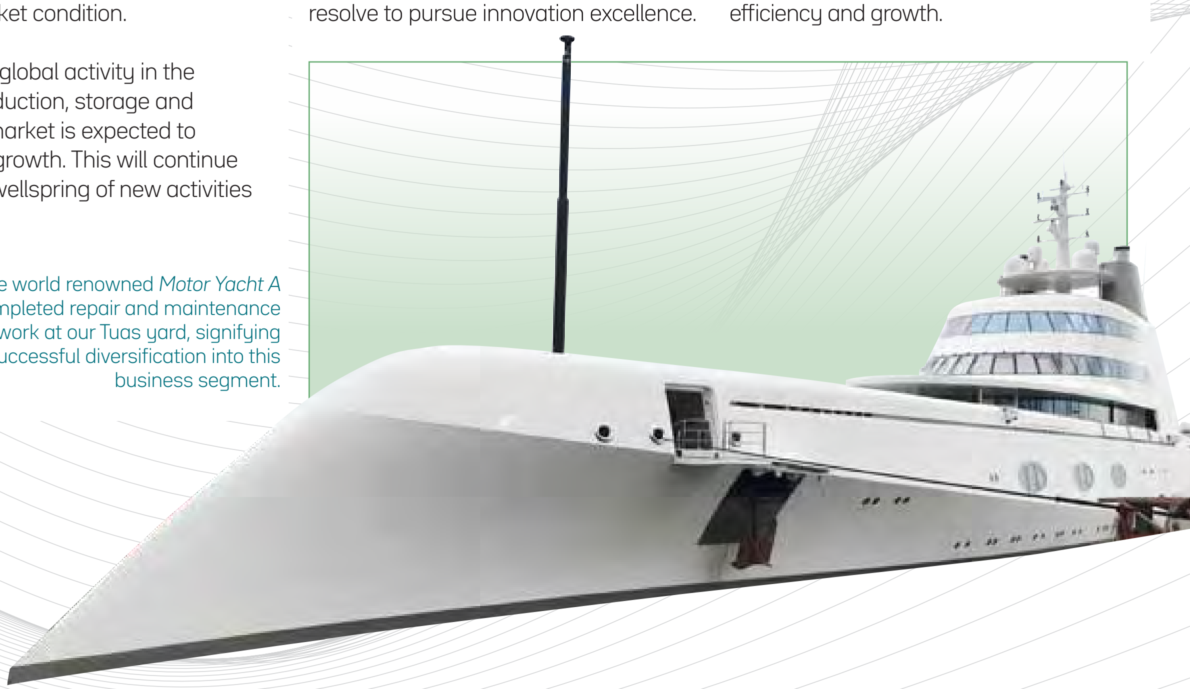
An increase in demand for dredgers is anticipated, fuelled by major dredging projects in Singapore, the Middle East and along the Gulf Coast. We expect the improved OSV charter scene, coupled with higher utilisation rates, to result in higher maintenance budgets and ramped-up demand for repair and maintenance services. Ship conversions, known to be more time and cost effective, are also gaining popularity with ship owners in the current market condition.

In rig repair, global activity in the floating production, storage and offloading market is expected to experience growth. This will continue to create a wellspring of new activities for ocean towage companies and anchor-handling supply vessels, driving demand for services in this area.

Environmental Engineering
Overall, there is an increase in demand for integrated waste management facilities in Asia, especially China, Thailand and Vietnam. This is driven by a rising need for potable water as cities in these countries are increasingly being developed for industrialisation use.

Sailing into 2020
The key focus in 2020 continues to revolve around leveraging our firm experience, good track record and our resolve to pursue innovation excellence. We will seek to optimise our unique position and key competitive advantage as one of the few shipyards in the world with a complete through-life cycle support programme, from ship design and building, to ship and rig repair, upgrade, maintenance and integration.

Whether overseas or locally, we will strive to innovate through digital reinvention to become ever more successful, and ensure we innovate with our customers in mind and bring them real solutions that solve their problems. From autonomous tugs to smarter yards, we seek to optimise an interconnected ecosystem that drives higher operational efficiency and growth.



The world renowned *Motor Yacht A* completed repair and maintenance work at our Tuas yard, signifying successful diversification into this business segment.

KEY FOCUS IN 2020

- Strengthen core business and enhance product offerings for the future.
- Grow environmental engineering business.
- Adopt smart technologies to improve operational efficiencies.
- Grow recurring income streams in segments like ship and rig repair, environmental engineering.

FINANCIAL REVIEW

GOOD FINANCIAL RESULTS

The Group's focus in executing its strategy in 2019 produced a good set of financial results. The Group posted a revenue of $7.9b, a 17% increase from $6.7b a year ago. Profit before tax grew 12% y-o-y to $695.2m from $620.7m, and Profit attributable to shareholders (Net Profit) was up 17% y-o-y to $577.9m from $494.2m.

In addition to achieving double-digit growth in revenue and profits, the Group made three strategic acquisitions, namely, MRAS, Newtec and Glowlink, to strengthen the Group's position for the future. The acquisition of MRAS enables us to move into the high-value original equipment manufacturing of engine nacelle systems. The acquisitions of Newtec and Glowlink, on the other hand, enable us to expand into new segments and geographies to build a global differentiated satellite communications business group.

Economic Value Added (EVA) grew by 4% to $317.0m for FY2019.

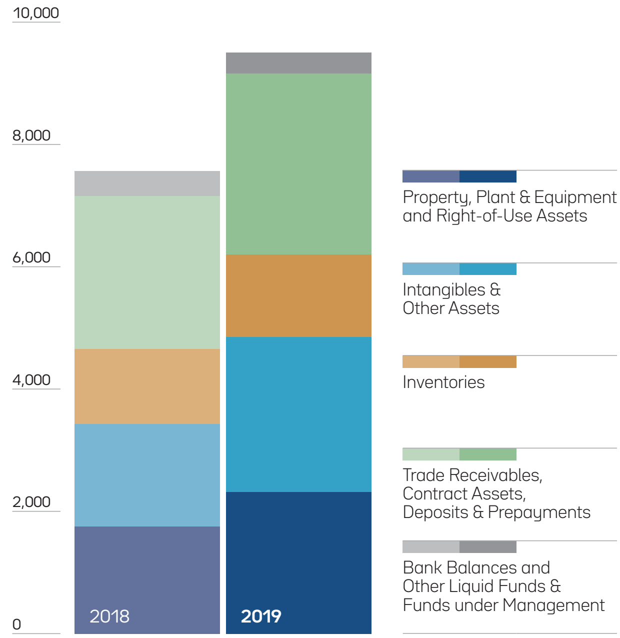
The Group ended the year with a strong order book of $15.3b.

The Board has recommended to pay shareholders a final dividend of 10.0 cents per share. Together with the interim dividend of 5.0 cents per share paid in September 2019, total dividend for FY2019 is 15.0 cents per share.

FINANCIAL POSITION

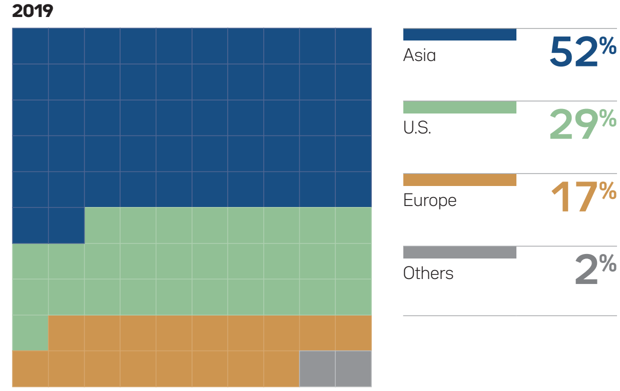
As at 31 December 2019, the Group's total assets increased by $1,948m or 26% to $9,521m as compared to the prior year, due mainly to the Group's acquisitions and the recognition of right-of-use assets with effect from 1 January 2019 in accordance with SFRS(I) 16.

TOTAL ASSETS DEPLOYMENT ($m)

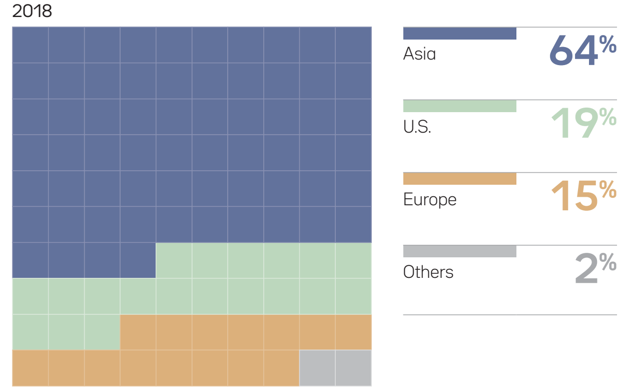


TOTAL ASSETS BY GEOGRAPHY

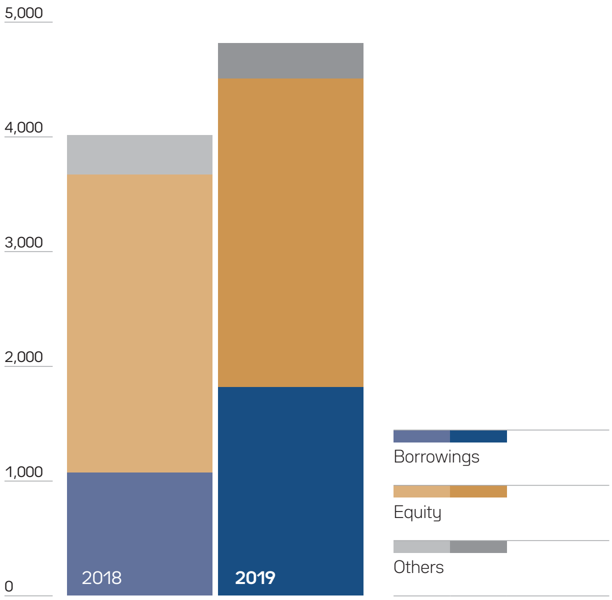
2019



2018



CAPITAL EMPLOYED ($m)



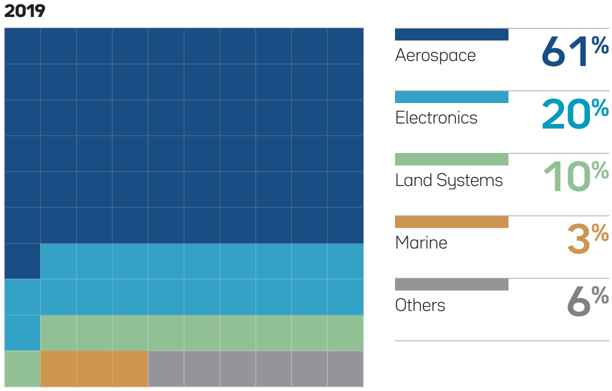
The average capital employed in FY2019 was $4,817m, an increase of $766m from $4,051m in FY2018. The higher average capital employed was attributable to increased borrowings to fund acquisitions and working capital for projects.

CAPITAL EXPENDITURE

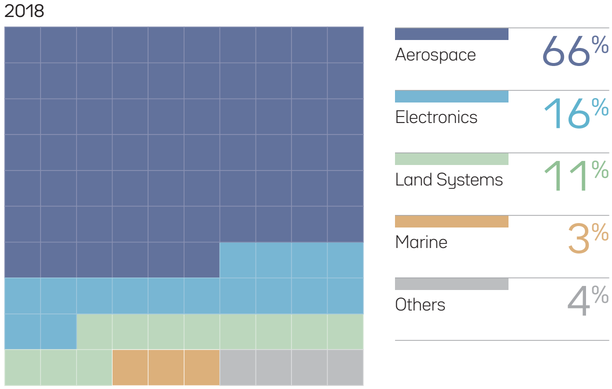
In FY2019, the Group invested $295m (2018: $335m) in capital expenditure. Major capital expenditure during the year was incurred by Aerospace sector to acquire aircrafts for its aircraft leasing business and for the construction of new hangars to support its passenger-to-freighter conversion business. In the Electronics sector, the major capital expenditure was for the expansion of its Jurong East building to cater for business growth.

CAPITAL EXPENDITURE BY SECTOR

2019

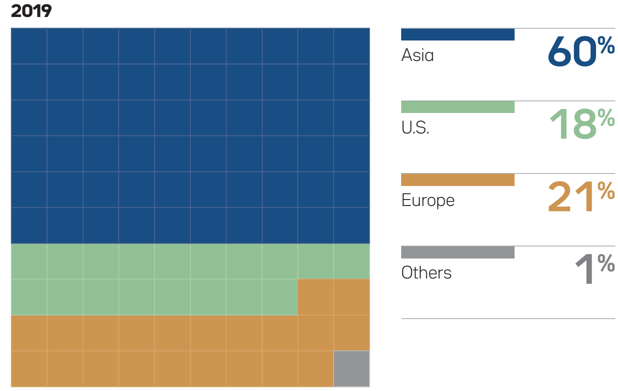


2018

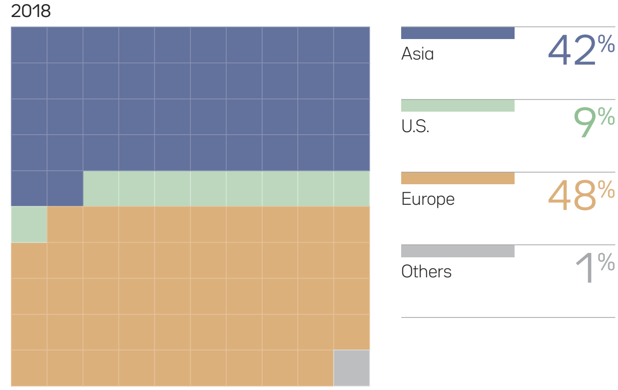


CAPITAL EXPENDITURE BY GEOGRAPHY

2019



2018



FINANCIAL REVIEW

TREASURY MANAGEMENT

Given its international operations, the Group is exposed to various financial risks, including foreign exchange, liquidity, interest rate and credit risks. The Group has established treasury policies and guidelines to mitigate these risks.

Treasury activities are handled by the Group's treasury entity, ST Engineering Treasury Pte. Ltd. to ensure effective management of the Group's liquidity and financial risk exposures.

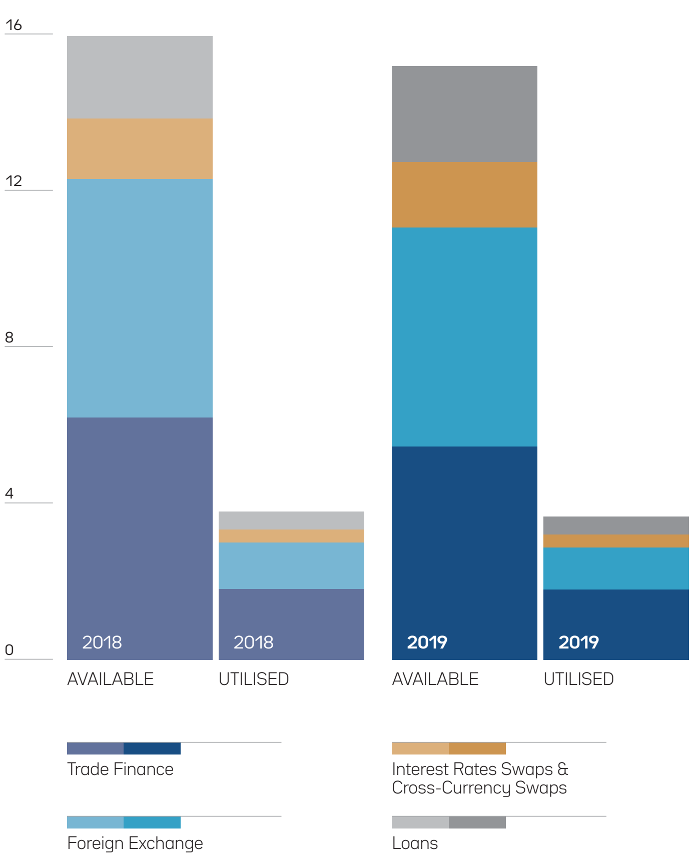
To optimise interest expense, the Group, through its subsidiary, ST Engineering North America, Inc., established a US$1.5b U.S. Commercial Paper (USCP) Programme, guaranteed by ST Engineering in August 2019. Under this Programme, ST Engineering may from time to time issue short-term unsecured promissory notes for a range of tenors up to 397 days at competitive financing costs versus bank loans. The proceeds from the USCP are used for general corporate purposes. ST Engineering North America has concurrently entered into a committed revolving credit facility of US$1.1b to backstop the USCP.

Banking Facilities

The Group has banking facilities of approximately $15.2b (2018: $16.0b) as at 31 December 2019 to support business operations in the areas of trade finance, hedging and credit.

As at 31 December 2019, the Group has utilised $3.7b or 24% of its total available facilities (2018: $3.8b or 24%) with $11.5b or 76% (2018: $12.2b or 76%) remaining available.

BANKING FACILITIES* ($b)



* Excludes US$1.1b committed revolving credit facility to backstop USCP

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FINANCIAL REPORT

Foreign Exchange

The Group has receivables and payables denominated in foreign currencies. Where possible, the Group offsets currency exposures across its business units before hedging remaining currency exposures in the market via foreign exchange forward contracts. The main currencies transacted in 2019 for the Group were USD and EUR.

During the year, the Group engaged in approximately $2.6b (2018: $2.5b) equivalent of foreign exchange transactions. As at 31 December 2019, $1.1b (2018: $1.1b) remained as outstanding foreign exchange transactions.

Liquidity

The Group's cash and cash equivalents, stood at $0.5b as at 31 December 2019 (2018: $0.4b).

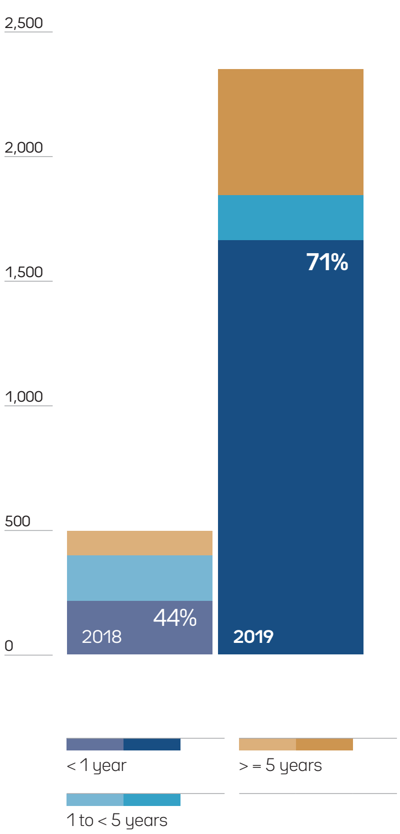
Borrowings

With the issuance of the USCP and the inclusion of lease liabilities arising from SFRS(I) 16 adoption as part of borrowings, the Group's borrowings were increased to $2.3b as at 31 December 2019 (2018: $0.5b).

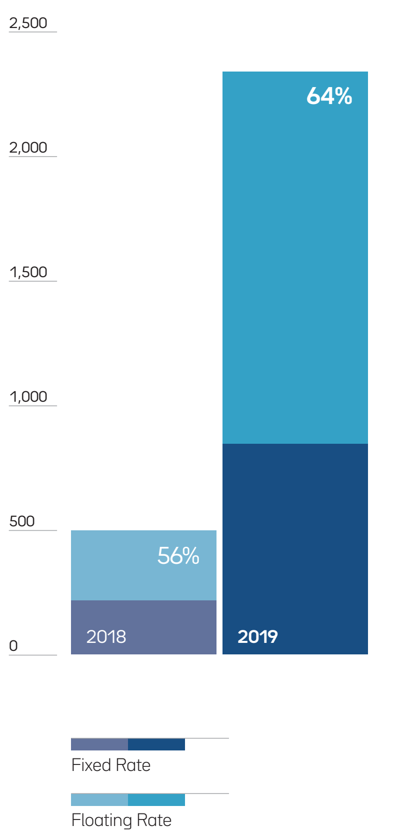
As at 31 December 2019, US$1.1b (S$1.4b equivalent) of USCP were issued and outstanding mainly to finance the Group's acquisitions and for general working capital requirements in the U.S. To manage refinancing risk, the Group plans to term out some of the USCP into longer term financing in 2020.

Apart from USCP and lease obligations, the Group's borrowings also comprised short-term and long-term loans from banks.

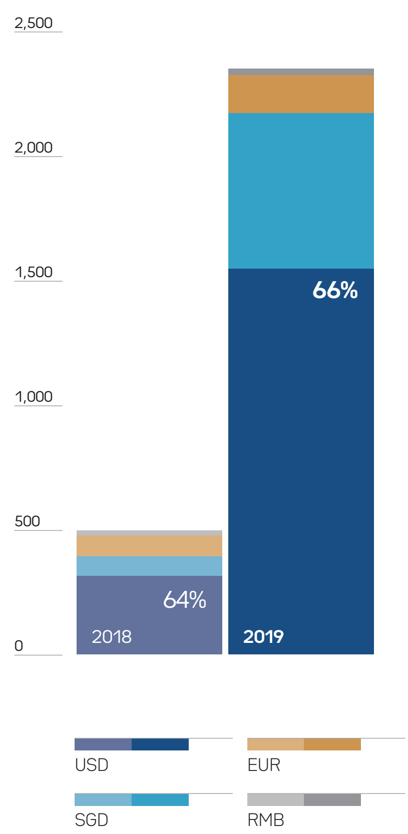
BORROWING PROFILE BY MATURITY ($m)



BORROWING PROFILE BY FIXED AND FLOATING RATES ($m)



BORROWING PROFILE BY CURRENCY ($m)

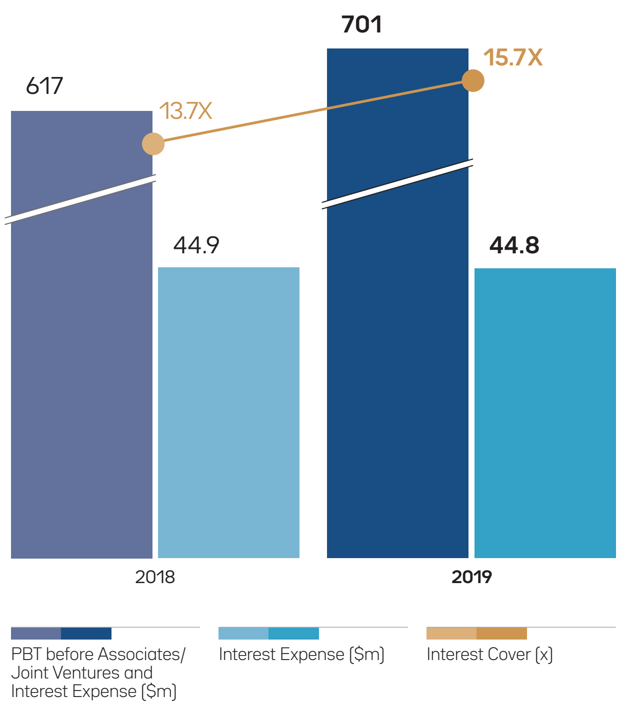


FINANCIAL REVIEW

INTEREST COVER RATIO

The Group's interest cover ratio increased to 15.7 times in FY2019 (2018: 13.7 times). The higher interest cover was due mainly to higher profit before tax while interest expense stayed relatively flat.

INTEREST COVER RATIO

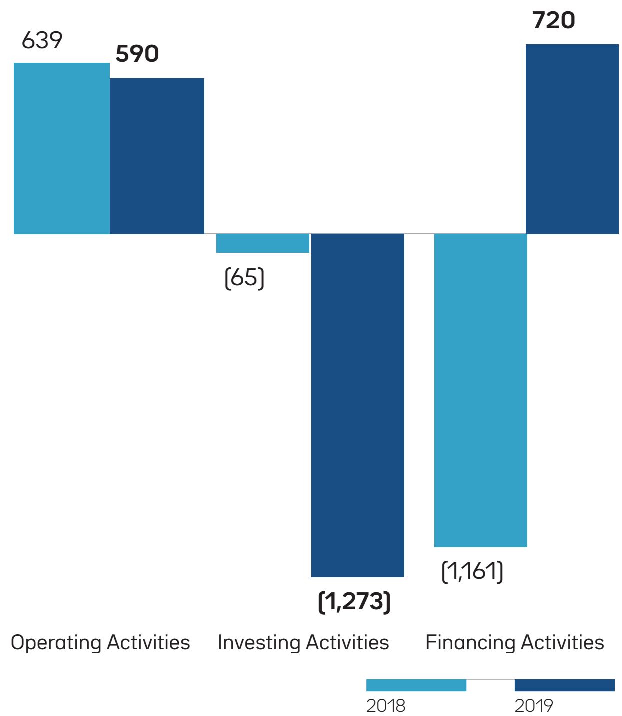


CASH FLOWS

The Group continued to generate positive operating cash flow of $590m in FY2019. Gross debt/equity ratio increased from 0.3 times in FY2018 to 1.0 times in FY2019 as the Group increased debt to fund acquisitions and working capital for projects.

	2017	2018	2019
Gross Debt/Equity Ratio	0.6	0.3	**1.0**
Net Debt ($m)	146	413	**1,992**
Net Debt/Equity Ratio	0.1	0.2	**0.8**

CASH FLOWS ($m)



The Group ended the year with cash and cash equivalents (CCE) of $452m, an increase of $38m from FY2018.

Operating Activities
The Group generated net cash of $590m from its operating activities as compared to $639m in FY2018. The decrease in net cash from operating activities was due to higher working capital requirements for projects, partially offset by higher earnings before interest, tax, depreciation and amortisation (EBITDA).

Investing Activities
Net cash used in investing activities of $1,273m in FY2019 was mainly attributable the Group's acquisitions ($1,050m), investment in property, plant and equipment by Aerospace ($175m), Electronics ($60m), Land Systems ($29m), Marine ($8m) sectors and Others ($18m), and additions to intangible assets ($104m), partially offset by proceeds from the sale of property, plant and equipment ($118m), mainly from the sale of ROPAX.

Financing Activities
Net cash used in financing activities of $720m in FY2019 was mainly attributable the issuance of short-term unsecured promissory notes under the US$1.5b USCP Programme ($1,440m), partially offset by payment of FY2018 final dividend and FY2019 interim dividend ($468m), repayment of lease liabilities ($93m) and purchase of treasury shares ($44m).

TAX

During the year, the Electronics sector achieved the Premium Status awarded by Inland Revenue Authority of Singapore (IRAS) following the completion of the Assisted Compliance Assurance Programme (ACAP) under the Singapore Goods and Services Tax (GST) regime. All sectors had attained the Premium Status as at FY2019. The GST compliance review is a voluntary risk management initiative and receiving the Premium Status is recognition of the strong compliance infrastructure put in place by the Group.

The Group's effective tax rate for 2019 was 15% (2018: 17%). The lower effective tax rate was due mainly to tax adjustments in respect of prior years.

SIGNIFICANT ACCOUNTING POLICIES

The Group's financial statements are prepared in accordance with Singapore Financial Reporting Standards (International) (SFRS (I)). The significant accounting policies are presented at the end of each Notes to the Financial Statements (pages 136 to 240).

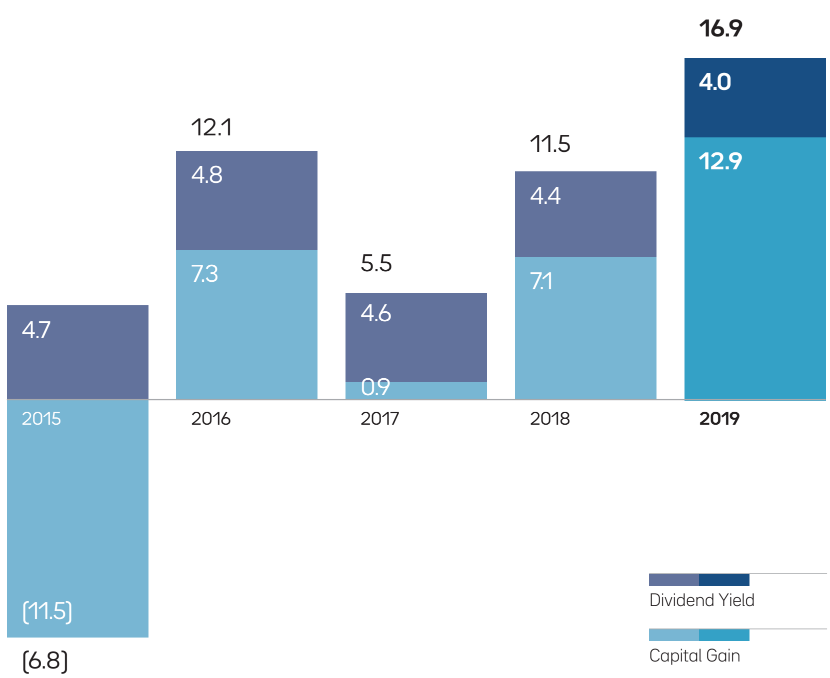
The Group has applied the same accounting policies and methods of computation in the preparation of the financial statements for the current reporting period compared with the audited financial statements as at 31 December 2018 except for the adoption of SFRS(I)s, amendments to and interpretations of SFRS(I) that are mandatory for financial year beginning on or after 1 January 2019. The adoption of these SFRS(I)s, amendments to and interpretations of SFRS(I) did not have a material impact on the financial statements of the Group.

TOTAL SHAREHOLDER RETURN

The Group ended the year with $0.5b of cash and cash equivalents from positive cash flow generated from operating activities. ST Engineering paid an interim ordinary dividend of 5.0 cents per share to shareholders in September 2019 and will recommend a final dividend of 10.0 cents per share to shareholders at the forthcoming Annual General Meeting. The total dividend per share (DPS) for FY2019 would be 15.0 cents per share. Based on the average share price of $3.72, the DPS of 15.0 cents translates to a dividend yield of 4%.

ST Engineering's share price ended the year at $3.94, a 12.9% increase as compared to the prior year and outperform the corresponding benchmark Straits Times Index's (STI) increase of 5.0%. With a dividend yield of 4%, shares of ST Engineering outperformed the market by generating a total positive shareholder return of 16.9%.

TOTAL SHAREHOLDER RETURN (%)



FINANCIAL REVIEW

ECONOMIC VALUE ADDED (EVA)

The Group's FY2019 EVA attributable to shareholders of the Company of $317.0m was 4% or $11.0m higher than that achieved in FY2018. The increase in EVA was mainly attributable to higher NOPAT, share of EVA losses vis-à-vis share of EVA by non-controlling interests and reduction in WACC, partially offset by higher capital charge from higher average capital employed.

EVA STATEMENT	2019 $m	2018 $m
Profit before tax	**695.2**	620.7
Adjust for:		
Interest expense	**50.5**	54.5
Others	**40.0**	2.7
Adjusted profit before interest and tax	**785.7**	677.9
Cash operating taxes (Note 1)	**(191.0)**	(127.0)
Net operating profit after taxation - (a)	**594.7**	550.9
Average capital employed (Note 2)	**4,816.9**	4,051.0
WACC (Note 3) (%)	**5.6**	5.7
Capital charge	**(269.7)**	(230.9)
Adjustment to capital charge (Note 4)	**(13.5)**	(11.6)
Adjusted capital charge - (b)	**(283.2)**	(242.5)
EVA - [(a) - (b)]	**311.5**	308.4
Non-controlling interests' share of EVA	**5.5**	(2.4)
EVA attributable to shareholders of the Company	**317.0**	306.0

Note 1: The reported current tax is adjusted for the statutory tax impact of interest expense.

Note 2: Monthly average equity plus interest bearing liabilities and general provisions.

Major Capital Components:

	$m
Borrowings	**1,832.7**
Equity	**2,680.0**
Others	**304.2**
	4,816.9

Note 3: The Weighted Average Cost of Capital is calculated in accordance with ST Engineering Group EVA Policy as follows:
i) Cost of Equity using Capital Asset Pricing Model with market risk premium at 5.0%;
ii) Risk-free rate of 2.16% (2018 @ 2.02%) based on yield-to-maturity of Singapore Government 10 years Bonds;
iii) Ungeared beta at 0.72 (2018 @ 0.71) based on ST Engineering risk categorisation; and
iv) Cost of debt at 3.17% (2018 @ 3.66%) using actual cost of debt of the borrowings in US, Europe, China and Singapore.

Note 4: Adjustment on deferred capital charge on some acquisitions.

VALUE ADDED

The Group's total value added for FY2019 of $3,494m was 19% higher as compared to that of FY2018.

VALUE ADDED STATEMENT	2019 $m	%	2018 $m	%	2017 $m	%	2016 $m	%	2015 $m	%
Value added from:										
Revenue earned	**7,868.3**		6,697.9		6,521.1		6,683.7		6,335.0	
Bought in materials and services	**(4,460.1)**		(3,857.1)		(3,778.4)		(3,942.3)		(3,792.5)	
	3,408.2		2,840.8		2,742.7		2,741.4		2,542.5	
Other income	**38.9**		35.0		38.7		67.8		55.4	
Finance income	**14.3**		22.3		38.7		33.7		56.2	
Finance costs (exclude interest expense)	**(6.2)**		(11.0)		(15.0)		(3.3)		(10.1)	
Share of results of associates and joint ventures, net of tax	**39.0**		49.1		49.3		63.8		58.3	
Total value added	**3,494.2**		2,936.2		2,854.4		2,903.4		2,702.3	
Distribution of total value added										
To employees in wages, salaries and benefits	**2,290.9**	*66*	2,001.2	*68*	1,945.1	*68*	1,941.0	*67*	1,807.7	*67*
To government in taxes and levies	**124.3**	*4*	126.7	*4*	107.1	*4*	119.2	*4*	118.4	*4*
To providers of capital on:										
• Interest paid on borrowings	**44.8**	*1*	44.9	*2*	42.6	*1*	42.4	*1*	39.7	*2*
• Dividends to shareholders	**468.2**	*13*	468.0	*16*	467.6	*16*	465.9	*16*	497.6	*18*
	2,928.2		2,640.8		2,562.4		2,568.5		2,463.4	
Balance retained in business										
Depreciation and amortisation	**368.3**		244.0		217.0		247.3		187.3	
Retained profits	**135.8**		28.2		35.1		58.9		36.3	
Non-controlling interests	**14.7**		22.2		23.5		8.3		2.6	
	518.8	*15*	294.4	*10*	275.6	*10*	314.5	*11*	226.2	*8*
Non-production costs	**47.2**	*1*	1.0		16.4	*1*	20.4	*1*	12.7	*1*
Total distribution	**3,494.2**	*100*	2,936.2	*100*	2,854.4	*100*	2,903.4	*100*	2,702.3	*100*
Value added per employee ($)	**155,338**		137,092		132,512		132,131		120,704	
Value added per $ of employment costs	**1.52**		1.46		1.46		1.49		1.49	
Value added per $ of gross property, plant and equipment	**0.87**		0.76		0.76		0.81		0.78	
Value added per $ of revenue	**0.44**		0.44		0.44		0.43		0.43	

FINANCIAL REVIEW

5-YEAR KEY FINANCIAL DATA	2019	2018	2017	2016	2015
Income Statement ($m)					
Revenue	**7,868**	6,698	6,521	6,684	6,335
Profit					
EBITDA	**1,022.2**	814.3	759.8	718.4	697.6
EBIT	**654.0**	570.3	542.8	471.1	510.3
PBT	**695.2**	620.7	611.8	590.6	630.3
Net Profit	**577.9**	494.2	502.6	484.5	529.0
Balance Sheet ($m)					
Property, plant and equipment, and right-of-use assets	**2,289**	1,743	1,719	1,670	1,709
Intangible and other assets	**2,586**	1,716	1,675	1,570	1,370
Inventories and work-in-progress	**1,312**	1,184	1,082	1,898	1,943
Trade receivables, contract assets, deposits and prepayment	**2,882**	2,516	2,199	1,824	1,694
Bank balances and other liquid funds and funds under management	**452**	414	1,349	1,403	1,453
Current liabilities	**5,446**	3,851	3,587	3,801	3,720
Non-current liabilities	**1,584**	1,187	1,941	2,120	2,188
Share capital	**896**	896	896	896	896
Treasury shares	**(27)**	(9)	(23)	(44)	(67)
Capital and other reserves	**(37)**	46	52	57	48
Retained earnings	**1,390**	1,313	1,290	1,274	1,255
Non-controlling interests	**269**	288	281	262	129
Financial Indicators					
Earnings per share (cents)	**18.53**	15.85	16.13	15.60	17.05
Net assets value per share (cents)	**71.32**	72.00	71.09	70.20	68.74
Return on sales (%)	**7.5**	7.7	8.1	7.4	8.4
Return on equity (%)	**26.0**	22.0	22.7	22.2	24.8
Return on total assets (%)	**6.2**	6.8	6.6	5.9	6.5
Return on capital employed (%)	**12.3**	13.6	12.7	12.0	14.6
Dividend					
Gross dividend per share (cents)	**15.00**	15.0	15.0	15.0	15.0
Dividend yield (%)	**4.04**	4.44	4.62	4.81	4.68
Dividend cover	**1.23**	1.06	1.07	1.04	1.13
Productivity Data					
Average staff strength (numbers)	**22,494**	21,418	21,541	21,974	22,388
Revenue per employee ($)	**349,794**	312,724	302,728	304,166	282,965
Net profit per employee ($)	**25,693**	23,076	23,334	22,049	23,630
Employment costs ($m)	**2,297.6**	2,007.7	1,951.6	1,947.5	1,813.7
Employment costs per $ of revenue	**0.29**	0.30	0.30	0.29	0.29
Economic Value Added ($m)	**317.0**	306.0	303.8	252.4	355.1
Economic Value Added spread (%)	**6.5**	7.6	6.9	5.5	8.7
Economic Value Added per employee ($)	**14,094**	14,285	14,103	11,488	15,861

Figures from FY2015 to FY2016 were prepared in accordance with the previous FRS and were not restated on adoption of SFRS (1) in FY2018. The Group adopted SFRS (1) 16 effective on 1 January 2019 and applied the modified retrospective approach with no restatement of comparative information.

GROUP

Year	REVENUE ($b)	PROFIT BEFORE TAX ($m)	NET PROFIT ($m)
	$7.87b	$695.2m	$577.9m
2019	7.87	695.2	577.9
2018	6.70	620.7	494.2
2017	6.52	611.8	502.6
2016	6.68	590.6	484.5
2015	6.34	630.3	529.0

AEROSPACE

Year	REVENUE ($b)	PROFIT BEFORE TAX ($m)	NET PROFIT ($m)
	$3.45b	$332.8m	$268.9m
2019	3.45	332.8	268.9
2018	2.65	320.0	244.6
2017	2.54	318.5	244.8
2016	2.48	300.3	234.4
2015	2.09	290.6	226.7

ELECTRONICS

Year	REVENUE ($b)	PROFIT BEFORE TAX ($m)	NET PROFIT ($m)
	$2.28b	$226.5m	$190.7m
2019	2.28	226.5	190.7
2018	2.14	224.7	186.5
2017	2.01	200.2	168.8
2016	1.89	207.8	174.5
2015	1.71	191.0	163.0

LAND SYSTEMS

Year	REVENUE ($b)	PROFIT BEFORE TAX ($m)	NET PROFIT ($m)
	$1.43b	$88.6m	$77.3m
2019	1.43	88.6	77.3
2018	1.28	62.3	52.9
2017	1.24	85.0	87.4
2016	1.39	38.8	25.5
2015	1.47	73.3	62.6

MARINE

Year	REVENUE ($b)	PROFIT BEFORE TAX ($m)	NET PROFIT ($m)
	$0.65b	$60.8m	$51.5m
2019	0.65	60.8	51.5
2018	0.57	50.3	45.2
2017	0.64	22.4	27.0
2016	0.84	75.1	67.8
2015	0.96	88.3	85.7

AWARDS

BUSINESS EXCELLENCE

Cedric Foo, CFO (centre), receiving the Most Transparent Company Award at the SIAS 20th Investors' Choice Awards.

Most Outstanding Company in Singapore (Industrials Category)
By Asiamoney

Strongest Adherence to Corporate Governance (Singapore)
By Institutional Investor magazine

Most Profitable Company (Multi-Industry Category)
By The Edge Singapore

Most Transparent Company (Multi-Industries Category)
By Securities Investor Association (Singapore)

Best International Partnership
By Air New Zealand

No.1 Global MRO Airframe of the Year
By Aviation Week Network

Ravinder Singh, President of Electronics sector (second from left) and Dr Lee Shiang Long, President of Land Systems (first from right) sector at the Land Transport Excellence Awards 2019.

Best Collaboration Partner
By Land Transport Authority (Singapore)

Best Managed Electrical & Mechanical Systems — Project Partner
By Land Transport Authority (Singapore)

INVESTOR RELATIONS

Most Organised Investor Relations (Singapore)
By Institutional Investor magazine

Strategic M&A Transaction of the Year
By Euroconsult
Acquisition of Newtec Group

Most Improved Investor Relations (Singapore)
By Institutional Investor magazine

PRODUCT

Defence Technology Prize Team (Engineering) Award
By MINDEF
Hunter Armoured Fighting Vehicle

Red Dot Design Concept Award
By Red Dot
SPACElite II aircraft seats

CES 2020 Innovation Awards Honoree (Cybersecurity and Personal Privacy Category)
By CES
PhoneCrypt D200

Outstanding Training System Integration Project
By Military Simulation & Training magazine
Littoral Mission Vessel Simulation Centre

CES 2020 Eureka Park® Climate Change Innovation Award
By CES
Airbitat Compact Cooler

Singapore Good Design Mark
By Design Business Chamber Singapore
DigiSAFE DiskCrypt M10

Singapore International Maritime Award 2019 (Outstanding Maritime R&D and Technology Category)
By Maritime and Port Authority of Singapore
VHF Data Exchange System

2019 Annual Mobility Innovation Award (Top Cybersecurity Solution)
By Mobile Satellite Users Association
Transmission Security-Compliant Network Architecture

WORK SAFETY & HEALTH

Safety & Environmental Excellence – Land Transport Development (Major Projects)
By Land Transport Authority (Singapore)

National WSH Supervisor Award
By WSH Council

ASMI WSH Innovation (Bronze)
By Association of Singapore Marine Industries

CORPORATE CITIZENSHIP

Charity Platinum Award
By Community Chest

Total Defence Award
By MINDEF

Sew Chee Jhuen, President of Special Projects (left), receiving the Charity Platinum Award at ComChest Awards 2019.

PEOPLE

Certificate of Commendation
By Singapore Industrial & Services Employees' Union

Singapore's Top 10 Engineering Employers 2019
By Universum

Best Places to Work (Large Company) 2019
By Washington Business Journal
iDirect (Government)

SUSTAINABILITY

BOARD STATEMENT

The Board of Directors is pleased to present ST Engineering Sustainability Report 2019, which communicates our Environmental, Social and Governance (ESG) performance for the year.

We are committed to sustainability and incorporate ESG principles in developing our business strategies and managing our operations. Our executive compensation for senior management is also linked to our ESG key performance indicators.

ST Engineering is a successful global technology, defence and engineering group with good business fundamentals and strong corporate governance. We will continue to work on our sustainability initiatives, maintaining focus on the interests of our stakeholders, our impact on the environment and our commitment to operate responsibly in the wider global ecosystem. We will also continue to strengthen our role as an effective enabler of a sustainable world by using our technology and engineering solutions to solve real-world problems.

We continue to advance our sustainable practices towards long term value creation for the Group and our stakeholders. We have been reporting our sustainability efforts since 1997 and in 2011, evolved that into a sustainability segment within our annual report. In 2014, we produced our maiden Sustainability Report prepared in accordance with GRI Standards.

In 2016, ST Engineering Risk Review Committee formally included oversight of sustainability matters and was renamed the Risk and Sustainability Committee. In 2019, we deepened our commitment by identifying United Nations Sustainable Development Goals (UN SDGs) where we have material contributions to.

ABOUT SUSTAINABILITY REPORT 2019

- This report focuses on the sustainability practices of ST Engineering and addresses the material ESG factors of our operations.
- It is prepared in accordance with the GRI Standards: Core Option and is guided by the SGX Reporting Guide and the LBG Framework.
- Unless otherwise stated, data and activities reported here relate to Singapore operations which account for majority of our revenue.
- This report should be read in conjunction with the GRI Content Index and other information published in the sustainability section of our website at www.stengg.com.

SUPPORT OF UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

Our sustainability agenda is aligned to the UN SDGs. We support all 17 goals and believe that we have a role to play in contributing to their achievement. Of these goals, we have identified six where we have more contributions in terms of our internal practices, and the products and services that we offer to our customers.

UN SDG	Why It Is More Relevant
8 DECENT WORK AND ECONOMIC GROWTH	We provide decent jobs and contribute to the economic growth of the communities we operate in.
11 SUSTAINABLE CITIES AND COMMUNITIES	We leverage our technology and engineering expertise to help cities and communities be more sustainable.
13 CLIMATE ACTION	We play our part to help address the global challenges of climate change.
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	We focus on delivering innovative solutions to help build and upkeep land, sea, air, space and information infrastructure.
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	We stay lean and minimise the environmental impact of our operations.
16 PEACE, JUSTICE AND STRONG INSTITUTIONS	We have a strong heritage in public security and have zero tolerance for unethical behaviours.

SUSTAINABILITY GOVERNANCE

ST Engineering's Risk and Sustainability Committee (RSC) assists the Board in its sustainability governance responsibility. RSC's role is one of oversight and responsibility for the ongoing management and monitoring of sustainability matters rests with management. The RSC approves the annual sustainability workplan and is updated on its progress and developments in its sittings.

The RSC is supported by the Risk and Assurance (R&A) function and the Business Excellence & Sustainability (BE&S) Council.

- The R&A function is accountable to the President & CEO for matters relating to governance, risk and compliance. It makes sure that ST Engineering manages its risks, stays in compliance with all legal and regulatory requirements where it operates and has the right governance and controls in place.
- The BE&S Council is chaired by the President & CEO and comprises five component committees covering the areas of Continuous Improvements, Corporate Social Responsibility, Environment, Quality and Total Workplace Safety & Health.

An objective of the BE&S Council is to ensure that the principles of high performing organisations and sustainability are incorporated into the business decision-making processes to achieve positive and sustainable outcomes for all stakeholders.

RISK & SUSTAINABILITY COMMITTEE

BUSINESS EXCELLENCE & SUSTAINABILITY COUNCIL

Continuous Improvement
Corporate Social Responsibility
Environment
Quality
Total Workplace Safety & Health

RISK & ASSURANCE FUNCTION

Risk Management
Regulatory Compliance
Assurance

MATERIAL ESG FACTORS

Our Enterprise Risk Management Framework provides the backdrop upon which the sustainability materiality assessment was carried out and reviewed, with both financial and non-financial impact assessed against the Group's risk tolerance limits and implications to our key stakeholders. In 2019, the material ESG factors were re-organised under the categories of environmental, social and governance and aligned with UN SDGs into ten areas for greater focus and clarity.

Environmental

1 Environmental Protection
2 Productivity
3 Green Products & Services

Governance

10 Ethical Business & Regulatory Compliance

Social

4 Economic Performance
5 Quality Products & Services
6 People Excellence
7 Total Workplace Safety & Health
8 Responsible Procurement
9 Corporate Community Contributions

SUSTAINABILITY
– MATERIAL ESG FACTORS

	Material Factor	Why is it Material	How Do We Manage
Environmental	1. Environmental Protection	Climate change is an issue of increasing urgency and importance. A low carbon business strategy is not only good for the environment but enables us to better respond to climate change regulations and price volatility of hydrocarbon resources.	Environmental efforts are coordinated by the Environment Committee. All material business units in Singapore are certified to ISO 14001 Environmental Management Systems. Our global operations abide by relevant environmental regulations and requirements.
	2. Productivity	Staying lean, efficient and effective in our systems and processes to optimise the use of resources is fundamental to maintaining our competitive edge.	Productivity efforts are coordinated by the Continuous Improvement Committee. Embedded into day-to-day operations are initiatives such as Kaizen projects, quality action teams and value innovation teams. We empower employees to identify and eliminate wastes, and recognise exemplary contributions.
	3. Green Products & Services	Cities and organisations around the world are increasingly looking to minimise their carbon footprint while reducing operating costs. We differentiate by introducing products and services of lower carbon footprint.	Our technology community looks actively into the design and development of products that are more sustainable in nature. Our engineers incorporate green considerations not just in the end products but also from the perspectives of responsible production and through-life support.
Social	4. Economic Performance	Inclusive growth and value creation for our Group and stakeholders are key to our long-term viability. We are committed to delivering a sustainable and balanced triple bottom line of people, planet and profits.	Our strategic planning community reviews the Group's strategy in light of global trends and developments. Our operational and support function teams focus on operational excellence to ensure smooth delivery of quality products and services that continue to add value for our stakeholders.
	5. Quality Products & Services	For customers to rely on us to meet their operational needs, our products must not only be compliant with all relevant regulations and be safe to produce, operate and maintain, but also serve the intended purpose reliably over the product's lifecycle. The same apply to our services, which must meet our customers' requirements and be delivered responsively within the promised turnaround time.	Quality efforts are coordinated by the Quality Committee. All material operations in Singapore are certified to ISO 9001 Quality Management Systems. We design, manufacture and support our products in accordance with industry standards and meet all regulatory requirements. We actively work with our suppliers and collaborators to ensure quality of bought-in parts and services, and regularly seek feedback from our customers to strengthen our offerings.

MATERIAL STAKEHOLDERS AND ENGAGEMENT

Shareholders & Investors

Shareholders and investors play a significant role in the financing and governance of our business. We maintain an effective investor relations outreach programme to engage the investing community.

Customers

Customer satisfaction is crucial to our success. We forge enduring relationships with our customers and make sure our products and services stay relevant, are safe and reliable, and meet their expectations through frequent engagements and multiple feedback channels.

Regulators & Governments

Disclosing pertinent information in a clear and concise manner on a timely basis, and keeping abreast of topics of concern to regulatory authorities are part of our commitment to good corporate governance. At the same time, we provide feedback as needed to regulators on new or revisions to regulations.

	Material Factor	Why is it Material	How Do We Manage
Social	6. People Excellence	We are only as strong as our people. With a capable, motivated and upward mobile workforce, we are able to strengthen our talent pipeline to pursue sustainable growth.	Our people and culture strategy seeks to enhance our capability and capacity for growth, build a passionate and engaged workforce, and position us at the forefront of people practices. This proposition is realised through talent attraction and management, career development, diversity and inclusion, reward system, work-life integration and harmonious union relations.
	7. Total Workplace Safety & Health	We are committed to "Safety Before Profits". A safe and healthy workplace protects workers from injury, stress and illness, reduces absenteeism and turnover, increases productivity and quality, and raises employee morale. This duty of care extends to our visitors and supervised sub-contractors working within our premises.	Workplace safety and health efforts are coordinated by the Total Workplace Safety & Health Committee. All material business units in Singapore are certified to OHSAS 18001 Occupational Health and Safety Management. Our global operations abide by relevant workplace safety regulations and requirements.
	8. Responsible Procurement	We believe in procuring responsibly to ensure a sustainable supply of goods and services to meet business needs. We are committed to managing our vendors ethically and effectively to ensure a robust supply chain.	Our procurement community champions the effective management of our vendors to align business behaviours, drive greater efficiencies, streamline processes and enable greater visibility. We work with our vendors to embed our principles of responsible procurement.
	9. Corporate Community Contributions	We are committed to being a good corporate citizen where we operate. Making a positive impact on the communities we operate in is in line with our core value of compassion.	Corporate community contributions are coordinated by the Corporate Social Responsibility Committee. We reference the LBG framework to help us effectively measure, report and communicate our corporate community investments and philanthropy.
Governance	10. Ethical Business & Regulatory Compliance	We are subject to applicable laws and regulations of many jurisdictions and multiple industries. We comply with these laws and regulations to maintain our licences to operate. We have zero tolerance for fraud and corrupt practices and ensure we meet all relevant laws and regulations.	The R&A function oversees matters relating to governance, risk and compliance/controls. It has in place a regulatory compliance framework and continually trains our global workforce on our Code of Business Conduct and Ethics.

Employees & Other Workers

People are our most valuable asset. We focus our efforts in enhancing our capability and capacity for growth, strengthening a passionate and engaged workforce, and being at the forefront of people practices. We engage our people through open dialogues, continuous performance feedback, regular town halls and internal communications channels including our intranet.

Suppliers & Collaborators

Strong, ethical and mutually beneficial relationships with suppliers and collaborators are cornerstones of our business. We engage suppliers through our vendor management programmes and stay connected with collaborators through frequent exchanges.

Local Communities

Our operations generate employment, partnerships with local institutions, contracts for local small-medium enterprises and tax revenues for governments, which in turn develop the economy in our host communities. We protect our environment and contribute to our communities' well-being through our corporate community contributions.

2019 HIGHLIGHTS*

Green Energy

~890

equivalent of cars taken off road per year from 17 solar roofs

Paper Usage

~600

equivalent of pine trees saved from paper reduction initiatives over 2015 base year

GHG Emissions

39%

reduction in GHG emission intensity over 2010 base year

Productivity Savings

$23.2m

of realised productivity savings by operations

Training & Development

28hrs

of average training per employee for Singapore and North America workforce

Safety Culture

151

workplace safety and health activities to promote safety culture

Suppliers

100%

of new suppliers engaged on Vendor Code of Conduct

Corporate Community Contributions

$3.8m

of total contributions to communities in Singapore and North America

Volunteerism

9,833hrs

of volunteer manhours clocked by Singapore and North America employees

* Refers to Singapore operations unless otherwise stated

SUSTAINABILITY
– ENVIRONMENT

We recognise the increasing urgency and importance of combating climate change. We believe in conserving resources, reducing pollution and waste, and ensuring that our operations are conducted efficiently. We contribute to a more sustainable future by developing and deploying greener products and solutions.

1. ENVIRONMENTAL PROTECTION

Critical to the sustainability of our business is the ability to successfully forge a symbiotic relationship with our environment. In 2019, our Singapore operations achieved a reduction of 39% in Greenhouse Gas (GHG) emission intensity, which surpassed our target of 36% reduction on a business-as-usual basis by 2030 with 2010 as base year. We will be reviewing our target going forward. Our GHG inventory is audited by an external accredited agency in accordance with ISO 14064-1:2006.

We continue to build on what we started in 2014 and are adding three additional solar roofs to our facilities for a total system capacity of 11.15 GWh of clean energy. The 20 solar roofs installed across our businesses would account for about 10% of our electricity requirement and is equivalent to planting about 210,000 trees to offset 4,500 tonnes of carbon annually.

We also replaced lightings in our aircraft hangars in the U.S. with energy-saving LED bulbs during the year. This is in line with U.S. operation's 2020 goal of reducing energy consumption and GHG emissions by 15%, with 2015 as base year.

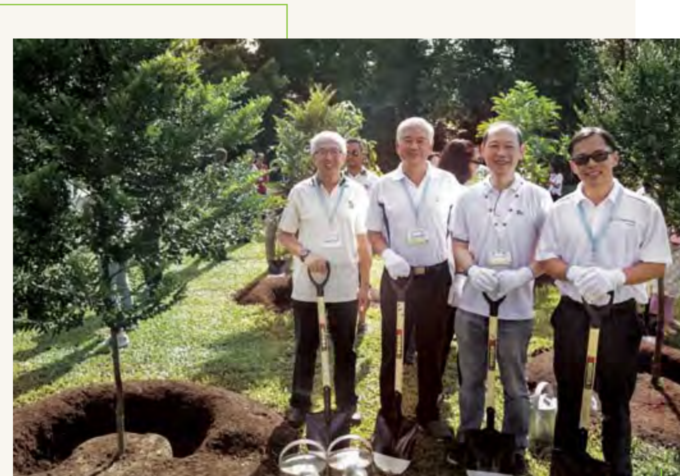
In 2019, we improved the way we track water usage and monitor pipe leakages. We achieved a 14% reduction in water consumption intensity for our Singapore operations from our 2015 baseline. As this is close to our target of 15% reduction on a business-as-usual basis by 2025, we will be reviewing our target moving forward.

This year, our Singapore operations also tracked their waste recycled. We enhanced our Reduce, Reuse and Recycle (3R) initiatives, reducing paper usage through digitisation efforts, re-using wooden pallets, and recycling waste oil and e-waste. We also consolidated our waste disposal requirements for greater economies of scale.

Greening Our Environment

Over 300 hibiscus bushes were planted in 2019 during the Singapore's annual Clean and Green Week, bringing to a total of 24,002 trees and shrubs planted since 2008.

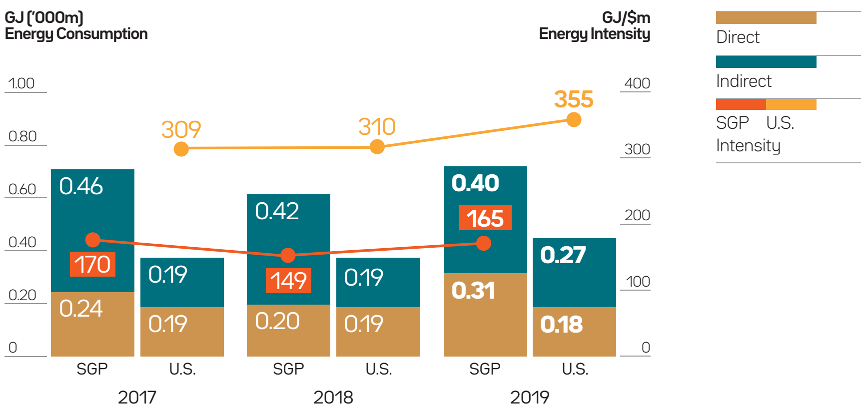
Roseli Rasiman from Land Systems sector received the Singapore's Community In Bloom Ambassador Award for his time, effort and resources put into regular and active engagement with the community to facilitate gardening-based initiatives.



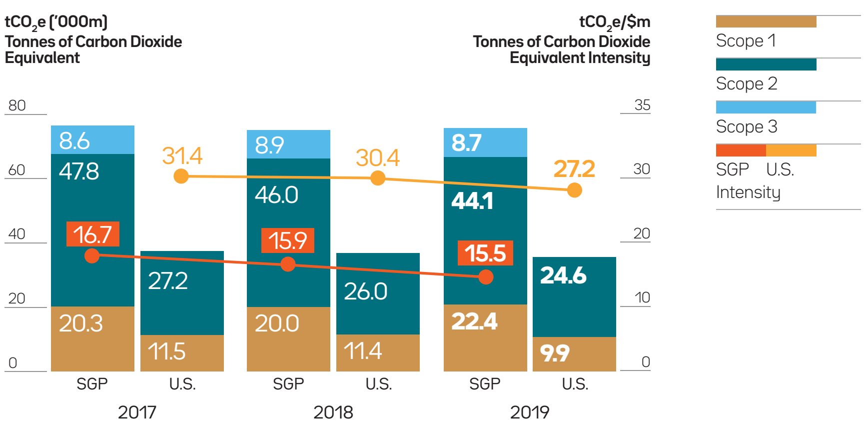
We participated in JTC's green initiative, GROW@SAP, and joined other aviation industry participants to plant trees and enhance the natural greenery and environmental charm of Seletar Aerospace Park in Singapore.

SUSTAINABILITY
– ENVIRONMENT

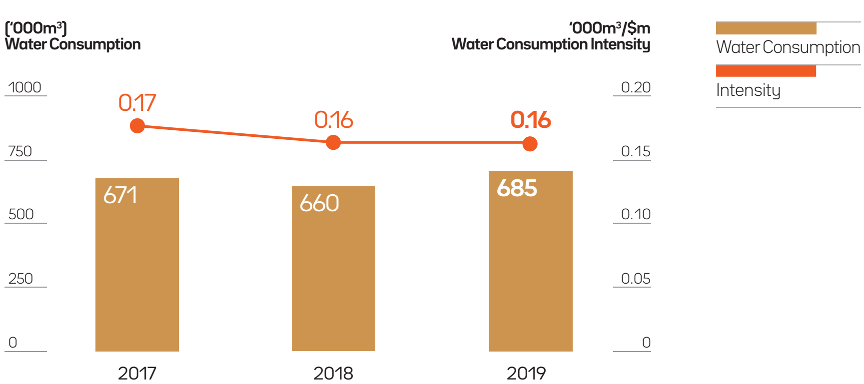
ENERGY CONSUMPTION AND INTENSITY



GHG EMISSIONS AND INTENSITY



WATER CONSUMPTION AND INTENSITY (SGP)



Notes:

1. SGP: Material Singapore operations
2. U.S.: Material U.S. operations less 2019 acquisitions
3. Scope 1: Direct GHG emissions from sources owned or controlled by the Group
4. Scope 2: Indirect GHG emissions from the generation of purchased electricity consumed
5. Scope 3: Indirect GHG emissions from business travels by air; only for Singapore operations
6. GHG emissions intensity figures are computed based on Scope 1 and 2 emissions
7. Only figures for energy consumption and GHG emissions from Singapore operations are externally audited; figures for 2018 were restated as a result of audit; 2019 figures are yet to be audited
8. Both GHG emission and water intensity figures for Singapore operations are normalised using revenue from Asia, of which Singapore is a significant contributor

WHAT WE DID IN 2019

- Enhanced 3R initiatives.
- Committed to three additional solar roofs.
- Achieved 2030 reduction target for GHG emission intensity and continued to work towards 2025 water consumption intensity target.

WHAT WE WILL DO IN 2020

- Review GHG emission intensity reduction target.
- Review water consumption intensity reduction target.

2. PRODUCTIVITY

The pursuit of higher efficiencies and effectiveness is integrated into our day-to-day operations as part of our drive towards responsible consumption and production.

A Continuous Improvement Committee was set up in 2019 to consolidate Group-wide continuous improvement activities. It serves to drive improvements in systems and processes as well as promote and share, and where relevant, align and implement best practices to raise productivity across the Group.

In 2019, the Group achieved a value added per employment cost of 1.52 for its global operations. This is an improvement from 1.46 in 2018. The Group also achieved realised productivity savings of $23.2m from continuous improvement projects in our Singapore operations. This does not include realised savings from the Group's Central Procurement initiatives which saved another $26.4m.

Our support functions continued to roll out enhanced systems and processes in areas such as performance management, vendor management and invoicing. In addition, we embarked on additional Robotic Process Automation projects including automation of ERP system accounts update which saved about 2,000 manhours per year, and automation of financial reconciliation statements preparation which saved about 4,000 manhours annually.

At the operating level, our business sectors continued to use continuous improvement tools such as Kaizen and Value Stream Mapping to improve their work processes. A key initiative introduced in 2019 was Lean knowledge training. E-learning modules for 5S Housekeeping and Kaizen were prioritised and developed to be rolled out for over 4,000 employees.

Eight teams participated in our annual Team Excellence Convention which serves to promote and recognise teams that demonstrated excellence in creating value and raising productivity through creativity and the use of technology, innovation and continuous improvement tools. Winners were recognised at our annual Business Excellence Seminar.

Making Power & Water Flow Meters Smart

One of our Kaizen projects in 2019 was to improve efficiency in the collection of readings from power and water flow meters at our shipyards in Singapore. The project incorporated Industry 4.0 concepts and achieved almost 50% reduction in cycle time and manhours. Data is now directly transmitted for real-time monitoring of power consumption for critical equipment, water usage and pipe leakages. Besides greater efficiency, the improved system minimised human errors and reduced tripping associated with technicians performing manual water flow readings.

WHAT WE DID IN 2019

- Rolled out e-initiatives and e-learning modules.
- Achieved $23.2m in realised productivity savings.
- Achieved value added per employment cost of 1.52 for our global operations.

WHAT WE WILL DO IN 2020

- Maintain efforts to realise productivity savings through continuous improvement initiatives.
- Continue to focus on improving value added per employment cost.

SUSTAINABILITY – ENVIRONMENT

3. GREEN PRODUCTS & SERVICES

Climate change brings about both challenges and opportunities. Cities and organisations around the world are increasingly looking to reduce their environmental impact with more energy-efficient products and ways to manage their resources more efficiently.

ST Engineering's portfolio of green solutions symbolises our steadfast commitment to environmental-friendly innovations and represents our biggest contribution to climate change mitigation. Our suite of smart city solutions, for example, make cities more connected, more efficient, more secure and more liveable. We have deployed over 700 projects across more than 130 cities. We solve challenges from road congestion to physical and cybersecurity threats, as well as energy inefficiency and utility wastage. Our solutions help our customers increase operational efficiency and contribute towards safer and more liveable environments.

Improving Energy Efficiency of Street Lights

With more than 22 years of experience in machine-to-machine technologies, we are recognised as a global leader in the delivery of smart outdoor lighting control systems. These solutions are not only cost effective and more reliable, but can also reduce annual operating costs by up to 20% as they allow full control of individual and groups of street lighting luminosity in response to changing environmental conditions, resulting in energy savings. In addition, the systems provide real-time data for proactive maintenance and outage management, increasing public safety and improving customer satisfaction. In 2019, the Group was awarded multiple contracts to provide smart city platforms to remotely control and monitor street lights. This includes contracts for 61,000 streetlights in Cleveland, U.S. and 50,000 each in Georgia, U.S. and Auckland, New Zealand.

Collaborating on Green End-Of-Life Solution for Aircraft

We are collaborating with Fraunhofer, Europe's leading application-oriented research organisation on research projects concerning aircraft component overhaul, composite repair, and recycling of carbon materials. Fraunhofer and its university partners would develop the technologies for components re-manufacturing, fibre reinforced structures recycling and carbon fibres production from used aircraft parts. We would act as an industrial partner to evaluate the economic viability of the new pilot lines which include the use of artificial intelligence to correctly sort plastics, and a complete value added chain from converting used aircraft parts to carbon fibres which would then be used to make new parts. This would position us at the forefront of aircraft parts recycling, and could potentially expand our offering to include end-of-life solution.

Reducing Shipping Emissions

The global maritime industry is moving towards lower emissions, with International Maritime Organisation 2020's 0.5% sulphur cap as an example of this green movement. Our U.S. shipyard delivered in 2018, a pair of world's first LNG-powered combination Container Roll-On/Roll-Off ships, with main propulsion and auxiliary engines fuelled by the more environmentally-friendly LNG. These ships set a new standard for responsible shipping and were named the 2019 Boat of the Year award at the International WorkBoat Show 2019.

Meanwhile, we obtained certification for the design of our LNG 2000 Roll-On/Roll-Off passenger ship. With dual-fuel LNG engines, this vessel would be fully compliant with the latest emission standards, and able to operate in all emission control areas. Other green technologies that can be deployed onboard include a waste heat recovery system, more fuel efficient hybrid propulsion systems and an optimised hull designed to improve fuel efficiency.

Contributing to Greener Land Transportation

Besides our smart mobility solutions in rail and road traffic management, we have capabilities in the development of autonomous vehicles and robots, conversion of internal combustion engine vehicles to electric, and the delivery, maintenance and repair of hybrid electric and full electric vehicles. The Group has comprehensive maintenance agreements with taxi and private hire companies for regular servicing of their green fleet and would be delivering 20 electric buses in 2020 to run on Singapore roads. We also offer a family of electric trucks and vans to be used in areas such as waste collection and deliveries. Full electric vehicles have zero on-board exhaust emissions and are quieter, contributing to a cleaner and more tranquil urban environment.

Keeping Aircraft Engines Fuel Efficient

We provide on-wing aircraft engine wash through our EcoPower wash system. Compared to traditional wash methods, our on-wing engine wash has significantly better performance recovery and there is no contamination of the engine and cabin air system. The wash water is also recycled. Our customers typically wash each engine two or more times per year, keeping engines clean with low operating temperatures and optimal fuel efficiency. In 2019, we performed 10,387 engine washes for over 90 customers.

Cooling City Spaces with Less Energy

With no compressors or chemical refrigerants, the Airbitat City Cooler delivers sustainable deep cooling for outdoor spaces without waste heat generation and consumes up to 80% less electricity than air-conditioning of a similar capacity. It is built with smart operations, detecting ambient conditions and automatically switches between Fan Mode and Boost Mode, reducing unnecessary energy expenditure. Its Reevac® Deep Cooling technology is particularly evident in high heat and relatively low humidity conditions in Western Australia, where when deployed, delivered more than 20°C temperature drop from 43°C, outperforming conventional evaporative cooling solutions in the market. In 2019, besides growing the customer base in Singapore and Australia, Airbitat City Coolers were installed in urban spaces in Bangladesh, India, Japan, Malaysia, UAE and the U.S..

Dr Li Fuyun, Head of Engineering at Innosparks was recognised at the Singapore Green Building Council – Building and Construction Authority's Sustainability Leadership Awards 2019. Lauded for his work on the Airbitat City Cooler, as well as his continued efforts in developing energy-efficient, sustainable cooling technologies for buildings, he was awarded the Young Green Innovator Award.

WHAT WE DID IN 2019

- Continued to innovate green solutions such as ultra-light SPACElite II aircraft seats and Smart Junction urban traffic signal control system.
- Continued to make use of analytics for predictive maintenance of our products to minimise downtime and ensure optimal operations.

WHAT WE WILL DO IN 2020

- Enhance tracking of R&D investments in green products and services.
- Increase emphasis on sustainability considerations in the design and development of products and services.

SUSTAINABILITY – SOCIAL

We have an obligation to our stakeholders to remain as a vibrant sustainable enterprise. Fair compensation, people development, safety and health of our employees are important to us. In addition, we adhere to labour laws and regulations wherever we operate and have zero tolerance for unethical labour practices such as child labour, forced labour, slavery and human trafficking in any of our operations. We anticipate customers' requirements, deliver quality products and services, source responsibly and invest in communities where we operate.

4. ECONOMIC PERFORMANCE

Creating shared value for our stakeholders is essential to ST Engineering's success. This is why our ESG focus centres on minimising the impact of our business activities on the environment, delivering greener products and services, creating decent employment, building supportive industry clusters where we operate in, giving back to communities and fostering a strong ethical business and regulatory compliance culture. We are committed to delivering sustainable, inclusive growth for our stakeholders and achieving a balanced triple bottom line of social responsibility (People), environmental impact (Planet) and economic value (Profits) so that the needs of the future are also considered and addressed today.

In 2019, we strengthened our core businesses, made three acquisitions, entered new markets and expanded our customer base. We continued to invest in our people, build more capabilities with our collaborators and strengthen our ties with the communities where we operate. In addition, the Group generated employment, opportunities for suppliers, returns to providers of capital and tax revenues for governments to the tune of $7.4b.

Gearing Up for Sustainable Growth

To gear up for the fast-evolving economy, we have been collaborating with tertiary institutions to deepen the skillsets of our employees. Over the last two years, about 2,500 employees have attended data analytics, design innovation, cybersecurity, robotics and digital transformation, artificial intelligence and Internet of Things courses offered by institutes of higher learning including National University of Singapore, Singapore Polytechnic and Singapore University of Technology and Design (SUTD).

Group's Economic Contributions	Amount ($m)
Bought-in material and services	4,460
Employee wages, salaries and benefits	2,291
Dividends and interest paid	513
Government taxes and levies	124

Further information relating to our economic performance can be found in the Performance Review and Financial Report of this Annual Report.

WHAT WE DID IN 2019

- Delivered $7.4b in economic contributions to society.
- Expanded the Group's business through the acquisitions of MRAS, Newtec Group and Glowlink Communications.

WHAT WE WILL DO IN 2020

- Continue to deliver sustainable economic contributions to society through sound execution of our strategy.

5. QUALITY PRODUCTS & SERVICES

We are committed to the timely delivery and responsive support of products that remain safe and reliable for their intended use, and the provision of services that meet regulatory standards and satisfy our customers' requirements. Majority of our operations are ISO 9001 certified and all abide by the requirements of their industry regulatory bodies. Ensuring consistently high quality of products and services is a pivotal part of our work.

In 2019, we formed a Quality Committee to harmonise and continually improve our framework to ensure we meet our customers' expectations and adhere to applicable regulations and international standards. The Committee also serves to promote, align and implement best practices relating to product safety, and the timely delivery of value-adding services.

The Quality Committee organised the first Quality Seminar on 14 November to coincide with World Quality Day. Designed to be an annual resident event in the Committee's calendar, the Group's Quality professionals convened to share best practices and ideas towards producing safer and more reliable solutions for our customers. Topics presented include Quality Management Systems, Quality Assurance and Quality Control under the theme "Quality and Digitisation".

During the year, our engineers presented technical papers at various systems safety events such as World Congress on Resilience, Reliability and Asset Management and the 10th MINDEF System Safety Seminar. 57 of our employees also deepened their systems safety knowledge through a Safety Critical Systems Development Course conducted by the University of Glasgow.

Enabling Safe, Reliable & Efficient Train Services

We are one of the top global Platform Screen Door (PSD) suppliers with Safety Integrity Level 3 certification. In 2019, the Group launched the world's first Variable Pitch PSD (VP-PSD) that enables train operators to deliver enhanced commuter safety and comfort. Targeted at cities in Australia, Europe and the U.S. equipped with metro lines serving multiple train types that are unable to install traditional PSDs, the VP-PSD can seamlessly detect any train door's correct stop position before the train arrives at the station. The solution serves as a safety barrier, preventing commuters from falling onto the train tracks. In addition to safety indicators that alert commuters on door opening and closure, the VP-PSD also features a finger gap sensor to prevent fingers from getting trapped between the doors. This solution underscores ST Engineering's commitment in delivering safe, reliable and efficient train services for global commuters.

Using 3D Printing to Uphold Quality

Apart from working with our airline partners to 3D-print aircraft cabin parts, we started using in-house 3D printing to enhance productivity and uphold the quality of our MRO services. In 2019, 3D printing was used to meet operational requirements in areas such as:

- Rapid development of work aids like centering guides to ensure proper alignment, and aircraft light assembly fixture to ensure correct assembly.
- Fast production of masking plugs, masking covers, bolt collectors and probe holders to prevent foreign object ingestion and damage.
- Quick prototyping for test box and display panels.

WHAT WE DID IN 2019

- Streamlined and standardised SOP and Policy document numbering system and format.
- Organised inaugural Quality Seminar where Quality professionals gathered and shared best practices.

WHAT WE WILL DO IN 2020

- Continue efforts to improve customer satisfaction.
- Continue to share best practices and implement continuous improvement initiatives.

SUSTAINABILITY
– SOCIAL

6. PEOPLE EXCELLENCE

As we forge ahead in our quest to strengthen our core business and pursue growth opportunities, people and culture remain a top priority.

The advent of Industrial 4.0 has disrupted the way people live, work and learn. We recognise that the face of learning has become personalised, targeted, bite-sized, on demand, on-the-go and lifelong in approach. We also recognise that the way we learn must change in tandem with these emerging trends. Building on the initiatives launched in 2018, we deepened our focus in developing more enterprise-wide programmes on leadership development, talent management, succession planning, performance management and total rewards.

We sustained our momentum into 2019 with continued efforts to execute our People Strategy across three core areas.

Enhancing Capability and Capacity for Growth

- Implemented our full suite of Leadership Development Programmes, anchored on our leadership dimensions, strategic priorities and core values
- Launched ST Engineering's Global Leaders Development Programme
- Launched digitalised learning to offer personalised, bite-sized, on-demand and mobile learning opportunities
- Introduced Learning Reinforcements to some of our learning programmes, including pre-and post-programme measurements to assess change in knowledge, abilities and behaviour

Strengthening a Passionate and Engaged Workforce

- Continued efforts on employee engagement with focus on Empowerment and Collaboration
- Launched Women@ST Engineering on International Women's Day
- Enhanced the Group's performance scorecard framework
- Implemented an integrated Performance Management System

Being at the Forefront of People Practices

- Initiated roll-out of enterprise human resource management system
- Reviewed the new Share Plans 2020

In addition, in support of our commitment towards diversity and inclusion, we augmented our suite of diversity-friendly initiatives in 2019 through:

- Enhancements to our hiring practices to attract more women with background in STEM (Science, Technology, Engineering and Mathematics)
- Addition of diversity and inclusion topics in our training, mentoring and networking programmes
- Enrichment of our work-life integration initiatives to better engage and retain a more diversified workforce

Promoting Gender Diversity through Women@ST Engineering

We embrace gender diversity and believe that diversity drives innovation, and makes for a compelling talent attraction and employer value proposition.

Women@ST Engineering was launched in 2019 to enable our women to achieve their full potential in careers as individuals and leaders, and meaningfully fulfil work-life commitments and integration into the Group.

Key milestones in Singapore include:

- Introduction of paid family care leave in support of work-life integration
- Set up of nursing support facilities across our various offices
- Launch of a development event to inspire confident speaking in public
- Support for Breast Cancer Awareness month with free mammograms and health awareness talks for employees
- Collaboration with other technology companies to launch Singapore's first MentorConnect programme dedicated to diversity and inclusion in the workplace
- Sharing of life stories of female colleagues across business sectors and disciplines

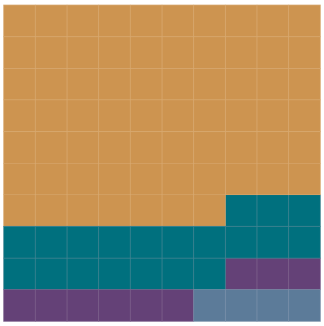
WHAT WE DID IN 2019

- Launched Global Leaders Development Programme.
- Launched digitalised learning.

WHAT WE WILL DO IN 2020

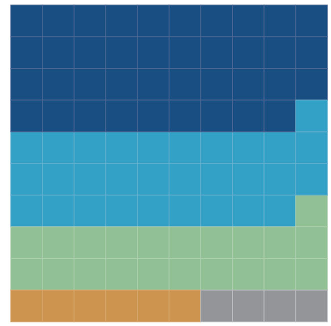
- Expand global footprint of our people practices.
- Position our employees for the future of work.

EMPLOYEES BY GEOGRAPHY*



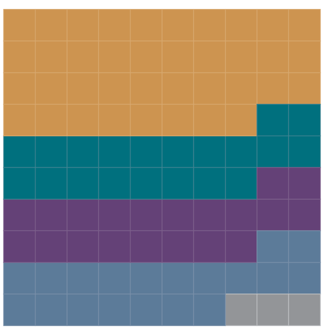
Singapore	67%
North America	20%
Europe	9%
Others	4%

EMPLOYEES BY SECTORS*



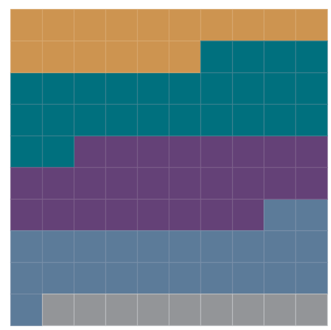
Aerospace	39%
Electronics	30%
Land Systems	21%
Marine	6%
Group Corporate	4%

EMPLOYEES BY QUALIFICATION*



Degree or equivalent	38%
Trade Certificates	20%
'O' or 'A' Levels or equivalent	20%
Diploma or equivalent	19%
Below 'O' Levels or equivalent	3%

EMPLOYEES BY AGE*



Below 30	16%
30+ to 40	26%
40+ to 50	26%
50+ to 60	23%
Above 60	9%

WORKFORCE PROFILE**

Employees

80% MALE | 20% FEMALE

Supervised Workers***

88% MALE | 12% FEMALE

AVERAGE TRAINING HOURS PER EMPLOYEE**

28.3hrs

30.1hrs MALE | 21.5hrs FEMALE

TURNOVER RATE**

12.9%

13.3% MALE | 11.5% FEMALE

Notes:

* Based on the Group's average staff strength of 22,494, the majority of whom are permanent employees

** Based on the Group's Singapore and North America average staff strength, less 2019 acquisitions

*** Supervised workers refer to workers hired through local contractors - they are on short-term contracts, work in the Group's facilities and are supervised by ST Engineering

SUSTAINABILITY
– SOCIAL

7. TOTAL WORKPLACE SAFETY & HEALTH

We are committed to "Safety before Profits". We promote healthy lifestyles and prevent injuries and occupational illnesses through proactive risk assessment and mitigation.

This year, we consolidated our safety and health efforts under a Total Workplace Safety and Health (TWSH) Committee which not only looks at workplace safety and health but also promotes physical, emotional and social health for an energetic workforce. The Committee meets at least quarterly to monitor management system performance as well as review and update strategies.

In 2019, the Committee enhanced the Workplace Incident Reporting System developed last year to track near-misses and enable incident reporting on a common platform for Singapore operations. Other digitisation initiatives launched include the development of an e-Statutory Compliance Monitoring System to monitor the expiration of statutory licenses, permits and certificates; and the Workplace Hazards Reporting System, a mobile application which allows employees to report safety hazards and unsafe acts so that corrective and preventive actions can be taken quickly.

During the course of the year, the Committee also worked with various stakeholders to streamline a Return-to-Work programme to facilitate colleagues who are injured or medically unfit to progressively return to the workplace.

Since June 2017, we have put in place a network of Carer Support Teams should disaster of one form or another strike. So far, 24 employees in Singapore have been trained as carers to provide mental health first aid as needed.

Improving Safety While Enabling Aging Workforce

The process to replace the 24 torsion bushes of each Bronco All Terrain Tracked Carrier is labour intensive and time consuming. It requires two technicians and relies on their skills and eyesight for proper alignment of a high-pressure hydraulic cylinder to the centre of the bush holding. Our engineers made use of robotics and automation to replace the tedious and repetitive parts of the job. This reduces manpower needed to one, improves productivity by eight times, eliminates exposure to the hazards of a high-pressure cylinder and enables our older workers to stay productive.

Taking Time to Care About Safety and Health

Over 130 management, employees and safety practitioners attended the inaugural ST Engineering Safety Seminar in October. TWSH Committee Chairman gave an update on the year's safety performance and reminded all to guard against complacency. External speakers were invited to talk about prevention of slips, trips and fall accidents at workplaces, Return-to-Work programme and the new ISO 45001 standard on workplace safety and health management system.

WHAT WE DID IN 2019

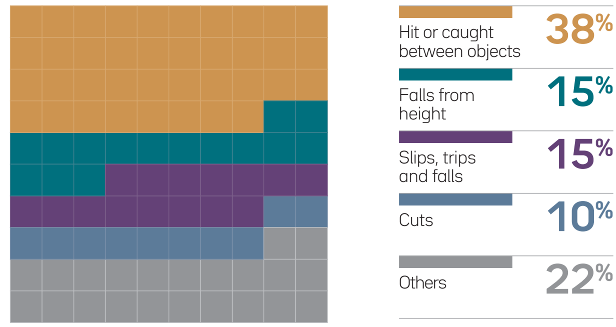
- Enhanced Workplace Incident Reporting System and launched Workplace Hazards Reporting System to make it easier for employees to highlight safety incidents and hazards.
- Extended health and safety reporting to include all material entities, covering accident frequency and accident severity rates.

WHAT WE WILL DO IN 2020

- Continue efforts to reduce accident frequency and severity rates.
- Roll out harmonised Return-to-Work programme.

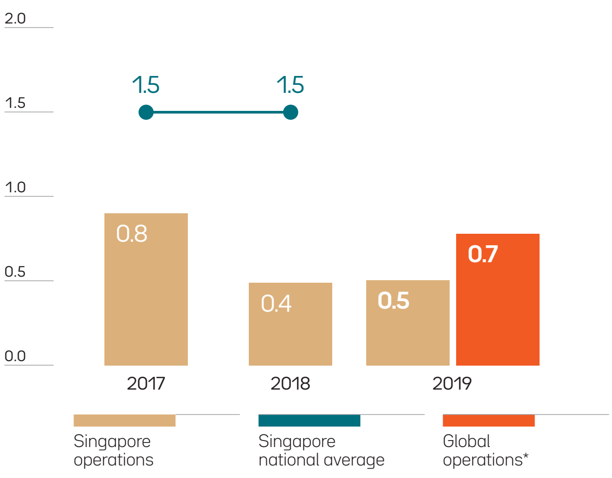
This year, we have included safety performance statistics from all material entities outside of Singapore in our safety reporting. As a result, our Accident Frequency Rate (AFR) has increased from 0.4 to 0.71 due to 17 incidents from our overseas entities. If we exclude the overseas entities, the AFR would be 0.53 which is the second lowest for the last five years. As for Group-wide Accident Severity Rate (ASR), it has decreased from 151.1 to 14.65 as there was no major or fatal incident in 2019. The ASR for Singapore operations was 11.6, which is the lowest in five years.

ACCIDENT CAUSES*



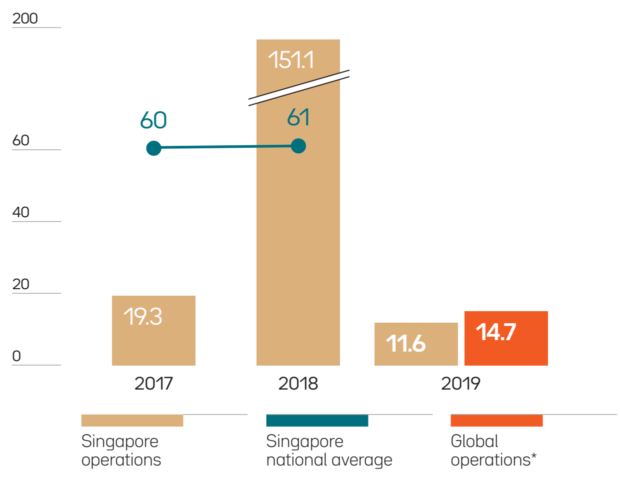
ACCIDENT FREQUENCY RATE

Number of accidents per million manhours worked



ACCIDENT SEVERITY RATE

Number of man-days lost per million manhours worked



Singapore's Ministry of Manpower stopped publishing national average data points related to Accident Frequency Rate and Accident Severity Rate in 2019.

OCCUPATIONAL HEALTH PERFORMANCE INDICATORS**

151

WORKPLACE SAFETY AND HEALTH ACTIVITIES ORGANISED

100%

AT-RISK STAFF WHO ATTENDED RESPIRATORY PROTECTION TRAINING

0

NEW ADVANCED NOISE-INDUCED DEAFNESS CASES

100%

AT-RISK STAFF WHO ATTENDED AUDIOMETRIC EXAMINATION

0

NEW OCCUPATIONAL DISEASE CASES (excluding noise induced deafness cases)

* Includes Singapore and material global operations, less 2019 acquisitions

** Refers to Singapore operations only

SUSTAINABILITY – SOCIAL

8. RESPONSIBLE PROCUREMENT

We are committed to procuring ethically and responsibly to ensure a sustainable supply of goods and services to meet our business needs. We recognise our dependency on our suppliers for the timely delivery of quality products and services, and actively manage these relationships.

In 2019, we refined our Responsible Procurement Framework, comprising three pillars of Vendor Conduct, Vendor Management and Vendor Relationship. The Vendor Conduct pillar is aligned to our sustainability agenda, defines our principles and polices, and lays down the basic behaviours and practices in a Vendor Code of Conduct (Vendor Code) that we require of our suppliers concerning their responsibilities towards their stakeholders and the environment.

The Vendor Management pillar streamlines the systems and processes we employ to screen, onboard and assess the performance of our vendors, giving them a consistent experience working with the Group. We have in 2019, screened 100% of new vendors based on our revised vendor screening criteria which incorporates our Vendor Code.

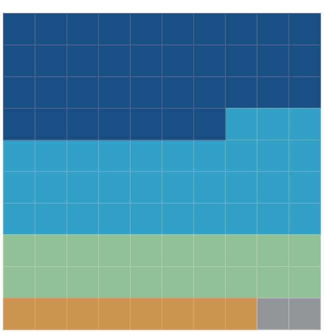
For the Vendor Relationship pillar, we have segmented our vendors based on profit impact and supplier risks into four categories; namely strategic, leverage, bottleneck and non-critical. In 2019, we reviewed the performance of our strategic vendors based upon our Vendor Code to identify areas for improvement. We will continue to review the other categories of vendors and enhance our vendor relationship processes in 2020.

Total Purchase Value

$3.5b (Singapore operations)

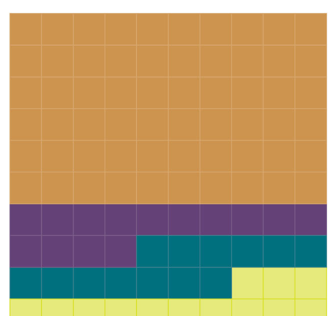
$4.5b (Global operations)

DISTRIBUTION OF PURCHASES BY BUSINESS SECTORS*



Aerospace	37%
Electronics	33%
Land Systems	20%
Marine	8%
Group Corporate	2%

DISTRIBUTION OF PURCHASES BY GEOGRAPHICAL LOCATIONS*



Singapore	60%
Europe	14%
North America	13%
Others	13%

* For Singapore operations only

RESPONSIBLE PROCUREMENT FRAMEWORK

Vendor Conduct

Provides firm foundation through sound guiding principles and standards for responsible procurement

- **Principles and Policies**
- **Vendor Code of Conduct**

Vendor Management

Ensures processes to implement principles and standards are efficient and effective

- **Vendor Management Processes**
- **Vendor Management Systems**

Vendor Relationship

Categorises and manages performance for continuous improvement

- **Vendor Relationship Management**
- **Surveys and Feedback**

Reducing Paper Usage

In support of the Group's drive towards reducing paper usage, the procurement community consolidated printing devices for our Singapore operations under a single Multi-Function Device Print Solution over a number of years. Despite growth in our business, the Singapore operations reduced paper printing by 9%, from 63.9 million in 2015 base year to 57.7 million in 2019, through raising awareness and other initiatives such as our electronic payment process. This project alone has reduced at least 1 million sheets of paper in 2019. In addition, we have also made a switch to use Forest Stewardship Council paper in Singapore.

New e-payment process
reduced printing of more than
1 million
sheets of paper
in 2019

roughly equivalent to
100 pine trees

Contributing to Singapore's Economic Growth

We generate employment for a significant number of small-medium enterprises (SMEs), contributing to the economic growth and employment rate in Singapore. We estimate that 24% of our total purchase value of $3.5b from Singapore operations in 2019 was awarded to SMEs. As an example, the Hunter programme involves more than 100 Singapore SMEs with a combined workforce of about 2,000, producing 1,400 parts for each vehicle. Many of our SME partners have grown in scale and capabilities in their journey with us.

WHAT WE DID IN 2019

- Harmonised vendor management processes.
- Launched Vendor Code of Conduct with all new vendors.

WHAT WE WILL DO IN 2020

- Roll out Vendor Relationship Management process for direct procurement.
- Track key suppliers for Quality, Environmental, and Occupational Health and Safety Management Systems.

SUSTAINABILITY
– SOCIAL

9. CORPORATE COMMUNITY CONTRIBUTIONS

We take pride in being a responsible corporate citizen, investing time and resources to make a positive impact to the communities that we operate in. We actively promote a giving culture through corporate initiatives and volunteerism amongst our employees.

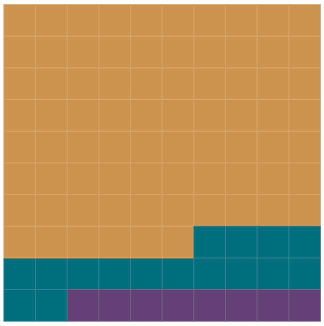
Besides charitable gifts, we also invest in our communities to address social issues relevant to us and the communities, and support business-related commercial initiatives that also deliver benefits to the communities at large.

Community Contributions*

$2.9m
Unleveraged**

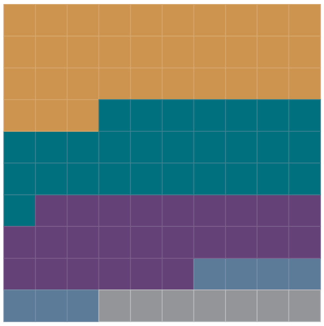
$0.9m
Leveraged**

OUR CONTRIBUTIONS***



Cash	76%
Employees' time	16%
Management's time	8%

ISSUES ADDRESSED***



Economic development	33%
Education	28%
Social causes	25%
Health	7%
Environment	7%

* Contributions from Singapore and North America; LBG framework was referenced to measure community contributions and issues addressed

** Unleveraged contributions are from the company while leveraged contributions are those from our employees as a result of the company's encouragement or support

*** Refers to unleveraged contributions only

Charitable Gifts

>$7.7m

Donated to President's Challenge since 2000

a

76%

Participation rate of Singapore employees in SHARE programme

b

c

d

a. SG Ambassador Buddy Programme
b. Volunteering at SPCA
c. Distribution of Prosperity Bags with Community Chest
d. Santa Wears a Badge programme in Pascagoula, U.S.

2,455

Meals delivered in partnership with Touch Community's Meals-on-Wheel volunteer programme

>45,000

Singapore citizens above 60 years old have benefited since 2018 from Project Silver Screen where ST Engineering is contributing $1m over five years, starting 2018

For the 20th consecutive year, we supported the President's Challenge, contributing a total of $250,000 through both employees and Group contributions. Collectively, the Group and its employees have contributed more than $7.7m since 2000 to this cause which in 2019, benefitted 67 charities.

We maintained our support for SHARE, Singapore's Community Chest's monthly giving programme, for the 36th year and encouraged more new and existing employees to sign up or increase their monthly contributions based on their means. Our employees contributed more than $640,000 over a 12-month period in 2018/2019. For our effort in supporting this programme, the Group was awarded the Charity Platinum Award at the Community Chest Awards 2019.

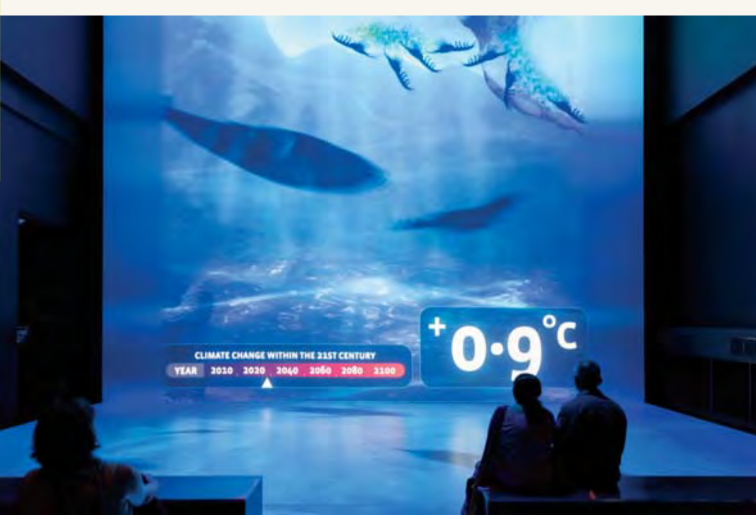
>$640,000

Contributed to SHARE programme

2019 marked the second year of our support for Project Silver Screen, a partnership between Temasek Foundation, Ministry of Health and corporate partners to provide basic functional screening of vision, oral and dental health at subsidised rates.

We reaffirmed our commitment to engage and support our community in 2019 through TOUCH Community Services' Meals-on-Wheels programme, where 520 of our colleagues dedicated over 2,000 manhours to deliver 2,455 food packages across Singapore.

Our North America operations also continued to support their local communities through volunteer time at local food banks, walks to raise money for the American Heart Association, and monetary donations to various organisations such as Special Olympics, United Way and many others.



$1.6m

contributed progressively by ST Engineering beginning 2012 in sponsorship of Gardens by the Bay's Cloud Forest Gallery and Cloud Forest Theatre which have since welcomed

18m

visitors

SUSTAINABILITY
– SOCIAL

Community Investments & Commercial Initiatives

We direct our community investments and commercial initiatives through the twin focus areas of "enriching lives through education" and "touching lives through engineering".

Enriching Lives Through Education

Education is the most compelling way to create positive and sustainable change for a better future. We work with partners and collaborators to provide opportunities so that lives can be enriched and uplifted.

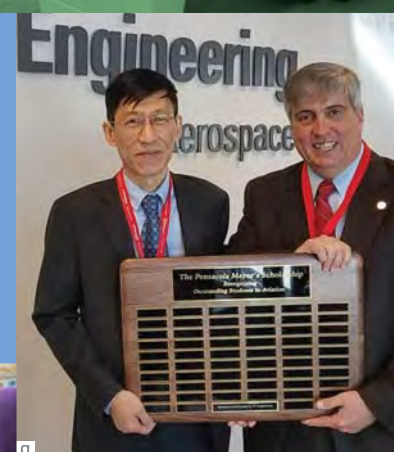
- ***STEM Education:***
  Besides book prizes and scholarships, we contribute to the Singapore STEM education scene through our support of internships and R&D collaborations with institutes of higher learning. In 2019, we offered a total of 1,136 internship positions for technical and engineering students. Since 2015, our two co-funded Corporate Laboratories with the Nanyang Technological University (NTU) and SUTD have created research opportunities for 34 PhD students, two MSc students and 10 interns. In addition, we supported the growing aviation industry in Pensacola, Florida, U.S., with the set up of the Pensacola Mayor's Scholarship for outstanding individuals accepted into aviation related post-secondary educational programmes.
- ***Adult Education:***
  We supported the NTUC Education and Training Fund for the second year with grants of $250,000 as part of a four-year commitment to donate $1m. This fund serves to uplift working Singaporeans through training and education by providing subsidies for skills upgrading and re-skilling. Together with donations from other sponsors, this fund has benefitted over 45,000 NTUC members since 2018.
- ***Youth Education:***
  We have been partnering the Assumption Pathway School (APS) since 2013, providing its students with academic awards, financial assistance and internship opportunities at its warehousing operations. Over the period, the Group has welcomed 140 students as interns and helped them gain industry knowledge and hone their workplace competency.

>24,000

Visitors to ST Engineering Enabling Technology Centre since 2015

>1,100

Internship positions for tertiary students


a


b


c

a. Pensacola Mayor's Scholarship Programme
b. Mooncake baking at APS
c. Industrial Experiential Programme for students of APS
d. Introducing the science of flying to students from Society for the Physically Disabled
e. Launch of AIR+ Kids N95 Kids Mask

46

Graduate students and interns who have benefitted from projects arising from ST Engineering co-funded Corporate Labs in NTU and SUTD since 2015 and 2016 respectively

d

e

Touching Lives Through Engineering

As a technology, defence and engineering group, we have the innovative and creative expertise to deliver solutions to enhance living for communities at large as well as those with special needs.

- ***Assist Elderly and Persons with Disabilities (PWDs):*** We have been promoting the use of assistive technology to help elderlies and PWDs through the sponsorship of the ST Engineering Enabling Technology Centre in partnership with SG Enable. In the four years since its launch in October 2015, 24,255 visitors have visited the centre, 1,175 clients have been assessed and 2,360 training courses have been organised. The Group also supported the annual Institution of Engineers Singapore's Innovation Challenge where university and polytechnic students pitch their projects to help solve problems faced by elderlies and PWDs.

- ***Promote Innovation:*** In 2019, we organised a Hackathon competition in conjunction with the InnoTech Conference, where we partnered with tertiary institutions for students to pitch ideas to solve real-world social and environmental problems. More than 20 teams across nine institutions pitted against one another, guided by the theme "Building Resilience through Data Analytics and IoT".

- ***Address Social Needs:*** We worked with Temasek Foundation to address a critical market need for better fitting and effective protective masks for kids. Designed to fit the smaller facial profiles and respiratory patterns of children, the AIR+ Kids N95 Kids Mask is benchmarked to meet both European and American standards and provides protection against haze, PM2.5 particles, bacteria and viruses. The mask illustrates how innovation and engineering can create breakthrough products to solve the challenges of urban living.

WHAT WE DID IN 2019

- Continued community outreach focusing on "enriching lives through education" and "touching lives through engineering".
- Refined framework for employees to participate in company-led volunteering activities.

WHAT WE WILL DO IN 2020

- Maintain efforts to contribute to the communities where we operate.
- Promote volunteerism across the Group.

SUSTAINABILITY
– GOVERNANCE

ST Engineering is a firm believer of good corporate governance, supported by an enterprise-wide risk management framework and backed by a strong Code of Business Conduct and Ethics. Besides meeting legal and regulatory requirements wherever we operate, we align our management systems to international frameworks and standards.

10. ETHICAL BUSINESS & REGULATORY COMPLIANCE

We have zero tolerance for fraud and corrupt practices, and our Code of Business Conduct and Ethics (Code) forms the backbone of our commitment to ethical business conduct and regulatory compliance. The Code is available in two versions of Chinese and four other languages, and rolled out to employees globally in the form of handbooks and video messages from our senior management. We also developed a mandatory e-learning module for our Code.

Regular training and effective communication are important components to inculcate a strong compliance and ethics culture. The Anti-bribery and Corruption training was rolled out as part of our annual training programme for relevant employees. In addition, compliance-related topics and updates are shared via our intranet and targeted briefing sessions.

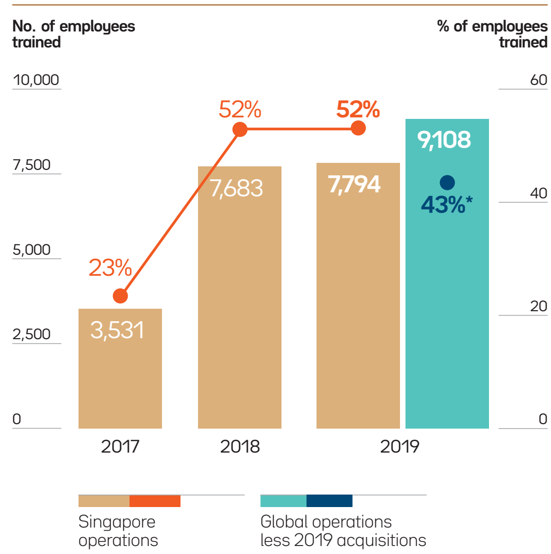
During the year, we reviewed our key compliance policies, particularly in the areas of gifts and entertainment, and the appointment of intermediaries. The review was part of our move towards a global and harmonised approach in managing risk and compliance matters.

Arising from the review, we identified and implemented new e-initiatives to enhance existing controls. These include standard electronic request forms with automated routing to ensure appropriate reviews are carried out with proper approvals, and an exception reporting workflow for timely follow-up.

As part of our ongoing commitment to ethical business conduct, we communicated our anti-corruption policies and procedures to business partners, including new vendors and intermediaries. Our whistleblowing policy encourages and facilitates disclosures of possible improprieties or noncompliance in confidence. All stakeholders can report incidents through various reporting channels that are independently managed by Internal Audit Department. These reporting channels can be accessed through our corporate website at www.stengg.com.

More information regarding our approach to enterprise risk management framework and governance approach can be found in the Corporate Governance Report on pages 90 to 107.

ANTI-BRIBERY AND CORRUPTION TRAINING



* Lower % due to progressive rollout of training to entities outside of Singapore

Combining Risk and Assurance as a Second Line of Defence

As part of our continued efforts to strengthen our commitment to ethical business and regulatory compliance, we established a R&A function in 2019 to oversee and harmonise our efforts in governance, risk, compliance and assurance. This function serves to strengthen our second line of defence in risk and compliance management.

The R&A function maintains key risk management and internal control policies and frameworks at the Group level, with resources dedicated to working closely with the sectors and support functions on their implementation and ensure compliance. The R&A function also drives the annual compliance training programme, consisting of e-learning training and briefings on policies and compliance topics. Teams are also deployed to perform regular reviews to provide management with ground-level sensing and assurance that in-line controls are adequate and effective. In the event that any significant control deficiencies are detected, necessary remedial actions can then be swiftly taken.

Line of Defence		
1st	Management of operational risk including regulatory compliance	**In-line Controls** • Business Operations & Support Functions Executive Managers
2nd	Effectiveness of governance, risk & compliance / control framework	**Risk & Assurance** • Group & sector Management
3rd	Independent assessment of governance, risk & compliance / control culture	**Internal Audit** **External Audits** • Audit Committee

ST Engineering is committed to conducting our business in a responsible manner. We do not design, produce or sell anti-personnel mines, cluster munitions, white phosphorus munitions and their related key components.

WHAT WE DID IN 2019

- Reviewed key compliance policies and procedures and implemented supporting e-initiatives.
- Set up R&A function to oversee and harmonise efforts in governance, risk, compliance and assurance.

WHAT WE WILL DO IN 2020

- Continue to review and enhance existing key compliance policies and procedures through the use of technology.
- Streamline and strengthen governance, risk, compliance and assurance processes.

CORPORATE GOVERNANCE

Good corporate governance is the foundation for long-term value creation of the Group. This Report sets out ST Engineering's corporate governance processes, practices and activities in 2019 with specific reference to the guidelines of the Singapore Code of Corporate Governance 2018 (the Code). The Board is pleased to report that the Company has complied in all material aspects with the principles, provisions and recommendations set out in the Code.

BOARD MATTERS

The Board's Conduct of its Affairs (Principle 1)

The Board is accountable to shareholders for overseeing the effective management of the Company. To this end, the Board relies on the integrity, commitment, skills and due diligence of its management, its external advisors and auditors.

In addition to its statutory responsibilities, the Board reserves the following key matters for its decision:

- setting the Group's strategic objectives and ensuring that decisions made are consistent with these objectives;
- approval of annual budgets, major funding proposals, investment and divestment proposals in accordance with the approved delegation of authority framework;
- appointment of the President & Chief Executive Officer (President & CEO), Board succession and appointments on Board Committees;
- appointment of key management executives and succession planning as an ongoing process;
- review of the risk management framework and sustainability performance; and
- approval of the unaudited quarterly and audited full-year results prior to their release.

In the discharge of its functions, the Board is supported by six Board Committees to which it delegates specific areas of responsibilities for reviewing and decision making.

The President & CEO, Vincent Chong, is accountable to the Board. He is supported by the Management Committee, which consists of the Chief Financial Officer (CFO), the Chief Corporate Officer (CCO) and Presidents of the four business sectors.

Director Induction, Training/Development
On onboarding a Board member, a formal letter is sent to a director upon his appointment setting out his statutory obligations, duties and responsibilities as a director. He is also given the terms of reference for the respective Board Committees. An induction programme is organised for a new director on the strategic direction and performance of the Group as well as his duties and obligations under the statutory compliance and corporate governance framework. Facility visits are also arranged for new directors to enable them to develop a good understanding of the Group's business, operations and the respective key management.

The Board is routinely updated on the relevant laws, SGX continuing listing obligations and accounting standards requiring compliance, and their implications for the Group, so as to enable each director to properly discharge his duties as a Board member and Board Committee member.

Depending on their skillsets and background, directors are sponsored for relevant courses, conferences and seminars to better equip them to fulfil their governance role and to comply with directors' obligations. Where there are statutory and regulatory changes that affect the obligations of directors, the Company will update the Board and, where the changes are substantive, organise briefings by external legal counsel.

Board meetings
The Board convenes scheduled meetings on a quarterly basis to coincide with the announcement of the Group's quarterly results. Special Board meetings may be convened as and when necessary to consider corporate actions requiring the Board's guidance or approval.

To facilitate the Board and Board Committees' decision-making process, the Company's Constitution provides for directors to participate in meetings by teleconference or video conference. Decisions of the Board and Board Committees may also be obtained via circulation. At the end of every Board meeting, the Chairman allocates time for its non-executive directors to meet without the presence of management.

Board members receive monthly consolidated management reports on the financial performance of the Group and the business sectors. On a quarterly basis, the management reports would additionally include key business highlights and capital expenditure of the Group and the business sectors to keep the Board apprised of business investments and performance updates.

The Board also has unrestricted access to the President & CEO, the CFO, the CCO, management and the Company Secretary as well as the internal and external auditors, risk management and sustainability teams. The Board may also seek independent professional advice, if necessary, at the Company's expense.

The Board and Board Committee meetings are scheduled well in advance and meeting papers are circulated to the Board and Board Committee members at least three days prior to meetings in order for directors or members to be adequately prepared for the meetings.

The Board has, at all times, exercised independent judgment to make decisions, using its collective wisdom and experience to act in the best interests of the Company. Any director who has an interest that may conflict with a subject under discussion by the Board, declares his/her interest and either recuses himself/herself from the information and discussion of the subject matter or abstains from decision-making.

During the year, the Board met to consider, among other things, the approval and release of the FY2018, 1Q2019, 2Q2019 and 3Q2019 results.

Details and attendance at Board and Board committee meetings in 2019 are tabulated below.

Board Members' Details			Meeting Attendance Report* ● Chair of the Board/ Board Committee ● Member of the Board/ Board Committee							
			Board	AC	ERCC	NC	RD&T	RSC	SFC	AGM
			Number of meeting held in FY2019							
Names	Independent (I)/ Non-Independent (NI)	Executive (E)/ Non-Executive (NE)	4	6	4	4	2	5	4	1
Kwa Chong Seng	I	NE	4/4		4/4	4/4			4/4	1/1
Vincent Chong Sy Feng	NI	E	4/4				2/2	5/5	4/4	1/1
Dr Beh Swan Gin	I	NE	4/4						2/2	1/1
Joseph Leong Weng Keong[1]	NI	NE	2/2							
Lim Ah Doo	I	NE	3/4	6/6					4/4	1/1
Lim Chin Hu	I	NE	4/4		4/4	4/4	2/2			1/1
Lim Sim Seng	I	NE	4/4		4/4	3/4			2/2	
LG Ong Su Kiat Melvyn	NI	NE	3/4					4/5		
Quek Gim Pew[2]	NI	NE	3/4				2/2	1/2		1/1
Quek See Tiat[3]	I	NE	4/4	6/6				4/4		1/1
Song Su-Min	I	NE	4/4	6/6				5/5		1/1
COL Xu Youfeng[4]	NI	NE	3/4							

AC-Audit Committee, ERCC-Executive Resource and Compensation Committee, NC-Nominating Committee, RD&T-Research, Development and Technology Committee, RSC-Risk and Sustainability Committee, SFC-Strategy & Finance Committee, AGM-Annual General Meeting

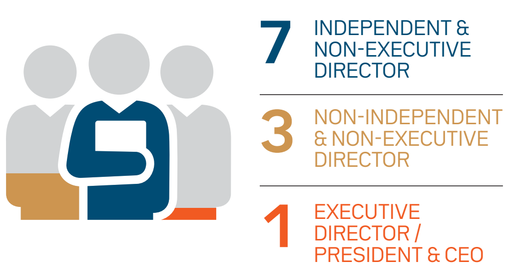
* Refers to meetings held/attended by each Director
1 Appointed Director on 7 June 2019
2 Appointed member of RSC on 23 May 2019
3 Appointed member of RSC on 8 March 2019 and Chairman of RSC on 17 April 2019
4 Alternate to LG Ong Su Kiat Melvyn

CORPORATE GOVERNANCE

Role of Company Secretary
The Company Secretary attends all Board meetings and ensures that board procedures are followed. The Company Secretary facilitates communication between the Board, its Committees and management and advises the Board on governance matters including their timely disclosure obligations. She also assists with the induction of new directors as well as the co-ordination of continuing training for board members to keep the Board up-to-date on corporate governance matters. The appointment and removal of the Company Secretary is a matter for the Board as a whole to decide.

Board Composition and Guidance (Principle 2)

Board Composition and Diversity
The Board comprises 11 Directors and an Alternate Director. COL Xu Youfeng is Alternate Director to LG Melvyn Ong. LG Ong, in his position as Chief of Defence Force, may be called away on duty at times and may not be able to attend all Board meetings. COL Xu is fully apprised of all Board matters, receives notices to attend Board meetings and Board papers as well as Board resolutions by circulation. As Alternate Director, he is in a position to act on behalf of LG Ong in the latter's absence.



During the year, the Board adopted a Board Diversity Policy. The Board, through the Nominating Committee (NC), reviews the size and composition of the Board taking into consideration the age, skillsets, knowledge, experience, background, gender, independence of directors and other relevant factors. The Board also recognises that diversity is not limited merely to gender or any personal attributes and believes that having experienced directors with an independent mindset is important for the Board to be effective. The current Board is sized to take into account the global scale of the Group's businesses and ST Engineering's key role in supporting Singapore's defence technology eco-system. The Board will continue to review its composition and size to facilitate effective decision-making.

During the year, the Board welcomed the following new Director:

- Joseph Leong Weng Keong was appointed as a non-independent non-executive Director on 7 June 2019. He is the Permanent Secretary (Defence Development), Second Permanent Secretary (Communications and Information) and Second Permanent Secretary (Cybersecurity).

The Board consists of members with established track record in defence, business, finance, banking, technology, legal and management. Each non-executive director brings to the Board an independent perspective based on his/her training and professional expertise to enable the Board to make balanced and well-considered decisions.

Board Independence
The Board has seven independent Directors who represent more than 60% of the Board and 10 non-executive Directors who represent more than 90% of the Board. The Code requires non-executive directors to make up a majority of the Board. The independence of each director is determined upon appointment and reviewed annually by the NC.

The NC has reviewed and affirmed that the independent Directors are Kwa Chong Seng, Dr Beh Swan Gin, Lim Ah Doo, Lim Chin Hu, Lim Sim Seng, Quek See Tiat and Song Su-Min. The Board agrees with the NC's assessment.

Chairman and Chief Executive Officer (Principle 3)

The Chairman and President & CEO roles and responsibilities are kept separate in order to maintain effective oversight. The recommendation in the Code for a lead independent director is not applicable as the Chairman and the President & CEO are separate individuals and are not related. No individual or small group of individuals dominates the Board's decision making process. The President & CEO and senior management regularly consult with individual Board members and seek the advice of members of the Board Committees through meetings, telephone calls as well as by email.

Chairman's Independence
Kwa Chong Seng joined the Board on 1 September 2012. He was appointed Chairman on 25 April 2013. Mr Kwa is the retired Chairman and Managing Director of ExxonMobil Asia Pacific Pte Ltd. Other than serving as a non-executive Director on the Board of SeaTown Holdings Pte Ltd, a wholly-owned subsidiary of Temasek Holdings (Private) Limited, he does not hold any other position in Temasek Holdings. The NC has determined that he is an independent Director.

The Chairman is responsible for leading the Board and ensuring the effective functioning of the Board to act in the best interests of the Company and its shareholders. The Chairman facilitates the relationship between the Board, President & CEO and management, engaging them in open dialogue over various matters including strategic issues, sustainability, risks and business planning processes. He ensures that discussions at the Board level are conducted objectively and professionally where all views are heard and key issues are debated in a fair and open manner. The Chairman also ensures that adequate time is provided for discussion of strategic issues and key concerns at Board meetings. He represents the views of the Board to the shareholders.

Vincent Chong who is an executive Director, and the President & CEO, is accountable to the Board for the conduct and performance of the Group. He has been delegated authority to make decisions within certain financial limits authorised by the Board. He is supported in his work by the Management Committee.

Board Membership and Board Performance (Principles 4 and 5)

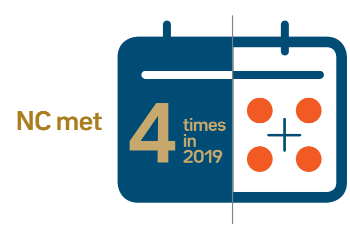
Supporting the Board are the following Board Committees:

- Audit Committee
- Executive Resource and Compensation Committee
- Nominating Committee
- Research, Development and Technology Committee
- Risk and Sustainability Committee
- Strategy & Finance Committee

Nominating Committee

Independent and Non-Executive Directors
Kwa Chong Seng (Chairman)
Lim Chin Hu
Lim Sim Seng

The NC is responsible for reviewing the composition of the Board and identifying suitable candidates to the Board, in particular, candidates with the appropriate qualifications, skillsets and experience who are able to discharge their responsibilities as directors. Shortlisted candidates are recommended to the Board for approval. The NC is also responsible for reviewing and determining the independence of non-executive directors annually, conducting board performance evaluation, succession planning for President & CEO and key management executives as well as director training and development.



The NC is continually engaged in the Board renewal process of ST Engineering, having regard to the skills, experience and industry expertise needed for a balanced board composition to, among other things, oversee governance, risks and sustainability within the Group's business. When the need for a new director is identified, potential candidates are identified from various sources. The NC will assess a shortlist according to the type of expertise needed. The NC will also assess a candidate's character, independence and experience to ensure that he/she has the requisite standard of competence to carry out his/her duties as a director of a listed company.

CORPORATE GOVERNANCE

Board Evaluation
The NC conducted a collective assessment of the Board to gauge the effectiveness of the Board's performance, the adequacy of the blend of skillsets and experience of the Board, and the quality and timeliness of board and committee meeting agendas and papers submitted by the management. The review was internally undertaken with each director being asked to complete a questionnaire. Their feedback was collated and shared with the Board. The review indicated that the Board continues to function effectively. The NC also took on board the feedback of the Board members on areas for improvement.

Maximum Board Representation
The NC also noted the list of other directorships held by our Directors taking into consideration their principal commitments. The NC and the Board are satisfied that each of the Directors is able to devote time to carry out his/her duties as director in the Company.

The Board has considered and agreed not to set guidelines for a maximum directorship that a director can hold. Annually, an incumbent director is asked to affirm that he/she has adequate time to devote to his/her Board responsibilities. ST Engineering Board members are selected on the basis of their ability to contribute to the Board through their relevant skillsets, experience, calibre and willingness to devote time. In addition, each director is required to provide an annual affirmation of commitment to his/her Board responsibilities. With these considerations, the Board is of the view that setting a maximum number of board representations for our Directors is not needed.

Re-election of Director
The NC is also responsible for renewal and succession plans to ensure Board continuity. At each Annual General Meeting (AGM), one-third of the directors with those longest in office since his/her last re-election have to retire. Effectively, this results in all directors having to retire at least once every three years or even earlier, in compliance with SGX Listing Rule 720(5). A retiring director may submit himself/herself for re-election. Under this provision, Kwa Chong Seng, Dr Beh Swan Gin, Quek Gim Pew and Quek See Tiat will retire at the 2020 AGM. Joseph Leong, who is newly appointed, will hold office until the forthcoming AGM of the Company. The retiring Directors, being eligible, have offered themselves for re-election, except for Dr Beh Swan Gin who has decided not to seek re-election due to other commitments. In accordance with SGX Listing Rule 720(6), the information relating to the retiring Directors seeking re-election is found on pages 20 to 25.

Each of the retiring non-executive Directors has confirmed that he does not have any relationship with his fellow Directors nor with the Company and its substantial shareholders.

The Board, acting on the recommendation of the NC, proposes that each of the retiring Directors, save for Dr Beh Swan Gin, be re-elected at the Company's forthcoming AGM.

Save as disclosed for Vincent Chong, the remaining 10 Directors are non-executive Directors.

Strategy & Finance Committee

Independent and Non-Executive Directors
Kwa Chong Seng (Chairman)
Dr Beh Swan Gin
Lim Ah Doo
Lim Sim Seng

Non-Independent and Executive Director
Vincent Chong

The Strategy & Finance Committee's (SFC) role includes guiding management in the development and execution of the Group's strategies as well as consider and approve tender proposals which are above established contract value limit.

The SFC also reviewed the 2020 Budget and five-year plan prior to submission to the Board for approval.

SFC met


Research, Development and Technology Committee

Non-Independent and Non-Executive Director
Quek Gim Pew (Chairman)

Independent and Non-Executive Director
Lim Chin Hu

Non-Independent and Executive Director
Vincent Chong

The Research, Development and Technology Committee's (RD&T) role includes setting direction for major R&D investments and activities, promoting R&D and innovative culture, identifying areas of synergy with respect to R&D caqpabilities, facilities and resources, as well as identifying new technologies that will enhance the core businesses of the Group.

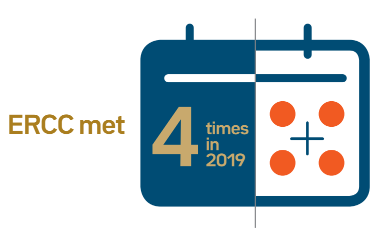
REMUNERATION MATTERS

Procedures for Developing Remuneration Policies (Principle 6)
Level and Mix of Remuneration (Principle 7)
Disclosure on Remuneration (Principle 8)

Executive Resource and Compensation Committee

Independent and Non-Executive Directors
Kwa Chong Seng (Chairman)
Lim Chin Hu
Lim Sim Seng

The Executive Resource and Compensation Committee (ERCC) performs the role of the remuneration committee. The members of the ERCC have held senior positions in large organisations and are experienced in the area of executive remuneration policies and trends. All ERCC members are non-executive independent directors.



All decisions at any meeting of the ERCC are decided by a majority of votes of the ERCC members present and voting (the decision of the ERCC shall at all times exclude the vote, approval or recommendation of any member who has a conflict of interest in the subject matter under consideration).

The ERCC performs the following duties and responsibilities:

Executive Remuneration General Framework

- Reviews and recommends to the Board the Group's general framework for determining executive remuneration including the remuneration of the President & CEO, top five key management executives of the Group and other senior management executives (collectively referred to as "Senior Management Executives").

Executive Director and Senior Management Executives

- Reviews and recommends to the Board the entire specific remuneration package and service contract terms for the President & CEO, who is also the executive Director.
- Considers, reviews, approves and/or varies (if necessary) the entire specific remuneration packages and service contract terms for the Senior Management Executives of the Group. For FY2019, the Board reviewed and approved the specific remuneration packages and service contract terms for the key management executives.

Non-Executive Director Remuneration

- Reviews and recommends to the Board the remuneration framework (including directors' fees) for non-executive directors.

Equity-based Plans

- Approves the design of equity-based plans and reviews and administers such plans.

Executive and Leadership Development

- Oversees the development of management with the aim of a continual build up of talent and renewal of strong and sound leadership to ensure the continued success of the Group and its businesses.
- Approves appointments to Senior Management Executive positions within the Group.

For financial year 2019, Aon Hewitt Singapore Pte Ltd (Aon) was engaged as remuneration consultant (Remuneration Consultant) to provide professional advice on board and executive remuneration matters. Aon and its principal consultant are independent and are not related to the Group or any of its directors.

Executive Remuneration Structure
Remuneration for the Senior Management Executives comprises a fixed compensation, variable cash-based incentives, share-based incentives and market-related benefits.

CORPORATE GOVERNANCE

A. Fixed Compensation:

The fixed compensation comprises the base salary and compulsory employer's Central Provident Fund (CPF) contributions.

B. Variable Cash-based Incentives:

The variable cash-based incentives include the Performance Target Bonus (PTB) and EVA-based Incentive Scheme.

Performance Target Bonus

The PTB is a cash-based incentive for Senior Management Executives which is linked to the achievement of annual performance targets that will vary depending on their job requirements.

Individual performance objectives are set at the beginning of each financial year. The objectives are aligned to the overall strategic, financial and operational goals of the Group and Company. These objectives are cascaded down to a select group of key executives creating alignment between the performance of the Group, Company and the individual.

The individual PTB payouts for the President & CEO and key management executives are determined by the ERCC based on the Group's, Company's and individual performance at the end of the financial year.

EVA-based Incentive Scheme

The EVA-based Incentive Scheme (EBIS), which is linked to the Company's economic value-add and financial performance forms part of the short-term incentives for the Senior Management Executives.

Under the plan, a portion of EBIS bonus declared for the financial year will be paid out annually while the remaining portions will be deferred in an EVA bank. Amounts in the EVA bank are at risk because negative EVA will result in a clawback of EVA accumulated in the bank. This mechanism encourages the Senior Management Executives to work for sustained EVA generation and to adopt strategies that are aligned with the long-term interests of the Group.

In addition, the Group has a clawback facility with respect to the EVA bank in the event of a restatement of the financial results of the Group subsequent to an earlier misstatement, and provisions for the forfeiture of the remaining EVA bank balance on termination due to misconduct or fraud resulting in any financial loss to the Group.

Based on the ERCC's assessment, the Group has partially met the predetermined targets in financial year 2019. The resulting annual EVA declared under EBIS was adjusted accordingly.

C. Share-based Incentives:

Shares which were granted in financial year 2019 were based on the Singapore Technologies Engineering Performance Share Plan 2010 (PSP2010) and the Singapore Technologies Engineering Restricted Share Plan 2010 (RSP2010) approved and adopted by shareholders of the Company at the Extraordinary General Meeting held on 21 April 2010. Yearly share grants under the PSP2010 and RSP2010 do not exceed the internal annual limit of 1% of the total number of issued shares of the Company, set by the ERCC.

Details of the share plans and grants are given in the Share Plans section of the Directors' Statement from pages 115 to 116.

PSP2010

The PSP2010 was established with the objective of motivating Senior Management Executives to strive for sustained growth and performance of the Group.

Pursuant to the PSP2010, the ERCC has decided to grant shares on an annual basis, conditional on meeting targets set for a three-year performance period. With effect from financial year 2018, the performance measures used in PSP grants under PSP2010 are:

- Absolute Total Shareholder Return (TSR) against Cost of Equity hurdles (i.e. measure of absolute Wealth Added); and
- Earnings Per Share (EPS) Growth against pre-determined EPS Growth targets over the performance period.

A minimum threshold performance is required for any performance shares to be released to the recipients at the end of the performance period. The actual number of performance shares released will depend on the achievement of predetermined targets over the performance period, capped at 170% of the shares granted.

The release of the final PSP shares is conditional on satisfactory individual performance of the recipient at the end of the performance period.

The Group has clawback policies for the unvested shares under PSP2010 in the event of exceptional circumstances of restatement of the financial results of the Group subsequent to an earlier misstatement, or of misconduct or fraud resulting in any financial loss to the Group.

The Group has exceeded the predetermined target performance level for PSP awards granted based on the performance period from financial years 2017 to 2019.

RSP2010

The RSP2010 was established with the objective of retaining and motivating managers and above to strive for sustained long-term growth of the Group. It also aims to foster a share ownership culture among employees within the Group and to better align employees' incentives with shareholders' interests.

Pursuant to the RSP2010, the ERCC has decided to grant shares on an annual basis. The shares will vest equally over a four-year performance period, subject to continued employment with the Group and maintaining a satisfactory performance rating for the financial year preceding each tranche of vesting.

The Group has clawback policies for the unvested shares under RSP2010 in the event of exceptional circumstances of restatement of the financial results of the Group subsequent to an earlier misstatement, or of misconduct or fraud resulting in any financial loss to the Group.

For March 2020 RSP share grant, we have added Return on Capital Employed (ROCE) as a performance condition.

D. Market-related Benefits:

The benefits provided are comparable with local market practices.

The Code requires a company to disclose the names and remuneration of the CEO and at least the top five key management personnel (who are not also directors or the CEO). Details of the remuneration package for the President & CEO are provided in the Summary Remuneration Table for Directors on page 99. Details of the remuneration packages for the Key Management Executives are provided in the Summary Remuneration Table for Key Management Executives on page 100.

In performing the duties as required under its Terms of Reference, the ERCC ensures that remuneration paid to the Senior Management Executives are strongly linked to the achievement of business and individual performance targets. The performance targets as determined by the ERCC are set at realistic yet stretched levels each year to motivate a high degree of business performance with emphasis on both short and long-term quantifiable objectives. Pay-for-Performance Alignment study was conducted periodically by the Remuneration Consultant and reviewed by the ERCC for sufficient evidence indicating Pay-for-Performance alignment for the Group in terms of both absolute and relative performance.

Under the Code, the compensation system shall take into account the risk policies of the Group, be symmetric with risk outcomes and be sensitive to the time horizon of risks. The ERCC will undertake periodic reviews of the compensation-related risks.

During financial year 2019, there were no termination, retirement and post-employment benefits granted to directors, President & CEO and Key Management Executives other than in accordance with the standard contractual agreement.

There were no employees who were immediate family members of a director or the President & CEO and whose remuneration exceeded S$100,000 during the financial year 2019, except for Quek Gim Chuah (VP Quality Management, Aerospace sector), who is the brother of Quek Gim Pew, Director of the Company. Quek Gim Chuah has been with ST Engineering for 32 years since April 1987 and is currently the Vice President of Quality Management in the Aerospace Sector. He reports to the President of the Aerospace sector and in this role, he has no dealings with ST Engineering's Board of Directors. Like all other non-executive Directors, Quek Gim Pew is not involved in operational matters and the hiring, appraisal and remuneration of middle management, including that of his brother Quek Gim Chuah. For these reasons, we decided to respect Quek Gim Chuah's confidentiality by not disclosing his remuneration band.

Non-Executive Director Remuneration
Non-executive Directors (NEDs) have remuneration packages consisting of directors' fees and attendance fees, which are approved in arrears by shareholders for services rendered in the previous year. The Directors' Remuneration Framework comprises a basic retainer, attendance and additional fees for serving on Board Committees.

For services rendered in financial year 2019, eligible NEDs will receive 70% of the total directors' fees in cash and 30% of the total directors' fees in the form of restricted shares which are governed by the terms of RSP2020, subject to shareholders' approval at its AGM in April 2020.

As the restricted shares are granted in lieu of directors' remuneration in cash, the shares will be granted outright as fully paid shares with no performance conditions attached and no vesting periods imposed. To encourage the alignment of interests of the NEDs with the interests of shareholders, the share grant has a moratorium on selling. Each eligible NED is required to hold shares in the Group worth the lower of: (a) the total number of shares in the Group granted to such NED as payment of the shares' component of the NEDs' fees for financial year 2011 and onwards; or (b) the number of shares of equivalent value to the prevailing annual basic retainer fee for a director of the Group. An NED can sell all his/her shares in the Group a year after the end of his/her Board tenure.

CORPORATE GOVERNANCE

The computation of NEDs' remuneration is based on the following rates.

	From Private Sector ($) 2019
Chairman Fee (all-in)	750,000
Board Basic Retainer Fee	
Director	75,000
Additional/Committee Fees	
Audit Committee: - Chairman - Member	 52,000 29,000
ERCC, SFC, RD&T and RSC: - Chairman - Member	 35,000 18,000
Other Committees (including NC): - Chairman - Member	 29,000 14,000
Attendance Fees	
Per Board Meeting	5,000
Per Board Committee Meeting	2,500

The Chairman fee is a fixed fee covering Board basic retainer, Board Committee and meeting attendance fees. The fee is paid in a combination of cash (70%) and shares (30%). The shares granted, as part of the fee, are fully-paid with no performance conditions attached and no vesting period imposed. However, the shares will have to be held for at least two years from the date of grant, and the two-year moratorium will apply even in the event of retirement.

Fees for directors who hold public sector appointments follow the Directorship & Consultancy Appointments Council's (DCAC) guidelines as set out below.

	Public Sector NED fees ($) 2019
Chairman	45,000
Deputy Chairman/Chairman Executive Committee/ Chairman Audit Committee	33,750
Member Executive Committee/Member Audit Committee/Chairman of Other Board Committee(s)	22,500
Director/Other Committee Member	11,250

NEDs who hold public sector appointments will not be eligible for the shares component of the NEDs' remuneration. 100% of their remuneration in cash is payable to DCAC, where applicable.

The NEDs' remuneration payable in respect of financial year 2019 is proposed to be $1,724,587 (FY2018: $1,772,607). Details of the directors' remuneration are provided in the Summary Remuneration Table for Directors on page 99.

SUMMARY REMUNERATION TABLE FOR DIRECTORS FOR THE YEAR ENDED 31 DECEMBER 2019 (GROUP):

Payable by the Company

Executive Director	Salary *1 $	Variable Cash-based Incentives *2 $	Benefits *3 $	Share-based Incentives *4 $	Total
Vincent Chong Sy Feng	1,027,593	1,798,982	128,000	2,025,425	4,980,000

Non-Executive Directors	Directors' Total Fees *5 $
Kwa Chong Seng	750,000
Dr Beh Swan Gin	11,250 [a]
Joseph Leong Weng Keong	6,411 [a][b]
Lim Ah Doo	162,000
Lim Chin Hu	170,000
Lim Sim Seng	167,500
LG Ong Su Kiat Melvyn	11,250 [a]
Quek Gim Pew	22,500 [a][c]
Quek See Tiat	198,809 [d]
Song Su-Min	169,500
COL Xu Youfeng (Alternate to LG Ong Su Kiat Melvyn)	N.A.
Khoo Boon Hui	55,367 [e]
Total	**$1,724,587**

Payable by Subsidiaries

Executive Director	Directors' Total Fees *5 $
Vincent Chong Sy Feng	30,000 [f]

Non-Executive Directors	Directors' Total Fees *5 $
Lim Chin Hu	20,000
Quek Gim Pew	12,500 [a]
Total	**$32,500**

*1 Salary includes base salary and employer CPF for the financial year ended 31 December 2019.
*2 Variable cash-based incentives include Performance Target Bonus & EVA-based incentive declared for the financial year ended 31 December 2019.
*3 Benefits provided for employees are comparable with local market practices. These include medical, dental, insurances, transport, etc.
*4 Share-based incentives consist of PSP and RSP shares granted for financial year ended 31 December 2019.
*5 The directors' cash fees and share grants will only be paid/granted upon approval by the shareholders at the forthcoming AGM of the Group.

[a] Fees for public sector directors are payable to a government agency, the DCAC
[b] Pro-rated. Joseph Leong Weng Keong was appointed Director on 7 June 2019
[c] Appointed member of RSC on 23 May 2019
[d] Appointed member and Chairman of RSC on 8 March 2019 and 17 April 2019 respectively
[e] Resigned as Director and ceased to be member and Chairman of RSC and member of AC on 17 April 2019
[f] Fees are payable to Singapore Technologies Engineering Ltd

CORPORATE GOVERNANCE

SUMMARY REMUNERATION TABLE FOR KEY MANAGEMENT EXECUTIVES FOR THE YEAR ENDED 31 DECEMBER 2019 (GROUP):

Remuneration	Salary *1 %	Variable Cash-based Incentives *2 %	Benefits *3 %	Share-based Incentives *4 %	Total %
Between $2,500,000 and $2,750,000					
Lim Serh Ghee	25	40	3	32	100
Between $2,000,000 and $2,250,000					
Ravinder Singh s/o Harchand Singh	30	36	4	30	100
Between $1,750,000 and $2,000,000					
Foo Chee Keng Cedric	34	32	4	30	100
Ng Sing Chan	35	30	5	30	100
Between $1,250,000 and $1,500,000					
Dr Lee Shiang Long	39	31	5	25	100
				Total for Key Management Executives	**$9,952,427**

*1 Salary includes base salary and employer CPF for the financial year ended 31 December 2019.
*2 Variable cash-based incentives include Performance Target Bonus & EVA-based incentive declared for the financial year ended 31 December 2019.
*3 Benefits provided for employees are comparable with local market practices. These include medical, dental, insurances transport, etc.
*4 Share-based incentives consist of PSP and RSP shares granted for financial year ended 31 December 2019.

ACCOUNTABILITY AND AUDIT

Risk Management and Internal Controls (Principle 9)

The Board is responsible for the governance of risk and ensures that Management maintains a sound system of risk management and internal controls, to safeguard the interests of the Company and its shareholders.

The Board received a written assurance from the President & CEO and the CFO that the financial records have been properly maintained and the financial statements give a true and fair view of the Company's operations and finances.

A Risk and Sustainability Committee (RSC) is established to ensure the Management has adequate oversight over the awareness and handling of risks.

Risk and Sustainability Committee

Independent and Non-Executive Directors
Quek See Tiat (Chairman)
Song Su-Min

Non-Independent and Non-Executive Directors
LG Melvyn Ong
Quek Gim Pew

Non-Independent and Executive Director
Vincent Chong

The RSC was until 17 April 2019 chaired by Khoo Boon Hui. Christopher Lau and Bill Chua continued to be co-opted members of the RSC for 2019 until 8 November 2019.

For the Board to discharge its duties objectively over risks and internal control, Management of ST Engineering meets with the Board and Board Committees frequently during the year:

RSC met

including:
- 1 meeting in 2019 with AC

a) Sustainability Oversight

The RSC oversees the Group's sustainability matters and annual sustainability reporting. The RSC is supported in this aspect by the ST Engineering Business Excellence & Sustainability Council which is chaired by President & CEO. More information on sustainability governance can be found in the Sustainability Report on page 67.

b) Risk Governance

The RSC assists the Board in its risk governance responsibility. RSC's role is one of oversight of the responsibilities delegated to management to ensure that there is a system of controls in place for identifying and managing risks in order to safeguard stakeholders' interests and the Company's assets.

The RSC is supported on risk related matters by the Risk and Assurance (R&A) function headed by Head, R&A working with the Sector Chief Risk Officers (CROs) from each of the Sectors. The R&A function is key to making sure that ST Engineering manages its risks, stays in compliance to all legal and regulatory requirements where it operates and have the right governance and controls in place. Specifically, the R&A function is to:

- Work with Management to strengthen in-line controls and governance, risk management and compliance (GRC) culture;
- Provide assurance to Management that the Group is conducting its business in compliance with all relevant and material regulations, customer requirements and internal procedures; and
- Ensure continued effectiveness of GRC frameworks, policies and procedures in Singapore and overseas business units.

The Head, R&A reports to ST Engineering's President & CEO. The R&A function provides leadership in the implementation of a Group-wide Enterprise Risk Management (ERM) framework that allows risks to be identified, assessed, monitored and managed by the business managers.

Enterprise Risk Management Framework

The Group adopts an ERM framework to identify, assess, monitor and manage key business risks in the short, medium and long term. The ERM framework sets out a common and consistent understanding of risks and risk tolerance limits across the Group. The framework allows the Board and Management to have a shared understanding of the risk philosophy and overall appetite for risk as they establish the strategies and objectives.

The annual risk work plan is approved by the RSC.

There is at least a member on the RSC who is also a member of the AC to facilitate communication and access of information between the two Board committees.

c) Risk Aware Culture and Training

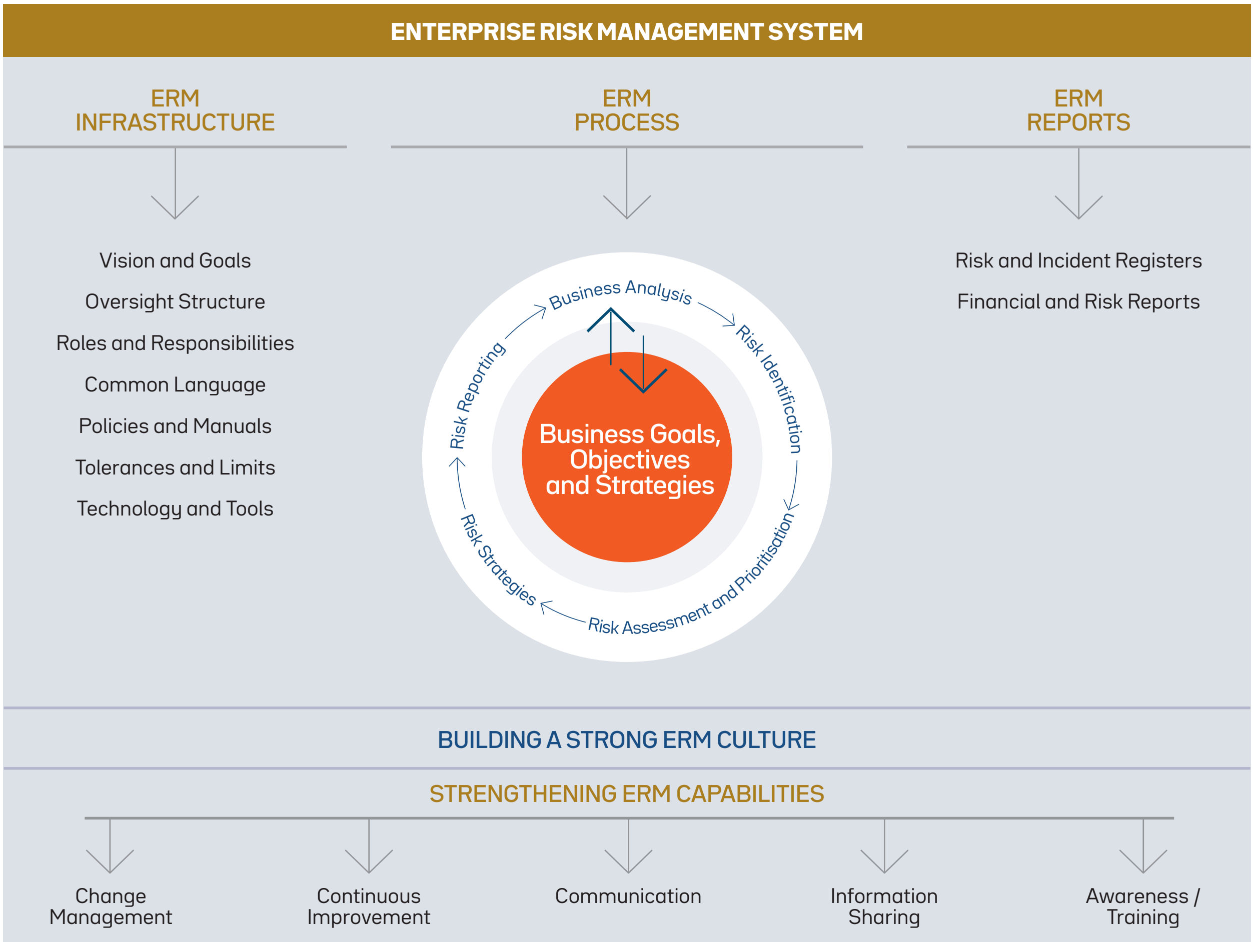
Embedding the right culture throughout the organisation is important for effective risk management. The RSC recognises good culture fosters openness that will enable management and staff to escalate concerns in a timely manner without fear, as well as promote better judgment, which provides greater comfort to the Board and management.

As part of the risk awareness and communication programme, annual risk management training plans covering various risk topics are developed and implemented by the respective sectors, and the status of the training is updated to the RSC at periodic intervals.

d) Risk Review Process

Under the ERM framework, a risk dashboard of the top 15 business risks (comprising the key inherent risks that may impact the business objectives) is developed and maintained by each of the significant business units, rolling up into a summary dashboard for each of the four sectors. Once the top business risks are identified, measures will then be taken to develop and implement risk preventive and mitigation actions (collectively known as "controls") and risk monitoring processes. The business managers are required to periodically review the effectiveness of the controls implemented, and initiate necessary changes as the risk profile changes.

CORPORATE GOVERNANCE



Quarterly, the Sector Presidents and the Sector CROs review, with the RSC, their respective dashboard of material business risks. At the meetings, the Sector Presidents and Sector CROs will discuss the risk management action plans and measures to address these risks. At the same time, the Sector Presidents and Sector CROs will also highlight the following for discussion:

- emerging trends and issues in each business sector;
- new risks or changes to existing risk profile;
- new risk incidents;
- major risk exposures; and
- risk management actions taken on previously identified risks.

The RSC continues to monitor the implementation of risk management policies and procedures and receives updates to the risk registers maintained by the respective sectors. Major reviews include compliance with major laws and regulations, as well as business disruption risks and their continuity plans.

In addition, the RSC reviewed the incident notification framework and cyber risk management framework with management during the year.

e) Risk Management Self Assurance Process

The Risk Management Self Assurance is a process whereby the business risk owners, together with the respective control owners, evaluate and assess the operational effectiveness of the controls established to manage key risks that are reported in the Sector Risk Dashboards.

On the basis of this self-assessment, annually, the RSC will receive from the respective Sector Presidents and Sector Group Financial Controllers, written assurances on the adequacy and effectiveness of the system of risk management and controls to manage the significant risks.

KEY BUSINESS RISKS OF ST ENGINEERING

System of Internal Control and Risk Management

The Board receives, at regular intervals, updates from the Board Committees on the key business risks, the material controls to manage these risks, and the internal audit reports on the operational effectiveness of the material controls.

The Board has received assurance from the Group's President & CEO and CFO on the adequacy and effectiveness of the Company's internal controls and risk management systems.

The Board is satisfied with the risk management process in place, and, in its opinion, that the effectiveness and adequacy of the material controls to manage the key risks have been appropriately reviewed through the management self-assurance process, as well as reasonable independent assurance provided by the Company's IA Function.

Based on the internal controls and risk management process established and maintained by the Group, work performed by the internal and external auditors, and reviews performed by management and various Board Committees, the Board is satisfied that the Group's framework of internal controls (including financial, operational, compliance and information technology controls) as well as the risk management systems are adequate and effective as at 31 December 2019. The AC concurs with the Board on the adequacy and effectiveness of the internal controls and risk management systems established and maintained by the Group as at 31 December 2019.

The Board is satisfied that problems are identified on a timely basis and follow up actions are taken promptly to minimise lapses. The Board, through the Board Committees, is supported in these areas by the IA and R&A teams of the Company. In this regard, the Board also notes that no system can provide absolute assurance against the occurrence of material errors, poor judgment in decision making, human error, fraud or other irregularities.

CORPORATE GOVERNANCE

Audit Committee (Principle 10)

Independent and Non-Executive Directors
Quek See Tiat (Chairman)
Lim Ah Doo
Song Su-Min

The composition of the Audit Committee (AC) are all independent Directors with the majority, including the AC Chairman, having relevant accounting or related financial management expertise or experience. The AC does not comprise any former partner or director of ST Engineering's existing audit firm within two years preceding their appointment to the AC and none of the AC members have any financial interest in the audit firm.

The duties of the AC include the following:

- reviewing the significant financial reporting issues and judgements so as to ensure the integrity of the financial statements and all announcements relating to financial performance;
- reviewing at least annually the adequacy and effectiveness of internal controls and risk management systems;
- reviewing the assurance from the President & CEO and the CFO on the financial records and financial statements;
- making recommendations to the Board on the appointment, removal, remuneration and the terms of engagement of the external auditors;
- reviewing the adequacy, effectiveness, independence, scope and results of the external audit and the internal audit function; and
- reviewing the whistle-blowing policy and arrangements and significant whistle-blowing cases;

The AC ensures that the internal auditor has direct and unrestricted access to the Chairman of the Board and the AC. The AC reviews the appointment, remuneration and resignation of the Head, Internal Audit.

ST Engineering IA is staffed with individuals with the relevant qualifications and experience and comprises a team of 23 staff members, including the Head, Internal Audit, who reports to the AC.

ST Engineering IA is a member of the Singapore Chapter of the Institute of Internal Auditors (IIA) and adopts the International Standards for the Professional Practice of Internal Auditing (the IIA Standards) laid down in the International Professional Practices Framework issued by the IIA. ST Engineering IA continues to meet or exceed the IIA standards in all key aspects.

The AC is satisfied that the IA is independent, effective and adequately resourced.

The AC considered and approved the 2019 Audit Plans for the external and internal audits. In addition, the AC reviewed the adequacy of internal control procedures including cybersecurity issues, interested person transactions and the issues raised in all Internal Audit reports.

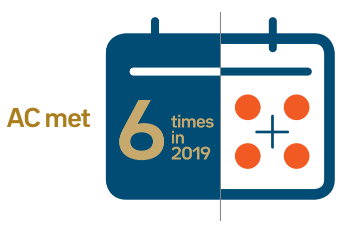
The appointment of external auditors is subject to approval at each AGM. In making its recommendations to shareholders on the appointment and re-appointment of external auditors, the Board relies on the review and recommendations of the AC. The AC reviews the adequacy, effectiveness, independence, scope and results of the external audit and makes recommendations to the Board on the appointment, removal, remuneration and the terms of engagement of the external auditors. In compliance with SGX requirements, an audit engagement partner may only be in charge of an audit for up to five consecutive years. KPMG LLP, which was first appointed in 2010 has been meeting this requirement. The current audit engagement partner took over ST Engineering's audit in February 2017.

Fees paid to the external auditors for audit and non-audit services of the Group for financial year 2019 totalled $7.3m, of which $1.7m or 23% were for non-audit services. The AC was satisfied that the non-audit services provided by the external auditors did not compromise their independence.

During the year, the Company conducted a Request for Proposal (RFP) exercise for the provision of external audit services with effect from the financial year ending December 2020. The AC evaluated the proposals submitted by various external audit firms, taking into consideration the Audit Quality Indicators Disclosure Framework issued by the Accounting and Corporate Regulatory Authority (ACRA), and the criteria for the evaluation and selection of the external auditors contained in the Guidebook for Audit Committees in Singapore and the Audit Committee Guide issued by the Singapore Institute of Directors. After evaluation, the AC recommended PwC LLP for nomination as external auditor with effect from the financial year ending December 2020. The Board agreed with the AC's recommendation to table the proposed change of external auditor for Shareholders' approval at the forthcoming AGM.

The Company has complied with Rules 712 and 715 of the SGX Listing Manual in relation to the engagement of its auditors.

During the year, the AC held six meetings, including a joint meeting with the RSC to review the significant risks and related key controls.



including:
- 1 meeting with RSC

The AC also met with the external auditors, and with the internal auditors, in each case without the presence of Management.

The AC reviewed the financial statements of the Group before the announcement of the Group's quarterly, half-yearly and full-year results. Amongst the matters discussed, the following significant matters impact the financial statements, and were reviewed by the AC in relation to their materiality and appropriateness in approach, methodology and assessment. These matters were also discussed with Management and the external auditors:

Significant matters	How the AC reviewed these matters
Acquisition of businesses	The AC reviewed the appropriateness of the valuation methods and the reasonableness of key assumptions used in the purchase price allocations to arrive at the fair values of the identifiable assets acquired and liabilities assumed in the acquisitions.
Impairment of non-financial assets, including goodwill and other intangible assets	The AC reviewed the reasonableness of cash flow forecasts, the long-term growth rates and discount rates used in the valuation models in goodwill impairment assessments. It also reviewed the stress testing of the valuation and its sensitivity to changes in key assumptions used in the valuation model.
Revenue recognition	The AC reviewed the various controls that were designed and applied by the Group in the recognition of revenue and profit from long-term contracts to ensure that the estimates used in determining the amount of revenue and costs recognised were appropriate.

The AC concluded that Management's accounting treatment and estimates were appropriate for the above significant matters. All the key audit matters (KAMs) that were raised by the external auditors for the financial year ended 31 December 2019 have been addressed by the AC and discussed in the above commentary. The KAMs in the audit report for the financial year ended 31 December 2019 can be found on pages 119 – 121 of this Annual Report.

The AC was kept updated on relevant changes in accounting standards and their implications on the financial statements.

CORPORATE GOVERNANCE

SHAREHOLDER RIGHTS AND ENGAGEMENT

Shareholder Rights and Conduct of General Meetings (Principle 11)

Conduct of General Meetings
ST Engineering disseminates information of our AGMs via SGXNET. They are preceded by notices published in local newspapers and posted on our website well ahead of each such event. As part of our efforts to reduce carbon footprint and contribute towards a sustainable environment, we discontinued the practice of producing CD-ROM copies of our Annual Report and Circular in 2017. Printed copies are still available to shareholders on request. A booklet containing the Notice of AGM, Request Form and Proxy Form are mailed to shareholders.

Due to security related issues and to ensure the authenticity of shareholder's identity, the Company currently does not allow voting in absentia by mail, email or fax.

At ST Engineering, we strongly encourage shareholder participation at general meetings. Our President & CEO starts AGM with a presentation to update shareholders on the Group's performances, business developments and growth opportunities. These materials are made available on both SGXNET and the Company website. On voting, each proposal is put to vote as a separate resolution at general meetings and shareholders present are given an opportunity to ask questions or clarify issues pertaining to these proposals before the resolutions are put to a vote. We do not 'bundle' resolutions, unless they are interdependent but would rather consolidate them into a single proposal. The Board and Management are present for the entire duration of these meetings to address shareholders' queries, often abetted by external auditors and counsel on those pertaining to audit or legal matters that may arise.

Electronic Poll Voting Process
All resolutions are put to the vote by electronic poll voting so as to maintain fairness and transparency, based on the principle of one share, one vote. Independent scrutineers are appointed to conduct the voting process including proxy review prior to the general meetings. They also verify and tabulate votes after each resolution. Shareholders are briefed on the e-polling process. Votes cast – for or against – for each resolution are tallied and displayed 'live' on-screen after the voting procedure. The results and the name of the independent scrutineer are promptly announced with SGXNET after each general meeting.

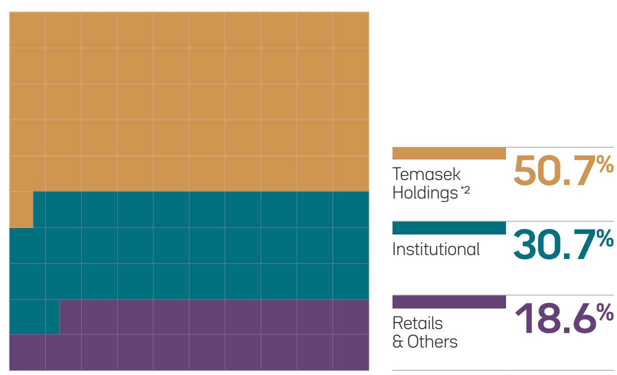
The Company Secretary would prepare the minutes of all shareholders' meetings which are made available on our website, www.stengg.com.

On dividends, ST Engineering aims to provide shareholders with a sustainable dividend return and has historically been declaring interim and final dividends.

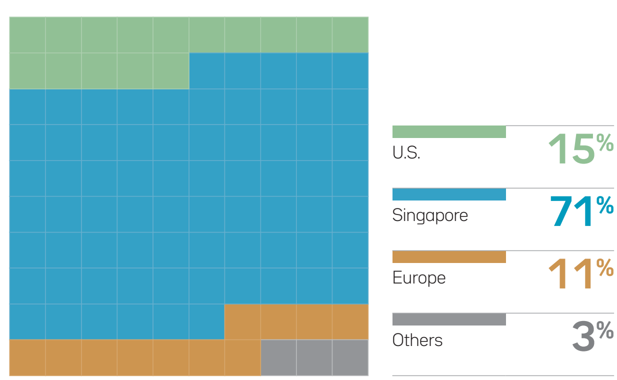
Engagement with Shareholders (Principle 12)

ST Engineering is committed to treating all shareholders fairly, and always strive to provide clear and succinct information to shareholders and the investment community alike in an effective and timely manner. We ensure that all material information is submitted to the Singapore Exchange Securities Trading Limited through SGXNET, followed simultaneously by postings on our website at www.stengg.com.

SHAREHOLDING BY TYPE *1



SHAREHOLDING BY COUNTRY OF RESIDENCE *1



*1 Shareholding profile was derived from analysis of ST Engineering's share register as at 31 December 2019.
*2 This is calculated by summing up shareholdings of both Temasek Holdings (Private) Limited and Vestal Investments Pte. Ltd. as at 31 December 2019.

Our dedicated Investor Relations team upholds a clearly defined Investor Relations policy while executing a multi-channel programme to promote two-way communications with the investing community. The Investor Relations team supports the President & CEO and the CFO in maintaining regular dialogues with investors and analysts based in Singapore and overseas at quarterly results briefings, investor conferences, post-results lunches , trade exhibitions and facility visits. Engaging the investment community at these events provide opportunities to present our business and investment case, as well as enable us to solicit and understand views of the investing community.

The release date of quarterly results is disclosed at least two weeks prior to the announcement date via SGXNET. We observe a "blackout period" with respect to communications with the investing community which was two weeks prior to the announcement of quarterly results. The accompanying press release, financial statements, presentation slides and 'live' audiocasts or webcasts are made available on our website on the same day of each quarterly results briefing.

There is an Investor Relations section on our website where current and past annual reports, quarterly results reports and webcasts, AGMs and other information considered to be of interest to shareholders and the investment community are readily available. Contact details of the Investor Relations team are also listed on the website to facilitate dialogue.

Managing Stakeholders Relationships

Engagement with Stakeholders (Principle 13)

The company has arrangements in place to engage and manage relationship with its material stakeholders. Details in relation to the stakeholders and management of the relationships can be found in the Sustainability Report on pages 66 to 89 and on our website at www.stengg.com.

FINANCIAL REPORT

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

We are pleased to submit this annual report to the members of the Company together with the audited financial statements of the Group and of the Company for the financial year ended 31 December 2019.

In our opinion:

(a) the financial statements set out on pages 126 to 240 are drawn up so as to give a true and fair view of the financial position of the Group and of the Company as at 31 December 2019, and changes in equity, financial performance and cash flows of the Group for the year ended on that date in accordance with the provisions of the Singapore Companies Act, Chapter 50 and Singapore Financial Reporting Standards (International); and

(b) at the date of this statement, there are reasonable grounds to believe that the Company will be able to pay its debts as and when they fall due.

The Board of Directors has, on the date of this statement, authorised these financial statements for issue.

DIRECTORS

The directors of the Company in office at the date of this statement are as follows:

Kwa Chong Seng	(Chairman)
Vincent Chong Sy Feng	
Dr Beh Swan Gin	
Joseph Leong Weng Keong	(Appointed on 7 June 2019)
Lim Ah Doo	
Lim Chin Hu	
Lim Sim Seng	
LG Ong Su Kiat Melvyn	
Quek Gim Pew	
Quek See Tiat	
Song Su-Min	
COL Xu Youfeng	(Alternate Director to LG Ong Su Kiat Melvyn)

ARRANGEMENTS TO ENABLE DIRECTORS TO ACQUIRE SHARES OR DEBENTURES

Except for the Singapore Technologies Engineering Performance Share Plan 2010 (PSP2010) and Singapore Technologies Engineering Restricted Share Plan 2010 (RSP2010) (collectively the ST Engineering Share Plans), neither at the end of nor at any time during the financial year was the Company a party to any arrangement whose objects are, or one of whose object is, to enable the directors of the Company to acquire benefits by means of the acquisition of shares in or debentures of the Company or any other body corporate.

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

DIRECTORS' INTERESTS

Except as disclosed in this statement, no director who held office at the end of the financial year had interests in shares, debentures, warrants, share options or awards of the Company or of related corporations either at the beginning of the financial year or date of appointment if later, or at the end of the financial year.

According to the register kept by the Company for the purposes of Section 164 of the Singapore Companies Act, Chapter 50, particulars of interests of directors who held office at the end of the financial year in shares, debentures, warrants, share options and awards in the Company and its related corporations were as follows:

		Holdings in the name of the director, spouse or infant children	
		1 January 2019 or date of appointment if later	31 December 2019
The Company			
Ordinary Shares			
Kwa Chong Seng		1,027,300 *1	1,084,700 *1
Vincent Chong Sy Feng		1,568,084	1,736,259
Lim Ah Doo		60,000	72,400 *2
Lim Chin Hu		20,000 *3	44,400 *3
Lim Sim Seng		35,600 *3	48,400 *3
Quek See Tiat		45,400	57,900
Song Su-Min		–	2,000
Conditional Award of Shares under PSP2010 for performance period 2016 to 2018			
Vincent Chong Sy Feng	(70,000 shares)	0 to 119,000 #1	– #2
Conditional Award of Shares under PSP2010 for performance period 2017 to 2019			
Vincent Chong Sy Feng	(258,800 shares)	0 to 439,960 #1	0 to 439,960 #1
Conditional Award of Shares under PSP2010 for performance period 2018 to 2020			
Vincent Chong Sy Feng	(428,600 shares)	0 to 728,620 #1	0 to 728,620 #1
Conditional Award of Shares under PSP2010 for performance period 2019 to 2021			
Vincent Chong Sy Feng	(469,385 shares)	–	0 to 797,954 #1

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

DIRECTORS' INTERESTS (continued)

		Holdings in the name of the director, spouse or infant children	
		1 January 2019 or date of appointment if later	**31 December 2019**
The Company			
Unvested restricted shares to be delivered after 2015			
Vincent Chong Sy Feng	(64,676 shares)	16,169 #3	–
Unvested restricted shares to be delivered after 2017			
Vincent Chong Sy Feng	(82,264 shares)	61,698 #3	41,132 #3
Award of restricted shares to be delivered after 2018			
Vincent Chong Sy Feng		180,800 #4	–
Unvested restricted shares to be delivered after 2018			
Vincent Chong Sy Feng	(180,800 shares)	–	135,600 #3
Award of restricted shares to be delivered after 2019			
Vincent Chong Sy Feng		–	219,234 #4
Related Corporations			
Ascendas Funds Management (S) Limited ***Unit holdings in Ascendas Real Estate Investment Trust***			
Quek See Tiat		34,000	40,000
Ascendas Hospitality Fund Management Pte. Ltd. ***Unit holdings in Ascendas Hospitality Trust***			
Lim Chin Hu		198,000 *3	–

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

DIRECTORS' INTERESTS (continued)

	Holdings in the name of the director, spouse or infant children	
	1 January 2019 or date of appointment if later	**31 December 2019**
Related Corporations		
Ascott Residence Trust Management Limited		
Unit holdings in Ascott Residence Trust		
Lim Chin Hu	N.A.	117,541 *3
Quek See Tiat	N.A.	31,000
Astrea V Pte. Ltd.		
Class B 5.75% Secured Fixed Rate Bonds		
Kwa Chong Seng	N.A.	US$200,000 *3
CapitaLand Commercial Trust Management Limited		
Unit holdings in CapitaLand Commercial Trust		
Quek See Tiat	N.A.	94,500
CapitaLand Limited		
Ordinary Shares		
Quek See Tiat	N.A.	13,000
Song Su-Min	N.A.	25,000
Fullerton Fund Management Company Ltd		
Fullerton SGD Income Fund – Class A		
Lim Chin Hu	N.A.	S$453,613 *3
Quek See Tiat	N.A.	S$1,833,085
Mapletree Commercial Trust Management Ltd.		
Unit holdings in Mapletree Commercial Trust		
Lim Chin Hu	–	30,500 *3
Mapletree Industrial Trust Management Ltd.		
Unit holdings in Mapletree Industrial Trust		
Lim Chin Hu	121	10,121 *4

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

DIRECTORS' INTERESTS (continued)

	Holdings in the name of the director, spouse or infant children	
	1 January 2019 or date of appointment if later	**31 December 2019**
Related Corporations		
Mapletree Logistics Trust Management Ltd.		
Unit holdings in Mapletree Logistics Trust		
Lim Ah Doo	185,000	185,000
Lim Chin Hu	–	2,200 *3
Olam International Limited		
Ordinary Shares		
Kwa Chong Seng	609,279 *5	609,279 *5
Combined S$350m 5.5% Perpetual Capital Securities		
Lim Chin Hu	S$250,000 *3	S$250,000 *3
SIA Engineering Company Limited		
Ordinary Shares		
Lim Chin Hu	–	15,000 *3
Singapore Telecommunications Limited		
Ordinary Shares		
Kwa Chong Seng	26,466	–
Lim Chin Hu	–	33,000 *3
Quek Gim Pew	3,120	3,120
Quek See Tiat	680	680
Song Su-Min	190	190
StarHub Ltd		
Ordinary Shares		
Quek See Tiat	5,000	5,000
Song Su-Min	140,600	140,600

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

DIRECTORS' INTERESTS (continued)

	Holdings in the name of the director, spouse or infant children	
	1 January 2019 or date of appointment if later	31 December 2019
Related Corporations		
Temasek Financial (I) Limited		
T2028 USD 10-year Temasek Bond 3.625% coupon due August 2028		
Lim Chin Hu	US$250,000 *3	US$250,000 *3
Temasek Financial (IV) Private Limited		
T2023 SGD Temasek Bond S$500m 2.70% coupon due October 2023		
Quek Gim Pew	S$14,000	S$14,000
Quek See Tiat	S$7,000	S$7,000

*1 Includes interest in 300,000 shares in Singapore Technologies Engineering Ltd, held in trust by a trustee company on behalf of the director.

*2 Includes interest in 60,000 shares in Singapore Technologies Engineering Ltd, held in trust by a trustee company on behalf of the director.

*3 Held in trust by a trustee company on behalf of the director.

*4 Includes interest in 10,000 unit holdings in Mapletree Industrial Trust Management Ltd., held in trust by a trustee company on behalf of the director.

*5 Includes interest in 189,279 shares in Olam International Limited, held in trust by a trustee company on behalf of the director.

#1 A minimum threshold performance over a 3-year period is required for any performance shares to be released and the actual number of performance shares to be released is capped at 170% of the conditional award.

#2 For this period, Mr Vincent Chong Sy Feng was awarded 86,240 shares based on partial achievement of targets set. The balance of the conditional award covering the period from 2016 to 2018 has thus lapsed.

#3 Balance of unvested restricted shares to be released according to the stipulated vesting periods.

#4 Restricted shares will vest annually over four years, subjected to the recipients continued employment with the Group and maintaining a satisfactory performance rating for the financial year preceding each tranche of vesting.

There was no change in any of above-mentioned directors' interest in the Company between the end of the financial year and 21 January 2020.

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

SHARE PLANS

The Executive Resource and Compensation Committee (ERCC) is responsible for administering the ST Engineering Share Plans.

The ERCC members are Mr Kwa Chong Seng (Chairman), Mr Lim Sim Seng and Mr Lim Chin Hu.

As at 31 December 2019, no participants have been granted options and/or have received shares under the ST Engineering Share Plans which, in aggregate, represent 5% or more of the total number of new shares available under the ST Engineering Share Plans.

The aggregate number of new shares issued pursuant to the RSP2010 and PSP2010 did not exceed 8% of the issued share capital of the Company.

Except as disclosed below, there were no shares awarded by the Company to any person to take up unissued shares of the Company.

(a) PSP2010 (PSP)

The PSP is established with the objective of motivating Senior Management Executive to strive for sustained long-term growth and performance in ST Engineering and its subsidiaries (ST Engineering Group). Awards of performance shares are granted conditional on performance targets set based on the ST Engineering Group corporate objectives.

Pursuant to the PSP, the ERCC has decided to grant awards on an annual basis, conditional on targets set for a performance period, currently prescribed to be a 3-year performance period. The performance shares will only be released to the recipient at the end of the performance qualifying period. A specified number of performance shares shall be released by the ERCC to the recipient and the actual number of performance shares will depend on the achievement of set targets over the respective performance period. A minimum threshold performance is required for any performance share to be released and the actual number of performance shares to be released is capped at 170% of the conditional award.

The performance measures used in PSP grants are Absolute Total Shareholder Return (TSR) against Cost of Equity hurdles (i.e. measure of absolute Wealth Added); and Earnings Per Share (EPS) Growth against pre-determined targets. In addition to the PSP performance targets being met, final award for PSP is conditional upon satisfactory performance of the recipient.

The awards granted under the PSP2010 are as follows:

Participant	Conditional awards granted during the financial year under review	Awards released during the financial year under review	Aggregate conditional awards granted since commencement to end of financial year under review	Aggregate awards released since commencement to end of financial year under review	Aggregate conditional awards not released as at end of financial year under review
Director of the Company					
Vincent Chong Sy Feng	0 to 797,954	86,240	0 to 2,299,734	150,500	0 to 1,966,534
Group Executives (including Vincent Chong Sy Feng)	0 to 3,222,785	2,041,497	0 to 25,000,108	5,959,328	0 to 8,323,215

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

SHARE PLANS (continued)

(b) RSP2010 (RSP)

The RSP is established with the objective of motivating managers and above to strive for sustained long-term growth of ST Engineering Group. It also aims to foster a share ownership culture among employees within the ST Engineering Group and to better align employees' incentive scheme with shareholders' interest.

Pursuant to the RSP, the ERCC has decided to grant shares on an annual basis, and released equally to the recipient over four consecutive years.

Since 2011, the awards granted under the ST Engineering RSP2010 to the Non-Executive Directors (other than those from the public sector) are outright shares with no performance and vesting conditions but with a Moratorium on selling. These shares will form up to 30% of their total compensation with the remaining 70% payable in cash.

The awards granted under the RSP2010 are as follows:

Participant	Awards granted during the financial year under review	Awards released during the financial year under review	Aggregate conditional awards/awards granted since commencement to end of financial year under review	Aggregate awards released since commencement to end of financial year under review	Aggregate awards not released as at end of financial year
Directors of the Company					
Kwa Chong Seng	57,400	57,400	284,700	284,700	–
Vincent Chong Sy Feng	219,234	81,935	0 to 2,024,985	1,555,759	395,966
Lim Ah Doo	12,400	12,400	42,400	42,400	–
Lim Chin Hu	4,400	4,400	4,400	4,400	–
Lim Sim Seng	12,800	12,800	48,400	48,400	–
Quek See Tiat	12,500	12,500	57,900	57,900	–
Song Su-Min	2,000	2,000	2,000	2,000	–
Non-Executive Directors of the Company and its subsidiaries (including current and former directors)	101,500	101,500	1,304,600	1,304,600	–
Group Executives (including Vincent Chong Sy Feng)	6,492,986	5,104,494	0 to 71,176,687	30,181,833	13,308,887

DIRECTORS' STATEMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS UNLESS OTHERWISE STATED)

AUDIT COMMITTEE

The Audit Committee comprises three independent non-executive directors, one of whom is also the Chairman of the Committee. The members of the Audit Committee at the date of this report are as follows:

Quek See Tiat (Chairman)
Lim Ah Doo
Song Su-Min

The Audit Committee carried out its functions in accordance with Section 201B of the Singapore Companies Act, Chapter 50, the SGX Listing Manual and the Code of Corporate Governance.

The Audit Committee met during the year to review the scope of the internal audit function and the scope of work of the statutory auditors, and the results arising therefrom, including their evaluation of the system of internal controls. The Audit Committee also reviewed the assistance given by the Company's officers to the auditors. The consolidated financial statements of the Group and the financial statements of the Company were reviewed by the Audit Committee prior to their submission to the directors of the Company for adoption.

In addition, the Audit Committee has reviewed the requirements for approval and disclosure of interested person transactions, reviewed the procedures set up by the Group and the Company to identify and report and where necessary, seek approval for interested person transactions and, with the assistance of the internal auditors, reviewed interested person transactions.

The Audit Committee has full access to management and is given the resources required for it to discharge its functions. It has full authority and the discretion to invite any director or executive officer to attend its meetings. The Audit Committee also recommends the appointment of the external auditors and reviews the level of audit and non-audit fees.

The Audit Committee has recommended to the Board of Directors the appointment of PricewaterhouseCoopers LLP as external auditor of the Company in place of the retiring auditors, KPMG LLP, at the forthcoming Annual General Meeting of the Company on 23 April 2020.

The Company has complied with Rules 712 and 715 of the SGX Listing Manual in relation to the engagement of its auditors.

AUDITORS

The retiring auditors, KPMG LLP, will not be seeking re-appointment. PricewaterhouseCoopers LLP has expressed its willingness to accept appointment as auditors.

On behalf of the Board of Directors

Kwa Chong Seng
Director

Vincent Chong Sy Feng
Director

Singapore
21 February 2020

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

REPORT ON THE AUDIT OF THE FINANCIAL STATEMENTS

Opinion

We have audited the accompanying financial statements of Singapore Technologies Engineering Ltd (the Company) and its subsidiaries (the Group), which comprise the balance sheets of the Group and the Company as at 31 December 2019, the consolidated statement of changes in equity, the consolidated income statement, the consolidated statement of comprehensive income and the consolidated statement of cash flows of the Group for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, as set out on pages 126 to 240.

In our opinion, the accompanying consolidated financial statements of the Group and the balance sheet of the Company are properly drawn up in accordance with the provisions of the Singapore Companies Act, Chapter 50 (the Act) and Singapore Financial Reporting Standards (International) (SFRS(I)s) so as to give a true and fair view of the financial position of the Group and Company as at 31 December 2019, and changes in equity, financial performance and cash flows of the Group for the year ended on that date.

Basis for opinion

We conducted our audit in accordance with Singapore Standards on Auditing (SSAs). Our responsibilities under those standards are further described in the *'Auditors' responsibilities for the audit of the financial statements'* section of our report. We are independent of the Group in accordance with the Accounting and Corporate Regulatory Authority *Code of Professional Conduct and Ethics for Public Accountants and Accounting Entities* (ACRA Code) together with the ethical requirements that are relevant to our audit of the financial statements in Singapore, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the ACRA Code. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

The key audit matter	How was the matter addressed in our audit
Acquisition of businesses	
During the year the Group completed two significant business acquisitions in the United States and Belgium, requiring the purchase price to be allocated to the fair value of the identifiable assets (including intangible assets) acquired and liabilities assumed. Total intangible assets acquired from these two businesses were S$877 million, which includes goodwill on acquisition of S$311 million. There is judgement and inherent uncertainty involved in estimating the fair value of each identifiable asset acquired and liability assumed.	Our procedures included, among others: • We reviewed the purchase price allocation (PPA) prepared by management by comparing the methodologies and key assumptions used in deriving the allocated values of the components of the purchase price to generally accepted market practices and market data; • We considered the objectivity, independence and competency of external specialists, and the scope of their engagement; and • We assessed the adequacy of disclosures in describing the areas of judgement in estimating the uncertainty on the amounts recognised. **Findings:** We found that the PPA exercises have been performed in accordance with SFRS(I) 3 *Business Combinations*. Material intangible assets acquired in the business combination, including the identification of previously non-recorded intangible assets, has been appropriately identified. We found the key assumptions applied in the PPA exercises in arriving at the fair values of the assets acquired and liabilities assumed to be within a reasonable range of our expectations, and the valuation methods used, including the key inputs, are in line with generally accepted market practices and within the range of market data. We found the disclosures of these acquisitions to be appropriate.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

The key audit matter	How was the matter addressed in our audit
Impairment of non-financial assets, including goodwill and other intangible assets	
Goodwill and intangible assets form 21% of the Group's total assets. The Group uses the discounted cash flow (DCF) technique to determine the recoverable amounts of each cash-generating unit (CGU). There is a risk of impairment of a certain CGU in the United States which is operating in a challenging business environment. This increases the level of judgement and estimation uncertainties within management's cash flow forecast.	Our procedures included, among others: • We evaluated the identification of CGUs within the Group against the requirements of the accounting standards. • We reviewed the basis and methodology adopted to arrive at the recoverable amounts of the CGUs. • We assessed the key assumptions used in the cash flow projections, namely sales growth rates, earnings before interest, depreciation and amortisation (EBIDA) growth rates, discount rates, terminal growth rates by comparing the Group's assumptions to externally derived data where available. • We reviewed the historical accuracy of the Group's estimates in the previous periods, identified and analysed changes in the assumptions from prior periods, focusing particularly on those CGUs operating in challenging business environment. • We have also assessed the adequacy of related disclosures in Note C3 to the financial statements. **Findings:** We found that the assumptions and resulting estimates used in the DCF projections for all the CGUs were within acceptable range. There was a CGU in the United States with growth estimates that exceeded historical performance as it includes potential growth opportunities the CGU is pursuing. In this instance, we have re-computed the recoverable amount using reduced growth estimates and we agree with management that no impairment charge is required for this CGU. Overall, the results of our evaluation of the Group's impairment charge are consistent with management's assessment. We found the Group's disclosure provides sufficient details on the sensitivity of the impairment assessment to variations in key assumptions.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

The key audit matter	How was the matter addressed in our audit
Revenue recognition	
In accordance with SFRS(I) 15 *Revenue from Contracts with Customers*, the analysis of whether the contracts comprise one or more performance obligations, determination of whether variable consideration are allocated to one or more performance obligations, and whether the performance obligations are satisfied over time or at a point in time are areas requiring critical judgement and estimates by the Group. The Group's three largest revenue streams are derived from the sale of goods, rendering of services and long-term contract revenues. Some of these revenue streams have contracts that are accounted for based on the stage of completion of performance obligations of each individual contract. The amount of revenue and profit recognised is dependent on management's assessment on the stage of completion of each performance obligation and the forecast cost profile of each long-term contract. As long-term contracts can extend over multiple years, changes in conditions and circumstances over time can result in changes in the nature or extent of project cost incurred. Judgement is applied in determining each performance obligation within a contract and in forecasting the costs to be incurred, the overall margins of these performance obligations and assessment of the stage of completion of each performance obligation. Such estimates are inherently judgemental.	Our procedures included, amongst others: • We reviewed the contractual terms and work status of the customer contracts and verified that revenue is recognised according to the stage of completion of each performance obligation. • We tested the controls designed and applied by the Group to ensure that the estimates used in assessing revenue and costs are appropriate. The controls tested include, amongst others, controls over the preparation and authorisation of project evaluation, approval of revenue calculated and project budgets, and accuracy and completeness over manpower and labour rates computed. • We selected a sample of contracts for testing based on a number of qualitative and quantitative factors, such as contracts with significant deterioration in margin, those contracts with variations, claims and other factors which indicated that a greater level of judgement is required in the estimates developed for current and forecast contract performance. • For each selected contract, we assessed the appropriateness of estimates used in the forecasts and whether the estimates showed any evidence of management bias. • We evaluated the revenue recognition policies of the Group for the different revenue streams to ensure revenue is recognised appropriately. **Findings:** We found the basis over identification of performance obligations and the revenue recognised based on the stage of completion of each performance obligation to be fair.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

Other information

Management is responsible for the other information contained in the annual report. Other information is defined as all information in the annual report other than the financial statements and our auditors' report thereon.

We have obtained all other information prior to the date of this auditors' report except for Shareholding Statistics which is expected to be made available to us after that date.

Our opinion on the financial statements does not cover the other information and we do not and will not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed on the other information that we obtained prior to the date of this auditors' report, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

When we read Shareholding Statistics, if we conclude that there is a material misstatement therein, we are required to communicate the matter to those charged with governance and take appropriate actions in accordance with SSAs.

Responsibilities of management and directors for the financial statements

Management is responsible for the preparation of financial statements that give a true and fair view in accordance with the provisions of the Act and SFRS(I)s, and for devising and maintaining a system of internal accounting controls sufficient to provide a reasonable assurance that assets are safeguarded against loss from unauthorised use or disposition; and transactions are properly authorised and that they are recorded as necessary to permit the preparation of true and fair financial statements and to maintain accountability of assets.

In preparing the financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

The directors' responsibilities include overseeing the Group's financial reporting process.

Auditors' responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with SSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

As part of an audit in accordance with SSAs, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

- Obtain an understanding of internal controls relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal controls.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the Group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the directors with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the directors, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditors' report unless the law or regulations preclude public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

INDEPENDENT AUDITORS' REPORT

MEMBERS OF THE COMPANY
SINGAPORE TECHNOLOGIES ENGINEERING LTD

REPORT ON OTHER LEGAL AND REGULATORY REQUIREMENTS

In our opinion, the accounting and other records required by the Act to be kept by the Company and by those subsidiary corporations incorporated in Singapore of which we are the auditors have been properly kept in accordance with the provisions of the Act.

The engagement partner on the audit resulting in this independent auditors' report is Quek Shu Ping.

KPMG LLP
Public Accountants and
Chartered Accountants

Singapore
21 February 2020

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NOTES TO THE FINANCIAL STATEMENTS

CONSOLIDATED INCOME STATEMENT

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	2019 $'000	2018 $'000
Revenue	B2	**7,868,276**	6,697,928
Cost of sales		**(6,232,814)**	(5,292,389)
Gross profit		**1,635,462**	1,405,539
Distribution and selling expenses		**(263,990)**	(200,180)
Administrative expenses		**(583,600)**	(509,874)
Other operating expenses		**(133,883)**	(125,227)
Earnings before interest and tax	B3	**653,989**	570,258
Other income		**44,393**	55,391
Other expenses		**(5,496)**	(20,405)
Other income, net	B4	**38,897**	34,986
Finance income		**14,290**	22,357
Finance costs		**(50,915)**	(55,909)
Finance costs, net	E2	**(36,625)**	(33,552)
Share of results of associates and joint ventures, net of tax		**38,983**	49,056
Profit before taxation		**695,244**	620,748
Taxation	B6	**(102,570)**	(104,326)
Profit after taxation		**592,674**	516,422
Attributable to:			
Shareholders of the Company		**577,945**	494,241
Non-controlling interests	F3	**14,729**	22,181
		592,674	516,422
Earnings per share (cents)	B5		
Basic		**18.53**	15.85
Diluted		**18.42**	15.76

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	2019 $'000	2018 $'000
Profit after taxation		**592,674**	516,422
Other comprehensive income			
Items that will not be reclassified subsequently to profit or loss:			
Defined benefit plan remeasurements		**(46,150)**	201
Net fair value changes on equity investments at FVOCI		**182**	80
		(45,968)	281
Items that are or may be reclassified subsequently to profit or loss:			
Debt investments at FVOCI – reclassified to income statement		**–**	(2,343)
Net fair value changes of cash flow hedges reclassified to income statement		**3,680**	2
Effective portion of changes in fair value of cash flow hedges		**(34,897)**	(35,110)
Share of net fair value changes on cash flow hedges of joint ventures		**(5,379)**	505
Foreign currency translation differences		**(48,333)**	302
Share of foreign currency translation differences of associates and joint ventures		**(7,371)**	(213)
Reserves released on disposal of subsidiaries and a joint venture		**2,722**	13,714
		(89,578)	(23,143)
Other comprehensive loss for the year, net of tax		**(135,546)**	(22,862)
Total comprehensive income for the year, net of tax		**457,128**	493,560
Total comprehensive income attributable to:			
Shareholders of the Company		**459,759**	482,888
Non-controlling interests	F3	**(2,631)**	10,672
		457,128	493,560

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED BALANCE SHEET

AS AT 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	2019 $'000	2018 $'000
ASSETS			
Non-current assets			
Property, plant and equipment	C1	**1,805,034**	1,742,742
Right-of-use assets	C2	**483,975**	–
Associates and joint ventures	F4	**453,419**	455,703
Investments	E3	**16,178**	16,392
Intangible assets	C3	**1,980,215**	1,151,238
Long-term trade receivables		**1,668**	1,172
Deferred tax assets	B6	**111,595**	72,136
Amounts due from related parties	C4	**4,806**	4,806
Advances and other receivables	C7	**11,849**	20,074
Derivative financial instruments	C16	**13,351**	11,483
		4,882,090	3,475,746
Current assets			
Contract assets	C13	**1,246,207**	1,070,396
Inventories	C5	**1,311,858**	1,183,510
Trade receivables	C6	**1,245,881**	1,137,816
Amounts due from related parties	C4	**35,661**	35,392
Advances and other receivables	C7	**345,744**	253,961
Short-term investments	E3	**604**	422
Bank balances and other liquid funds	C8	**453,230**	415,780
		4,639,185	4,097,277
Total assets		**9,521,275**	7,573,023
EQUITY AND LIABILITIES			
Current liabilities			
Contract liabilities	C13	**1,043,215**	1,324,093
Deposits from customers		**9,291**	4,219
Trade payables and accruals	C9	**2,012,897**	1,829,758
Amounts due to related parties	C10	**70,007**	85,445
Provisions	C11	**233,459**	212,935
Provision for taxation		**195,059**	163,232
Borrowings	E4	**1,868,812**	225,416
Deferred income	C12	**2,403**	3,761
Employee benefits	D3	**11,265**	2,401
		5,446,408	3,851,260
Net current (liabilities)/assets		**(807,223)**	246,017

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED BALANCE SHEET

AS AT 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	2019 $'000	2018 $'000
Non-current liabilities			
Contract liabilities	C13	**422,992**	495,453
Trade payables and accruals	C9	**57,983**	80,345
Provisions	C11	**16,994**	–
Deferred tax liabilities	B6	**174,732**	170,726
Borrowings	E4	**468,895**	270,363
Deferred income	C12	**34,309**	42,405
Employee benefits	D3	**380,061**	108,016
Derivative financial instruments	C16	**27,900**	19,842
		1,583,866	1,187,150
Total liabilities		**7,030,274**	5,038,410
Net assets		**2,491,001**	2,534,613
Share capital and reserves			
Share capital	E6	**895,926**	895,926
Treasury shares	E7	**(26,731)**	(9,030)
Capital reserves	E8	**112,563**	118,174
Other reserves	E9	**(149,445)**	(72,054)
Retained earnings		**1,389,966**	1,313,361
Equity attributable to owners of the Company		**2,222,279**	2,246,377
Non-controlling interests	F3	**268,722**	288,236
		2,491,001	2,534,613
Total equity and liabilities		**9,521,275**	7,573,023

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	Share capital $'000	Treasury shares $'000
At 1 January 2019		895,926	(9,030)
Total comprehensive income for the year			
Profit after taxation		–	–
Other comprehensive income			
Equity investments at FVOCI – net change in fair value		–	–
Reclassified to income statement			
– Net fair value changes on cash flow hedges		–	–
Effective portion of changes in fair value of cash flow hedges		–	–
Share of net fair value changes on cash flow hedges of joint ventures		–	–
Foreign currency translation differences		–	–
Share of foreign currency translation differences of associates and joint ventures		–	–
Reserves released on disposal of subsidiaries and a joint venture		–	–
Defined benefit plan remeasurements		–	–
Other comprehensive loss for the year, net of tax		–	–
Total comprehensive income for the year, net of tax		–	–
Hedging gains and losses and costs of hedging transferred to the cost of inventory		–	–
Transactions with owners of the Company, recognised directly in equity			
Contributions by and distributions to owners of the Company			
Capital contribution by non-controlling interests		–	–
Return of capital contribution by non-controlling interests		–	–
Cost of share-based payment		–	–
Purchase of treasury shares	E7	–	(43,768)
Treasury shares reissued pursuant to share plans		–	26,067
Dividends paid	E10	–	–
Dividends paid to non-controlling interests		–	–
Total contributions by and distributions to owners of the Company		–	(17,701)
Changes in ownership interests in a subsidiary			
Disposal of subsidiary		–	–
Total transactions with owners of the Company		–	(17,701)
Transfer from retained earnings to statutory reserve		–	–
Balance at 31 December 2019		895,926	(26,731)

The accompanying notes are an integral part of the financial statements.

Capital reserves $'000	Other reserves $'000	Retained earnings $'000	Total $'000	Non-controlling interests $'000	Total equity $'000
118,174	(72,054)	1,313,361	2,246,377	288,236	2,534,613
–	–	577,945	577,945	14,729	592,674
–	182	–	182	–	182
–	(1,371)	–	(1,371)	5,051	3,680
–	(29,476)	–	(29,476)	(5,421)	(34,897)
–	(5,379)	–	(5,379)	–	(5,379)
–	(43,951)	–	(43,951)	(4,382)	(48,333)
–	(7,371)	–	(7,371)	–	(7,371)
–	2,231	–	2,231	491	2,722
–	–	(33,051)	(33,051)	(13,099)	(46,150)
–	(85,135)	(33,051)	(118,186)	(17,360)	(135,546)
–	(85,135)	544,894	459,759	(2,631)	457,128
–	3,700	–	3,700	(47)	3,653
–	–	–	–	4,263	4,263
–	–	–	–	(8,652)	(8,652)
–	24,279	–	24,279	75	24,354
–	–	–	(43,768)	–	(43,768)
(5,611)	(20,368)	–	88	(88)	–
–	–	(468,156)	(468,156)	–	(468,156)
–	–	–	–	(12,247)	(12,247)
(5,611)	3,911	(468,156)	(487,557)	(16,649)	(504,206)
–	–	–	–	(187)	(187)
(5,611)	3,911	(468,156)	(487,557)	(16,836)	(504,393)
–	133	(133)	–	–	–
112,563	(149,445)	1,389,966	2,222,279	268,722	2,491,001

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS)

Group	Note	Share capital $'000	Treasury shares $'000
At 1 January 2018		895,926	(22,870)
Total comprehensive income for the year			
Profit after taxation		–	–
Other comprehensive income			
Equity investments at FVOCI – net change in fair value		–	–
Reclassified to income statement			
– Debt investments at FVOCI		–	–
– Net fair value changes on cash flow hedges		–	–
Effective portion of changes in fair value of cash flow hedges		–	–
Share of net fair value changes on cash flow hedges of joint ventures		–	–
Foreign currency translation differences		–	–
Share of foreign currency translation differences of associates and joint ventures		–	–
Reserves released on disposal of subsidiaries		–	–
Defined benefit plan remeasurements		–	–
Other comprehensive loss for the year, net of tax		–	–
Total comprehensive income for the year, net of tax		–	–
Hedging gains and losses and costs of hedging transferred to the cost of inventory		–	–
Transactions with owners of the Company, recognised directly in equity			
Contributions by and distributions to owners of the Company			
Capital contribution by non-controlling interests		–	–
Cost of share-based payment		–	–
Purchase of treasury shares	E7	–	(4,354)
Treasury shares reissued pursuant to share plans		–	18,194
Dividends paid	E10	–	–
Dividends paid to non-controlling interests		–	–
Total contributions by and distributions to owners of the Company		–	13,840
Transfer from retained earnings to statutory reserve		–	–
Balance at 31 December 2018		895,926	(9,030)

The accompanying notes are an integral part of the financial statements.

Capital reserves $'000	Other reserves $'000	Retained earnings $'000	Total $'000	Non-controlling interests $'000	Total equity $'000
119,782	(67,480)	1,286,056	2,211,414	280,716	2,492,130
–	–	494,241	494,241	22,181	516,422
–	52	28	80	–	80
–	(2,343)	–	(2,343)	–	(2,343)
–	2	–	2	–	2
–	(25,294)	–	(25,294)	(9,816)	(35,110)
–	505	–	505	–	505
–	2,030	–	2,030	(1,728)	302
–	(213)	–	(213)	–	(213)
–	13,714	–	13,714	–	13,714
–	–	166	166	35	201
–	(11,547)	194	(11,353)	(11,509)	(22,862)
–	(11,547)	494,435	482,888	10,672	493,560
–	3,955	–	3,955	–	3,955
–	–	–	–	432	432
–	20,415	–	20,415	75	20,490
–	–	–	(4,354)	–	(4,354)
(1,608)	(16,523)	–	63	(64)	(1)
–	–	(468,004)	(468,004)	–	(468,004)
–	–	–	–	(3,595)	(3,595)
(1,608)	3,892	(468,004)	(451,880)	(3,152)	(455,032)
–	(874)	874	–	–	–
118,174	(72,054)	1,313,361	2,246,377	288,236	2,534,613

CONSOLIDATED STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

Cash and cash equivalents comprise cash balances and fixed deposits. Cash equivalents are short-term and highly liquid investments that are readily convertible to known amounts of cash and that are subject to insignificant risk of changes in value.

Group	2019 $'000	2018 $'000
Cash flows from operating activities		
Profit before taxation	**695,244**	620,748
Adjustments:		
Share of results of associates and joint ventures, net of tax	**(38,983)**	(49,056)
Share-based payment expense	**24,354**	20,490
Depreciation charge	**275,632**	194,714
Property, plant and equipment written off	**1,408**	982
Amortisation of other intangible assets	**92,620**	49,331
Impairment of property, plant and equipment	**2,786**	81
Impairment of goodwill and other intangible assets	**23,227**	1,861
Impairment of an associate	**4,000**	–
Gain on disposal of property, plant and equipment	**(9,029)**	(2,000)
Gain on disposal of intangible assets	**–**	(41)
Gain on disposal of associates, net	**(1,723)**	(12,426)
Loss on disposal of investments, net	**–**	5,173
Loss on disposal of subsidiaries	**925**	20,081
Changes in fair value of an associate	**1,978**	–
Changes in fair value of financial instruments and hedged items	**2,731**	5,280
Interest expense	**44,753**	44,900
Interest income	**(9,487)**	(17,906)
Amortisation of deferred income	**(272)**	(144)
Operating profit before working capital changes	**1,110,164**	882,068
Changes in:		
Inventories	**46,216**	(60,784)
Contract assets	**(34,001)**	(134,319)
Trade receivables	**13,174**	(200,106)
Advance payments to suppliers	**(48,201)**	20,616
Other receivables, deposits and prepayments	**(54,041)**	(11,903)
Amounts due from holding company and related corporations balances	**3,175**	9,474
Amounts due to holding company and related corporations balances	**(924)**	1,677
Amounts due from associates	**2,889**	(431)
Amounts due from joint ventures	**(36,508)**	(3,777)
Contract liabilities	**(374,285)**	36,026
Trade payables	**(10,031)**	163,941
Deposits from customers	**(1,504)**	(1,590)
Other payables, accruals and provisions	**61,226**	28,604
Loans to staff and third parties	**(1,219)**	542
Deferred income	**(1,111)**	(11,459)
Foreign currency translation of foreign operations	**(4,046)**	(2,435)
Cash generated from operations	**670,973**	716,144
Interest received	**9,459**	22,510
Income tax paid	**(90,470)**	(99,161)
Net cash from operating activities	**589,962**	639,493

The accompanying notes are an integral part of the financial statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

FOR THE YEAR ENDED 31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

Group	Note	2019 $'000	2018 $'000
Cash flows from investing activities			
Proceeds from sale of property, plant and equipment		**118,172**	4,097
Proceeds from disposal of associates and a joint venture and return of capital from a joint venture		**6,095**	27,682
Proceeds from sale and maturity of investments		**–**	375,098
Proceeds from unwinding of cross currency interest rate swaps		**–**	13,210
Proceeds from sale of intangible assets		**–**	64
Purchase of property, plant and equipment		**(290,124)**	(336,102)
Purchase of investments		**–**	(40,920)
Additions to other intangible assets		**(104,435)**	(115,408)
Dividends from associates and joint ventures		**47,839**	61,081
Investments in associates and joint ventures		**(28,767)**	(34,305)
Repayment of loan by/(loan to) a joint venture		**19,661**	(19,806)
Acquisition of controlling interests in subsidiaries, net of cash acquired		**(1,050,121)**	–
Disposal of subsidiaries, net of cash disposed		**8,855**	138
Net cash used in investing activities		**(1,272,825)**	(65,171)
Cash flows from financing activities			
Proceeds from bank loans		**1,079,911**	307,901
Proceeds from commercial papers		**1,440,175**	–
Proceeds of a loan from a joint venture		**–**	17,925
Proceeds from finance lease receivables		**844**	–
Repayment of bank loans		**(1,119,271)**	(247,134)
Repayment of other loans		**–**	(148)
Repayment of lease liabilities		**(92,894)**	(2,513)
Repayment of loan to a joint venture		**(4,000)**	(30,805)
Redemption of medium term notes		**–**	(681,100)
Purchase of treasury shares		**(43,768)**	(4,354)
Capital contribution from non-controlling interests of subsidiaries		**4,263**	432
Return of capital to non-controlling interests of a subsidiary		**(8,652)**	–
Dividends paid to shareholders of the Company		**(468,156)**	(468,004)
Dividends paid to non-controlling interests		**(12,247)**	(4,200)
Interest paid		**(56,213)**	(49,416)
Deposits discharged		**245**	9
Net cash from/(used in) financing activities		**720,237**	(1,161,407)
Net increase/(decrease) in cash and cash equivalents		**37,374**	(587,085)
Cash and cash equivalents at beginning of the year		**414,400**	997,614
Exchange difference on cash and cash equivalents at beginning of the year		**321**	3,871
Cash and cash equivalents at end of the year	C8	**452,095**	414,400

The accompanying notes are an integral part of the financial statements.

NOTES TO THE FINANCIAL STATEMENTS

31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

A | ABOUT THIS REPORT

General

The Company is a public limited company domiciled and incorporated in Singapore. The address of the Company's registered office and principal place of business is 1 Ang Mo Kio Electronics Park Road #07-01 ST Engineering Hub, Singapore 567710.

The Company's immediate and ultimate holding company is Temasek Holdings (Private) Limited, a company incorporated in Singapore.

The consolidated financial statements of Singapore Technologies Engineering Ltd and its subsidiaries (collectively referred to as the Group) as at 31 December 2019 and for the year then ended were authorised and approved by the Board of Directors for issuance on 21 February 2020.

Basis of Preparation

The financial statements are prepared in accordance with Singapore Financial Reporting Standards (International) (SFRS(I)).

The financial statements have been prepared on the historical cost convention, except as otherwise described in the accounting policies below.

Accounting policies, estimates and critical accounting judgements applied to the preparation of the financial statements is disclosed together with the related accounting balance or financial statement matters discussed.

Information is only being included in the financial report to the extent it has been considered material and relevant to the understanding of the financial statements. A disclosure is considered material and relevant if:

- dollar amount is significant in value
- dollar amount is significant by nature
- financial results cannot be understood without specific disclosure
- critical to allow user to understand significant changes in group businesses

The financial statements are presented in Singapore dollars (SGD) which is the Company's functional currency. All values are rounded to the nearest thousand ($'000) unless otherwise indicated.

Significant Accounting Policies

The accounting policies have been applied consistently by Group entities to all periods presented in these financial statements unless otherwise indicated.

NOTES TO THE FINANCIAL STATEMENTS

31 DECEMBER 2019
(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

Foreign Currency

The major functional currencies of the Group entities are the Singapore dollar (SGD), the United States dollar (USD) and the Euro (EUR).

Transactions, assets and liabilities denominated in foreign currencies are translated into SGD at reporting date using the following applicable exchange rates:

Foreign currency amount	Applicable exchange rate
Transactions	Date of transaction
Monetary assets and liabilities	Reporting date
Non-monetary assets and liabilities carried at fair value	Date fair value is determined
Non-monetary assets and liabilities carried at cost	Date of transaction

Foreign exchange gains and losses resulting from translation of monetary assets and liabilities are recognised in the income statement, except for qualifying cash flow hedges, which are recognised in other comprehensive income (OCI).

On consolidation the assets, liabilities, income and expenses of foreign operations are translated into SGD using the following applicable exchange rates:

Foreign currency amount	Applicable exchange rate
Income and expenses	Average exchange rate
Assets and liabilities	Reporting date
Equity	Historical date

Foreign exchange differences resulting from translation of foreign operations are initially recognised in the foreign currency translation reserve and subsequently transferred to profit or loss on disposal of the foreign operation.

NOTES TO THE FINANCIAL STATEMENTS

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B | BUSINESS PERFORMANCE

The highlights of the Group's financial performance during the financial year are:

- Revenue of $7.9 billion, up 17%
- Earnings before interest and tax of $654.0 million, up 15%
- Profit before tax of $695.2 million, up 12%
- Profit attributable to shareholders of $577.9 million, up 17%
- Earnings per share of 18.53 cents per share, up 17%

B1 Segment information

The principal activities of the Company are those of an investment holding company and the provision of engineering and related services.

The Group is organised on a worldwide basis into four major operating segments. Management reviews the segments' operating results regularly in order to allocate resources to the segments and to assess the segments' performance.

The principal activities of these operating segments are outlined below:

Segments	Principal activities
Aerospace	Provides a wide spectrum of aircraft maintenance, engineering and training services for both military and commercial aircraft operators. These services include airframe, component and engine maintenance, repair and overhaul, aircraft design engineering and parts manufacturing, aviation materials, asset management and pilot training.
Electronics	Specialises in the design, development and delivery of information communications technologies products, solutions and services for Smart Cities connectivity, mobility and security.
Land Systems	Delivers customised land systems, security solutions and their related through-life support for defence, homeland security and commercial applications.
Marine	Provides turnkey and sustainable defence and commercial solutions to the marine, offshore and environmental engineering industries.
Others *	Research and development, provision of engineering products and solutions, treasury, investment holding and provision of management, consultancy and other support services. * None of these segments meets any of the quantitative thresholds for determining reportable segments in financial years 2019 and 2018.

NOTES TO THE FINANCIAL STATEMENTS

31 DECEMBER 2019
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B1 Segment information (continued)

Segment performance is evaluated based on operating profit or loss which in certain respects, as explained in the table below, is measured differently from operating profit or loss in the consolidated financial statements.

Inter-segment pricing is based on terms negotiated between the parties which are intended to reflect competitive terms.

	Aerospace $'000	Electronics $'000	Land Systems $'000	Marine $'000	Others $'000	Elimination $'000	Group $'000
2019							
Revenue							
External sales	3,450,442	2,281,663	1,428,480	647,128	60,563	–	7,868,276
Inter-segment sales	4,580	28,281	29,164	23	2,305	(64,353)	–
	3,455,022	2,309,944	1,457,644	647,151	62,868	(64,353)	7,868,276
Reportable segment earnings before interest and tax	309,605	229,239	83,384	54,107	(22,346)	–	653,989
Other income	18,697	15,616	12,149	8,791	2,200	(13,060)	44,393
Other expenses	(7,439)	(25)	(4,422)	(83)	(483)	6,956	(5,496)
Finance income	14,018	4,666	1,807	3,782	76,365	(86,348)	14,290
Finance costs	(40,336)	(21,518)	(9,937)	(5,693)	(55,359)	81,928	(50,915)
Share of results of associates and joint ventures, net of tax	38,227	(1,445)	5,579	(75)	(3,303)	–	38,983
Profit before taxation	332,772	226,533	88,560	60,829	(2,926)	(10,524)	695,244
Taxation	(48,914)	(35,824)	(11,459)	(9,287)	2,914	–	(102,570)
Non-controlling interests	(14,962)	24	209	–	–	–	(14,729)
Profit attributable to shareholders	268,896	190,733	77,310	51,542	(12)	(10,524)	577,945
Other assets	4,415,722	3,052,212	1,723,451	805,296	6,030,044	(6,958,869)	9,067,856
Associates and joint ventures	253,884	73,639	82,276	2,850	40,770	–	453,419
Segment assets	4,669,606	3,125,851	1,805,727	808,146	6,070,814	(6,958,869)	9,521,275
Segment liabilities	3,781,016	2,613,255	1,458,862	803,159	3,828,754	(5,454,772)	7,030,274
Capital expenditure	293,215	123,801	43,522	8,876	20,420	698	490,532
Depreciation and amortisation	185,359	89,851	51,308	32,478	13,261	(4,005)	368,252
Impairment losses	26,013	–	4,000	–	–	–	30,013
Other non-cash expenses	954	363	91	–	–	–	1,408

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NOTES TO THE FINANCIAL STATEMENTS

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B1 Segment information (continued)

	Aerospace $'000	Electronics $'000	Land Systems $'000	Marine $'000	Others $'000	Elimination $'000	Group $'000
2018							
Revenue							
External sales	2,646,992	2,143,415	1,282,022	574,084	51,415	–	6,697,928
Inter-segment sales	7,127	23,118	20,787	270	4,244	(55,546)	–
	2,654,119	2,166,533	1,302,809	574,354	55,659	(55,546)	6,697,928
Reportable segment earnings before interest and tax	268,148	220,774	59,076	44,375	(22,115)	–	570,258
Other income	30,380	15,718	12,775	6,809	1,800	(12,091)	55,391
Other expenses	(13,281)	(53)	(12,071)	(276)	(81)	5,357	(20,405)
Finance income	8,773	2,533	1,375	3,072	6,604	–	22,357
Finance costs	(14,773)	(9,375)	(6,290)	(4,275)	(21,196)	–	(55,909)
Share of results of associates and joint ventures, net of tax	40,748	(4,905)	7,396	555	5,262	–	49,056
Profit before taxation	319,995	224,692	62,261	50,260	(29,726)	(6,734)	620,748
Taxation	(54,644)	(37,419)	(8,726)	(5,059)	1,522	–	(104,326)
Non-controlling interests	(20,724)	(782)	(675)	–	–	–	(22,181)
Profit attributable to shareholders	244,627	186,491	52,860	45,201	(28,204)	(6,734)	494,241
Other assets	3,104,811	2,174,291	1,626,420	800,078	4,191,077	(4,779,357)	7,117,320
Associates and joint ventures	248,906	62,749	92,206	4,099	47,743	–	455,703
Segment assets	3,353,717	2,237,040	1,718,626	804,177	4,238,820	(4,779,357)	7,573,023
Segment liabilities	2,394,681	1,909,405	1,339,760	761,596	1,954,163	(3,321,195)	5,038,410
Capital expenditure	299,766	88,857	37,879	10,309	13,367	–	450,178
Depreciation and amortisation	113,015	56,519	37,993	29,985	6,575	(42)	244,045
(Write-back of)/ impairment losses	(11)	–	1,953	–	–	–	1,942
Other non-cash expenses	847	38	43	–	54	–	982

NOTES TO THE FINANCIAL STATEMENTS

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(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

B1 Segment information (continued)

Analysis by country of incorporation

Revenue is based on the country of incorporation regardless of where the goods are produced or services rendered. Non-current assets, excluding derivative financial instruments, employee benefits and deferred tax assets, are based on the location of those assets.

	Revenue		Non-current assets	
	2019 $'000	2018 $'000	**2019 $'000**	2018 $'000
Asia	**5,079,390**	4,884,431	**1,790,865**	1,622,510
U.S.	**2,091,860**	1,198,872	**1,663,115**	921,086
Europe	**612,046**	540,575	**1,213,482**	752,059
Others	**84,980**	74,050	**89,682**	96,472
	7,868,276	6,697,928	**4,757,144**	3,392,127

For the year ended 31 December 2019:

- Within Europe, revenue of approximately $458,508,000 (2018: $453,695,000) were from subsidiaries located in Germany.
- Within Asia, most of the revenue were from subsidiaries located in Singapore.
- The remaining revenue from customers in Asia, Europe and Others were individually insignificant.

As at 31 December 2019:

- Within Europe, non-current assets of approximately $683,672,000 (2018: $585,913,000) were located in Germany.
- Within Asia, most of the non-current assets were from subsidiaries located in Singapore.
- The remaining non-current assets located in Asia, Europe and Others were individually insignificant.

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B2 Revenue

Disaggregation of revenue

In the following table, revenue is disaggregated by primary geographical market, major products/service lines and timing of revenue recognition. The table also includes a reconciliation of the disaggregated revenue with the Group's reportable segments.

	Aerospace $'000		Electronics $'000		Land Systems $'000	
	2019	2018	**2019**	2018	**2019**	2018
Primary geographical markets						
Asia	**1,291,747**	1,234,221	**1,746,559**	1,706,868	**996,353**	857,638
U.S.	**780,228**	631,501	**218,554**	178,870	**382,407**	360,016
Europe	**1,134,494**	558,029	**181,262**	131,707	**10,424**	8,378
Others	**248,553**	230,368	**163,569**	149,088	**68,460**	76,777
	3,455,022	2,654,119	**2,309,944**	2,166,533	**1,457,644**	1,302,809
Major products/service lines						
Sale of goods	**713,371**	501,138	**469,662**	464,852	**1,017,422**	879,513
Service income	**202,318**	202,646	**725,629**	606,574	**423,544**	384,124
Contract revenue	**2,539,333**	1,950,335	**1,114,653**	1,095,107	**16,678**	39,172
	3,455,022	2,654,119	**2,309,944**	2,166,533	**1,457,644**	1,302,809
Timing of revenue recognition						
Transferred at a point in time	**1,107,280**	841,649	**1,008,438**	849,672	**1,138,438**	1,008,858
Transferred over time	**2,347,742**	1,812,470	**1,301,506**	1,316,861	**319,206**	293,951
	3,455,022	2,654,119	**2,309,944**	2,166,533	**1,457,644**	1,302,809

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	Marine $'000		Others $'000		Elimination $'000		Group $'000	
	2019	2018	**2019**	2018	**2019**	2018	**2019**	2018
	326,541	403,557	**6,843**	10,055	**(64,232)**	(54,628)	**4,303,811**	4,157,711
	209,998	111,125	**54,615**	43,914	**(121)**	(918)	**1,645,681**	1,324,508
	52,323	47,115	**1,077**	1,624	**–**	–	**1,379,580**	746,853
	58,289	12,557	**333**	66	**–**	–	**539,204**	468,856
	647,151	574,354	**62,868**	55,659	**(64,353)**	(55,546)	**7,868,276**	6,697,928
	6,221	5,897	**59,766**	50,988	**(4,135)**	(3,305)	**2,262,307**	1,899,083
	320,054	275,399	**2,806**	4,190	**(39,240)**	(33,774)	**1,635,111**	1,439,159
	320,876	293,058	**296**	481	**(20,978)**	(18,467)	**3,970,858**	3,359,686
	647,151	574,354	**62,868**	55,659	**(64,353)**	(55,546)	**7,868,276**	6,697,928
	6,221	5,897	**60,360**	50,809	**(22,702)**	(15,749)	**3,298,035**	2,741,136
	640,930	568,457	**2,508**	4,850	**(41,651)**	(39,797)	**4,570,241**	3,956,792
	647,151	574,354	**62,868**	55,659	**(64,353)**	(55,546)	**7,868,276**	6,697,928

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B2 Revenue (continued)

Revenue from contracts with customers

Revenue is measured based on the consideration specified in contracts with customers. The Group recognises revenue when it transfers control over a good or service to the customer.

The following provides information about the nature and timing of the satisfaction of performance obligations in contracts with customers, including significant payment terms, and the related revenue recognition policies.

(a) Revenue from sale of goods

Revenue is recognised when goods are delivered to the customer and the criteria for acceptance have been satisfied. Where applicable, a portion of the contract consideration is received in advance from the customers and the remaining consideration is received after delivery.

(b) Revenue from services rendered

Revenue from services rendered are recognised as performance obligations are satisfied. Payments are due from customers based on the agreed billing milestones stipulated in the contracts or based on the amounts certified by the customers.

Where performance obligations are satisfied over time as work progresses, revenue is recognised progressively based on the percentage of completion method. The stage of completion is assessed by reference to assessment of work performed (output method) or the cost incurred relative to total estimated costs (input method) depending on which method commensurates with the pattern of transfer of control to the customer. The related costs are recognised in profit or loss when they are incurred, unless they relate to future performance obligations.

If the value of services rendered for the contract exceeds payments received from the customer, a contract asset is recognised and presented separately on the balance sheet. The contract asset is transferred to receivables when the entitlement to payment becomes unconditional. If the amounts invoiced to the customer exceeds the value of services rendered, a contract liability is recognised and separately presented on the balance sheet.

(c) Revenue from long-term contracts

The Group builds specialised assets customised to customers' order for which the Group does not have an alternative use. These contracts can span several years.

(i) Contracts with enforceable right to payment

The Group has determined that for contracts where the Group has an enforceable right to payment, the customer controls all of the work-in-progress. This is because under those contracts, the assets are at the customer's specification and the Group is entitled to reimbursement of costs incurred to date, including a reasonable margin when the contract is terminated by the customer. Progress billings to the customer are based on a payment schedule in the contract that is dependent on the achievement of specified milestones.

Revenue is recognised over time. The stage of completion is typically assessed by reference to either surveys of work performed (output method) or the cost incurred relative to total estimated costs (input method) depending on which method commensurates with the pattern of transfer of control to the customer.

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B2 Revenue (continued)

(ii) Contracts without enforceable right to payment

For contracts where the Group does not have an enforceable right to payment, customers do not take control of the specialised asset until they are completed. At the inception of the contract, the customers usually make an advance payment that is not refundable if the contract is cancelled. The advance payment is presented as a contract liability. The rest of the consideration is only billed upon acceptance by the customer.

Revenue is recognised at a point in time when the assets are completed and have been accepted by customers.

When the period between the satisfaction of a performance obligation and payment by the customer exceeds a year, the Group adjusts the transaction price with its customer and recognises a financing component. In adjusting for the financing component, the Group uses a discount rate that would be reflected separately as a financing income from contract inception.

For contracts with variable consideration (i.e. liquidated damages, bonus and penalty adjustments), revenue is recognised to the extent that it is highly probable that a reversal of previously recognised revenue will not occur. Therefore, the amount of revenue recognised is adjusted for possibility of delays to the projects and ability to meet key performance indicators stipulated in the contract. The Group reviews the progress of the projects at each reporting date and updates the transaction price accordingly.

The Group accounts for modifications to the scope or price of a contract as separate contracts if the modification adds distinct goods or services at their stand-alone selling prices. For contract modifications that add distinct goods or services but not at their stand-alone selling prices, the Group combines the remaining consideration in the original contract with the consideration promised in the modification to create a new transaction price that is then allocated to all remaining performance obligations to be satisfied. For contract modifications that do not add distinct goods or services, the Group accounts for the modification as a continuation of the original contract and recognises a cumulative adjustment to revenue at the date of modification.

Key estimate and judgement: Revenue recognition

Significant judgement is applied in determining:

- whether performance obligations are distinct.

  Requires an assessment of whether the customer can benefit from the good or service either on its own or together with other resources that are readily available to the customer and if the promise is separately identifiable from other promises in the contract.

- the transaction price for contracts with variable consideration (e.g. bonus, liquidated damages, penalties, etc).

  Requires an evaluation of potential risk and factors which may affect completion or delivery of the contract, in accordance with contract obligations.

- estimated cost to complete.

  For revenue recognised over time, the percentage of completion is assessed by reference to the contract costs incurred till date in proportion to the total estimated costs for each contract. In making the estimates, management relies on the expertise of its project team and past experience of completed projects. The estimated total costs is reviewed regularly and adjusted where necessary, with the corresponding effect of the change being recognised prospectively from the date of change.

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B3 Earnings before interest and tax

Earnings before interest and tax is arrived after charging/(crediting) the following items (excluding those disclosed in the other notes to the financial statements):

Group	2019 $'000	2018 $'000
After charging/(crediting)		
Auditors' remuneration		
- auditors of the Company	**3,862**	3,791
- other auditors #	**1,741**	1,678
Non-audit fees		
- auditors of the Company	**597**	698
- other auditors #	**1,112**	1,736
Fees paid to a firm of which a director is a member	**420**	711
Allowance for inventory obsolescence	**76,780**	56,432
Impairment loss on trade receivables and contract assets	**53,473**	7,405
Provision for/(write-back of) onerous contracts	**16,305**	(1,290)
Property, plant and equipment written off	**1,408**	982
Research, design and development expenses	**100,605**	106,069
Short-term lease expense	**29,284**	–
Low-value assets lease expense	**2,638**	–
Operating lease expense ^	**–**	45,713

Refers to other member firms of KPMG International
^ Previously reported under SFRS(I) 1-17

B4 Other income, net

Group	Note	2019 $'000	2018 $'000
Other income			
Government grants		**13,180**	18,577
Rental income		**4,084**	4,682
Gain on disposal of property, plant and equipment		**9,029**	2,000
Gain on disposal of subsidiaries		**571**	–
Gain on disposal of associates		**1,723**	12,750
Grant income from Wage Credit Scheme		**5,910**	8,549
Others		**9,896**	8,833
		44,393	55,391
Other expenses			
Loss on disposal of subsidiaries		**(1,496)**	(20,081)
Loss on disposal of an associate		**–**	(324)
Impairment of an associate	F4	**(4,000)**	–
		(5,496)	(20,405)
Other income, net, recognised in profit or loss		**38,897**	34,986

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B4 Other income, net (continued)

Recognition and measurement

(i) Government grants are recognised when the conditions associated with the grants are complied with.

Grants that compensate the Group for expenses incurred are recognised in profit or loss in the same periods in which the expenses are recognised.

Grants relating to depreciable assets are recognised in profit or loss over the estimated useful lives of the relevant assets.

(ii) Rental income from leasing facilities is accounted on a straight-line basis over the lease term.

(iii) The gain or loss on disposal of an item of property, plant and equipment, subsidiary, associate or joint venture is determined by comparing the proceeds from disposal with the carrying amount of the disposed item.

B5 Earnings per share

Basic earnings per share

The weighted average number of ordinary shares used in the calculation of earnings per share is arrived at as follows:

Company (in thousands)	**2019**	2018
Number of shares		
Issued ordinary shares at beginning of the year	**3,119,794**	3,115,722
Effect of performance shares and restricted shares released	**5,328**	3,826
Effect of treasury shares held	**(5,794)**	(691)
Weighted average number of ordinary shares issued during the year	**3,119,328**	3,118,857

Diluted earnings per share

When calculating diluted earnings per share, the weighted average number of ordinary shares is adjusted for the effect of all dilutive potential ordinary shares. The Group has two categories of dilutive potential ordinary shares from performance share plans and restricted share plans (2018: two categories of dilutive potential ordinary shares from performance share plans and restricted share plans).

The weighted average number of ordinary shares adjusted for the dilutive potential shares is as follows:

Company (in thousands)	**2019**	2018
Number of shares		
Weighted average number of ordinary shares (used in the calculation of basic earnings per share)	**3,119,328**	3,118,857
Adjustment for dilutive potential ordinary shares	**18,205**	17,319
Weighted average number of ordinary shares (diluted) during the year	**3,137,533**	3,136,176

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B6 Taxation

(i) Tax expenses

Group	2019 $'000	2018 $'000
Current income tax		
Current year	**193,893**	127,422
Overprovision in respect of prior years	**(9,211)**	(8,461)
	184,682	118,961
Deferred income tax		
Current year	**(69,565)**	(12,181)
Overprovision in respect of prior years	**(12,320)**	(2,406)
Effect of reduction in tax rates	**(227)**	(48)
	(82,112)	(14,635)
	102,570	104,326

A reconciliation between tax expense and the product of accounting profit multiplied by the applicable corporate tax rate for the year ended 31 December is as follows:

Group	2019 $'000	2018 $'000
Profit before taxation	**695,244**	620,748
Taxation at statutory tax rate of 17% (2018: 17%)	**118,191**	105,527
Adjustments:		
Income not subject to tax	**(3,786)**	(8,728)
Expenses not deductible for tax purposes	**17,571**	26,294
Different tax rates of other countries	**7,416**	2,411
Overprovision in respect of prior years	**(21,531)**	(10,867)
Effect of change in tax rates	**(227)**	(48)
Effect of results of associates and joint ventures presented net of tax	**(6,627)**	(8,340)
Tax incentives	**(1,346)**	(1,324)
Deferred tax assets not recognised	**7,692**	10,520
Deferred tax assets previously not recognised now utilised	**(11,792)**	(8,769)
Others	**(2,991)**	(2,350)
	102,570	104,326

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B6 Taxation (continued)

(ii) Deferred tax assets and liabilities

(a) Recognised deferred tax assets and liabilities

Deferred tax assets and liabilities are attributable to the following:

Group	Assets 2019 $'000	Assets 2018 $'000	Liabilities 2019 $'000	Liabilities 2018 $'000
Property, plant and equipment	**(2,275)**	(249)	**95,790**	111,267
Intangible assets	**(13,136)**	(4,293)	**190,016**	182,447
Allowance for doubtful debts	**(1,987)**	(1,721)	**–**	–
Allowance for inventory obsolescence	**(26,869)**	(20,396)	**–**	–
Provisions and accruals	**(127,913)**	(110,042)	**575**	–
Lease liabilities	**(4,461)**	–	**3,710**	–
Unabsorbed capital allowances and unutilised tax losses	**(45,190)**	(56,682)	**8,377**	–
Fair value of derivative financial instruments designated as cash flow hedges	**(10,791)**	(7,447)	**838**	530
Fair value of defined benefit plans	**(27,013)**	(13,798)	**–**	–
Other items	**(13,777)**	(9,215)	**37,243**	28,189
Deferred tax (assets)/liabilities	**(273,412)**	(223,843)	**336,549**	322,433
Set off of tax	**161,817**	151,707	**(161,817)**	(151,707)
Net deferred tax (assets)/liabilities	**(111,595)**	(72,136)	**174,732**	170,726

The Group's lease payments are deductible upon payment for tax purposes. In accounting for the deferred tax relating to the lease, the Group considers the asset and liability collectively and accounts for the deferred taxation on a net basis.

(b) Unrecognised deferred tax assets

Deferred tax assets have not been recognised in respect of the following items:

Group	2019 $'000	2018 $'000
Tax losses	**182,254**	359,059
Deductible temporary differences	**30,571**	8,895
Unabsorbed wear and tear allowance and investment allowance	**5,456**	1,306
	218,281	369,260

(c) Unrecognised temporary differences relating to investments in subsidiaries

As at 31 December 2019, a deferred tax liability of $133,105,000 (2018: $121,015,000) for temporary difference of $559,899,000 (2018: $484,367,000) related to undistributed earnings of certain subsidiaries was not recognised as the Group has determined that the undistributed profits of its overseas subsidiaries will not be remitted to Singapore in the foreseeable future, but will be retained for organic growth and acquisitions.

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B6 Taxation (continued)

(ii) Deferred tax assets and liabilities (continued)

(d) Movement in deferred tax balances during the year:

Group	As at 1 January 2018 $'000	Recognised in profit or loss $'000	Recognised in other comprehensive income $'000	Deconsolidation of subsidiaries $'000	Utilisation of tax losses $'000
Property, plant and equipment	109,984	369	–	2	–
Intangible assets	180,852	399	–	(4,290)	–
Allowance for doubtful debts	(990)	(709)	–	4	–
Allowance for inventory obsolescence	(13,865)	(6,261)	–	14	–
Provisions and accruals	(121,089)	11,353	15	16	–
Lease liabilities	–	–	–	–	–
Unabsorbed capital allowances and unutilised tax losses	(26,844)	(27,258)	–	3	(1,924)
Fair value of derivative financial instruments designated as cash flow hedges	4,735	(36)	(11,535)	–	–
Fair value of defined benefit plans	(13,124)	–	(950)	–	–
Other items	11,513	7,508	–	(38)	–
	131,172	(14,635)	(12,470)	(4,289)	(1,924)

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Exchange difference $'000	As at 31 December 2018 $'000	Recognised in profit or loss $'000	Recognised in other comprehensive income $'000	Acquisition/ deconsolidation of subsidiaries $'000	Utilisation of tax losses $'000	Exchange difference $'000	As at 31 December 2019 $'000
663	111,018	(21,603)	–	3,251	1,268	(419)	93,515
1,193	178,154	(16,570)	–	15,924	423	(1,051)	176,880
(26)	(1,721)	(294)	–	–	–	28	(1,987)
(284)	(20,396)	(6,657)	–	(21)	–	205	(26,869)
(337)	(110,042)	(22,750)	–	1,814	3,207	433	(127,338)
–	–	(758)	–	–	–	7	(751)
(659)	(56,682)	(22,321)	(64)	(1,894)	43,328	820	(36,813)
(81)	(6,917)	(74)	(3,132)	–	–	170	(9,953)
276	(13,798)	(202)	(13,898)	–	–	885	(27,013)
(9)	18,974	9,117	(4,728)	(61)	–	164	23,466
736	98,590	(82,112)	(21,822)	19,013	48,226	1,242	63,137

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B6 Taxation (continued)

Recognition and measurement

Current tax

Current tax is measured at the amount expected to be recovered from or paid to the tax authorities, using tax rates and tax laws that are enacted or substantively enacted by the reporting date.

Deferred tax

Deferred tax is accounted for in respect of temporary differences arising from differences between the carrying amount of assets and liabilities and the corresponding tax base.

Deferred tax liabilities are recognised for all taxable temporary differences. Deferred tax assets are recognised for all deductible temporary differences, carry-forward of unused tax assets and unused tax losses, to the extent that it is probable that sufficient future taxable profits will be available to utilise them.

However, deferred tax assets and liabilities are not recognised for:
- temporary differences on the initial recognition of assets or liabilities in a transaction that is not a business combination which affects neither accounting nor taxable profit or loss; and
- taxable temporary differences arising on the initial recognition of goodwill.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists and they relate to taxes levied by the same tax authority on the same taxable entity.

Current tax and deferred tax are recognised in profit or loss except to the extent that it relates to a business combination, or items recognised directly in equity or in other comprehensive income.

Key estimate and judgement: Income taxes

The Group is subject to income taxes in Singapore and jurisdictions where it has foreign operations. Judgement is required in determining the worldwide provision for income taxes and in assessing whether deferred tax balances are recognised on the balance sheet. Changes in circumstances will alter expectations, which may impact the amount of provision for income taxes and deferred tax balances recognised.

Key estimate and judgement: Recovery of deferred tax assets

Deferred tax assets are recognised for tax losses and deductible temporary differences to the extent that it is probable that sufficient future taxable profits will be available to utilise them. Judgement and estimates are required to determine the amount of deferred tax assets that can be recognised, based upon the likely timing and the level of future taxable profits.

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C | OPERATING ASSETS AND LIABILITIES

This section provides information relating to the operating assets and liabilities of the Group.

The Group maintains a strong balance sheet to support the Group's strategy to maximise returns to the shareholders through efficient use of capital, taking into consideration the Group's expenditures, growth and investment requirements.

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C1 Property, plant and equipment

Group	Freehold and leasehold land, buildings and improvements $'000	Wharves, floating docks and boats $'000
Cost		
At 1 January 2019	1,353,537	314,966
Additions	36,581	–
Disposals/write-off	(3,110)	(170,660)
Acquisition of subsidiaries	15,831	–
Deconsolidation/disposal of subsidiaries	(2,938)	–
Reclassifications	10,751	546
Translation difference	(8,800)	(531)
At 31 December 2019	1,401,852	144,321
Accumulated depreciation		
At 1 January 2019	692,653	180,532
Depreciation charge/impairment losses	55,002	7,339
Disposals/write-off	(2,650)	(69,553)
Deconsolidation/disposal of subsidiaries	(1,145)	–
Reclassifications	(6,597)	–
Translation difference	(2,703)	(230)
At 31 December 2019	734,560	118,088
Net book value		
At 31 December 2019	667,292	26,233

* Others comprise transportation equipment, vehicles and satellites

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Plant and machinery $'000	Production tools and equipment $'000	Furniture, fittings, office equipment and others * $'000	Aircraft and aircraft engines $'000	Construction-in-progress $'000	Total $'000
1,002,294	397,087	375,395	310,713	92,077	3,846,069
64,966	24,279	51,240	35,219	83,184	295,469
(33,443)	(9,230)	(10,285)	(2,883)	(60)	(229,671)
117,144	2,764	1,825	–	10,530	148,094
(584)	(1)	(1,304)	(6,732)	–	(11,559)
17,965	1,958	(1,536)	–	(59,995)	(30,311)
(8,418)	(3,772)	(1,845)	(3,517)	(1,223)	(28,106)
1,159,924	413,085	413,490	332,800	124,513	3,989,985
570,066	269,931	292,178	97,967	–	2,103,327
85,863	23,802	32,395	18,453	–	222,854
(27,719)	(8,257)	(10,150)	(791)	–	(119,120)
(333)	(1)	(1,104)	(1,936)	–	(4,519)
(702)	(75)	(556)	–	–	(7,930)
(4,659)	(598)	(1,031)	(440)	–	(9,661)
622,516	284,802	311,732	113,253	–	2,184,951
537,408	128,283	101,758	219,547	124,513	1,805,034

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C1 Property, plant and equipment (continued)

Group	Freehold and leasehold land, buildings and improvements $'000	Wharves, floating docks and boats $'000
Cost		
At 1 January 2018	1,425,594	314,179
Additions	15,915	–
Disposals/write-off	(10,076)	(75)
Deconsolidation/disposal of subsidiaries	(85,054)	–
Reclassifications	2,377	–
Translation difference	4,781	862
At 31 December 2018	1,353,537	314,966
Accumulated depreciation		
At 1 January 2018	668,661	171,708
Depreciation charge/impairment losses	55,908	8,546
Disposals/write-off	(9,755)	(33)
Deconsolidation/disposal of subsidiaries	(24,873)	–
Reclassifications	6	–
Translation difference	2,706	311
At 31 December 2018	692,653	180,532
Net book value		
At 31 December 2018	660,884	134,434

* Others comprise transportation equipment, vehicles and satellites

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Plant and machinery $'000	Production tools and equipment $'000	Furniture, fittings, office equipment and others * $'000	Aircraft and aircraft engines $'000	Construction-in-progress $'000	Total $'000
958,136	381,109	342,735	255,607	45,177	3,722,537
64,862	22,692	40,733	105,203	85,365	334,770
(10,792)	(10,226)	(11,048)	(2,956)	(12)	(45,185)
(15,715)	(771)	(5,914)	(4,088)	(668)	(112,210)
6,168	2,838	7,622	(44,699)	(37,274)	(62,968)
(365)	1,445	1,267	1,646	(511)	9,125
1,002,294	397,087	375,395	310,713	92,077	3,846,069
534,897	253,675	278,315	95,885	–	2,003,141
65,573	23,014	28,805	12,949	–	194,795
(9,845)	(8,985)	(10,599)	(2,956)	–	(42,173)
(11,637)	(363)	(5,281)	(799)	–	(42,953)
(8,407)	(6)	(12)	(7,567)	–	(15,986)
(515)	2,596	950	455	–	6,503
570,066	269,931	292,178	97,967	–	2,103,327
432,228	127,156	83,217	212,746	92,077	1,742,742

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C1 Property, plant and equipment (continued)

Reclassifications due to changes in the use of assets:

(a) Plant and machinery with net book value amounting to $1,850,000 (2018: $47,293,000) were reclassified to inventories;

(b) Asset under construction with net book value of $915,000 (2018: Nil) were reclassified to intangibles on completion;

(c) Inventories of $4,791,000 (2018: $311,000) were reclassified to property, plant and equipment;

(d) Restoration costs and assets acquired on finance lease under SFRS(I) 1-17 in property, plant and equipment of $24,407,000 were reclassified to right-of-use assets on 1 January 2019.

There were no movements in the following amounts carried at valuation from 1 January 2018 to 31 December 2019.

Group	Valuation $'000	Accumulated depreciation $'000	Net book value $'000
At Valuation			
Freehold and leasehold land, buildings and improvements	1,919	1,919	–
Wharves, floating docks and boats	5,930	5,930	–
Plant and machinery	1,683	1,683	–
Furniture, fittings, office equipment and others *	285	285	–
Total	9,817	9,817	–

Operating lease

Included in the tables above are assets that the Group leases out, comprising aircraft and office equipment. The Group has classified these leases as operating leases, because they do not transfer substantially all of the risks and rewards incidental to the ownership of the assets. Movements in these assets that are subject to operating leases are presented below.

Group	Furniture, fittings, office equipment and others * $'000	Aircraft and aircraft engines $'000	Total $'000
Cost			
At 1 January 2019	837	105,203	106,040
Additions	162	32,793	32,955
Reclassifications	386	–	386
Translation difference	(8)	(1,375)	(1,383)
At 31 December 2019	1,377	136,621	137,998
Accumulated depreciation			
At 1 January 2019	197	128	325
Depreciation charge for the year	280	5,684	5,964
Translation difference	(5)	(67)	(72)
At 31 December 2019	472	5,745	6,217
Net book value			
At 31 December 2019	905	130,876	131,781

* Others comprise transportation equipment, vehicles and satellites

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C1 Property, plant and equipment (continued)

(a) Property, plant and equipment pledged as security

Property, plant and equipment of certain overseas subsidiaries of the Group with a carrying value of $89,735,000 (2018: $56,336,000) are pledged as security for bank loans.

(b) Major properties

Major land and buildings and improvements to premises are:

Location	Description	Tenure	Land area (sq. m.)	Net book value 2019 $'000	Net book value 2018 $'000
Singapore					
1 Ang Mo Kio Electronics Park Road	Industrial and commercial buildings	30 years from 1.11.2011	20,000	**45,530**	51,378
3 Ang Mo Kio Electronics Park Road	Industrial and commercial buildings	30 years from 1.12.2015	30,000	**40,635**	43,625
249 Jalan Boon Lay	Industrial and commercial buildings	27 years from 1.10.2001 to 31.12.2028, renewable to 10.10.2065	206,031	**84,430**	97,465
People's Republic of China					
No 2, Huayu Road, Huli District, Xiamen 361006, Fujian	Leasehold land for factory building	50 years from 20.11.2008	38,618	**40,468**	42,681
Germany					
Grenzstr. 1, Dresden	Hangar and office building	Freehold	183,970	**83,762**	40,333

For this purpose, freehold and leasehold land and buildings, and improvements to premises are considered major properties if the net book value of these assets represent 5% or more of the Group's aggregated net book value in these categories.

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C1 Property, plant and equipment (continued)

Recognition and measurement

Property, plant and equipment are carried at cost less accumulated depreciation and accumulated impairment losses.

Cost comprises expenditure that is:
- directly attributable to the acquisition of the asset;
- subsequent costs incurred to replace parts that are eligible for capitalisation; and/or
- transfers from equity on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment.

Certain items of property, plant and equipment which were subject to a one-time valuation in 1972 are stated at valuation, net of depreciation and any impairment losses.

Disposals

Gains or losses on disposal of property, plant and equipment are included in profit or loss.

Depreciation

Depreciation of property, plant and equipment is recognised in profit and loss on a straight-line basis over their useful lives, except for freehold land which are not depreciated, and leasehold land which are depreciated over the remaining lease term. The estimated useful lives are as follows:

Item #	Useful life
Leasehold buildings and improvements	2 to 50 years ^
Wharves, floating docks and boats	10 to 23 years
Plant and machinery	2 to 25 years
Production tools and equipment	2 to 22 years
Furniture, fittings, office equipment and others *	2 to 12 years
Aircraft and aircraft engines	2 to 30 years
Satellites	5 years

Property, plant and equipment purchased specifically for projects are depreciated over the useful life or the duration of the project, whichever is shorter.

^ Refer to Note C1(b) Major Properties for details of the lease tenure used to approximate the useful lives of the leasehold land, buildings and improvements.

* Others comprise transportation equipment, vechicles and satellites.

Impairment

The carrying amounts of property, plant and equipment are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indications exists, then the asset's recoverable amount is estimated. An impairment loss is recognised if the carrying amount of an asset or its related cash generating unit exceeds its estimated recoverable amount.

Key estimate and judgement: Depreciation charge

Management estimates the useful lives based on factors such as changes in the expected level of usage and technological developments. These are reassessed at each reporting date, and adjusted prospectively, where appropriate.

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C2 Right-of-use assets

The Group leases many assets including land and buildings, vehicles, machinery and IT equipment. Information about leases for which the Group is a lessee is presented below.

Group	Freehold and leasehold land, buildings and improvements $'000	Wharves, floating docks and boats $'000	Plant and machinery $'000	Production tools and equipment $'000	Furniture, fittings, office equipment and others * $'000	Total $'000
Cost						
Recognition on initial application of SFRS(I) 16 at 1 January 2019	418,865	1,243	1,242	221	9,949	431,520
Additions	83,924	–	69	220	6,415	90,628
Acquisition of subsidiaries	23,349	–	–	–	2,872	26,221
Deconsolidation/disposal of subsidiaries	(937)	–	–	–	–	(937)
Modifications to contracts	(2,122)	–	–	23	(1,273)	(3,372)
Lease termination	(1,243)	–	–	–	(406)	(1,649)
Depreciation	(49,465)	(648)	(391)	(185)	(4,875)	(55,564)
Translation difference	(2,775)	–	(3)	(5)	(89)	(2,872)
At 31 December 2019	469,596	595	917	274	12,593	483,975

* Others comprise transportation equipment, vehicles and satellites

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C3 Intangible assets

Group	Goodwill $'000	Dealer network $'000	Development expenditure $'000
Cost			
At 1 January 2019	561,003	175,890	424,526
Additions	–	–	93,425
Acquisition of subsidiaries	311,018	–	40,585
Deconsolidation/disposal of subsidiaries	(493)	–	–
Write-off	–	–	–
Translation difference	(14,631)	(5,197)	(11,344)
At 31 December 2019	856,897	170,693	547,192
Accumulated amortisation and impairment losses			
At 1 January 2019	43,663	36,573	83,780
Amortisation for the year *	–	7,621	43,079
Impairment losses +	–	–	11,876
Deconsolidation/disposal of subsidiaries	(161)	–	–
Write-off	–	–	–
Translation difference	(616)	(804)	(1,118)
At 31 December 2019	42,886	43,390	137,617
Net book value			
At 31 December 2019	814,011	127,303	409,575
Cost			
At 1 January 2018	566,485	179,101	312,900
Additions	–	–	114,789
Finalisation of purchase price allocation	(4,293)	–	–
Deconsolidation/disposal of subsidiaries	(10,883)	–	–
Write-off	–	–	–
Translation difference	9,694	(3,211)	(3,163)
At 31 December 2018	561,003	175,890	424,526
Accumulated amortisation and impairment losses			
At 1 January 2018	54,293	29,278	53,355
Amortisation for the year *	–	7,621	29,531
Impairment losses/(write-back of impairment) +	307	–	–
Deconsolidation/disposal of subsidiaries	(10,883)	–	–
Write-off	–	–	–
Translation difference	(54)	(326)	894
At 31 December 2018	43,663	36,573	83,780
Net book value			
At 31 December 2018	517,340	139,317	340,746

* Amortisation charge of $92,620,000 (2018: $49,331,000) is recognised in the income statement as part of:
- Other operating expenses of $31,528,000 (2018: $11,755,000); and
- Cost of sales of $61,092,000 (2018: $37,576,000)

\+ During the year, the Group assessed that certain development expenditure and licenses and commercial and intellectual property rights were impaired as these intangible assets were not expected to be generating future economic benefits and impairment losses of $23,227,000 were recognised in cost of sales in the income statement. In the prior year, impairment losses of $1,565,000 were recognised in other operating expenses in the income statement on certain licenses and commercial and intellectual property rights assessed by the Group to be impaired as these intangible assets were not expected to be generating future economic benefits.

In the prior year, an impairment loss on goodwill of $307,000 was recognised in other operating expenses in the income statement as the recoverable amount of one CGU was determined to be lower than the carrying amount.

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Commercial and intellectual property rights $'000	Brands $'000	Licenses $'000	Technology agreement $'000	Authorised repair centre agreement $'000	Others $'000	Total $'000
94,901	81,775	56,319	34,474	5,859	18,808	1,453,555
3,934	–	7,076	–	–	–	104,435
515,167	–	6	–	–	9,745	876,521
(1,507)	–	–	–	–	–	(2,000)
(75)	–	(32)	–	–	–	(107)
(7,209)	(1,095)	74	(451)	–	–	(39,853)
605,211	80,680	63,443	34,023	5,859	28,553	2,392,551
70,812	15,958	13,706	15,274	4,018	18,533	302,317
24,795	1,195	2,511	2,615	989	9,815	92,620
–	–	11,351	–	–	–	23,227
(1,507)	–	–	–	–	–	(1,668)
(75)	–	(32)	–	–	–	(107)
(1,101)	(232)	48	(230)	–	–	(4,053)
92,924	16,921	27,584	17,659	5,007	28,348	412,336
512,287	63,759	35,859	16,364	852	205	1,980,215
94,504	80,150	57,466	33,743	5,859	18,928	1,349,136
619	–	–	–	–	–	115,408
–	–	–	–	–	–	(4,293)
(1,366)	–	(996)	–	–	–	(13,245)
–	–	–	–	–	(120)	(120)
1,144	1,625	(151)	731	–	–	6,669
94,901	81,775	56,319	34,474	5,859	18,808	1,453,555
66,751	14,519	9,898	12,386	2,678	18,566	261,724
4,586	1,189	2,400	2,589	1,339	76	49,331
62	–	1,503	–	–	(11)	1,861
(1,366)	–	–	–	–	–	(12,249)
–	–	–	–	–	(97)	(97)
779	250	(95)	299	1	(1)	1,747
70,812	15,958	13,706	15,274	4,018	18,533	302,317
24,089	65,817	42,613	19,200	1,841	275	1,151,238

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C3 Intangible assets (continued)

Recognition and measurement

(i) Goodwill

Goodwill represents the excess of:
- the fair value of the consideration transferred; plus
- the recognised amount of any non-controlling interests in the acquiree; plus
- if the business combination is achieved in stages, the fair value of the existing equity interest in the acquiree,

over the net recognised amount (generally fair value) of the identifiable assets acquired and liabilities assumed.

When the excess is negative, a bargain purchase gain is recognised immediately in profit or loss.

Goodwill is initially measured at cost. Following initial recognition, goodwill is measured at cost less any accumulated impairment losses.

(ii) Other intangible assets

<table>
<tr><th>Class of intangible assets</th><th>Background</th><th>Valuation method</th><th>Useful lives</th></tr>
<tr><td>Dealer network</td><td>Includes customer relationships and networks acquired</td><td rowspan="6">Initial recognition:

Separately acquired intangible assets are recognised at cost.

Intangible assets arising from business combinations are recognised at fair value at the date of acquisition.

Subsequent measurement:

Intangible assets are carried at cost less any accumulated amortisation and accumulated impairment losses following initial recognition.

Amortisation is calculated on a straight-line basis over the estimated useful lives.</td><td>5 to 25 years</td></tr>
<tr><td>Commercial and intellectual property rights</td><td>Relates to intellectual property</td><td>2 to 20 years</td></tr>
<tr><td>Brands</td><td>Includes LeeBoy™ and Rosco brands of road construction equipment</td><td>Aerospace: 5 years

Electronics: 20 years

Land Systems: 70 years</td></tr>
<tr><td>Licenses</td><td>Relates to licenses to
– conduct commercial aviation activities
– purchase and lease Boeing parts
– develop MRO capabilities for specific aircraft types</td><td>7 to 30 years</td></tr>
<tr><td>Technology agreement</td><td>Relates to the intellectual property required to operate the EcoPower Engine Wash business</td><td>13 years</td></tr>
<tr><td>Authorised repair centre agreements</td><td>Relates to the sole appointed authorised service centre for repair and overhaul of landing gear</td><td>5 years</td></tr>
</table>

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C3 Intangible assets (continued)

Recognition and measurement (continued)

(ii) Other intangible assets (continued)

Class of intangible assets	Background	Valuation method	Useful lives
Development expenditure	Development expenditure on an individual project is recognised as an intangible asset when the Group can demonstrate the technical and commercial feasibility of development. The capitalised costs are directly attributable to activities preparing the asset for its intended use, and capitalised borrowing costs. In any other circumstances, development costs are recognised in profit or loss as incurred. Included in development cost are costs related to development and assembly of aircraft seats, B757 15-PTF, A330-200 PTF and A330-300 PTF, A350 PTF and A320/A321 PTF *. * Amortisation has been deferred for the year ended 31 December 2019 as the assets are not yet ready for management's intended use.	(i) Initially recognised at cost (ii) Subsequently, carried at cost less any accumulated amortisation and accumulated impairment losses	B757 15-PTF: 4 years A330-200 PTF and A330-300 PTF: 41 years A350 PTF: 8 years Others: 3 to 10 years

(iii) Subsequent expenditure

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated intangible assets, is recognised in profit or loss as incurred.

Impairment review

The Group tests intangible assets for impairment to ensure they are not carried at above their recoverable amounts annually or more frequently if events or changes in circumstances indicate that the carrying value may be impaired.

These tests are performed by assessing the recoverable amount of each individual asset or, if this is not possible, then the recoverable amount of the cash generating unit (CGU) to which the asset belongs. CGUs are the lowest levels at which assets are grouped and generate separately identifiable cash flows.

The recoverable amount is the higher of an asset or a CGU's fair value less costs to sell and value-in-use. The value-in-use calculations are based on discounted cash flows expected to arise from the asset.

Reversal of impairment

Intangible assets other than goodwill that suffered impairment are reviewed for possible reversal of the impairment at each reporting date.

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C3 Intangible assets (continued)

Key estimate and judgement: Recognition and measurement of intangible assets

Key assumptions used in estimating the recoverable amount, useful life of an intangible asset (reassessed at each reporting date) requires management's judgement.

Aggregate carrying amounts of goodwill allocated to each CGU within the business divisions and the key assumptions used in determining the recoverable amount of each CGU are as follows:

			Pre-tax discount rate		Terminal value growth rate	
Group	**2019 $'000**	2018 $'000	**2019 %**	2018 %	**2019 %**	2018 %
Aerospace						
Aircraft Maintenance & Modification	**13,170**	13,666	**12.0**	11.0 – 11.5	**2.5**	2.0 – 2.5
Component/Engine Repair & Overhaul	**13,206**	13,381	**14.5**	15.2	**2.5**	2.4
Engineering & Material Services	**62,983**	26,168	**12.7**	12.4	**2.0**	1.0
Electronics						
Communication & Sensor Systems Group	**509,952**	246,747	**9.8 – 13.3**	10.0 – 10.6	**4.0 – 5.0**	4.0 – 5.0
Software Systems Group	**27,663**	27,866	**8.8 – 12.7**	8.7 – 13.1	**2.0 – 3.0**	2.0 – 3.0
Land Systems						
Automotive	**152,245**	154,260	**12.0 – 17.2**	12.3 – 15.3	**2.3 – 3.0**	3.0 – 3.5
Others	**34,792**	35,252	**10.3**	10.0	**3.0**	3.0
	814,011	517,340				

Recognition and measurement

The recoverable amounts of the CGUs are determined based on value-in-use calculations, using cash flow projections derived from the financial budgets approved by management for the next five years. The key assumptions used in the calculation of recoverable amounts are as follows:

- The discount rate used is estimated based on the industry weighted average cost of capital.
- The long-term terminal value growth rate has been determined based on either the nominal GDP rates for the country in which the CGU is based or the long-term growth rate estimated by management by reference to forecasts included in industry reports and expected market development.

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C3 Intangible assets (continued)

Sensitivity to changes in assumptions:

(a) Management has identified the following key assumption for which a change as set out below could cause the carrying amount to exceed the recoverable amount.

Business Divisions	Assumption	Change required for carrying amount to equal the recoverable amount 2019 %	2018 %
Others	Sales growth rate (average of next 5 years)	**0.5**	0.7

(b) No sensitivity analysis was disclosed for the remaining CGUs as the Group believes that any reasonable possible change in the key assumptions is unlikely to result in any material impairment to the CGUs.

Key estimate and judgement: Impairment of goodwill

Determination of potential impairment requires an estimation of the recoverable amount of the CGUs to which goodwill are allocated. Key assumptions made to the projected cash flows requiring judgement include growth rate estimates and discount rates.

C4 Amounts due from related parties

Group	2019 $'000	2018 $'000
Trade:		
Associates	**3,360**	2,509
Joint ventures	**24,720**	1,952
Related corporations	**7,376**	10,425
	35,456	14,886
Non-trade:		
Joint ventures *	**4,955**	25,130
Related corporations	**56**	182
	5,011	25,312
	40,467	40,198
Receivable:		
Within 1 year	**35,661**	35,392
After 1 year	**4,806**	4,806
	40,467	40,198

There were no significant amounts due from related parties denominated in currencies other than the respective entities' functional currencies as at 31 December 2019 and 31 December 2018.

* Included in the amounts due from joint ventures (non-trade) are:

(a) a loan of $4,806,000 (2018: $4,806,000) bearing interest at 6.38% (2018: 6.38%) per annum, which is the effective interest rate. The loan is unsecured and repayable by 2029; and

(b) a loan of $19,806,000 as at 31 December 2018, bearing effective interest rate at 3.49% per annum, was repaid during the year.

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C5 Inventories

Group	2019 $'000	2018 $'000
Inventories of equipment and spares	**1,311,858**	1,183,510

In 2019, raw materials, consumables and changes in finished goods and work-in-progress recognised as cost of sales amounted to $5,447,863,000 (2018: $4,919,045,000). This includes inventories that were reclassified as contract assets and subsequently expensed in the course of fulfilling performance obligations in contracts with customers.

Allowances for inventory obsolescence

As at 31 December 2019, the inventories are stated after allowance for inventory obsolescence of $340,728,000 (2018: $383,486,000).

Recognition and measurement

Inventories are measured at the lower of cost and net realisable value. Cost (comprising direct labour, material costs, direct expenses and an appropriate allocation of production overheads) is calculated on a first-in, first-out basis or weighted average cost basis depending on the nature and pattern of use of the inventories.

Cost may also include transfers from equity on qualifying cash flow hedges of foreign currency purchases of inventories. Allowance is made for deteriorated, damaged, obsolete and slow-moving inventories.

Net realisable value represents the estimated selling price in the ordinary course of business, less estimated costs to sell.

Key estimate and judgement: Allowance for inventory obsolescence

The allowance for inventory obsolescence is based on estimates from historical trends and expected utilisation of inventories. The actual amount of inventory write-offs could be higher or lower than the allowance made.

C6 Trade receivables

Group	2019 $'000	2018 $'000
Gross receivables	**1,322,767**	1,170,064
Allowance for doubtful debts	**(76,886)**	(32,248)
Trade receivables, net	**1,245,881**	1,137,816

Trade receivables denominated in currencies other than the respective entities' functional currencies as at 31 December are as follows:

- $289,538,000 (2018: $231,057,000) denominated in USD
- $26,245,000 (2018: $22,092,000) denominated in Euro

Trade receivables amounting to $1,848,000 (2018: $4,319,000) are arranged to be repaid through letters of credit issued by reputable banks.

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C7 Advances and other receivables

Group	2019 $'000	2018 $'000
Deposits	**14,887**	14,719
Interest receivables	**789**	758
Finance lease receivables	**3,614**	–
Other recoverables	**68,470**	48,963
Non-trade receivables	**30,911**	18,307
Advance payments to suppliers	**161,840**	113,665
Prepayments	**67,424**	67,913
Derivative financial instruments	**6,035**	6,565
Housing and car loans and advances to staff	**2,563**	2,642
Loans to third parties	**1,060**	503
	357,593	274,035
Receivable:		
Within 1 year	**345,744**	253,961
After 1 year	**11,849**	20,074
	357,593	274,035

The Group entered into finance lease arrangements with customers with terms ranging from 1.6 to 3.0 years and effective interest rates ranging from 2.29% to 2.74% per annum.

C8 Bank balances and other liquid funds

Group	2019 $'000	2018 $'000
Fixed deposits with financial institutions	**73,738**	65,532
Cash and bank balances	**379,492**	350,248
Bank balances and other liquid funds	**453,230**	415,780
Deposits pledged	**(1,135)**	(1,380)
Cash and cash equivalents in the statement of cash flows	**452,095**	414,400

Fixed deposits with financial institutions mature at varying periods within 10 months (2018: 12 months) from the financial year-end. Interest rates range from 1.2% to 3.8% (2018: 1.1% to 6.4%) per annum, which are also the effective interest rates.

Cash and bank balances of $1,135,000 (2018: $1,380,000) have been placed with banks as security for letters of credit issued to third parties. Cash and cash equivalents denominated in currencies other than the respective entities' functional currencies as at 31 December are as follows:

- $176,836,000 (2018: $60,256,000) denominated in USD
- $97,962,000 (2018: $89,470,000) denominated in Euro

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C9 Trade payables and accruals

Group	2019 $'000	2018 $'000
Trade payables	**859,102**	885,441
Non-trade payables	**84,131**	72,494
Purchase of property, plant and equipment	**5,386**	41
Accrued operating expenses *	**1,094,509**	922,772
Accrued interest payable	**376**	8,064
Derivative financial instruments	**27,376**	21,291
	2,070,880	1,910,103
Payable:		
Within 1 year	**2,012,897**	1,829,758
After 1 year	**57,983**	80,345
	2,070,880	1,910,103

Trade payables denominated in currencies other than the respective entities' functional currencies as at 31 December are as follows:

- $114,062,000 (2018: $112,102,000) denominated in USD
- $34,636,000 (2018: $48,313,000) denominated in Euro

* Included in the accrued operating expenses is an amount of $319,060,000 (2018: $323,849,000) for the Group's obligations under its employee compensation schemes.

C10 Amounts due to related parties

Group	2019 $'000	2018 $'000
Trade:		
Associates	**11,029**	7,289
Joint ventures	**140**	252
Related corporations	**1,537**	3,869
	12,706	11,410
Non-trade:		
Joint ventures *	**55,682**	73,824
Related corporations	**1,619**	211
	57,301	74,035
	70,007	85,445
Payable:		
Within 1 year	**70,007**	85,445

There were no significant amounts due to related parties denominated in currencies other than the respective entities' functional currencies as at 31 December 2019 and 31 December 2018.

* Included in the amounts due to joint ventures (non-trade) is an amount of $55,682,000 (2018: $69,786,000) placed by joint ventures to a subsidiary of the Group under a cash pooling arrangement, where an effective interest of 1.46% per annum (2018: 1.36%) is charged on the outstanding balance.

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C11 Provisions

Movements in provisions are as follows:

Group	Warranties $'000	Onerous contracts $'000	Closure costs $'000	Restoration costs $'000	Total $'000
2019					
At 1 January 2019	171,315	39,070	2,550	–	212,935
Reclassification	–	–	–	20,004	20,004
Charged to profit or loss	19,343	16,305	–	378	36,026
Additions	–	–	–	292	292
Acquisition of subsidiaries	9,250	23,577	–	–	32,827
Provision utilised	(23,475)	(25,927)	(1,140)	–	(50,542)
Translation difference	(287)	(703)	(71)	(28)	(1,089)
At 31 December 2019	176,146	52,322	1,339	20,646	250,453

On 1 January 2019, the Group reclassified $20,004,000 of provision for restoration costs from trade payables and accruals.

Recognition and measurement

Provisions are recognised when the Group has a present obligation (legal or constructive) as a result of past events, it is probable that an outflow of resources will be required to settle the obligation and a reliable estimate of the amount can be made.

(i) Warranties

The warranty provision represents the best estimate of the Group's contractual obligations at the reporting date.

Under the terms of the revenue contracts with key customers, the Group is obligated to make good, by repair or replacement, engineering or manufacturing defects that become apparent within the warranty period from the date of sale. The warranty obligation varies from 60 days to 15 years. The Group's experience of the proportion of its products sold that requires repair or replacement differs from year to year as every contract is customised to the specification of the customers.

The estimation of the provision for warranty expenses is based on the Group's past claim experience over the duration of the warranty period and the industry average in relation to warranty exposures and represents the best estimates of the costs expected to incur per dollar of sales.

The warranty provision made as at 31 December 2019 is expected to be incurred over the applicable warranty periods.

(ii) Onerous contracts

Provision for onerous contracts on uncompleted contracts is recognised immediately in profit or loss when it is determinable.

(iii) Closure costs

Provision for closure costs is made in respect of the expected costs that the Group will undertake between the cessation of certain operations of the Group to the completion of their liquidation.

(iv) Restoration costs

Provision for restoration costs is made for dismantlement, removal or restoration costs expected to be incurred on expiry of lease agreements.

Key estimate and judgement: Provision for warranty

The provision for warranty is based on estimates from known and expected warranty work to be performed after completion. The warranty expense incurred could be higher or lower than the provision made.

Key estimate and judgement: Provision for onerous contracts

The Group conducts a critical review of all its long-term contracts regularly. Allowance is made where necessary to account for onerous contracts and significant judgement is used to estimate the total cost to complete.

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C12 Deferred income

Group	2019 $'000	2018 $'000
Government grants	**34,888**	37,466
Deferred rents	**1,824**	8,700
	36,712	46,166
Recognise:		
Within 1 year	**2,403**	3,761
After 1 year	**34,309**	42,405
	36,712	46,166

Government grants relate mainly to grants received to subsidise the cost of capital assets.

On 1 January 2019, on adoption of SFRS(I) 16, $6,713,000 of deferred rent for long-term leases were reclassified to right-of-use assets.

C13 Contract balances

The following table provides information about contract assets and contract liabilities from contracts with customers.

Group	2019 $'000	2018 $'000
Contract assets	**1,246,207**	1,070,396
Contract liabilities	**(1,466,207)**	(1,819,546)

The timing of revenue recognition, billings and cash collections results in billed accounts receivable (included in trade receivables), unbilled receivables (contract assets), and customer advances (contract liabilities) on the balance sheet.

The contract assets primarily relate to the Group's rights to consideration for work completed but not billed at the reporting date. If the value of services rendered exceeds payments received from the customer, a contract asset is recognised and presented separately. The contract asset is transferred to receivables when the entitlement to payment becomes unconditional.

The contract liabilities primarily relate to advance consideration received from customers for contract revenue. If the amounts invoiced to the customer exceeds the value of services rendered, a contract liability is recognised and presented separately.

These assets and liabilities are reported on the balance sheet on a contract by contract basis at each reporting date.

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C13 Contract balances (continued)

Significant changes in the contract assets and the contract liabilities balances during the year are as follows:

Group	Contract assets		Contract liabilities	
	2019 $'000	2018 $'000	**2019 $'000**	2018 $'000
Revenue recognised that was included in the contract liability balance at the beginning of the year	**-**	–	**734,615**	530,126
Increase due to cash received, excluding amounts recognised as revenue during the year	**-**	–	**(591,263)**	(591,971)
Contract assets recognised	**902,185**	774,994	**-**	–
Contract assets reclassified to trade receivables	**(669,757)**	(610,114)	**-**	–
Changes in measurement of progress	**(262)**	4,804	**-**	–

Transaction price allocated to the remaining performance obligations

The aggregate amount of transaction price allocated to the remaining performance obligations as at 31 December 2019 is $15,319,082,000 and the Group expects to recognise $5,867,193,000 as revenue relating to the unsatisfied (or partially unsatisfied) performance obligations in 2020 with the remaining $9,451,889,000 in 2021 and beyond.

As at 31 December 2018, the aggregate amount of transaction price allocated to the remaining performance obligations was $13,183,505,000 and the Group expected to recognise $4,944,523,000 as revenue relating to the unsatisfied (or partially unsatisfied) performance obligations in 2019 with the remaining $8,238,982,000 in 2020 and beyond.

Variable consideration that is constrained and therefore not included in the transaction price is excluded in the amount presented above.

Key estimate and judgement: Contract balances

Significant judgements are used to estimate these total contract costs to complete. In making these estimates, management has relied on past experience of completed projects. The estimated total contract costs are reviewed every reporting period and adjusted where necessary, with the corresponding effect of change being recognised prospectively from the date of change.

C14 Financial risk management objectives and policies

The Group has exposure to the following financial risks arising from its operations and the use of financial instruments:

- Interest rate
- Foreign exchange
- Market
- Liquidity
- Credit

The Group's principal financial instruments, other than foreign exchange contracts and derivatives, comprise bank guarantees, performance bonds, bank loans and overdrafts, finance leases and hire purchase contracts, investments, cash and short-term deposits.

All financial transactions with the banks are governed by banking facilities duly accepted with Board of Directors' resolutions, with banking mandates, which define the permitted financial instruments and facilities limits. All financial transactions require dual signatories. The Group has various other financial assets and liabilities such as trade receivables and trade payables, which arise directly from its operations.

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C14 Financial risk management objectives and policies (continued)

It is the Group's policy not to engage in foreign exchange and/or derivatives speculation. The purpose of engaging in treasury transactions is solely for hedging. The Group's treasury mandates allow only foreign exchange spot, forward or non-deliverable forward, foreign exchange swap, cross currency swap, purchase of foreign exchange call, put or collar option, forward rate agreement, interest rate swap, purchase of interest rate cap, floor or collar option. These instruments are generic in nature with no embedded or leverage features and any deviation from these instruments would require specific approval from the Board of Directors.

The policies for managing each of these risks are broadly summarised below:

Interest rate risk

As at reporting date, the interest rate profile of the interest-bearing financial instruments is:

Group	2019 $'000	2018 $'000
Fixed rate instruments		
Financial assets	**82,158**	90,144
Financial liabilities	**(840,378)**	(250,835)
	(758,220)	(160,691)
Variable rate instruments		
Financial liabilities	**(1,552,971)**	(314,654)
	(1,552,971)	(314,654)

The Group has cash balances placed with reputable banks and financial institutions. The Group manages its interest rate risk on its interest income by placing the cash balances in varying maturities and interest rate terms with due consideration to operating cash flow requirements and optimising yield.

The Group's debts include bank loans, commercial papers and lease liabilities (2018: bank loans and lease liabilities). The Group seeks to minimise its interest rate risk exposure through tapping different sources of funds to refinance the debt instruments and/or enter into interest rate swaps.

An increase/decrease of 50 basis points in interest rate, with all other variables being held constant, would lead to a reduction/increase of the Group's profit or loss by approximately $7.8 million (2018: $1.6 million).

Information relating to the Group's interest rate risk exposure is also disclosed in the notes on the Group's borrowings, investments and loans receivable, where applicable.

Foreign exchange risk

The Group is exposed to foreign exchange risk from its global operations and revenues, costs and borrowings denominated in a currency other than the respective entities' functional currencies. The Group's foreign exchange exposures are primarily from USD and Euro, and manages its exposure through forward currency contracts and embedded derivatives.

The Group's centralised Treasury Unit monitors the current and projected foreign currency cash flows within the Group and aims to reduce the exposure of the net position by transacting with the banks where appropriate.

No foreign exchange sensitivity analysis was disclosed as a reasonable change in the exchange rates would not result in any significant impact on the Group's results.

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C14 Financial risk management objectives and policies (continued)

Market risk

The Group has strategic investments in quoted and unquoted equity shares. The market value of these investments will fluctuate with market conditions.

No sensitivity analysis was disclosed as a reasonable change in the market value of these investments would not result in any significant impact on the Group's results.

Liquidity risk

To manage liquidity risk, the Group monitors its net operating cash flows and maintains an adequate level of cash and cash equivalents and secured committed funding facilities from financial institutions. In assessing the adequacy of these funding facilities, management reviews its working capital requirements regularly.

The table below analyses the maturity profile of the Group's financial liabilities based on the contractual undiscounted cash flows including estimated interest payments and excluding impact of netting arrangements.

Group	Contractual cash flow $'000	Within 1 year $'000	Between 1 and 5 years $'000	More than 5 years $'000
2019				
Bank loans	(492,798)	(360,295)	(34,326)	(98,177)
Commercial papers	(1,440,175)	(1,440,175)	–	–
Lease liabilities	(567,420)	(65,836)	(159,544)	(342,040)
Trade and other payables	(2,113,511)	(2,055,528)	(57,572)	(411)
Derivative financial instruments:				
• Gross-settled forward currency contracts				
- payments	(1,055,031)	(612,682)	(442,349)	–
- receipts	1,044,018	599,405	444,613	–
• Net-settled interest rate swaps	(7,690)	(2,151)	(5,503)	(36)
Financial guarantees	(106,052)	(23,125)	(22,220)	(60,707)
2018				
Bank loans	(499,291)	(231,435)	(230,210)	(37,646)
Lease liabilities	(24,825)	(1,181)	(4,488)	(19,156)
Trade and other payables	(1,974,257)	(1,893,912)	(75,058)	(5,287)
Derivative financial instruments:				
• Gross-settled forward currency contracts				
- payments	(1,191,268)	(601,037)	(590,231)	–
- receipts	1,178,865	592,641	586,224	–
• Net-settled interest rate swaps	2,231	1,479	752	–
Financial guarantees	(87,921)	(2,384)	(19,239)	(66,298)

Except for the cash flows arising from the intra-group financial guarantee, it is not expected that the cash flows included in the maturity analysis could occur significantly earlier, or at significantly different amounts.

At the reporting date, the Group does not consider it probable that a claim will be made against the Group under the financial guarantees.

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C14 Financial risk management objectives and policies (continued)

Recognition and measurement

Financial guarantees are financial instruments issued by the Group to joint ventures that require the issuer to make specified payments to reimburse the holder for the loss it incurs because a specified debtor fails to meet payment when due in accordance with the original or modified terms of a debt instrument.

Financial guarantees are recognised initially at fair value and are classified as financial liabilities. Subsequently, they are measured at the higher of the loss allowance determined in accordance with SFRS(I) 9 and the amount initially recognised less, when appropriate, the cumulative amount of income recognised in accordance with the principles of SFRS(I) 15.

ECLs are a probability-weighted estimate of credit losses. ECLs are measured for financial guarantees issued as the expected payments to reimburse the holder less any amounts that the Group expects to recover.

Credit risk

Credit risk is managed through the application of credit approvals, credit limits and monitoring procedures. Where appropriate, the Company or its subsidiaries obtain collaterals from customers or arrange master netting agreements. Cash terms, advance payments, and letters of credit or bank guarantees are required for customers of lower credit standing.

The carrying amounts of financial assets and contract assets represent the Group's maximum exposures to credit risk, before taking into account any collateral held.

Group	2019 $'000	2018 $'000
Investments	16,782	16,814
Derivative financial instruments, non-current	13,351	11,483
Contract assets	1,246,207	1,070,396
Trade receivables	1,247,549	1,138,988
Amounts due from related parties	40,467	40,198
Advances and other receivables	128,329	92,457
Bank balances and other liquids funds	453,230	415,780
	3,145,915	2,786,116

Impairment losses on financial assets and contract assets recognised in profit or loss are as follows:

Group	2019 $'000	2018 $'000
Trade receivables	50,750	1,612
Contract balances arising from contracts with customers	2,723	5,793
	53,473	7,405

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C14 Financial risk management objectives and policies (continued)

Exposure to credit risk

As at 31 December 2019, 31% (2018: 26%) of trade receivables and contract assets relate to three major customers of the Group.

The table below analyses the trade receivables and contract assets by the Group's main reportable segments:

Group	Carrying amount 2019 $'000	Carrying amount 2018 $'000
Aerospace	**956,963**	780,856
Electronics	**1,178,797**	1,040,822
Land Systems	**231,774**	269,770
Marine	**118,246**	108,768
Others	**7,976**	9,168
	2,493,756	2,209,384

A summary of the Group's exposures to credit risk for trade receivables and contract assets is as follows:

Group	**2019**		2018	
	Not credit impaired $'000	**Credit impaired $'000**	Not credit impaired $'000	Credit impaired $'000
Receivables measured at lifetime ECL:				
Trade receivables and contract assets	**2,493,756**	**97,749**	2,209,384	38,986
Loss allowance	**–**	**(97,749)**	–	(38,986)
Total	**2,493,756**	**–**	2,209,384	–

Expected credit loss assessment

Trade receivables and contract assets

The Group uses an allowance matrix to measure the expected credit loss (ECL) of trade receivables and contract assets from its customers as there is no applicable credit ratings (or equivalent).

Loss rates are calculated using a 'roll rate' method based on the probability of a receivable progressing through successive stages of delinquency to write-off. Roll rates are calculated separately for exposures in different segments based on the common credit risk characteristics.

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C14 Financial risk management objectives and policies (continued)

Expected credit loss assessment (continued)

Trade receivables and contract assets (continued)

The following table provides information about the exposure to credit risk and ECLs for trade receivables and contract assets for customers:

Group	Weighted average loss rate %	Gross carrying amount $'000	Impairment loss allowance $'000	Credit Impaired
2019				
Not past due	1.02	2,239,608	(22,908)	No
1 – 90 days	1.18	207,191	(2,441)	No
91 – 180 days	3.00	41,929	(1,259)	No
181 – 360 days	22.58	34,360	(7,758)	No
> 360 days	92.64	68,417	(63,383)	Yes
		2,591,505	(97,749)	
2018				
Not past due	0.55	1,807,360	(9,860)	No
1 – 90 days	0.57	338,958	(1,927)	No
91 – 180 days	2.07	64,920	(1,347)	No
181 – 360 days	31.81	10,902	(3,468)	No
> 360 days	85.34	26,230	(22,384)	Yes
		2,248,370	(38,986)	

Loss rates are based on actual credit loss experience over the past four years adjusted for current conditions and the Group's view of economic conditions over the expected lives of the receivables only if these factors have a significant impact to the credit loss.

Movements in allowance for impairment in respect of trade receivables and contract assets

The movement in the allowance for impairment in respect of trade receivables and contract assets during the year were as follows:

Group	Lifetime ECL 2019 $'000	Lifetime ECL 2018 $'000
At 1 January	**38,986**	47,766
Impairment loss recognised	**53,473**	7,405
Amounts written off	**(8,066)**	(4,594)
Acquisition of subsidiaries	**12,142**	–
Disposal of subsidiaries	**(8)**	(11,048)
Translation differences	**1,222**	(543)
At 31 December	**97,749**	38,986

Bank balances and other liquid funds

Bank balances and other liquid funds are placed with financial institutions, which mainly have long-term rating of A3 by Moody's or A- by Standard & Poor's or the equivalent by a reputable credit rating agency. Impairment on bank balances and other liquid funds has been measured on the 12-month expected loss basis and reflects the short maturities of the exposures. The Group considers that its bank balances and other liquid funds to have low credit risk based on the external credit ratings of the counterparties. The amount of the allowance on bank balances and other liquid funds is insignificant.

Other financial assets

Other financial assets comprise amounts due from related parties and other receivables, which are mostly short-term in nature. Impairment on other financial assets has been measured on the 12-month expected loss basis and reflects the short maturities of exposures. The Group considers its other financial assets to have low credit risk and the amount of the allowance on other financial assets is insignificant.

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C14 Financial risk management objectives and policies (continued)

Recognition and measurement

The Group recognises loss allowances for ECLs on financial assets measured at amortised cost, contract assets (as defined in SFRS(I)15), debt investments at FVOCI and financial guarantee contracts, but not for equity investments.

Loss allowances of the Group are measured using either the simplified or general approach.

The Group applies the simplified approach to provide for ECLs for all trade receivables (including lease receivables) and contract assets. The simplified approach requires the loss allowance to be measured at an amount equal to lifetime ECLs.

The Group applies the general approach to provide for ECLs on all other financial instruments and financial guarantee contracts. Under the general approach, the loss allowance is measured at an amount equal to 12-month ECLs at initial recognition.

The Group considers a financial asset to be in default when:

- the borrower is unlikely to pay its credit obligations to the Group in full, without recourse by the Group to actions such as realising security (if any is held); or
- the financial asset remains outstanding for more than the reasonable range of past due days, taking into consideration historical payment track record, current macroeconomics situation as well as general industry trend.

Credit-impaired financial assets

At each reporting date, the Group assesses whether financial assets carried at amortised cost and debt investments at FVOCI are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or payment remains outstanding for more than a reasonable range of past due days;
- the restructuring of a loan or advance by the Group on terms that the Group would not consider otherwise;
- it is probable that the borrower will enter bankruptcy or other financial reorganisation; or
- the disappearance of an active market for a security because of financial difficulties.

Presentation of allowance for ECL in the balance sheets

Loss allowances for financial assets measured at amortised cost and contract assets are deducted from the gross carrying amount of these assets.

Write-off

The gross carrying amount of a financial asset is written off (either partially or in full) to the extent that there is no realistic prospect of recovery. This is generally the case when the Group determines that the debtor does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the Group's procedures for recovery of amounts due.

Key estimate and judgement: Impairment of financial assets and contract assets

Impairment of financial assets and contract assets are estimated based on historical loss experience for assets with similar credit risk characteristics. The estimated ECL is reviewed every reporting period and adjusted where necessary, with the corresponding effect of change being recognised prospectively from the date of change.

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C15 Classification and fair value of financial instruments

Group	Carrying amount		
	Amortised cost $'000	Mandatorily at FVTPL $'000	Fair value – hedging instruments $'000
2019			
Financial assets measured at fair value			
Investments	–	–	–
Associates	–	23,328	–
Derivative financial instruments	–	7,591	11,795
	–	30,919	11,795
Financial assets not measured at fair value			
Trade receivables	1,247,549	–	–
Amounts due from related parties	40,467	–	–
Advances and other receivables	122,294	–	–
Bank balances and other liquid funds	453,230	–	–
	1,863,540	–	–
Financial liabilities measured at fair value			
Derivative financial instruments	–	(3,067)	(52,209)
Financial liabilities not measured at fair value			
Creditors and accruals	–	–	–
Amounts due to related parties	–	–	–
Borrowings	–	–	–
	–	–	–

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	Carrying amount			Fair value			
	FVOCI – equity instruments $'000	Other financial liabilities $'000	Total carrying amount $'000	Level 1 $'000	Level 2 $'000	Level 3 $'000	Total $'000
	16,782	–	16,782	604	6,741	9,437	16,782
	–	–	23,328	–	17,481	5,847	23,328
	–	–	19,386	–	19,386	–	19,386
	16,782	–	59,496	604	43,608	15,284	59,496
	–	–	1,247,549				
	–	–	40,467				
	–	–	122,294				
	–	–	453,230				
	–	–	1,863,540				
	–	–	(55,276)	–	(55,276)	–	(55,276)
	–	(2,043,504)	(2,043,504)				
	–	(70,007)	(70,007)				
	–	(2,337,707)	(2,337,707)				
	–	(4,451,218)	(4,451,218)				

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C15 Classification and fair value of financial instruments (continued)

Group	Carrying amount		
	Amortised cost $'000	Mandatorily at FVTPL $'000	Fair value – hedging instruments $'000
2018			
Financial assets measured at fair value			
Investments	–	–	–
Associates	–	23,698	–
Derivative financial instruments	–	5,728	12,320
	–	29,426	12,320
Financial assets not measured at fair value			
Trade receivables	1,138,988	–	–
Amounts due from related parties	40,198	–	–
Advances and other receivables	85,892	–	–
Bank balances and other liquid funds	415,780	–	–
	1,680,858	–	–
Financial liabilities measured at fair value			
Derivative financial instruments	–	(3,057)	(38,076)
Financial liabilities not measured at fair value			
Creditors and accruals	–	–	–
Amounts due to related parties	–	–	–
Borrowings	–	–	–
	–	–	–

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Carrying amount			Fair value			
FVOCI – equity instruments $'000	Other financial liabilities $'000	Total carrying amount $'000	Level 1 $'000	Level 2 $'000	Level 3 $'000	Total $'000
16,814	–	16,814	422	16,392	–	16,814
–	–	23,698	–	23,698	–	23,698
–	–	18,048	–	18,048	–	18,048
16,814	–	58,560	422	58,138	–	58,560
–	–	1,138,988				
–	–	40,198				
–	–	85,892				
–	–	415,780				
–	–	1,680,858				
–	–	(41,133)	–	(41,133)	–	(41,133)
–	(1,888,812)	(1,888,812)				
–	(85,445)	(85,445)				
–	(495,779)	(495,779)				
–	(2,470,036)	(2,470,036)				

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C15 Classification and fair value of financial instruments (continued)

Movements in Level 3 financial instruments measured at fair value

The following table presents the reconciliation for all financial instruments measured at fair value based on significant unobservable inputs (Level 3).

Group	2019 $'000	2018 $'000
Associate		
Opening balance	–	–
Transfer from Level 2	7,825	–
Total unrealised losses recognised in profit or loss, finance costs	(1,978)	–
Closing balance	5,847	–
Equity instruments (unquoted)		
Opening balance	–	12
Transfer from Level 2	9,437	–
Total gain:		
- recognised in other comprehensive income	–	(12)
Closing balance	9,437	–
	15,284	–

Recognition and measurement

(a) Non-derivative financial assets and liabilities

Classification and subsequent measurement

On initial recognition, a financial asset is classified as measured at: amortised cost; FVOCI – debt investment; FVOCI – equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Group changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

Financial assets	Classification	Subsequent measurement
Amortised cost	• The asset is held within a business model whose objective is to hold assets to collect contractual cash flows; and • The contractual terms of the asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.	Measured at amortised cost using the effective interest method. The amortised cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognised in profit or loss. Any gain or loss on derecognition is recognised in profit or loss.

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C15 Classification and fair value of financial instruments (continued)

(a) Non-derivative financial assets and liabilities (continued)

Financial assets	Classification	Subsequent measurement
Debt investments at FVOCI	• The asset is held within a business model whose objective is achieved by collecting contractual cash flows and selling financial assets; and • The contractual terms of the asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.	Measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognised in profit or loss. Other net gains and losses are recognised in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	On initial recognition of an equity investment that is not held-for-trading, the Group may irrevocably elect to present subsequent changes in the investment's fair value in OCI. This election is made on an investment-by-investment basis.	Measured at fair value. Dividends are recognised as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI and are never reclassified to profit or loss.
FVTPL *	All other financial assets are classified as measured at FVTPL. Financial assets that are held-for-trading or are managed, and whose performance is evaluated on a fair value basis, are measured at FVTPL. * On initial recognition, the Group may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortised cost or at FVOCI, as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.	Measured at fair value. Net gains and losses, including any interest or dividend income, are recognised in profit or loss.

Business model assessment

The Group makes an assessment of the objective of a business model in which an asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- The stated policies and objectives for the portfolio and the operation of those policies in practice;
- How the performance of the portfolio is evaluated and reported to the Group's management;
- The risks that affect the performance of the business model and how those risks are managed;
- How managers of the portfolio are compensated; and
- The frequency, volume and timing of disposals in prior periods, the reasons for such disposals and its expectations about future activity.

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C15 Classification and fair value of financial instruments (continued)

(a) Non-derivative financial assets and liabilities (continued)

Assessment of whether contractual cash flows are solely payments of principal and interest

For assessment purposes, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g. liquidity risk and administrative costs), as well as profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Group considers contingent events, leverage features, modifications of the time value of money and other limiting terms in the contractual terms of the instrument, which change the timing or amount of contractual cash flows such that the cash flows of the instrument would not be reflective of solely payments of principal and interest.

Reclassifications

Financial assets are not reclassified subsequent to their initial recognition, except in the period after the Group changes its business model for managing those financial assets.

Financial liabilities

The Group classifies its financial liabilities, other than financial guarantees and loan commitments, as measured at amortised cost or FVTPL.

Derecognition

Financial assets

The Group derecognises a financial asset when the contractual rights to the cash flows from the financial asset expire, or when it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Group neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

Financial liabilities

The Group derecognises a financial liability when its contractual obligations are discharged or cancelled, or expire.

(b) Fair value

The Group has an established approach with respect to the measurement of fair values.

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C15 Classification and fair value of financial instruments (continued)

(b) Fair value (continued)

Fair value hierarchy

The Group classifies fair value measurement using a fair value hierarchy that reflects the significance of the inputs used in making the measurements. The following table shows the levels of fair value hierarchy and the respective valuation technique used in measuring the fair values, as well as significant unobservable inputs:

	Types of financial instruments	Valuation method
Level 1	**FVOCI** - Equity investments (quoted)	Determined by reference to their quoted bid prices for these investments as at reporting date.
Level 2	**FVOCI** - Equity investments (unquoted)	Determined by reference to the most recent purchase price.
	Derivatives - Forward currency contracts - Interest rate swaps - Embedded derivatives	Determined based on broker quotes. Similar contracts are traded in an active market and the quotes reflect the actual transactions in similar instruments.
	FVTPL - Investment in associates	Determined by reference to the most recent purchase price.
Level 3	**FVOCI** - Equity investment (unquoted)	Determined based on latest funding round.
	FVTPL - Investment in associate	Determined based on valuation performed using adjusted market multiples. The market multiples used is 7.9. Changing one or more of the inputs to reasonable alternative assumptions is not expected to have a material impact on the changes in fair value.

Measurement of fair values

The Group regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair value, then the Group assesses and documents the evidence obtained from the third parties to support the conclusion that such valuations meet the requirements of SFRS(I)s, including the level in the fair value hierarchy the resulting fair value estimate should be classified.

The Group recognises transfers between levels of the fair value hierarchy as of the end of the reporting period during which the change has occurred. In 2019, other than a transfer from Level 2 to Level 3, there were no other transfers between the different levels of fair value hierarchy. There were no transfers between the different levels of fair value hierarchy in 2018.

The following methods and assumptions are used to estimate the fair value of other classes of financial instruments:

Types of financial instruments	Valuation method
Bank balances, other liquid funds and short-term receivables Short-term borrowings and other current payables	Carrying amounts approximate fair values due to the relatively short-term maturity of these instruments.
Long-term receivables	Estimated based on the expected cash flows discounted to present value.
Long-term payables	Estimated based on present value of future principal and interest cash flows, discounted at the market rate of interest at the reporting date.

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C16 Derivative financial instruments

Cash flow hedges

At 31 December 2019, the Group held the following instruments to hedge exposures to changes in foreign currency and interest rates:

	Maturity		
	Within 1 year	Between 1 to 5 years	More than 5 years
2019			
Foreign currency risk			
Nominal amount of forward exchange contracts (in thousands of SGD)	325,796	211,924	–
- Average EUR:USD forward contract rate	1.2039	1.1752	–
- Average EUR:SGD forward contract rate	1.6639	1.6752	–
- Average THB:SGD forward contract rate	0.0441	–	–
Nominal amount of embedded derivatives (in thousands of SGD)	99,680	147,862	–
- Average EUR:SGD	1.6405	1.6494	–
- Average USD:SGD	1.3766	1.3808	–
- Average GBP:SGD	1.8005	1.8222	–
Interest rate risk			
Nominal amount of interest rate swaps	134,810	–	195,475
- Average fixed interest rate	1.6325	–	2.6731
2018			
Foreign currency risk			
Nominal amount of forward exchange contracts (in thousands of SGD)	493,801	237,406	–
- Average USD:SGD forward contract rate	1.3539	–	–
- Average EUR:SGD forward contract rate	1.6536	1.6645	–
- Average EUR:USD forward contract rate	1.2049	1.2251	–
Nominal amount of embedded derivatives (in thousands of SGD)	69,832	250,421	–
- Average USD:SGD	1.3794	1.3801	–
- Average EUR:SGD	1.6573	1.6452	–
- Average GBP:SGD	1.7934	1.8144	–
Interest rate risk			
Nominal amount of interest rate swaps	–	163,914	–
- Average fixed interest rate	–	1.6273	–

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C16 Derivative financial instruments (continued)

The amounts at the reporting date relating to items designated as hedged items were as follows:

	Change in value used for calculating hedge ineffectiveness $'000	Cash flow hedge reserve $'000
2019		
Foreign currency risk		
Sales	(12,300)	(8,370)
Receivables	129	(330)
Purchases	(8,844)	(5,938)
Payables	(566)	(268)
Embedded derivatives	(1,029)	(13,156)
Interest rate risk		
Variable rate borrowings	(9,832)	(7,001)
2018		
Foreign currency risk		
Sales	(19,837)	6,090
Receivables	(481)	(458)
Purchases	(4,884)	(1,277)
Payables	170	(20)
Embedded derivatives	(8,207)	(12,127)
Interest rate risk		
Variable rate borrowings	794	2,831

There are no balances remaining in the cash flow hedge reserve from hedging relationships for which hedge accounting is no longer applied.

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C16 Derivative financial instruments (continued)

The amounts relating to items designated as hedging instruments and hedge ineffectiveness were as follows:

	2019			
$'000	**Nominal amount**	**Assets**	**Liabilities**	**Line item in the statement of financial position where the hedging instrument is included**
Foreign currency risk				
Forward exchange contracts	537,720	3,136	(21,180)	Derivative financial instruments, advances and other receivables and trade payables and accruals
Embedded derivatives	247,542	–	(13,489)	
Interest rate risk				
Interest rate swaps	330,285	12	(7,560)	Derivative financial instruments

	2018			
$'000	**Nominal amount**	**Assets**	**Liabilities**	**Line item in the statement of financial position where the hedging instrument is included**
Foreign currency risk				
Forward exchange contracts	731,206	3,766	(20,734)	Derivative financial instruments, advances and other receivables and trade payables and accruals
Embedded derivatives	320,253	156	(11,427)	
Interest rate risk				
Interest rate swaps	163,914	2,854	–	Derivative financial instruments

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During the year 2019

Changes in the value of the hedging instrument recognised in OCI	Hedge ineffectiveness recognised in profit or loss	Line item in profit or loss that includes hedge ineffectiveness	Amount from hedging reserve transferred to cost of inventory	Amount reclassified from hedging reserve to profit or loss	Line item in profit or loss affected by the reclassification
(21,581)	1,071	Cost of sales / Finance costs, net	3,700	(1,371)	Revenue / Cost of sales / Operating expenses / Finance costs, net
(1,029)	–	–	–	–	–
(9,832)	–	–	–	–	–

During the year 2018

Changes in the value of the hedging instrument recognised in OCI	Hedge ineffectiveness recognised in profit or loss	Line item in profit or loss that includes hedge ineffectiveness	Amount from hedging reserve transferred to cost of inventory	Amount reclassified from hedging reserve to profit or loss	Line item in profit or loss affected by the reclassification
(25,032)	(201)	Cost of sales / Finance costs, net	3,955	2	Revenue / Cost of sales / Operating expenses / Finance costs, net
(8,207)	–	–	–	–	–
794	–	–	–	–	–

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C16 Derivative financial instruments (continued)

The following table provides a reconciliation by risk category of components of equity and analysis of OCI items, net of tax, resulting from cash flow hedge accounting:

	Hedging reserve	
	2019 $'000	2018 $'000
Balance at 1 January	**(424)**	20,408
Change in fair value:		
Foreign currency risk	**(22,610)**	(33,239)
Interest rate risk	**(9,832)**	794
Equity accounted joint ventures	**(5,379)**	505
Amount reclassified to profit or loss:		
Foreign currency risk	**(1,371)**	2
Amount included in the cost of non-financial items:		
Foreign currency risk – inventory purchases	**3,700**	3,955
Tax movements on reserves during the year	**2,966**	7,151
Balance at 31 December	**(32,950)**	(424)

Derivative financial instruments and hedge accounting

The Group early adopted the amendments to SFRS(I) 9, SFRS(I) 1-39 and SFRS(I) 7. The related disclosures for the comparative period are made under SFRS(I) 9, SFRS(I) 1-39 and SFRS(I) 7 before the amendments.

The derivative financial instruments are initially recognised at fair value on the date on which a derivative contract is entered into. Attributable transaction costs are recognised in profit or loss as incurred. Subsequent to initial recognition, derivative financial instruments are remeasured at their fair values.

Any gains or losses arising from changes in the fair value of derivatives that do not qualify for hedge accounting are taken directly to the profit or loss.

Designation of hedges

At inception or upon reassessment of the hedge arrangement, the Group documents the relationship between hedging instrument and hedged item, and the methods that will be used to measure the effectiveness of the hedged relationship, as well as risk management policies and strategies in undertaking various hedged transactions.

The Group also documents its assessment, both at inception and on an ongoing basis, the economic relationship between hedging instruments and hedged item, including whether derivatives designated as hedging instruments are highly effective in offsetting changes in fair values or cash flows of the hedged item.

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C16 Derivative financial instruments (continued)

Derivative financial instruments and hedge accounting (continued)

	Category	Subsequent measurement
(1)	Cash flow hedges	When a derivative is designated in a cash flow hedge, the effective portion of changes in the fair value of the derivative is recognised in other comprehensive income limited to the cumulative change in the fair value of the hedged item and presented in the fair value reserve. Any ineffective portion of changes in the fair value of the derivative (i.e. the extent to which changes in the fair value of the hedge instrument do not match the changes in fair value of the hedged item) is recognised immediately in profit or loss. The amount accumulated in equity is retained in other comprehensive income, and depending on the nature of the hedged item, will either be transferred to the profit or loss in the same period that the underlying transaction affects profit or loss or be capitalised in the initial carrying amount of the non-financial item. If the hedging instrument no longer meets the criteria for hedge accounting, expires or is sold, terminated or exercised, hedge accounting is discontinued prospectively. The cumulative gain or loss previously recognised in the fair value reserve remains there until the forecast transaction occurs. If the forecast transaction is no longer expected to occur, then the amount accumulated in equity is reclassified to profit or loss.
(2)	Fair value hedges	Changes in the fair value of derivative financial instruments that are designated and qualify as fair value hedges are recorded in profit or loss, together with any changes in the fair value of the hedged asset or liability that are attributable to the hedged risk.
(3)	Net investment hedges	The Group designates certain derivatives and non-derivative financial liabilities as hedges of foreign exchange risk on a net investment in a foreign operation. When a derivative instrument or a non-derivative financial liability is designated as the hedging instrument in a hedge of a net investment in a foreign operation, the effective portion of, for a derivative, changes in the fair value of the hedging instrument or, for a non-derivative, foreign exchange gains and losses is recognised in OCI and presented in the translation reserve within equity. Any ineffective portion of the changes in the fair value of the derivative or foreign exchange gains and losses on the non-derivative is recognised immediately in profit or loss. The amount recognised in OCI is reclassified to profit or loss as a reclassification adjustment on disposal of the foreign operation.

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D | EMPLOYEE BENEFITS

The Group uses the following programs to reward and recognise employees and key executives, including key management personnel.

- Economic Value Added (EVA)-based Incentive Scheme
- Defined contribution plans
- Employee benefits
- Share plans

The Group believes that these programs reinforce the value of ownership and incentivise and drive performance both individually and collectively to maximise returns to the shareholders.

D1 Economic Value Added (EVA)-based Incentive Scheme

The Group adopts an incentive compensation plan, which is tied to the creation of EVA, as well as attainment of individual and Group performance goals for its key executives. An EVA bank is used to hold incentive compensation credited in any year.

Typically a portion of EVA-based bonus declared in the financial year is paid out in cash each year, with the balance being deferred for payment in the following years.

Key estimate and judgement: EVA-based Income Scheme (EBIS)

Estimates of the Group's obligations arising from the EBIS at the reporting date may be affected by future events, which cannot be predicated with any certainty. The assumptions and estimates are made based on management's knowledge and experience and may vary from actual experience so that the actual liability may vary considerably from the best estimates. Negative EVA will result in a clawback of EVA bonus accumulated in previous years.

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D2 Personnel expenses

Group	2019 $'000	2018 $'000
Wages and salaries	**1,843,879**	1,617,337
Contributions to defined contribution plans	**192,178**	174,852
Defined benefit plan expenses	**21,800**	8,140
Share-based payments	**23,925**	20,038
Other personnel expenses	**224,022**	195,720
	2,305,804	2,016,087

Recognition and measurement

(i) Short-term employee benefits

Short-term employee benefit obligations are measured on an undiscounted basis and are expensed as the related service is provided.

(ii) Defined contribution plans

Defined contribution plans are post-employment benefit plans under which the Group pays fixed contributions into separate entities such as the Central Provident Fund and will have no legal or constructive obligation to pay further amounts. The Group's contributions to the defined contribution plans are recognised in the income statement as expenses in the financial year to which they relate.

D3 Employee benefits

Group	2019 $'000	2018 $'000
Net defined benefit liabilities	**377,987**	106,041
Liability for staff benefits	**13,339**	4,376
Total employee benefit liabilities	**391,326**	110,417
Non-current	**380,061**	108,016
Current	**11,265**	2,401
	391,326	110,417

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D3 Employee benefits (continued)

Movement in net defined benefit liability/(asset)

The following table shows a reconciliation from the opening balances to the closing balances for net defined benefit liability/(asset) and its components.

Group	Defined benefit obligation		Fair value of plan assets		Net defined benefit liability/(asset)	
	2019 $'000	2018 $'000	**2019 $'000**	2018 $'000	**2019 $'000**	2018 $'000
Balance at 1 January	**113,361**	107,874	**(7,320)**	(7,603)	**106,041**	100,271
Included in profit or loss						
Current service cost	**12,809**	6,522	**–**	–	**12,809**	6,522
Interest cost/(income)	**15,130**	2,044	**(7,646)**	(117)	**7,484**	1,927
Administrative expenses	**243**	–	**1,264**	(243)	**1,507**	(243)
Translation difference	**–**	(591)	**–**	525	**–**	(66)
	28,182	7,975	**(6,382)**	165	**21,800**	8,140
Included in OCI						
Remeasurement loss/(gain):						
• Actuarial loss/(gain) arising from:						
- demographic assumptions	**16,504**	143	**–**	–	**16,504**	143
- financial assumptions	**74,847**	424	**(43)**	35	**74,804**	459
- experience assumptions	**720**	146	**(143)**	–	**577**	146
• Return on plan assets excluding interest income	**–**	–	**(27,110)**	(13)	**(27,110)**	(13)
	92,071	713	**(27,296)**	22	**64,775**	735
Others						
Contributions paid by the employer	**1,331**	1,181	**(26,420)**	–	**(25,089)**	1,181
Contributions paid by the employee	**51**	–	**(51)**	–	**–**	–
Benefits paid	**(15,875)**	(2,271)	**13,714**	226	**(2,161)**	(2,045)
Acquisition of subsidiaries	**505,988**	–	**(286,688)**	–	**219,300**	–
Translation difference	**(10,265)**	(2,111)	**3,586**	(130)	**(6,679)**	(2,241)
Balance at 31 December	**714,844**	113,361	**(336,857)**	(7,320)	**377,987**	106,041

The expenses are recognised in the following line items in profit or loss:

Group	**2019 $'000**	2018 $'000
Cost of sales	**19,960**	8,393
Administrative expenses	**1,610**	(243)
Other operating expenses	**16**	–
Finance cost, net	**214**	(10)
Defined benefit obligation expenses	**21,800**	8,140

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D3 Employee benefits (continued)

The fair value of plan assets in each category are as follows:

Group	2019 $'000	2018 $'000
Equity securities	**135,201**	214
Government bonds	**30,314**	433
Corporate bonds	**108,642**	–
Derivatives	**208**	67
Cash/money markets	**4,183**	–
Property occupied by the Group	**40,777**	–
Funds managed by a trustee	**2,234**	1,990
Funds with insurance companies	**15,298**	4,616
Fair value of plan assets	**336,857**	7,320

All equity securities and government bonds have quoted prices in active markets. All government bonds have an average rating of A+.

Defined benefit obligation

(a) Actuarial assumptions

The following relates to the actuarial assumptions of significant post-employment defined benefit plans for subsidiaries in Germany and United States of America. The remaining defined benefit plans are not material to the Group and additional disclosures are not shown at the reporting date.

The following were the principal actuarial assumptions at the reporting date (expressed as weighted averages):

Group	2019 %	2018 %
Discount rate	**2.3**	1.9
Future salary growth	**3.2**	2.8
Future pension growth	**2.5**	1.6

Assumptions regarding future mortality have been based on published statistics and mortality tables. The current longevities underlying the values of the defined benefit obligation at the reporting date were as follows:

Group	2019		2018	
	Germany	U.S.	Germany	U.S.
Longevity at age 65 for current pensioners:				
Males	**20.3**	**19.6**	20.2	–
Females	**23.8**	**21.6**	23.7	–
Longevity at age 65 for current members aged 45:				
Males	**23.1**	**20.1**	23.0	–
Females	**26.0**	**22.4**	25.9	–

At 31 December 2019, the weighted average duration of the defined benefit obligation was 24.2 years (2018: 17.8 years) for the subsidiaries in Germany and 13.1 years (2018: Nil) for the subsidiary in United States of America.

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D3 Employee benefits (continued)

(b) Sensitivity analysis

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the defined benefit obligation by the amounts shown below.

Group	2019 Increase $'000	2019 Decrease $'000	2018 Increase $'000	2018 Decrease $'000
Discount rate (0.5% movement)	**(51,601)**	**58,782**	(8,453)	9,690
Future salary growth (0.25% movement)	**2,148**	**(2,060)**	200	(183)
Future pension growth (0.25% movement)	**2,350**	**(2,246)**	880	(847)
Future mortality (10% movement)	**(16,316)**	**21,499**	–	1,253

Recognition and measurement

A defined benefit plan is a post-employment benefit plan other than a defined contribution plan. The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in return for their service in the current and prior periods; that benefit is discounted to determine its present value.

The fair value of any plan assets is deducted. The Group determines the net interest expense/(income) on the net defined benefit liability/(asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the net defined benefit liability/(asset).

D4 Share-based payment arrangements

Movement in the number of shares under the PSP and RSP are as follows:

Group	2019 PSP2010	2019 RSP2010	2018 PSP2010	2018 RSP2010
Outstanding awards				
Balance at 1 January	**4,818,034**	**12,501,287**	5,007,919	10,412,458
Granted	**2,280,194**	**6,594,486**	1,724,540	7,299,438
Lapsed	**(160,722)**	**(580,892)**	(261,901)	(654,122)
Released	**(2,041,497)**	**(5,205,994)**	(842,788)	(4,550,187)
Cancelled	**–**	**–**	(809,736)	(6,300)
Balance at 31 December	**4,896,009**	**13,308,887**	4,818,034	12,501,287

These shares were awarded by reissuance of treasury shares.

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D4 Share-based payment arrangements (continued)

Singapore Technologies Engineering Performance Share Plan 2010 (PSP2010) and Singapore Technologies Engineering Restricted Share Plan 2010 (RSP2010)

	PSP		RSP	
	Year of grant		Year of grant	
Group	**2019**	2018	**2019**	2018
Volatility of the Company's shares (%)	**13.37**	18.17	**13.37**	18.17
Risk-free rate (%)	**1.92**	1.99	**1.91 – 1.93**	1.73 – 2.03
Share price ($)	**3.75**	3.59	**3.75**	3.59
Cost of equity (%)	**7.0**	7.3	**N.A.**	N.A.
Dividend yield	(--Management's forecast in line with dividend policy--)		(--Management's forecast in line with dividend policy--)	

The fair value of the performance and restricted shares is determined on grant date using the Monte Carlo simulation model.

During the current year, the Group met the pre-determined target performance level and hence, 2,041,497 performance shares were awarded in respect of the grant made in 2016 under PSP2010.

Recognition and measurement

The Group operates a number of share-based payment plans. A description of each type of share-based payment arrangement that existed at any time during the period is described in the Directors' Statement.

The grant date fair value of share-based payment awards granted to employees is recognised as an employee expense, with a corresponding increase in equity, over the period that the employees unconditionally become entitled to the awards.

The amount recognised as an expense is adjusted to reflect the number of awards for which the related service and non-market vesting conditions are expected to be met, such that the amount ultimately recognised as an expense is based on the number of awards that meet the related service and non-market performance conditions at the vesting date.

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E | CAPITAL STRUCTURE AND FINANCING

This section provides information relating to the Group's capital structure and how they affect the Group's financial position and performance, and how the risks are managed.

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy financial metrics in order to support its business and maximise shareholder value. Capital consists of total shareholders' funds and gross debts.

The Group manages its capital structure and makes adjustment to it, in the light of changes in economic and financial market conditions. The Group may adjust the dividend payout to shareholders, buy back or issue new shares to optimise capital structure within the Group.

E1 Capital management

The Group is currently in a net debt position after the issuance of commercial papers during the year. The Group will continue to be guided by prudent financial policies of which gearing is an important aspect. Neither the Company nor any of its subsidiaries is subject to externally imposed capital requirements other than those imposed by local regulatory bodies.

Group	**2019 $'000**	2018 $'000
Gross debt		
Bank loans	**477,409**	481,060
Commercial papers	**1,436,140**	–
Lease liabilities *	**424,158**	–
Capitalised lease obligations *	**–**	14,719
Present value of operating leases *	**–**	243,359
Financial guarantees	**106,052**	87,921
	2,443,759	827,059

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E1 Capital management (continued)

Group	2019 $'000	2018 $'000
Shareholders' funds		
Share capital	**895,926**	895,926
Treasury shares	**(26,731)**	(9,030)
Capital and other reserves	**(36,882)**	46,120
Retained earnings	**1,389,966**	1,313,361
	2,222,279	2,246,377
Non-controlling interests	**268,722**	288,236
	2,491,001	2,534,613
Gross debt/equity ratio	**1.0**	0.3
Cash and cash equivalents	**452,095**	414,400
Gross debt (excluding bank overdrafts)	**(2,443,759)**	(827,059)
Net debt position	**(1,991,664)**	(412,659)

* Lease liability relates to obligations for lease payments recognised on adoption of SFRS(I) 16. Previously under SFRS(I) 1-17, the Group presented capitalised lease obligations for finance leases and present value of operating leases as part of gross debt.

E2 Finance costs, net

Group	2019 $'000	2018 $'000
Finance income		
Interest income		
- bank deposits	**4,620**	8,809
- staff loans	**7**	9
- finance lease	**160**	107
- bonds	**–**	6,834
- contracts with customers	**–**	495
- others	**4,700**	1,652
Exchange gain, net	**3,350**	3,895
Fair value changes of financial instruments		
- gain on forward currency contract designated as hedging instrument	**118**	359
- gain on ineffective portion of forward currency contract designated as hedging instrument in cash flow hedges	**3**	8
Fair value changes of hedged items	**1,332**	189
	14,290	22,357

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E2 Finance costs, net (continued)

Group	2019 $'000	2018 $'000
Finance costs		
Interest expense		
- bank loans and overdrafts	**(18,988)**	(7,754)
- bonds and commercial papers	**(8,902)**	(31,891)
- lease liabilities	**(12,481)**	(1,210)
- contracts with customers	**(1,579)**	(1,550)
- others	**(2,803)**	(2,495)
Loss on disposal of investments	**–**	(5,173)
Net change in fair value of cash flow hedges reclassified from equity on occurrence of forecast transactions	**(1,343)**	(570)
Fair value changes of financial instruments		
- loss on fair value changes of forward currency contract and cross currency interest rate swaps not designated as hedging instrument	**(2,841)**	(5,266)
Fair value changes of investment in an associate	**(1,978)**	–
	(50,915)	(55,909)
Finance costs, net, recognised in profit or loss	**(36,625)**	(33,552)

Recognition and measurement

Finance income comprises interest income, dividend income, gains on disposal and fair valuation of financial assets and gains on hedging instruments that are recognised in profit or loss. Interest income is recognised as it accrues in profit or loss, using the effective interest method. Dividend income is recognised in profit or loss when the shareholder's right to receive payment is established.

Finance costs comprise interest expense, losses on disposal and fair valuation of financial assets or impairment losses recognised on investments, and losses on hedging instruments that are recognised in profit or loss. Interest expense that are not directly attributable to the acquisition, construction or production of a qualifying asset are recognised in profit or loss using the effective interest method.

Foreign currency gains and losses on financial assets and liabilities are reported on a net basis as either finance income or finance cost.

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E3 Investments

Group	2019 $'000	2018 $'000
Equity shares, at FVOCI		
- quoted	**604**	422
- unquoted	**16,178**	16,392
Total investments, net of impairment losses	**16,782**	16,814
Represented by:		
Short-term investments	**604**	422
Long-term investments	**16,178**	16,392
	16,782	16,814

E4 Borrowings

Group	Note	Non-current $'000	Current $'000	Total $'000
31 December 2019				
Bank loans	(a)	106,389	371,020	477,409
Commercial papers	(b)	–	1,436,140	1,436,140
Lease liabilities	(c)	362,506	61,652	424,158
		468,895	1,868,812	2,337,707
31 December 2018				
Bank loans	(a)	256,105	224,955	481,060
Lease liabilities	(c)	14,258	461	14,719
		270,363	225,416	495,779

(a) Bank loans

Group	Currency	Effective interest rate %	Maturity	2019 $'000	2018 $'000
Bank loans	SGD	1.50	2020	**350,000**	80,000
	USD	5.01	2020 – 2023	**14,827**	299,394
	RMB	4.35 – 4.75	2020 – 2021	**17,302**	21,106
	EUR	0.47 – 1.59	2025 – 2029	**95,280**	80,560
				477,409	481,060
- Unsecured				**408,313**	400,253
- Secured				**69,096**	80,807
				477,409	481,060

There are bank loans which are secured by assets as follows:

Secured by	Loan amount ($)
Certain property, plant and equipment of subsidiaries	$35,388,000 (2018: $62,573,000)
Subsidiary's land use right	$33,708,000 (2018: $18,234,000)

As at 31 December 2018, bank loans denominated in currencies other than the respective entities' functional currency was $81,960,000, denominated in USD.

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E4 Borrowings (continued)

(b) Commercial papers

Group	2019 $'000	2018 $'000
Principal	**1,440,175**	–
Unamortised interest	**(3,687)**	–
Unamortised costs	**(348)**	–
	1,436,140	–

On 26 August 2019, the Group set up a US$1.5 billion U.S. Commercial Paper Programme. Under this programme, the Group may issue short-term unsecured promissory notes to eligible investors in reliance on available exemptions under the United States Securities Act of 1933. At 31 December 2019, the Group had outstanding notes with par value of US$1,068,300,000 issued at interest rates ranging from 1.74% to 2.13%, which mature within 3 months from the financial reporting date. The notes are unconditionally and irrevocably guaranteed by the Company.

(c) Lease liabilities

The Group leases many assets including real estate leases, vehicles, machinery and IT equipment. Information about leases for which the Group is a lessee is presented below.

Group	2019 $'000
Maturity analysis – contractual undiscounted cash flows	
Within 1 year	**65,836**
Between 1 and 5 years	**159,544**
After 5 years	**342,040**
Total undiscounted lease liabilities at 31 December	**567,420**
Lease liabilities included in the balance sheet at 31 December	**424,158**
Repayable:	
Within 1 year	**61,652**
After 1 year	**362,506**
	424,158

(i) Real estate leases

The Group leases land and buildings for its office space, hangar and production facilities. The leases of office space typically run for a period of 5 to 30 years. Some leases include an option to renew the lease for an additional period of the same duration after the end of the contract term.

Some leases provide for additional rent payments that are based on changes in local price indices. Some also require the Group to make payments that relate to the property taxes levied on the lessor and insurance payments made by the lessor; these amounts are generally determined annually.

The Group sub-leases some of its properties under operating and finance leases.

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E4 Borrowings (continued)

(i) Real estate leases (continued)

Extension options

Some leases of office buildings contain extension options exercisable by the Group up to the day before the end of the non-cancellable contract period. Where practicable, the Group seeks to include extension options in new leases to provide operational flexibility. The extension options held are exercisable only by the Group and not by the lessors. The Group assesses at lease commencement whether it is reasonably certain to exercise the extension options. The Group reassesses whether it is reasonably certain to exercise the options if there is a significant event or significant change in circumstances within its control.

Group	Lease liabilities recognised (discounted) $'000	Potential future lease payments not included in lease liabilities (discounted) $'000
Office buildings	26,388	48,231

(ii) Other leases

The Group leases vehicles and equipment, with lease terms of three to five years. In some cases, the Group has options to purchase the assets at the end of the contract term.

The Group monitors the use of these vehicles and equipment, and reassesses the estimated amount payable under the residual value guarantees at the reporting date to remeasure lease liabilities and right-of-use assets.

The Group also leases IT equipment and machinery with contract terms of one to three years. These leases are short-term and/or leases of low-value items. The Group has elected not to recognise right-of-use assets and lease liabilities for these leases.

Comparative information under SFRS(I) 1-17

A subsidiary leases certain land, buildings and equipment from a foreign Airport Authority under a finance lease arrangement until 31 October 2041, with an option to terminate the lease at any time with a 36-month written notice. The leased assets are pledged as collateral against the lease.

The obligations under the finance leases to be paid by the subsidiaries are as follows:

Group	Within 1 year $'000	Between 1 and 5 years $'000	After 5 years $'000	Total $'000
2018				
Minimum lease payment	1,181	4,488	19,156	24,825
Interest	(720)	(2,727)	(6,659)	(10,106)
Present value of payment	461	1,761	12,497	14,719

	2018 $'000
Repayable:	
Within 1 year	461
After 1 year	14,258
	14,719

Lease terms do not contain restrictions concerning dividends, additional debt or further leasing.

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E4 Borrowings (continued)

Reconciliation of movements of liabilities and assets to cash flows arising from financing activities

	Liabilities			Assets	
	Borrowings $'000	Trade payables and accruals $'000	Amounts due to related parties $'000	Deposits pledged $'000	Total $'000
Balance at 1 January 2019	495,779	1,910,103	85,445	(1,380)	2,489,947
Adjustment on initial application of SFRS(I) 16	389,515	–	–	–	389,515
Changes from financing cash flows					
Proceeds from bank loans	1,079,911	–	–	–	1,079,911
Proceeds from commercial papers	1,440,175	–	–	–	1,440,175
Repayment of bank loans	(1,119,271)	–	–	–	(1,119,271)
Repayment of lease liabilities	(92,894)	–	–	–	(92,894)
Repayment of loan to a joint venture	–	–	(4,000)	–	(4,000)
Interest paid	(25,315)	(30,898)	–	–	(56,213)
Deposit discharged	–	–	–	245	245
Total changes from financing cash flows	1,282,606	(30,898)	(4,000)	245	1,247,953
Changes arising from obtaining or losing control of subsidiaries or other businesses	53,130	111,187	–	–	164,317
The effect of changes in foreign exchange rates	5,679	(5,387)	–	–	292
Change in fair value	–	6,085	–	–	6,085
Liability-related other changes					
Working capital changes	(1,707)	57,332	(12,350)	–	43,275
New leases	91,322	–	–	–	91,322
Interest expense	21,383	22,458	912	–	44,753
Total liability-related other changes	110,998	79,790	(11,438)	–	179,350
Balance at 31 December 2019	2,337,707	2,070,880	70,007	(1,135)	4,477,459

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E4 Borrowings (continued)

Reconciliation of movements of liabilities and assets to cash flows arising from financing activities (continued)

	Liabilities			Assets	
	Borrowings $'000	Trade payables and accruals $'000	Amounts due to related parties $'000	Deposits pledged $'000	Total $'000
Balance at 1 January 2018	1,116,064	1,731,582	104,059	(1,389)	2,950,316
Changes from financing cash flows					
Proceeds from bank loans	307,901	–	–	–	307,901
Proceeds of a loan from a joint venture	–	–	17,925	–	17,925
Repayment of bank loans	(247,134)	–	–	–	(247,134)
Repayment of other loans	(148)	–	–	–	(148)
Repayment of lease liabilities	(2,513)	–	–	–	(2,513)
Repayment of loan to a joint venture	–	–	(30,805)	–	(30,805)
Redemption of medium term notes	(681,100)	–	–	–	(681,100)
Interest paid	–	(49,416)	–	–	(49,416)
Deposit discharged	–	–	–	9	9
Total changes from financing cash flows	(622,994)	(49,416)	(12,880)	9	(685,281)
Changes arising from obtaining or losing control of subsidiaries or other businesses	(13,326)	(45,345)	–	–	(58,671)
The effect of changes in foreign exchange rates	14,714	1,595	8	–	16,317
Change in fair value	–	11,174	–	–	11,174
Liability-related other changes					
Working capital changes	573	216,814	(6,195)	–	211,192
Interest expense	748	43,699	453	–	44,900
Total liability-related other changes	1,321	260,513	(5,742)	–	256,092
Balance at 31 December 2018	495,779	1,910,103	85,445	(1,380)	2,489,947

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E5 Commitments and contingent liabilities

(i) Capital commitments

Group	**2019 $'000**	2018 $'000
Capital expenditure contracted but not provided in the financial statements	**62,670**	98,976

(ii) Leases – As lessee

As at 31 December 2019, the Group had certain non-cancellable future minimum lease payments for short-term leases or leases for low-value assets amounting to $3,110,000.

Comparative information under SFRS(I) 1-17

Future minimum lease payments under non-cancellable operating asset leases are as follows:

Group	2018 $'000
Third parties	
Within 1 year	56,588
Between 1 and 5 years	119,768
After 5 years	172,039
	348,395
Related parties	
Within 1 year	5,972
Between 1 and 5 years	15,426
After 5 years	21,079
	42,477

The Group has several operating lease agreements for leasehold land and buildings, office premises and computers. Lease terms do not contain restrictions on the Group activities concerning dividends, additional debt or further leasing.

None of the operating leases is subject to contingent rent arrangements.

(iii) Leases – As lessor

The Group has entered into non-cancellable operating leases on its aircraft, aircraft engines and certain property, plant and equipment. The lease terms range from 1 to 15 years.

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E5 Commitments and contingent liabilities (continued)

(iii) Leases – As lessor (continued)

The following table sets out a maturity analysis of lease payments, showing the undiscounted lease payments to be received after the reporting date.

Group	**2019 $'000**
Less than 1 year	**10,758**
1 to 2 years	**6,509**
2 to 3 years	**5,556**
3 to 4 years	**5,510**
4 to 5 years	**3,088**
More than 5 years	**9,725**
Total undiscounted lease payments	**41,146**

Comparative information under SFRS(I) 1-17

The future lease payment receivables under non-cancellable operating leases are as follows:

Group	2018 $'000
Within 1 year	8,751
Between 1 and 5 years	13,727
After 5 years	7,639
	30,117

(iv) Contingent liabilities (unsecured)

The Group is a party to various claims that arise in the normal course of the Group's business. The total liability on these matters cannot be determined with certainty. However, in the opinion of management, the ultimate liability, to the extent not otherwise provided for, will not materially impact the consolidated financial statements of the Group.

Recognition and measurement

Leases

The Group has applied SFRS(I) 16 using the modified retrospective approach and therefore the comparative information has not been restated and continues to be reported under SFRS(I) 1-17 and SFRS(I) INT 4. The details of accounting policies under SFRS(I) 1-17 and SFRS(I) INT 4 are disclosed separately and the impact of changes is disclosed in G2.

Policy under SFRS(I) 16 (applicable from 1 January 2019)

At inception of a contract, the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, the Group uses the definition of a lease in SFRS(I) 16.

This policy is applied to contracts entered into, on or after 1 January 2019.

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E5 Commitments and contingent liabilities (continued)

Recognition and measurement (continued)

As a lessee

At commencement or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, for the leases of property, the Group has elected not to separate non-lease components and account for the lease and non-lease components as a single lease component.

The Group recognises a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, the lessee's incremental borrowing rate. Generally, the Group uses the lessee's incremental borrowing rate as the discount rate.

The Group determines the lessee's incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and
- the exercise price under a purchase option that the Group is reasonably certain to exercise, lease payments in an optional renewal period if the Group is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless the Group is reasonably certain not to terminate early.

The lease liability is measured at amortised cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the Group's estimate of the amount expected to be payable under a residual value guarantee, if the Group changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset, or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

The Group presents right-of-use assets that do not meet the definition of investment property separately in the balance sheet and lease liabilities in 'Borrowings' in the balance sheet.

Short-term leases and leases of low-value assets

The Group has elected not to recognise right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. The Group recognises the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

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E5 Commitments and contingent liabilities (continued)

Recognition and measurement (continued)

As a lessor

At inception or on modification of a contract that contains a lease component, the Group allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices.

When the Group acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, the Group makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, the Group considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

When the Group is an intermediate lessor, it accounts for its interests in the head lease and the sub-lease separately. It assesses the lease classification of a sub-lease with reference to the right-of-use asset arising from the head lease, not with reference to the underlying asset. If a head lease is a short-term lease to which the Group applies the exemption described above, then it classifies the sub-lease as an operating lease.

If an arrangement contains lease and non-lease components, then the Group applies SFRS(I) 15 to allocate the consideration in the contract.

The Group recognises lease payments received under operating leases as income on a straight-line basis over the lease term as part of 'other income'.

Generally, the accounting policies applicable to the Group as a lessor in the comparative period were not different from SFRS(I) 16 except for the classification of the sub-lease entered during current reporting period that resulted in a finance lease classification.

Leases - Policy applicable before 1 January 2019

As a lessee

<u>Finance lease</u>

The Group classified leases that transfer substantially all of the risks and rewards of ownership as finance leases. When this was the case, the leased assets were measured initially at an amount equal to the lower of their fair value and the present value of the minimum lease payments. Minimum lease payments were the payments over the lease term that the lessee was required to make, excluding any contingent rent. Subsequently, the assets were accounted for in accordance with the accounting policy applicable to that asset.

<u>Operating lease</u>

Assets held under other leases are classified as operating leases and were not recognised in the Group's balance sheet. Payments made under operating leases were recognised in profit or loss on a straight-line basis over the term of the lease. Lease incentives received were recognised as an integral part of the total lease expense, over the term of the lease.

As a lessor

When the Group acted as a lessor, it determined at lease inception whether each lease was a finance lease or an operating lease.

To classify each lease, the Group made an overall assessment of whether the lease transferred substantially all of the risks and rewards incidental to ownership of the underlying asset. If this was the case, then the lease was a finance lease; if not, then it was an operating lease. As part of this assessment, the Group considered certain indicators such as whether the lease was for the major part of the economic life of the asset.

Rental income from operating leases and sub-leased property was recognised as 'other income' on a straight-line basis over the term of the lease. Rental income from sub-leased property was recognised as 'other income'.

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E6 Share capital

Company	2019 $'000	2018 $'000
Issued and fully paid, with no par value		
At beginning and end of the year 3,122,495,197 ordinary shares	**895,926**	895,926

Included in share capital is a special share issued to the Minister for Finance. The special share enjoys all the rights attached to the ordinary shares. In addition, the special share carries the right to approve any resolution to be passed by the Company, either in general meeting or by its Board of Directors, on certain matters specified in the Company's Constitution. The special share may be converted at any time into an ordinary share.

The holders of ordinary shares are entitled to receive dividends as and when declared by the Company. All ordinary shares carry one vote per share without restriction.

Recognition and measurement

Ordinary shares are classified as equity. Incremental costs directly attributable to the issue of ordinary shares are recognised as a deduction from equity, net of any tax effects.

E7 Treasury shares

Company	2019 $'000	2018 $'000
At beginning of the year	**(9,030)**	(22,870)
Purchased during the year	**(43,768)**	(4,354)
Reissue of treasury shares pursuant to share plans	**26,067**	18,194
At end of the year	**(26,731)**	(9,030)

Treasury shares relate to ordinary shares of the Company that are held by the Company.

During the year, the Company purchased 11,300,000 (2018: 1,321,400) of its ordinary shares by way of on-market purchases. The shares, held as treasury shares, were included as deduction against shareholders' equity. 7,247,491 (2018: 5,392,975) treasury shares, at a cost of $26,067,000 (2018: $18,194,000), were reissued pursuant to its RSP and PSP.

Recognition and measurement

When ordinary shares are reacquired by the Company, the consideration paid is recognised as a deduction from equity. Reacquired shares are classified as treasury shares. When treasury shares are sold, or re-issued subsequently, the cost of treasury shares is reversed from treasury shares account and the realised gain or loss on transaction is presented as a change in equity of the Company. No gain or loss is recognised in profit or loss.

Treasury shares have no voting rights and no dividends are allocated to them.

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E8 Capital reserves

Included in capital reserve are:

(a) an amount of $115,948,000 (2018: $115,948,000) relating to share premium of the respective pooled enterprises, namely ST Engineering Aerospace Ltd, ST Engineering Electronics Ltd, ST Engineering Land Systems Ltd and ST Engineering Marine Ltd classified as capital reserve upon the pooling of interests during the financial year ended 31 December 1997; and

(b) an amount of $3,385,000 (2018: $2,226,000) relating to realised loss (2018: realised gain) on re-issuance of treasury shares under share-based payment arrangements as at 31 December 2019.

E9 Other reserves

Group	2019 $'000	2018 $'000
Foreign currency translation reserve	(194,076)	(142,980)
Statutory reserve	1,323	1,190
Fair value reserve	(32,703)	(359)
Share-based payment reserve	79,175	75,264
Premium paid on acquisition of non-controlling interests	(3,164)	(5,169)
	(149,445)	(72,054)
Fair value reserve movement arising from other comprehensive income comprises of:		
Net fair value changes on financial assets:		
- Net fair value changes during the year for FVOCI equity instruments	182	124
- Reclassification adjustment to profit or loss on disposal of financial assets in finance costs, net	–	(2,343)
- Reclassification to retained earnings on realisation	–	(28)
	182	(2,247)
Foreign currency translation reserve movement arising from other comprehensive income comprises of:		
Foreign currency translation differences arising from:		
- Translation of loans forming part of net investments in foreign entities	(4,926)	(1,180)
- Translation of foreign currency loans used as hedging instruments for effective net investment hedges	–	(7,254)
- Share of translation difference of associates and joint ventures	(7,371)	(213)
- Reserves released on disposal of subsidiaries and a joint venture	246	12,394
- Translation of foreign entities	(39,045)	10,464
	(51,096)	14,211

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E9 Other reserves (continued)

Type of reserve	Nature
Foreign currency translation reserve	Comprises foreign exchange differences arising from the translation of the financial statements of foreign entities, effective portion of the hedging instrument which is used to hedge against the Group's net investment in foreign currencies as well as from the translation of foreign currency loans used to hedge or form part of the Group's net investments in foreign entities.
Statutory reserve	Statutory reserve comprises transfers from revenue reserve in accordance with the regulations of the foreign jurisdiction in which the Group's subsidiaries and joint ventures operate, principally in the People's Republic of China where the subsidiaries and joint ventures are required to make appropriation to a Statutory Reserve Fund and Enterprise Expansion Fund. The laws of the countries restrict the distribution and use of these statutory reserves.
Fair value reserve	Fair value reserve comprises the cumulative fair value changes of financial instruments at FVOCI and the effective portion of hedging instruments, until they are disposed or impaired.
Share-based payment reserve	Represents the cumulative value of services received for the issuance of the options and shares under the share plans of the Company issued to employees and non-executive directors.
Premium paid on acquisition of non-controlling interests	Difference between the consideration paid on acquisition of non-controlling interests and the carrying value of the proportionate share of the net assets acquired.

E10 Dividends

Company	**2019 $'000**	2018 $'000
Final dividend paid in respect of the previous financial year of 10.0 cents (2018: 10.0 cents) per share	**312,164**	312,036
Interim dividend paid in respect of the current financial year of 5.0 cents (2018: 5.0 cents) per share	**155,992**	155,968
	468,156	468,004

The Directors propose a final dividend of 10.0 cents (2018: 10.0 cents) per share amounting to $312.2 million (2018: $312.2 million) in respect of the financial year ended 31 December 2019.

These dividends have not been recognised as a liability as at year end as they are subject to the approval by shareholders at the Annual General Meeting of the Company.

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F | GROUP STRUCTURE

This section explains significant aspects of ST Engineering's group structure, including joint arrangements that the Group has interest in, its controlled entities and how changes have affected the Group structure. It also provides information on business acquisitions and disposals made during the financial year as well as information relating to ST Engineering's related parties, the extent of related party transactions and the impact they had on the Group's financial performance and position.

F1 Subsidiaries

Details of the significant subsidiaries of the Group are as follows:

	Country of incorporation	Effective equity interest held by the Group 2019 %	2018 %
ST Engineering Aerospace Ltd	Singapore	**100**	100
Elbe Flugzeugwerke GmbH [z]	Germany	**55**	55
ST Engineering Aerospace Aircraft Maintenance Pte. Ltd. (formerly known as ST Aerospace Engineering Pte Ltd)	Singapore	**100**	100
ST Engineering Aerospace Engines Pte. Ltd. (formerly known as ST Aerospace Engines Pte Ltd)	Singapore	**100**	100
ST Engineering Aerospace Services Company Pte. Ltd. (formerly known as ST Aerospace Services Co Pte. Ltd.)	Singapore	**80**	80
ST Engineering Electronics Ltd	Singapore	**100**	100
ST Electronics (Info-Comm Systems) Pte. Ltd.	Singapore	**100**	100
ST Engineering Land Systems Ltd	Singapore	**100**	100
ST Engineering Marine Ltd	Singapore	**100**	100
ST Engineering North America, Inc. (formerly known as Vision Technologies Systems, Inc.) [#]	U.S.	**100**	100
Middle River Aerostructure Systems, LLC (formerly known as MRA Systems, LLC)	U.S.	**100**	–
ST Engineering RHQ Ltd. (formerly known as Singapore Technologies Engineering (Europe) Ltd)	United Kingdom	**100**	100
ST Engineering iDirect (Europe) NV (formerly known as Newtec Group NV) [^]	Belgium	**100**	–
ST Engineering Treasury Pte. Ltd.	Singapore	**100**	100

[#] Not required to be audited under the law in the country of incorporation
[z] Audited by member firms of KPMG International for consolidation purposes
^ Audited by Ernst & Young LLP

All significant subsidiaries that are required to be audited under the law in the country of incorporation are audited by KPMG LLP, Singapore and other member firms of KPMG International, except as indicated above.

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F2 Acquisition and disposal of controlling interests in subsidiaries in 2019/2018

Acquisition of controlling interest in subsidiaries in 2019

(i) Acquisition of controlling interests in MRA Systems, LLC, subsequently renamed to Middle River Aerostructure Systems, LLC (MRAS)

On 18 April 2019, the Group acquired 100% of MRAS for a net cash consideration of $689 million. MRAS specialises in production of engine nacelle systems and thrust reversers, along with complex aerostructures for applications on commercial and military aircraft.

MRAS contributed revenue of $728,601,000 and net profit of $45,854,000 to the Group for the period from 18 April 2019 to 31 December 2019.

(ii) Acquisition of controlling interests in Glowlink Communications Technology, Inc (Glowlink)

On 17 September 2019, the Group acquired 100% of Glowlink for a net cash consideration of $26 million. Glowlink provides innovative, affordable, and easy to use products aimed at improving the integrity of satellite communications, and mitigating interferences to enhance the quality of satellite signals received.

Glowlink contributed revenue of $3,706,000 and net loss of $825,000, after transaction costs, to the Group for the period from 17 September 2019 to 31 December 2019.

(iii) Acquisition of controlling interests in Newtec Group NV, subsequently renamed to ST Engineering iDirect (Europe) NV (iDirect Europe)

On 1 October 2019, the Group acquired 100% of iDirect Europe for a net cash consideration of $335 million. iDirect Europe specialises in designing, developing and manufacturing equipment and technologies for satellite communications.

iDirect Europe contributed revenue of $35,717,000 and incurred net loss of $5,045,000 to the Group, after transaction costs, for the period from 1 October 2019 to 31 December 2019.

Had the above businesses been consolidated from 1 January 2019, consolidated revenue and net profit for the year ended 31 December 2019 would have been $8,271,702,000 and $614,922,000 respectively.

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F2 Acquisition and disposal of controlling interests in subsidiaries in 2019/2018 (continued)

Acquisition of controlling interest in subsidiaries in 2019 (continued)

Identifiable assets acquired and liabilities assumed

The acquisitions had the following effect on the Group's assets and liabilities on acquisition date:

	Fair values recognised on acquisition $'000
Property, plant and equipment	148,094
Right-of-use assets	26,221
Intangible assets	565,503
Joint venture	851
Deferred tax assets	1,072
Contract assets	145,550
Inventories	181,022
Trade receivables	128,237
Advances and other receivables	10,045
Bank balances and other liquid funds	33,756
Contract liabilities	(16,393)
Trade payables and accruals	(113,271)
Provisions	(32,827)
Provision for taxation	(3,810)
Borrowings	(54,076)
Employee benefits	(227,030)
Deferred tax liabilities	(20,085)
Total identifiable net assets	772,859
Goodwill arising on consolidation	311,018
Total purchase consideration	1,083,877
Cash outflow on acquisition:	
Cash consideration paid	1,083,877
Less: cash acquired	(33,756)
Net cash outflow on acquisition	1,050,121

The goodwill recognised on the acquisitions of MRAS, Glowlink and iDirect Europe represent the synergies that the acquisition is expected to bring to the Group's businesses and products. Management assessed that the goodwill is allocated to two CGUs within the Group, amounting to $311,018,000, based on the expected future economic benefits to be realised by these entities through the combination of their businesses. $37,998,000 of goodwill recognised is expected to be deductible for tax purposes.

The Group incurred acquisition-related cost of $16,475,000 on legal fees and due diligence cost, of which $5,340,000 have been included in administrative expenses in the Group's income statement. $11,135,000 have been expensed in administrative expenses in the prior year.

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F2 Acquisition and disposal of controlling interests in subsidiaries in 2019/2018 (continued)

De-consolidation and disposal of controlling interests in subsidiaries in 2019

During the year, the Group dissolved VT Dimensions, Inc., VT Systems International, LLC, VT Systems Participacoes Ltda. and completed the liquidation of Kinetics Link Services Sdn. Bhd. (collectively Dissolved Entities) as part of an effort to streamline its organisation structure.

In July 2019, the Group divested its 51% equity interest in GFM Electronics S.A. de C.V. (GFME) and in November 2019, the Group completed the divestment of Aviation Training Academy Australia Pty Ltd and ST Aerospace Academy (Australia) Pty Ltd (collectively ATAA).

The disposed subsidiaries contributed loss before tax of $417,000 and no revenue for the period from 1 January 2019 to the respective dates of disposal.

The financial effects arising from the de-consolidation and disposal of subsidiaries are as follows:

	GFME $'000	ATAA $'000	Dissolved Entities $'000	Total $'000
Property, plant and equipment	7	7,033	–	7,040
Right-of-use assets	–	937	–	937
Intangible assets	–	332	–	332
Trade receivables	354	57	–	411
Advances and other receivables	–	1,818	47	1,865
Bank balances and other liquid funds	–	227	–	227
Trade payables and accruals	(979)	(1,010)	(16)	(2,005)
Provision for taxation	–	(373)	–	(373)
Borrowings	–	(946)	–	(946)
Net assets disposed	(618)	8,075	31	7,488
Realisation of reserves	81	1,901	233	2,215
De-consolidation of non-controlling interest	304	–	–	304
Gain/(loss) on disposal	233	(894)	(264)	(925)
Sales consideration	–	9,082	–	9,082
Less: bank balances and other liquid funds in subsidiaries disposed	–	(227)	–	(227)
Net cash inflow on disposal	–	8,855	–	8,855

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F2 Acquisition and disposal of controlling interests in subsidiaries in 2019/2018 (continued)

De-consolidation and disposal of controlling interests in subsidiaries in 2018

In February 2018, the Group dissolved Dalfort Aerospace LP and Dalfort Aerospace GP, Inc (collectively Dalfort) as part of an effort to streamline its organisation structure.

In April 2018, the Group, together with the non-controlling shareholder, filed a bankruptcy petition to the People's Court of Dantu District in Zhenjiang, Jiangsu for its two subsidiaries, Jiangsu Huatong Kinetics Co., Ltd and Jiangsu Huaran Kinetics Co., Ltd (collectively JHK). The Group derecognised the related assets, liabilities and non-controlling interest of JHK after the Court approved the bankruptcy petition in May 2018.

In the prior year, the Group completed its divestment of LeeBoy India Construction Equipment Private Limited (LBI) and Aviation Academy of America, Inc. and VT Aviation Services, Inc. (collectively AAA) in October 2018 and December 2018 respectively.

The disposed subsidiaries contributed revenue of $11,492,000 and loss before tax of $5,937,000 for the period from 1 January 2018 to the respective dates of disposal.

The financial effects arising from the de-consolidation and disposal of subsidiaries are as follows:

	Dalfort $'000	JHK $'000	LBI $'000	AAA $'000	Total $'000
Property, plant and equipment	–	64,187	1,357	3,713	69,257
Intangible assets	–	–	–	996	996
Inventories	–	2,497	6,062	–	8,559
Trade receivables	–	–	2,850	–	2,850
Advances and other receivables	–	727	4,789	669	6,185
Bank balances and other liquid funds	–	2,622	317	3	2,942
Trade payables and accruals	–	(39,850)	(4,964)	(531)	(45,345)
Provisions	–	(186)	(477)	–	(663)
Borrowings	–	(13,326)	–	–	(13,326)
Deferred income	–	(15,148)	–	–	(15,148)
Contract liabilities	–	(1,519)	(20)	–	(1,539)
Deferred tax liabilities	–	(4)	–	–	(4)
Net assets disposed	–	–	9,914	4,850	14,764
Realisation of reserves	4,752	–	3,065	955	8,772
Loss on disposal	(4,752)	–	(11,543)	(3,786)	(20,081)
Sales consideration	–	–	1,436	2,019	3,455
Less: bank balances and other liquid funds in subsidiaries disposed	–	(2,622)	(317)	(3)	(2,942)
Consideration receivable as at 31 December 2018	–	–	(375)	–	(375)
Net cash (outflow)/inflow on disposal	–	(2,622)	744	2,016	138

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F3 Non-controlling interests in subsidiaries

The following table summarises the information relating to each of the Group's subsidiaries with material non-controlling interests (NCI), based on their respective (consolidated) financial statements prepared in accordance with SFRS(I), modified for fair value adjustments on acquisition and differences from the Group's accounting policies. The summarised financial information is not adjusted for percentage ownership held by NCI.

Name of subsidiary 2019	**ST Engineering Aerospace Services Company Pte. Ltd. $'000**	**Eco-Services, LLC $'000**
NCI percentage	20%	49.9%
Principal place of business/Country of incorporation	Singapore	U.S.
Revenue	277,653	23,649
Profit after taxation	30,005	2,404
Other comprehensive income/(loss)	1,275	(2,287)
Total comprehensive income/(loss)	31,280	117
Attributable to NCI:		
Profit/(loss)	6,001	1,200
Other comprehensive income/(loss)	255	(1,141)
Total comprehensive income/(loss)	6,256	59
Non-current assets	91,963	20,674
Current assets	245,333	18,966
Non-current liabilities	(48,041)	(769)
Current liabilities	(108,778)	(2,669)
Net assets	180,477	36,202
Net assets attributable to NCI	36,095	18,065
Cash flows from/(used in) operating activities	32,664	29,635
Cash flows used in investing activities	(3,061)	(20,457)
Cash flows from/(used in) financing activities *	6,893	(3,873)
Net increase/(decrease) in cash and cash equivalents	36,496	5,305
* including dividends to NCI	(10,600)	(1,112)

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ST Aerospace Technologies (Xiamen) Company Ltd $'000	Elbe Flugzeuwerke GmbH $'000	Other individually immaterial subsidiaries $'000	Intra-group elimination $'000	Total $'000
20%	45%			
China	Germany			
230,232	526,125			
8,019	16,312			
(1,689)	(36,852)			
6,330	(20,540)			
1,604	7,340	(940)	(476)	14,729
(338)	(16,583)	446	1	(17,360)
1,266	(9,243)	(494)	(475)	(2,631)
50,399	659,691			
132,892	262,879			
(9,578)	(391,236)			
(114,940)	(136,842)			
58,773	394,492			
11,755	177,521	24,423	863	268,722
(2,835)	37,981			
(834)	(60,177)			
(4,055)	16,268			
(7,724)	(5,928)			
–	–			

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F3 Non-controlling interests in subsidiaries (continued)

Name of subsidiary 2018	ST Engineering Aerospace Services Company Pte. Ltd. $'000	Eco-Services, LLC $'000
NCI percentage	20%	49.9%
Principal place of business/Country of incorporation	Singapore	U.S.
Revenue	261,838	22,448
Profit after taxation	30,660	2,233
Other comprehensive (loss)/income	(226)	1,176
Total comprehensive income	30,434	3,409
Attributable to NCI:		
Profit/(loss)	6,132	1,114
Other comprehensive (loss)/income	(45)	587
Total comprehensive income/(loss)	6,087	1,701
Non-current assets	52,018	21,530
Current assets	233,439	36,610
Non-current liabilities	(7,016)	–
Current liabilities	(99,185)	(2,488)
Net assets	179,256	55,652
Net assets attributable to NCI	35,851	27,770
Cash flows from/(used in) operating activities	15,841	4,060
Cash flows used in investing activities	(3,117)	(1,560)
Cash flows (used in)/from financing activities *	(18,843)	(2,862)
Net decrease in cash and cash equivalents	(6,119)	(362)
* including dividends to NCI	(1,342)	(953)

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Elbe Flugzeuwerke GmbH $'000	STELOP Pte. Ltd. $'000	Other individually immaterial subsidiaries $'000	Intra-group elimination $'000	Total $'000
45%	49.95%			
Germany	Singapore			
480,806	46,983			
26,272	1,721			
(26,177)	–			
95	1,721			
11,822	858	2,733	(478)	22,181
(11,780)	–	(270)	(1)	(11,509)
42	858	2,463	(479)	10,672
571,589	2,394			
264,608	47,893			
(297,484)	(1,258)			
(123,683)	(35,853)			
415,030	13,176			
186,764	6,581	25,375	5,895	288,236
21,782	(630)			
(62,054)	(240)			
34,610	(1,226)			
(5,662)	(2,096)			
–	–			

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F4 Associates and joint ventures

Group	2019 $'000	2018 $'000
Unquoted shares, at fair value	**23,328**	23,610
Unquoted shares, at cost	**355,878**	336,682
Goodwill on acquisition written off, net	**38**	38
Share of net assets acquired	**355,916**	336,720
Impairment in associates	**(4,000)**	(865)
Share of post-acquisition reserves	**78,175**	96,238
	430,091	432,093
	453,419	455,703
Represented by:		
Interest in associates	**318,415**	327,960
Interest in joint ventures	**135,004**	127,743
	453,419	455,703

During the year,

(i) the Group sold its entire 22.8% interest in WizVision Pte. Ltd. for a cash consideration of $648,000 and a gain on disposal of $648,000 was recognised.

(ii) the Group sold its entire 49% interest in Takata CPI Singapore Pte Ltd for a cash consideration of $5,338,000 and a gain on disposal of $1,035,000 was recognised.

(iii) the Group received cash proceeds of $109,000 on the liquidation of Fortis Marine Solutions Pte. Ltd. and the carrying amount of $69,000 was de-recognised. Consequently, a gain on disposal of $40,000 was recognised.

(iv) impairment loss of $4,000,000 mainly relates to the shortfall between the carrying amount of the costs of investment and the recoverable amount of an investment in associate.

In the prior year,

(i) the Group sold its entire 25% interest in Airbus Helicopters Southeast Asia Private Limited for a cash consideration of $14,246,000 and a gain on disposal of $8,984,000 was recognised.

(ii) the Group partially sold 5% of its interest in ST Aerospace (Guangzhou) Aviation Services Company Limited for a cash consideration of $9,234,000 and a gain on disposal of $3,766,000 was recognised.

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F4 Associates and joint ventures (continued)

Details of significant associates and joint ventures are as follows:

Name	Principal activities	Country of incorporation/ place of business	Effective equity interest held by the Group 2019 %	2018 %
Associates				
Shanghai Technologies Aerospace Company Limited #	Aircraft and component maintenance, repair, overhaul and other related maintenance business	People's Republic of China	**49**	49
ST Aerospace (Guangzhou) Aviation Services Company Limited #	Aircraft and component maintenance, repair, overhaul and other related maintenance business	People's Republic of China	**44**	44
Turbine Coating Services Pte Ltd #	Repair, refurbishment and upgrading of aircraft jet engine turbine blades and vanes	Singapore	**24.5**	24.5
Turbine Overhaul Services Pte Ltd #	Repair and service of gas and steam turbine components	Singapore	**49**	49
CityCab Pte Ltd #	Rental of taxis and the provision of charge card facilities	Singapore	**46.5**	46.5
Experia Events Pte. Ltd.	Organising and management of conferences, exhibitions and other related activities, including the biennial Singapore Airshow event	Singapore	**33**	33
Joint ventures				
Total Engine Asset Management Pte. Ltd. #	Leasing of engines	Singapore	**50**	50
Keystone Holdings (Global) Pte. Ltd.	Investment holding	Singapore	**50**	50
SPTel Pte. Ltd. (formerly known as SP Telecommunications Pte Ltd)	Running, operation, management and supply of telecommunications systems	Singapore	**51**	51

Not audited by KPMG LLP, Singapore and other member firms of KPMG International.

All significant associates and joint ventures that are required to be audited under the law in the country of incorporation are audited by KPMG LLP, Singapore and other member firms of KPMG International, except as indicated above.

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F4 Associates and joint ventures (continued)

Associates

The following table summarises the information of each of the Group's material associates, which are equity-accounted, based on their respective financial statements prepared in accordance with SFRS(I), modified for fair value adjustments on acquisitions and differences with the Group's accounting policies. The summarised financial information is not adjusted for percentage ownership held by the Group.

Name of associate 2019	Shanghai Technologies Aerospace Company Limited $'000	ST Aerospace (Guangzhou) Aviation Services Company Limited $'000
Percentage of interest	49%	44%
Revenue	90,581	70,700
Profit/(loss) after taxation	7,643	7,336
Other comprehensive loss	(4,746)	(3,043)
Total comprehensive income/(loss)	2,897	4,293
Attributable to NCI	–	–
Attributable to investee's shareholders	2,897	4,293
Non-current assets	79,281	110,790
Current assets	65,348	32,379
Non-current liabilities	–	(15,059)
Current liabilities	(21,410)	(18,958)
Net assets	123,219	109,152
Attributable to NCI	–	–
Attributable to investee's shareholders	123,219	109,152
Group's interest in net assets of investee at beginning of the year	68,577	46,138
Group's share of:		
- Profit/(loss) for the year	3,745	3,228
- Total other comprehensive loss	(2,326)	(1,339)
Total comprehensive income/(loss)	1,419	1,889
Group's contribution during the year	–	–
Dividends received during the year	(9,619)	–
Impairment of an associate during the year	–	–
Carrying amount of interest in investee at end of the year	60,377	48,027

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Turbine Coating Services Pte Ltd $'000	Turbine Overhaul Services Pte Ltd $'000	CityCab Pte Ltd $'000	Experia Events Pte. Ltd. $'000	Immaterial associates $'000	Total $'000
24.5%	49%	46.5%	33%		
40,329	339,928	115,748	9,088		
12,527	41,108	14,332	(10,010)		
(722)	(1,326)	–	–		
11,805	39,782	14,332	(10,010)		
–	–	176	–		
11,805	39,782	14,156	(10,010)		
29,096	35,908	148,668	49,522		
32,207	188,426	69,067	49,150		
(1,534)	–	(23,555)	(4,104)		
(7,584)	(118,517)	(33,300)	(41,718)		
52,185	105,817	160,880	52,850		
–	–	1,392	–		
52,185	105,817	159,488	52,850		
13,910	52,442	74,649	24,044	48,200	327,960
3,069	20,143	6,583	(3,303)	(594)	32,871
(177)	(650)	–	–	(1,748)	(6,240)
2,892	19,493	6,583	(3,303)	(2,342)	26,631
–	–	–	–	13,813	13,813
(4,017)	(20,085)	(7,068)	(3,300)	(1,900)	(45,989)
–	–	–	–	(4,000)	(4,000)
12,785	51,850	74,164	17,441	53,771	318,415

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F4 Associates and joint ventures (continued)

Associates (continued)

Name of associate 2018	**Shanghai Technologies Aerospace Company Limited $'000**	**ST Aerospace (Guangzhou) Aviation Services Company Limited $'000**
Percentage of interest	49%	44%
Revenue	111,681	61,405
Profit after taxation	13,317	7,114
Other comprehensive (loss)/income	(4,578)	(3,784)
Total comprehensive income	8,739	3,330
Attributable to NCI	–	–
Attributable to investee's shareholders	8,739	3,330
Non-current assets	82,953	82,346
Current assets	82,437	34,416
Non-current liabilities	–	(2,719)
Current liabilities	(25,437)	(9,184)
Net assets	139,953	104,859
Attributable to NCI	–	–
Attributable to investee's shareholders	139,953	104,859
Group's interest in net assets of investee at beginning of the year	64,295	49,589
Group's share of:		
- Profit for the year	6,525	3,345
- Total other comprehensive (loss)/income	(2,243)	(1,328)
Total comprehensive income	4,282	2,017
Group's contribution during the year	–	–
Dividends received during the year	–	–
Partial/complete disposal of associates during the year	–	(5,468)
Carrying amount of interest in investee at end of the year	68,577	46,138

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Turbine Coating Services Pte Ltd $'000	Turbine Overhaul Services Pte Ltd $'000	CityCab Pte Ltd $'000	Experia Events Pte. Ltd. $'000	Immaterial associates $'000	Total $'000
24.5%	49%	46.5%	33%		
47,223	335,111	127,607	54,724		
16,171	43,259	15,224	15,945		
1,101	1,976	–	–		
17,272	45,235	15,224	15,945		
–	–	161	–		
17,272	45,235	15,063	15,945		
30,469	32,455	155,300	52,706		
37,774	92,449	66,693	37,758		
–	–	(25,736)	(3,841)		
(11,468)	(17,879)	(34,345)	(13,763)		
56,775	107,025	161,912	72,860		
–	–	1,377	–		
56,775	107,025	160,535	72,860		
13,620	53,268	90,895	18,782	25,311	315,760
3,962	21,197	7,004	5,262	43	47,338
270	968	–	–	982	(1,351)
4,232	22,165	7,004	5,262	1,025	45,987
–	–	–	–	29,136	29,136
(3,942)	(22,991)	(23,250)	–	(1,686)	(51,869)
–	–	–	–	(5,586)	(11,054)
13,910	52,442	74,649	24,044	48,200	327,960

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F4 Associates and joint ventures (continued)

Joint ventures

The following table summarises the information of each of the Group's material joint ventures, adjusted for any differences with the Group's accounting policies and reconciles the carrying amount of the Group's interest in joint ventures and the share of profit and other comprehensive income of equity-accounted investment (net of tax). The summarised financial information is not adjusted for the percentage ownership held by the Group.

Name of joint venture 2019	Keystone Holdings (Global) Pte. Ltd. $'000	Total Engine Asset Management Pte. Ltd. $'000	SPTel Pte. Ltd. $'000	Immaterial joint ventures $'000	Total $'000
Percentage of interest	50%	50%	51%		
Revenue	22,900	49,563	27,789		
Profit/(loss) after taxation [a]	4,042	9,446	(3,769)		
Other comprehensive loss	(1,852)	(10,662)	–		
Total comprehensive income/(loss)	2,190	(1,216)	(3,769)		
[a] Includes:					
– Depreciation and amortisation of:	11,324	19,059	6,515		
– Interest expense of:	4,358	14,595	722		
– Income tax expense of:	386	2,096	(1,557)		
Non-current assets	222,099	593,133	67,589		
Current assets [b]	19,761	34,562	67,610		
Non-current liabilities [c]	(76,776)	(433,556)	(20,952)		
Current liabilities [d]	(91,442)	(113,905)	(32,235)		
Net assets excluding goodwill	73,642	80,234	82,012		
[b] Includes cash and cash equivalents of:	15,308	16,699	56,387		
[c] Includes non-current financial liabilities (excluding trade and other payables and provisions) of:	76,776	433,556	20,952		
[d] Includes current financial liabilities (excluding trade and other payables and provisions) of:	90,867	113,905	7,527		
Group's interest in net assets of investee at beginning of the year	26,000	40,725	46,539	14,479	127,743
Share of total comprehensive income/(loss)	1,095	(608)	(1,922)	962	(473)
Group's contribution during the year	10,476	–	–	2,597	13,073
Acquisition of subsidiary	–	–	–	851	851
Disposal of joint ventures	–	–	–	(4,340)	(4,340)
Dividends received during the year	(750)	–	–	(1,100)	(1,850)
Carrying amount of interest in investee at end of the year	36,821	40,117	44,617	13,449	135,004

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F4 Associates and joint ventures (continued)

Joint ventures (continued)

Name of joint venture 2018	Keystone Holdings (Global) Pte. Ltd. $'000	Total Engine Asset Management Pte. Ltd. $'000	SPTel Pte. Ltd. $'000	Immaterial joint ventures $'000	Total $'000
Percentage of interest	50%	50%	51%		
Revenue	16,825	29,289	20,075		
Profit/(loss) after taxation [a]	5,168	3,830	(10,220)		
Other comprehensive income	1,096	2,806	–		
Total comprehensive income/(loss)	6,264	6,636	(10,220)		
[a] Includes:					
– Depreciation and amortisation of:	10,303	13,249	6,148		
– Interest expense of:	2,586	8,779	–		
– Income tax expense of:	962	2,308	1,345		
Non-current assets	117,583	476,711	29,052		
Current assets [b]	8,508	15,601	79,260		
Non-current liabilities [c]	(56,892)	(360,776)	(2,712)		
Current liabilities [d]	(17,199)	(50,086)	(19,894)		
Net assets excluding goodwill	52,000	81,450	85,706		
[b] Includes cash and cash equivalents of:	6,819	13,287	73,281		
[c] Includes non-current financial liabilities (excluding trade and other payables and provisions) of:	56,892	360,776	2,712		
[d] Includes current financial liabilities (excluding trade and other payables and provisions) of:	13,866	50,086	–		
Group's interest in net assets of investee at beginning of the year	28,656	32,899	51,550	19,522	132,627
Share of total comprehensive income/(loss)	3,132	3,318	(5,011)	1,922	3,361
(Return of capital)/Group's contribution during the year	(3,761)	5,169	–	(441)	967
Dividends received during the year	(2,027)	(661)	–	(6,524)	(9,212)
Carrying amount of interest in investee at end of the year	26,000	40,725	46,539	14,479	127,743

NOTES TO THE FINANCIAL STATEMENTS

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F4 Associates and joint ventures (continued)

Basis of consolidation

(i) Business combinations

Business combinations are accounted for using the acquisition method in accordance with SFRS(I) 3 *Business Combinations* as at the acquisition date, which is the date on which control is transferred to the Group.

Goodwill that arises upon the acquisition of subsidiaries is included in intangible assets. For the measurement of goodwill at initial recognition, refer to Note C3.

The consideration transferred does not include amounts related to the settlement of pre-existing relationships. Such amounts are generally recognised in profit or loss.

Costs related to the acquisition, other than those associated with the issue of debt or equity securities, that the Group incurs in connection with a business combination are expensed as incurred.

Any contingent consideration payable is recognised at fair value at the acquisition date. If the contingent consideration is classified as equity, it is not remeasured and settlement is accounted for within equity. Otherwise, any subsequent changes to the fair value of the contingent consideration are recognised in profit or loss.

Non-controlling interests (NCI) that are present ownership interests and entitle their holders to a proportionate share of the acquiree's net assets in the event of liquidation are measured either at fair value or at the NCI's proportionate share of the recognised amounts of the acquiree's identifiable net assets, at the acquisition date. The measurement basis taken is elected on a transaction-by-transaction basis. All other NCI are measured at acquisition-date fair value, unless another measurement basis is required by SFRS(I)s.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as transactions with owners in their capacity as owners and therefore no adjustment is made to goodwill and no gain or loss is recognised in profit or loss. Adjustments to NCI arising from transactions that do not involve the loss of control are based on a proportionate amount of the net assets of the subsidiary.

(ii) Subsidiaries

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to or has rights to variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date that control commences until the date that control ceases.

Consistent accounting policies are applied to like transactions and events in similar circumstances. Losses applicable to the non-controlling interests in a subsidiary are allocated to the non-controlling interests even if doing so causes the non-controlling interests to have a deficit balance.

In the Company's separate financial statements, investments in subsidiaries are accounted for at cost less accumulated impairment losses.

NOTES TO THE FINANCIAL STATEMENTS

31 DECEMBER 2019
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F4 Associates and joint ventures (continued)

Basis of consolidation (continued)

(iii) Acquisitions of entities under amalgamation

The Company's interests in ST Engineering Aerospace Ltd., ST Engineering Electronics Ltd., ST Engineering Land Systems Ltd., and ST Engineering Marine Ltd. (collectively referred to as the Scheme Companies) resulted from the amalgamation of the Scheme Companies pursuant to a scheme of arrangement under Section 210 of the Companies Act, Chapter 50 in 1997.

As the amalgamation of the Scheme Companies constitutes a uniting of interests, the pooling of interests method has been adopted in the preparation of the consolidated financial statements in connection with the amalgamation.

Under the pooling of interests method, the combined assets, liabilities and reserves of the pooled enterprises are recorded at their existing carrying amounts at the date of amalgamation. The excess or deficiency of amount recorded as share capital issued (plus any additional consideration in the form of cash or other assets) over the amount recorded for the share capital acquired is recorded as capital reserve.

(iv) Loss of control

Upon the loss of control, the Group derecognises the assets and liabilities of the subsidiary, any non-controlling interests and the other components of equity related to the subsidiary. Any surplus or deficit arising on the loss of control is recognised in profit or loss. If the Group retains any interest in the previous subsidiary, then such interest is measured at fair value at the date that control is lost. Subsequently, it is accounted for as an equity-accounted investee or as a financial asset at FVOCI, depending on the level of influence retained.

(v) Investments in associates and joint ventures

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. Significant influence is presumed to exist when the Group holds between 20% or more of the voting power of another entity. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Investments in associates and joint ventures are accounted for by the Group using the equity method (except for those acquired by the Group's Corporate Venture Capital Unit) and are recognised initially at cost, which includes transaction costs.

The consolidated financial statements include the Group's share of the profit or loss and other comprehensive income (OCI) from the date that significant influence or joint control commences until the date that significant influence or joint control ceases.

When the Group's share of losses exceeds its interest in an equity-accounted investee, the carrying amount of the investment, including any long-term interest, is reduced to zero, and the recognition of further losses is discontinued except to the extent that the Group has an obligation to fund the investee's operations or has made payments on behalf of the investee.

For investments in associates acquired by the Group's Corporate Venture Capital Unit, the Group has elected to measure its investments in associates at FVTPL in accordance with SFRS(I) 9 *Financial Instruments*.

In the Company's separate financial statements, investments in associates and joint ventures are accounted for at cost, less accumulated impairment losses.

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31 DECEMBER 2019
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F4 Associates and joint ventures (continued)

Basis of consolidation (continued)

(vi) Transactions eliminated on consolidation

All significant inter-company balances and transactions are eliminated on consolidation.

Recognition and measurement

Goodwill that forms part of the carrying amount of an investment in an associate and/or joint venture is not recognised separately, and therefore is not tested for impairment separately. Instead, the entire amount of the investment in an associate and/or joint venture is tested for impairment as a single asset when there is objective evidence that the investment in an associate and/or joint venture may be impaired.

Key estimates and judgements: Critical judgements made in applying accounting policies

Information about critical judgements in applying accounting policies that have the most significant effect on the amounts recognised in the financial statements relates to assessing whether the Group has control over its investee companies.

During the year, the Group assessed the terms and conditions of the shareholders' agreement of subsidiaries that are not wholly-owned by the Group. The Group made critical judgements over:

(a) its ability to exercise power over its investees;
(b) its exposure or rights to variable returns for its investments with those investees; and
(c) its ability to use its power to affect those returns.

The Group's judgement included considerations of its power exercised at the board of the respective investees and rights and obligations arising from matters reserved for the board as agreed with the other shareholders.

F5 Related party information

Key management personnel compensation

Group	**2019 $'000**	2018 $'000
Short-term employee benefits	**37,330**	37,308
Contributions to defined contribution plans	**761**	778
Share-based payments	**10,620**	9,982
	48,711	48,068

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F5 Related party information (continued)

In addition to related party information disclosed elsewhere in the financial statements, the Group has significant transactions with the following related parties on terms agreed between the parties.

Group	2019 $'000	2018 $'000
Associates of the Group		
Sales and services rendered	**4,749**	14,442
Purchases and services received	**(53,142)**	(41,057)
Dividend income	**45,989**	51,869
Joint ventures of the Group		
Sales and services rendered	**25,705**	26,161
Purchases and services received	**(29,552)**	(14,444)
Dividend income	**1,850**	9,212
Other related parties *		
Sales and services rendered	**41,045**	38,201
Purchases and services received	**(31,672)**	(25,581)
Rental expense	**(5,641)**	(6,481)
Rental income	**40**	44

* Other related parties refer to subsidiaries, associates and joint ventures of the immediate holding company.

F6 Parent entity disclosures

Balance Sheet

Company	Note	2019 $'000	2018 $'000
ASSETS			
Non-current assets			
Property, plant and equipment		**28,688**	18,129
Subsidiaries	(i)	**1,327,608**	1,328,153
Associates and joint ventures		**17,657**	17,657
Right-of-use assets		**5,511**	–
Deferred tax assets		**–**	365
		1,379,464	1,364,304
Current assets			
Amounts due from related parties	(ii)	**58,732**	46,382
Advances and other receivables		**4,566**	9,170
Bank balances and other liquid funds	(iii)	**16,271**	273,456
		79,569	329,008
Total assets		**1,459,033**	1,693,312

NOTES TO THE FINANCIAL STATEMENTS

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F6 Parent entity disclosures (continued)

Balance Sheet (continued)

Company	Note	2019 $'000	2018 $'000
EQUITY AND LIABILITIES			
Current liabilities			
Trade payables and accruals		18,817	21,337
Amounts due to related parties	(iv)	4,836	210,275
Provision for taxation		876	4,518
Borrowings		118	–
		24,647	236,130
Net current assets		54,922	92,878
Non-current liabilities			
Trade payables and accruals		6,334	8,706
Amounts due to related parties		1,003	964
Deferred tax liabilities		2,268	–
Borrowings		5,434	–
		15,039	9,670
Total liabilities		39,686	245,800
Net assets		1,419,347	1,447,512
Share capital and reserves			
Share capital		895,926	895,926
Treasury shares		(26,731)	(9,030)
Capital reserves	(v)	(3,412)	2,199
Other reserves	(vi)	68,952	65,054
Retained earnings		484,612	493,363
Equity attributable to owners of the Company		1,419,347	1,447,512
Total equity and liabilities		1,459,033	1,693,312

(i) There was capital contribution in the form of performance shares and restricted shares issued to employees of subsidiaries amounting to $109,435,000 in 2019 (2018: $109,980,000).

(ii) Included in the amounts due from related parties are unsecured interest-free loans of $15,000,000 (2018: $17,500,000) which were fully impaired.

Amounts due from related parties denominated in currencies other than the functional currency of the Company as at 31 December 2019 is $2,368,000 (2018: $3,853,000) denominated in USD.

(iii) At the reporting date, bank balances and other liquid funds include $14,171,000 (2018: $271,879,000) placed with a related corporation under a cash pooling arrangement and bears an effective interest of 1.7% per annum (2018: 1.36%). Cash and cash equivalents denominated in currencies other than the functional currency of the Company as at 31 December 2019 is $1,280,000 (2018: $193,826,000) denominated in USD.

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F6 Parent entity disclosures (continued)

Balance Sheet (continued)

(iv) Included in the amounts due to related parties are:

(a) loans of $932,000 (2018: $941,000) bearing interest at 5.03% (2018: 5.03%) per annum. The loans are unsecured and repayable in June 2020; and

(b) an amount of $199,150,000 with a related corporation in the prior year for overdrafts used for cash management purposes and which bore an effective interest of 1.94% to 2.75%.

In the prior year, amounts due to related parties denominated in currencies other than the functional currency of the Company was $857,000 denominated in USD.

(v) It relates to realised gain or loss on re-issuance of treasury shares under share-based payment arrangements.

(vi) It relates to share-based payment reserve as explained in E9.

Financial risk management

- **Interest rate risk:** No interest rate risk exposure was disclosed as the Company had assessed that a reasonable change in the interest rates would not result in any significant impact on the Company's results.

* **Foreign exchange risk:** No foreign exchange sensitivity analysis was disclosed as the Company had assessed that a reasonable change in exchange rates would not result in any significant impact on the Company's results.

- **Liquidity risk:** It is not expected that the cash flows associated with the liabilities of the Company could occur at significantly different amounts.

- **Credit risk:** The Company limits its exposure to credit risk on amounts due from related parties which are mostly short-term in nature and bank balances and other liquid funds placed with reputable financial institutions.

  Management actively monitors the credit ratings of its debtors and does not expect any counterparty to fail to meet its obligations.

  Derivatives are entered into with financial institutions which have long-term rating of at least A3 by Moody's, A- by Standard & Poor's or the equivalent by a reputable credit rating agency.

  Cash and bank deposits are placed with reputable financial institutions.

  As at 31 December 2019, there were no significant concentrations of credit risk.

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G | OTHERS

G1 New standards and interpretations not adopted

A number of new standards, interpretations and amendments to standards are effective for annual periods beginning after 1 January 2019 and earlier application is permitted; however, the Group has not early adopted the new or amended standards and interpretations in preparing these financial statements.

The following new SFRS(I)s, interpretations and amendments to SFRS(I)s are not expected to have a significant impact on the Group's financial statements.

- *Amendments to References to Conceptual Framework in SFRS(I) Standards*
- *Definition of a Business* (Amendments to SFRS(I) 3)
- *Definition of Material* (Amendments to SFRS(I) 1-1 and SFRS(I) 1-8)
- SFRS(I) 17 *Insurance Contracts*

G2 Adoption of new standards and interpretations

(a) *Interest Rate Benchmark Reform* (Amendments to SFRS(I) 9, SFRS(I) 1-39 and SFRS(I) 7)

The Group applied the interest rate benchmark reform amendments retrospectively to hedging relationships that existed at 1 January 2019 or were designated thereafter and that are directly affected by the interest rate benchmark reform. These amendments also apply to the gain or loss recognised in OCI that existed at 1 January 2019. The details of the accounting policies are disclosed in note C16. See also note C16 for related disclosures about risks and hedge accounting.

(b) SFRS(I) 16 *Leases*

The Group applied SFRS(I) 16 with a date of initial application of 1 January 2019. As a result, the Group has changed its accounting policy for lease contracts as detailed below.

The Group applied SFRS(I) 16 using the modified retrospective approach, under which the cumulative effect of initial application is recognised in retained earnings at 1 January 2019. Accordingly the comparative information presented for 2018 is not restated - i.e. it is presented as previously reported, under SFRS(I) 1-17 and related interpretation. The details of the changes in accounting policies are disclosed below. Additionally the disclosure requirements in SFRS(I) 16 have not generally been applied to comparative information.

<u>Definition of a lease</u>

Previously, the Group determined at contract inception whether an arrangement is or contains a lease under SFRS(I) INT 4. Under SFRS(I) 16, the Group assesses whether a contract is or contains a lease based on the definition of a lease as explained in E4.

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G2 Adoption of new standards and interpretations (continued)

(b) SFRS(I) 16 *Leases* (continued)

On transition to SFRS(I) 16, the Group elected to apply the practical expedient to grandfather the assessment of which transactions are leases. It applied SFRS(I) 16 only to contracts that were previously identified as leases. Contracts that were not identified as leases under SFRS(I) 1-17 and SFRS(I) INT 4 were not reassessed for whether there is a lease. Therefore, the definition of a lease under SFRS(I) 16 was applied only to contracts entered into or changed on or after 1 January 2019.

<u>As a lessee</u>

As a lessee, the Group previously classified leases as operating or finance leases based on its assessment of whether the lease transferred significantly all of the risks and rewards incidental to ownership of the underlying asset to the Group. Under SFRS(I) 16, the Group recognises right-of-use assets and lease liabilities for most leases - i.e. these leases are on-balance sheet.

(i) Leases classified as operating leases under SFRS(I) 1-17

At transition, lease liabilities were measured at the present value of the remaining lease payments, discounted at the Group's incremental borrowing rate as at 1 January 2019. Right-of-use assets are measured at an amount equal to the lease liability, adjusted by the amount of any prepaid or accrued lease payments.

The Group used the following practical expedients when applying SFRS(I) 16 to leases previously classified as operating leases under SFRS(I) 1-17.

- Applied a single discount rate to a portfolio of leases with similar characteristics.
- Applied the exemption not to recognise right-of-use assets and liabilities for leases with less than 12 months of lease term or leases of low value assets.
- Excluded initial direct costs from measuring the right-of-use asset at the date of initial application.
- Used hindsight when determining the lease term if the contract contains options to extend or terminate the lease.

(ii) Leases previously classified as finance leases

For leases that were classified as finance leases under SFRS(I) 1-17, the carrying amount of the right-of-use asset and the lease liability at 1 January 2019 are determined at the carrying amount of the lease asset and lease liability under SFRS(I) 1-17 immediately before that date.

<u>As a lessor</u>

The Group is not required to make any adjustments on transition to SFRS(I) 16 for leases in which it acts as a lessor, except for a sub-lease. The Group accounted for its leases in accordance with SFRS(I) 16 from the date of initial application.

Under SFRS(I) 16, the Group is required to assess the classification of a sub-lease with reference to the right-of-use asset, not the underlying asset. On transition, the Group reassessed the classification of a sub-lease contract previously classified as an operating lease under SFRS(I) 1-17. The Group concluded that the sub-lease is a finance lease under SFRS(I) 16.

The Group applied SFRS(I) 15 *Revenue from Contracts with Customers* to allocate consideration in the contract to each lease and non-lease component.

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G2 Adoption of new standards and interpretations (continued)

(b) SFRS(I) 16 Leases (continued)

Impacts on financial statements

On transition to SFRS(I) 16, the Group recognised an additional $431,520,000 of right-of-use assets and $389,515,000 of lease liabilities.

When measuring lease liabilities, the Group discounted lease payments using its incremental borrowing rate at 1 January 2019, depending on the country and lease maturity. The rates applied range from 1.6% to 4.8%.

Group	1 January 2019 $'000
Operating lease commitment at 31 December 2018 as disclosed in the Group's consolidated financial statements	390,872
Recognition exemption for:-	
Short-term leases	(12,019)
Leases of low-value assets	(142)
Extension and termination options reasonably certain to be exercised	66,468
	445,179
Discounted using the incremental borrowing rates at 1 January 2019	389,515
Finance lease liabilities recognised as at 31 December 2018	14,719
Lease liabilities recognised at 1 January 2019	404,234

SECTORAL FINANCIAL REVIEW - AEROSPACE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

INCOME STATEMENT

	2019 $'000	2018 $'000
Revenue	3,455,022	2,654,119
Cost of sales	(2,853,413)	(2,190,755)
Gross profit	601,609	463,364
Distribution and selling expenses	(72,033)	(26,078)
Administrative expenses	(152,348)	(124,063)
Other operating expenses	(67,623)	(45,075)
Earnings before interest and tax	309,605	268,148
Other income	18,697	30,380
Other expenses	(7,439)	(13,281)
Other income, net	11,258	17,099
Finance income	14,018	8,773
Finance costs	(40,336)	(14,773)
Finance costs, net	(26,318)	(6,000)
Share of results of associates and joint ventures, net of tax	38,227	40,748
Profit before taxation	332,772	319,995
Taxation	(48,914)	(54,644)
Profit after taxation	283,858	265,351
Attributable to:		
Shareholder of the Company	268,896	244,627
Non-controlling interests	14,962	20,724
	283,858	265,351

SECTORAL FINANCIAL REVIEW - AEROSPACE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

BALANCE SHEET

	2019 $'000	2018 $'000
ASSETS		
Non-current assets		
Property, plant and equipment	1,087,980	930,228
Right-of-use assets	244,797	-
Associates and joint ventures	253,884	248,906
Intangible assets	966,906	516,246
Advances and other receivables	9,085	18,863
Deferred tax assets	78,786	27,377
Derivative financial instruments	1,053	572
	2,642,491	1,742,192
Current assets		
Contract assets	410,907	297,808
Inventories	526,098	410,712
Trade receivables	546,056	483,572
Amount due from related parties	103,832	51,070
Advances and other receivables	108,548	74,153
Bank balances and other liquid funds	331,674	294,210
	2,027,115	1,611,525
TOTAL ASSETS	4,669,606	3,353,717
EQUITY AND LIABILITIES		
Current liabilities		
Contract liabilities	272,523	446,179
Deposits from customers	5,232	2,222
Trade payables and accruals	775,840	617,684
Amount due to related parties	762,059	547,914
Provisions	57,941	38,305
Provision for taxation	115,113	70,231
Borrowings	45,532	19,691
Deferred income	2,249	1,849
Employee benefits	11,265	2,401
	2,047,754	1,746,476
NET CURRENT LIABILITIES	(20,639)	(134,951)
Non-current liabilities		
Contract liabilities	84,324	113,093
Trade payables and accruals	26,041	35,717
Provisions	2,254	-
Deferred tax liabilities	136,698	150,484
Borrowings	263,569	140,414
Employee benefits	377,202	107,276
Derivative financial instruments	3,807	5,558
Amount due to related parties	839,367	95,663
	1,733,262	648,205
TOTAL LIABILITIES	3,781,016	2,394,681
NET ASSETS	888,590	959,036
Share capital and reserves	642,553	689,618
Non-controlling interests	246,037	269,418
	888,590	959,036
TOTAL EQUITY AND LIABILITIES	4,669,606	3,353,717

SECTORAL FINANCIAL REVIEW - AEROSPACE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

STATEMENT OF CASH FLOWS

	2019 $'000	2018 $'000
Net cash from operating activities	**345,312**	248,136
Net cash used in investing activities	**(865,741)**	(238,773)
Proceeds from sale of property, plant and equipment	**13,482**	3,162
Dividends from associates and joint ventures	**36,371**	31,307
Purchase of property, plant and equipment	**(175,132)**	(221,164)
Investment in joint ventures and an associate	**(13,073)**	(1,408)
Acquisition of a subsidiary	**(688,905)**	-
Proceeds from disposal of subsidiaries	**8,855**	4,433
Proceeds from disposal of associates	**-**	23,480
Proceeds from sale of an investment	**-**	39
Proceeds from sale of intangible assets	**-**	47
Additions to other intangible assets	**(47,339)**	(78,669)
Net cash from/(used in) financing activities	**740,450**	(325,146)
Capital contribution from non-controlling interests	**375**	432
Return of capital to non-controlling interests of a subsidiary	**(8,652)**	-
Proceeds from bank loans	**32,198**	79,614
Repayment of bank loans	**(47,069)**	(68,912)
Repayment of lease liabilities	**(64,601)**	(2,513)
Proceeds from related party loans	**1,283,629**	264,997
Repayment of related party loans	**(163,501)**	(349,313)
Dividends paid to shareholder	**(231,000)**	(238,914)
Dividends paid to non-controlling interests	**(12,247)**	(3,001)
Interest paid	**(48,682)**	(7,536)
Net increase/(decrease) in cash and cash equivalents	**220,021**	(315,783)
Cash and cash equivalents at beginning of the year	**10,185**	322,896
Exchange difference on cash and cash equivalents at beginning of the year	**(2,654)**	3,072
Cash and cash equivalents at end of the year	**227,552**	10,185

SECTORAL FINANCIAL REVIEW - AEROSPACE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

FINANCIAL HIGHLIGHTS

	2019 $'000	2018 $'000	2017 $'000	2016 $'000	2015 $'000
Income Statement					
Revenue	**3,455,022**	2,654,119	2,546,913	2,492,857	2,095,614
Profit					
EBITDA	**494,964**	381,163	375,804	353,419	293,483
EBIT	**309,605**	268,148	272,267	240,431	222,013
PBT	**332,772**	319,995	318,465	300,318	290,600
Net Profit	**268,896**	244,627	244,840	234,385	226,720
Balance Sheet					
Property, plant and equipment and right-of-use assets	**1,332,777**	930,228	848,949	833,628	820,145
Intangible and other assets	**1,306,914**	793,290	761,576	706,002	465,133
Inventories and work-in-progress	**526,098**	410,712	368,621	475,477	494,257
Trade receivables and contract assets, deposits and prepayments	**1,172,143**	925,277	778,750	727,046	626,286
Bank balances and other liquid funds	**331,674**	294,210	322,896	272,683	234,274
Current liabilities	**2,047,754**	1,746,476	1,462,317	1,339,342	1,262,967
Non-current liabilities	**1,733,262**	648,205	658,740	691,214	611,257
Share capital	**368,512**	368,512	368,512	368,512	368,512
Capital and other reserves	**(66,870)**	(14,683)	(4,576)	(9,517)	(18,560)
Retained earnings	**340,911**	335,789	332,389	381,810	336,358
Non-controlling interests	**246,037**	269,418	263,410	243,475	79,561
Financial Indicators					
Earnings per share (cents)	**57.39**	52.21	52.26	50.03	48.39
Net assets value per share (cents)	**137.15**	147.19	148.62	158.12	146.49
Return on sales (%)	**8.2**	10.0	10.5	10.1	11.2
Return on equity (%)	**36.4**	31.2	30.9	28.1	29.2
Return on total assets (%)	**6.1**	7.9	8.7	8.3	8.9
Return on capital employed (%)	**9.7**	13.6	13.3	13.7	16.9
Productivity Data					
Average staff strength (numbers)	**8,581**	8,182	8,192	7,600	7,126
Revenue per employee ($)	**402,636**	324,385	310,902	328,008	294,080
Net profit per employee ($)	**31,336**	29,898	29,888	30,840	31,816
Employment costs	**911,498**	760,064	752,319	747,045	625,475
Employment costs per $ of revenue	**0.26**	0.29	0.30	0.30	0.30
Economic Value Added	**122,026**	150,859	141,259	154,055	169,548
Economic Value Added spread (%)	**4.0**	7.6	7.2	7.9	11.1
Economic Value Added per employee ($)	**14,220**	18,438	17,244	20,270	23,793
Value added	**1,545,979**	1,209,185	1,190,984	1,178,284	1,002,326
Value added per employee ($)	**180,163**	147,786	145,384	155,037	140,658
Value added per $ of employment costs	**1.70**	1.59	1.58	1.58	1.60
Value added per $ of gross property, plant and equipment	**0.76**	0.66	0.70	0.72	0.64
Value added per $ of revenue	**0.45**	0.46	0.47	0.47	0.48

Figures from FY2015 to FY2016 were prepared in accordance with the previous FRS and were not restated on adoption of SFRS(I) in FY2018. The Group adopted SFRS(I) 16 effective on 1 January 2019 and applied the modified retrospective approach with no restatement of comparative information.

SECTORAL FINANCIAL REVIEW - ELECTRONICS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

INCOME STATEMENT

	2019 $'000	2018 $'000
Revenue	**2,309,944**	2,166,533
Cost of sales	**(1,675,031)**	(1,601,515)
Gross profit	**634,913**	565,018
Distribution and selling expenses	**(112,847)**	(99,334)
Administrative expenses	**(215,127)**	(170,782)
Other operating expenses	**(77,700)**	(74,128)
Earnings before interest and tax	**229,239**	220,774
Other income	**15,616**	15,718
Other expenses	**(25)**	(53)
Other income, net	**15,591**	15,665
Finance income	**4,666**	2,533
Finance costs	**(21,518)**	(9,375)
Finance costs, net	**(16,852)**	(6,842)
Share of results of associates and joint ventures, net of tax	**(1,445)**	(4,905)
Profit before taxation	**226,533**	224,692
Taxation	**(35,824)**	(37,419)
Profit after taxation	**190,709**	187,273
Attributable to:		
Shareholder of the Company	**190,733**	186,491
Non-controlling interests	**(24)**	782
	190,709	187,273

SECTORAL FINANCIAL REVIEW - ELECTRONICS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

BALANCE SHEET

	2019 $'000	2018 $'000
ASSETS		
Non-current assets		
Property, plant and equipment	**278,494**	246,892
Right-of-use assets	**107,530**	-
Associates and joint ventures	**73,639**	62,749
Investments	**9,437**	9,562
Intangible assets	**734,041**	358,766
Long-term trade receivable	**1,668**	1,172
Deferred tax assets	**17,832**	16,630
Derivative financial instruments	**206**	269
	1,222,847	696,040
Current assets		
Contract assets	**776,779**	703,354
Inventories	**103,393**	86,654
Trade receivables	**407,043**	343,745
Amounts due from related parties	**21,058**	26,913
Advances and other receivables	**107,228**	72,378
Bank balances and other liquid funds	**487,503**	307,956
	1,903,004	1,541,000
TOTAL ASSETS	**3,125,851**	2,237,040
EQUITY AND LIABILITIES		
Current liabilities		
Contract liabilities	**492,213**	478,116
Deposits from customers	**86**	-
Trade payables and accruals	**511,499**	559,046
Amounts due to related parties	**490,128**	289,937
Provisions	**59,579**	60,922
Provision for taxation	**49,802**	37,884
Borrowings	**20,333**	-
Deferred income	**154**	1,291
	1,623,794	1,427,196
NET CURRENT ASSETS	**279,210**	113,804
Non-current liabilities		
Contract liabilities	**155,064**	145,492
Deposits from customers	**184**	-
Trade payables and accruals	**18,344**	21,499
Provisions	**3,259**	-
Deferred tax liabilities	**31,427**	11,839
Borrowings	**94,250**	-
Deferred income	**-**	5,607
Employee benefits	**2,859**	740
Derivative financial instruments	**145**	8
Amounts due to related parties	**683,929**	297,024
	989,461	482,209
TOTAL LIABILITIES	**2,613,255**	1,909,405
NET ASSETS	**512,596**	327,635
Share capital and reserves	**501,665**	320,859
Non-controlling interests	**10,931**	6,776
	512,596	327,635
TOTAL EQUITY AND LIABILITIES	**3,125,851**	2,237,040

SECTORAL FINANCIAL REVIEW - ELECTRONICS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

STATEMENT OF CASH FLOWS

	2019 $'000	2018 $'000
Net cash from operating activities	**142,398**	198,691
Net cash used in investing activities	**(476,406)**	(102,030)
Proceeds from sale of property, plant and equipment	**17**	63
Proceeds from sale of an investment	**-**	104
Proceeds from disposal of an associate	**648**	-
Purchase of property, plant and equipment	**(60,372)**	(52,696)
Investments in a joint venture	**(13,813)**	(13,381)
Acquisition of controlling interests in subsidiaries, net of cash acquired	**(361,217)**	-
Additions to other intangible assets	**(41,669)**	(36,120)
Net cash from/(used in) financing activities	**352,883**	(333,616)
Repayment of bank loans	**(28,865)**	-
Repayment of related parties loans	**(4,676)**	(82,631)
Repayment of loans by a related party	**30,076**	52,000
Repayment of loans to a joint venture	**(4,000)**	(30,805)
Proceeds from related parties loans	**418,846**	30,584
Proceeds of loans from a joint venture	**-**	17,925
Loans to a related party	**(31,120)**	(52,000)
Repayment of lease liabilities	**(14,208)**	-
Dividends paid to shareholder	**-**	(263,000)
Dividends paid to non-controlling interests	**-**	(605)
Interest paid	**(13,415)**	(5,063)
Deposits discharged/(pledged)	**245**	(21)
Net increase/(decrease) in cash and cash equivalents	**18,875**	(236,955)
Cash and cash equivalents at beginning of the year	**57,458**	294,205
Exchange difference on cash and cash equivalents at beginning of the year	**1,365**	208
Cash and cash equivalents at end of the year	**77,698**	57,458

SECTORAL FINANCIAL REVIEW - ELECTRONICS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

FINANCIAL HIGHLIGHTS

	2019 $'000	2018 $'000	2017 $'000	2016 $'000	2015 $'000
Income Statement					
Revenue	**2,309,944**	2,166,533	2,041,454	1,910,501	1,743,174
Profit					
EBITDA	**319,090**	277,293	242,656	237,382	218,570
EBIT	**229,239**	220,774	194,846	191,846	178,699
PBT	**226,533**	224,692	200,198	207,798	190,952
Net Profit	**190,733**	186,491	168,772	174,546	163,000
Balance Sheet					
Property, plant and equipment and right-of-use assets	**386,024**	246,892	233,744	212,030	185,192
Intangible and other assets	**836,973**	448,755	419,517	388,241	377,131
Inventories and work-in-progress	**103,393**	86,654	80,290	589,492	528,333
Trade receivables, contract assets, deposits and prepayments	**1,311,958**	1,146,783	926,585	630,476	499,940
Bank balances and other liquid funds	**487,503**	307,956	295,564	236,180	271,435
Current liabilities	**1,623,794**	1,427,196	1,192,810	1,270,920	1,114,278
Non-current liabilities	**989,461**	482,209	474,099	513,017	523,445
Share capital	**52,522**	52,522	52,522	52,522	52,522
Capital and other reserves	**(6,919)**	2,598	(3,240)	23,432	15,802
Retained earnings	**456,062**	265,739	233,486	189,918	148,764
Non-controlling interests	**10,931**	6,776	6,023	6,610	7,220
Financial Indicators					
Earnings per share (cents)	**181.57**	177.54	160.67	166.16	155.17
Net assets value per share (cents)	**477.57**	305.45	269.19	253.10	206.66
Return on sales (%)	**8.3**	8.6	8.3	9.1	9.4
Return on equity (%)	**30.1**	41.3	40.8	44.0	46.8
Return on total assets (%)	**6.1**	8.4	8.6	8.5	8.8
Return on capital employed (%)	**19.2**	24.7	20.6	23.1	23.7
Productivity Data					
Average staff strength (numbers)	**6,700**	6,369	6,570	6,568	6,293
Revenue per employee ($)	**344,768**	340,168	310,724	290,880	277,002
Net profit per employee ($)	**28,468**	29,281	25,688	26,575	25,902
Employment costs	**683,646**	605,329	632,285	622,933	591,543
Employment costs per $ of revenue	**0.30**	0.28	0.31	0.33	0.34
Economic Value Added	**153,204**	165,358	133,753	138,891	130,117
Economic Value Added Spread (%)	**13.2**	18.5	14.4	17.0	17.8
Economic Value Added per employee ($)	**22,866**	25,963	20,358	21,147	20,676
Value added	**1,024,529**	901,081	893,495	887,570	833,641
Value added per employee ($)	**152,915**	141,479	135,996	135,136	132,471
Value added per $ of employment costs	**1.50**	1.49	1.41	1.42	1.41
Value added per $ of gross property, plant and equipment	**1.67**	1.65	1.78	1.95	2.13
Value added per $ of revenue	**0.44**	0.42	0.44	0.46	0.48

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SECTORAL FINANCIAL REVIEW - LAND SYSTEMS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

INCOME STATEMENT

	2019 $'000	2018 $'000
Revenue	**1,457,644**	1,302,809
Cost of sales	**(1,179,355)**	(1,050,142)
Gross profit	**278,289**	252,667
Distribution and selling expenses	**58,569**	(51,085)
Administrative expenses	**97,602**	(92,466)
Other operating expenses	**38,734**	(50,040)
Earnings before interest and tax	**83,384**	59,076
Other income	**12,149**	12,775
Other expenses	**(4,422)**	(12,071)
Other income, net	**7,727**	704
Finance income	**1,807**	1,375
Finance costs	**(9,937)**	(6,290)
Finance costs, net	**(8,130)**	(4,915)
Share of results of associates and joint ventures, net of tax	**5,579**	7,396
Profit before taxation	**88,560**	62,261
Taxation	**(11,459)**	(8,726)
Profit after taxation	**77,101**	53,535
Attributable to:		
Shareholder of the Company	**77,310**	52,860
Non-controlling interests	**(209)**	675
	77,101	53,535

SECTORAL FINANCIAL REVIEW - LAND SYSTEMS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

BALANCE SHEET

	2019 $'000	2018 $'000
ASSETS		
Non-current assets		
Property, plant and equipment	**224,102**	235,445
Right-of-use assets	**100,646**	–
Associates and joint ventures	**82,276**	92,206
Intangible assets	**244,396**	240,882
Deferred tax assets	**17,181**	17,790
Amounts due from related parties	**5,094**	5,842
Derivative financial instruments	**12,300**	7,738
	685,995	599,903
Current assets		
Contract assets	**10,994**	23,983
Inventories	**611,576**	605,464
Trade receivables	**222,799**	247,379
Amounts due from related parties	**28,751**	25,266
Advances and other receivables	**90,604**	73,552
Bank balances and other liquid funds	**153,508**	143,079
	1,118,232	1,118,723
TOTAL ASSETS	**1,804,227**	1,718,626
EQUITY AND LIABILITIES		
Current liabilities		
Contract liabilities	**195,202**	199,066
Deposits from customers	**–**	1,885
Trade payables and accruals	**284,839**	326,293
Amounts due to related parties	**191,700**	188,128
Provisions	**72,060**	69,589
Provision for taxation	**24,205**	16,615
Borrowings	**10,905**	56
Derivative financial instruments	**8,370**	5,174
Deferred income	**–**	621
	787,281	807,427
NET CURRENT ASSETS	**330,951**	311,296
Non-current liabilities		
Contract liabilities	**202,177**	238,856
Amounts due to related parties	**313,598**	233,637
Provisions	**7,607**	–
Deferred tax liabilities	**41,723**	45,265
Borrowings	**87,877**	184
Deferred income	**36**	416
Derivative financial instruments	**17,063**	13,975
	670,081	532,333
TOTAL LIABILITIES	**1,457,362**	1,339,760
NET ASSETS	**346,865**	378,866
Share capital and reserves	**335,564**	367,284
Non-controlling interests	**11,301**	11,582
	346,865	378,866
TOTAL EQUITY AND LIABILITIES	**1,804,227**	1,718,626

SECTORAL FINANCIAL REVIEW - LAND SYSTEMS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

STATEMENT OF CASH FLOWS

	2019 $'000	2018 $'000
Net cash from/(used in) operating activities	**75,372**	(36,429)
Cash flows used in investing activities	**(28,156)**	(16,262)
Proceeds from sale of property, plant and equipment	**121**	265
Proceeds from disposal of a joint venture	**5,338**	–
Disposal of subsidiaries, net of cash disposed	**–**	(1,878)
Dividends from an associate	**7,068**	23,250
Purchase of property, plant and equipment	**(29,144)**	(37,280)
Additions to other intangible assets	**(11,539)**	(619)
Cash flows (used in)/from financing activities	**(36,530)**	60,195
Interest paid	**(9,459)**	(5,372)
Repayment of leases liabilities	**(8,768)**	–
Repayment of related party loans	**(48,810)**	(22,286)
Proceeds from related party loans	**147,083**	92,620
Repayment of other loans	**–**	(148)
Proceeds from bank loans	**–**	7,712
Repayment of bank loans	**–**	(9,988)
Dividends paid to related parties	**(116,576)**	(1,779)
Dividends paid to non-controlling interests	**–**	(594)
Deposits discharged	**–**	30
Net increase in cash and cash equivalents	**10,686**	7,504
Cash and cash equivalents at beginning of the year	**143,079**	135,670
Exchange difference on cash and cash equivalents at beginning of the year	**(257)**	(95)
Cash and cash equivalents at end of the year	**153,508**	143,079

SECTORAL FINANCIAL REVIEW - LAND SYSTEMS

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

FINANCIAL HIGHLIGHTS

	2019 $'000	2018 $'000	2017 $'000	2016 $'000	2015 $'000
Income Statement					
Revenue	**1,457,644**	1,302,809	1,262,659	1,405,316	1,485,591
Profit					
EBITDA	**134,692**	97,069	102,734	44,268	94,768
EBIT	**83,384**	59,076	70,231	4,119	54,553
PBT	**88,560**	62,261	85,039	38,758	73,256
Net Profit	**77,310**	52,860	87,420	25,461	62,618
Balance Sheet					
Property, plant and equipment and right-of-use assets	**324,748**	235,445	296,739	298,689	356,472
Intangible and other assets	**357,910**	359,648	381,313	349,727	362,014
Inventories	**611,576**	605,464	521,923	547,476	664,498
Trade receivables, contract assets, deposits and prepayment	**356,485**	374,990	303,697	349,348	420,554
Bank balances and other liquid funds	**153,508**	143,079	135,700	173,782	208,241
Current liabilities	**787,281**	807,427	595,097	836,529	966,904
Non-current liabilities	**670,081**	532,333	720,265	635,037	773,858
Share capital	**194,445**	194,445	194,445	194,445	194,445
Capital and other reserves	**(6,897)**	69	(2,537)	5,911	14,695
Retained earnings	**148,016**	172,770	120,667	35,769	20,334
Non-controlling interests	**11,301**	11,582	11,435	11,331	41,543
Financial Indicators					
Earnings per share (cents)	**14.70**	10.05	16.62	4.84	11.91
Net assets value per share (cents)	**63.80**	69.83	59.43	44.89	43.63
Return on sales (%)	**5.3**	4.1	7.0	1.2	3.9
Return on equity (%)	**13.3**	9.0	16.5	6.0	16.7
Return on total assets (%)	**4.3**	3.1	5.4	1.0	2.9
Return on capital employed (%)	**8.1**	6.2	9.4	3.3	6.9
Productivity Data					
Average staff strength (numbers)	**4,647**	4,754	4,899	5,801	6,839
Revenue per employee ($)	**313,674**	274,045	257,738	242,254	217,223
Net profit per employee ($)	**16,637**	11,119	17,844	4,389	9,156
Employment costs	**390,050**	363,280	363,173	369,438	377,217
Employment costs per $ of revenue	**0.27**	0.28	0.29	0.26	0.25
Economic Value Added	**21,987**	1,337	24,347	(39,512)	16,760
Economic Value Added spread (%)	**2.2**	0.1	3.3	(6.0)	0.9
Economic Value Added per employee ($)	**4,731**	281	4,970	(6,811)	2,451
Value added	**543,295**	473,196	489,184	512,960	518,512
Value added per employee ($)	**116,913**	99,536	99,854	88,426	75,817
Value added per $ of employment costs	**1.39**	1.30	1.35	1.39	1.37
Value added per $ of gross property, plant and equipment	**0.81**	0.72	0.67	0.72	0.71
Value added per $ of revenue	**0.37**	0.36	0.39	0.37	0.35

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SECTORAL FINANCIAL REVIEW - MARINE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

INCOME STATEMENT

	2019 $'000	2018 $'000
Revenue	**647,151**	574,354
Cost of sales	**(542,490)**	(468,074)
Gross profit	**104,661**	106,280
Distribution and selling expenses	**(9,735)**	(12,479)
Administrative expenses	**(31,853)**	(40,400)
Other operating expenses	**(8,966)**	(9,026)
Earnings before interest and tax	**54,107**	44,375
Other income	**8,791**	6,809
Other expenses	**(83)**	(276)
Other income, net	**8,708**	6,533
Finance income	**3,782**	3,072
Finance costs	**(5,693)**	(4,275)
Finance costs, net	**(1,911)**	(1,203)
Share of results of associates and joint ventures, net of tax	**(75)**	555
Profit before taxation	**60,829**	50,260
Taxation	**(9,287)**	(5,059)
Profit after taxation	**51,542**	45,201

SECTORAL FINANCIAL REVIEW - MARINE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

BALANCE SHEET

	2019 $'000	2018 $'000
ASSETS		
Non-current assets		
Property, plant and equipment	**178,403**	303,001
Right-of-use assets	**22,975**	-
Associates and joint ventures	**2,850**	4,099
Intangible assets	**80**	92
Advances and other receivables	**1,820**	1,870
Deferred tax assets	**68,880**	46,313
Amounts due from related parties	**4,806**	4,806
Derivative financial instruments	**1,296**	1,362
	281,110	361,543
Current assets		
Contract assets	**56,060**	53,917
Inventories	**32,631**	43,412
Trade receivables	**62,186**	54,851
Amounts due from related parties	**16,947**	106,090
Advances and other receivables	**37,290**	20,358
Bank balances and other liquid funds	**321,922**	164,006
	527,036	442,634
TOTAL ASSETS	**808,146**	804,177
EQUITY AND LIABILITIES		
Current liabilities		
Contract liabilities	**109,604**	202,698
Deposits from customers	**3,833**	104
Trade payables and accruals	**327,967**	252,957
Amounts due to related parties	**192,716**	147,673
Provisions	**42,044**	42,641
Provision for taxation	**34,169**	19,236
Borrowings	**4,372**	-
	714,705	665,309
NET CURRENT LIABILITIES	**(187,669)**	(222,675)
Non-current liabilities		
Trade payables and accruals	**7,080**	16,271
Provisions	**3,874**	-
Borrowings	**16,373**	-
Deferred income	**34,273**	36,382
Amounts due to related parties	**26,343**	43,327
Derivative financial instruments	**511**	307
	88,454	96,287
TOTAL LIABILITIES	**803,159**	761,596
NET ASSETS	**4,987**	42,581
Share capital and reserves	**4,987**	42,581
TOTAL EQUITY AND LIABILITIES	**808,146**	804,177

SECTORAL FINANCIAL REVIEW - MARINE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

STATEMENT OF CASH FLOWS

	2019 $'000	2018 $'000
Net cash from operating activities	**23,366**	212,412
Net cash from/(used in) investing activities	**97,057**	(2,886)
Proceeds from disposal of property, plant and equipment	**104,250**	449
Purchase of property, plant and equipment	**(8,402)**	(10,309)
Dividends from joint ventures	**1,100**	6,524
Investment in an associate	**-**	(8)
Disposal of a joint venture	**109**	441
Disposal of other intangible assets	**-**	17
Net cash from/(used in) financing activities	**37,828**	(130,358)
Repayment of related party loans	**-**	(43,047)
Repayment of bank loans	**-**	(9,233)
Proceeds from related party loans	**54,085**	29,106
Loans to related parties	**-**	(87,900)
Repayment of loans by related parties	**89,000**	104,900
Dividends paid to shareholder	**(95,000)**	(120,000)
Interest paid	**(5,000)**	(4,184)
Repayment of lease liabilities	**(5,257)**	-
Net increase in cash and cash equivalents	**158,251**	79,168
Cash and cash equivalents at beginning of the year	**164,006**	84,751
Exchange difference on cash and cash equivalents at beginning of the year	**(336)**	87
Cash and cash equivalents at end of the year	**321,921**	164,006

SECTORAL FINANCIAL REVIEW - MARINE

(CURRENCY - SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

FINANCIAL HIGHLIGHTS

	2019 $'000	2018 $'000	2017 $'000	2016 $'000	2015 $'000
Income Statement					
Revenue	**647,151**	574,354	637,531	841,160	958,373
Profit					
EBITDA	**86,585**	74,360	43,670	91,998	101,404
EBIT	**54,107**	44,375	14,795	63,576	71,795
PBT	**60,829**	50,260	22,408	75,121	88,275
Net Profit	**51,542**	45,201	27,049	67,757	85,725
Balance Sheet					
Property, plant and equipment and right-of-use assets	**201,378**	303,001	319,653	315,031	332,533
Intangible and other assets	**73,475**	56,581	40,016	32,531	30,219
Inventories	**32,631**	43,412	81,004	239,936	205,539
Trade receivables, contract assets, deposits and prepayment	**178,740**	237,177	377,373	306,516	355,956
Bank balances and other liquid funds	**321,922**	164,006	84,751	81,860	78,605
Current liabilities	**714,705**	665,309	683,368	715,617	709,493
Non-current liabilities	**88,454**	96,287	100,581	93,856	101,234
Share capital	**50,856**	50,856	50,856	50,856	50,856
Capital and other reserves	**7,992**	10,977	12,445	9,863	9,051
Retained earnings	**(53,861)**	(19,252)	55,547	105,656	132,186
Non-controlling interests	**-**	-	-	26	32
Financial Indicators					
Earnings per share (cents)	**26.35**	23.11	13.83	34.65	43.83
Net assets value per share (cents)	**2.55**	21.77	60.77	85.07	98.22
Return on sales (%)	**8.0**	7.9	4.2	8.1	8.9
Return on equity (%)	**164.5**	52.6	16.7	35.2	39.2
Return on total assets (%)	**6.4**	5.6	3.0	6.9	8.5
Return on capital employed (%)	**16.8**	12.5	7.5	25.3	41.3
Productivity Data					
Average staff strength (numbers)	**1,371**	1,368	1,522	1,690	1,822
Revenue per employee ($)	**472,028**	419,849	418,877	497,728	526,001
Net profit per employee ($)	**37,594**	33,042	17,772	40,093	47,050
Employment costs	**147,319**	122,061	139,138	154,490	173,487
Employment costs per $ of revenue	**0.23**	0.21	0.22	0.18	0.18
Economic Value Added	**22,066**	18,161	5,200	51,113	76,544
Economic Value Added spread (%)	**11.2**	6.8	1.8	19.7	35.8
Economic Value Added per employee ($)	**16,095**	13,276	3,417	30,244	42,011
Value added	**247,160**	210,717	208,752	264,414	294,698
Value added per employee ($)	**180,277**	154,033	137,156	156,458	161,744
Value added per $ of employment costs	**1.68**	1.73	1.50	1.71	1.70
Value added per $ of gross property, plant and equipment	**0.43**	0.28	0.28	0.37	0.41
Value added per $ of revenue	**0.38**	0.37	0.33	0.31	0.31

Figures from FY2015 to FY2016 were prepared in accordance with the previous FRS and were not restated on adoption of SFRS(I) in FY2018. The Group adopted SFRS(I) 16 effective on 1 January 2019 and applied the modified retrospective approach with no restatement of comparative information.

SHAREHOLDING STATISTICS

AS AT 2 MARCH 2020

SHARE CAPITAL

Paid-Up Capital (including treasury shares)	:	S$895,925,583.405
Number of issued ordinary shares (excluding treasury shares)	:	3,114,964,822
Number of ordinary shares held in treasury	:	7,530,375
Percentage of such holding against the total number of issued ordinary shares (excluding ordinary shares held in treasury)	:	0.24%
Class of Shares	:	Ordinary Shares One Special Share held by the Minister for Finance
Voting Rights	:	One vote per share

SHAREHOLDING HELD IN HANDS OF PUBLIC

Based on the information available to the Company as at 2 March 2020, 47.86% of the issued ordinary shares of the Company is held by the public and therefore, Rule 723 of the Listing Manual issued by SGX-ST is complied with.

ANALYSIS OF SHAREHOLDINGS

Range of Shareholdings	No. of Shareholders	%	No. of Shares (excluding treasury shares)	%
1 --- 99	1,005	3.11	24,750	0.00
100 --- 1,000	5,002	15.51	3,986,218	0.13
1,001 --- 10,000	20,730	64.26	92,555,635	2.97
10,001 --- 1,000,000	5,490	17.02	214,817,924	6.90
1,000,001 and above	31	0.10	2,803,580,295	90.00
	32,258	100.00	3,114,964,822	100.00

	No. of Shares			
Substantial Shareholder	Direct Interest	Deemed Interest	Total Interest	%*
Temasek Holdings (Private) Limited	1,554,764,574	66,638,075 [1]	1,621,402,649	52.05

Notes:

* The percentage of issued ordinary shares is calculated based on the number of issued ordinary shares of the Company (excluding ordinary shares held in treasury) as at 2 March 2020.

[1] Includes deemed interests held through subsidiaries and associated companies.

SHAREHOLDING STATISTICS

AS AT 2 MARCH 2020

MAJOR SHAREHOLDERS LIST – TOP 20

No.	Name	No. of Shares Held	%*
1	Temasek Holdings (Private) Limited	1,554,764,574	49.91
2	Citibank Nominees Singapore Pte Ltd	414,858,605	13.32
3	DBS Nominees (Private) Limited	316,493,947	10.16
4	DBSN Services Pte. Ltd.	226,968,134	7.29
5	HSBC (Singapore) Nominees Pte Ltd	112,201,245	3.60
6	Raffles Nominees (Pte.) Limited	39,394,991	1.26
7	BPSS Nominees Singapore (Pte.) Ltd.	38,420,613	1.23
8	Vestal Investments Pte. Ltd.	28,501,000	0.92
9	United Overseas Bank Nominees (Private) Limited	10,725,872	0.34
10	Morgan Stanley Asia (Singapore) Securities Pte Ltd	10,624,140	0.34
11	OCBC Nominees Singapore Private Limited	6,502,514	0.21
12	Merrill Lynch (Singapore) Pte. Ltd.	5,015,161	0.16
13	DBS Vickers Securities (Singapore) Pte Ltd	4,280,142	0.14
14	Tan Pheng Hock	4,048,314	0.13
15	Philip Securities Pte Ltd	4,014,480	0.13
16	DB Nominees (Singapore) Pte Ltd	2,549,363	0.08
17	NTUC Fairprice Co-Operative Ltd	2,240,000	0.07
18	Societe Generale Singapore Branch	2,211,015	0.07
19	Heng Siew Eng	2,112,000	0.07
20	Shanwood Development Pte Ltd	2,077,000	0.07
		2,788,003,110	89.50

* The percentage of issued ordinary shares is calculated based on the number of issued ordinary shares of the Company (excluding ordinary shares held in treasury) as at 2 March 2020.

SGX LISTING MANUAL REQUIREMENTS

31 DECEMBER 2019
(CURRENCY – SINGAPORE DOLLARS, UNLESS OTHERWISE STATED)

INTERESTED PERSON TRANSACTIONS

Interested person transactions carried out during the financial year pursuant to the Shareholders' Mandate obtained under Chapter 9 of the Listing Manual of the Singapore Exchange Securities Trading Limited (SGX) by the Group are as follows:

	Aggregate value of all transactions conducted under a shareholders' mandate pursuant to Rule 920 of the SGX Listing Manual	
	FY2019 $'000	FY2018 $'000
Transactions for the Sale of Goods and Services		
SATS Ltd. and its Associates	**12,425**	7,562
SembCorp Industries Ltd and its Associates	**-**	4,549
Singapore Airlines Limited and its Associates	**3,356**	1,397
Singapore Telecommunications Limited and its Associates	**828**	1,534
StarHub Ltd. and its Associates	**612**	668
Temasek Holdings (Private) Limited and its Associates (non-listed)	**88,523**	36,177
	105,744	51,887
Transactions for the Purchase of Goods and Services		
Mapletree Industrial Trust	**403**	417
Mapletree Logistics Trust	**11,851**	-
SATS Ltd. and its Associates	**3,211**	3,617
SembCorp Industries Ltd and its Associates	**17,546**	12,726
Singapore Telecommunications Limited and its Associates	**2,557**	6,728
StarHub Ltd. and its Associates	**205**	2,601
Temasek Holdings (Private) Limited and its Associates (non-listed)	**17,397**	30,499
	53,170	56,588
Total Interested Person Transactions	**158,914**	108,475

CORPORATE INFORMATION

BOARD OF DIRECTORS

Kwa Chong Seng,
Chairman

Vincent Chong Sy Feng
President & CEO

Dr Beh Swan Gin

Joseph Leong Weng Keong

Lim Ah Doo

Lim Chin Hu

Lim Sim Seng

Lieutenant-General Ong Su Kiat Melvyn

Quek Gim Pew

Quek See Tiat

Song Su-Min

Colonel Xu Youfeng
(Alternate Director to
Lieutenant-General Ong Su Kiat Melvyn)

COMPANY SECRETARY

Ng Kwee Lian (Karen)

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Quek Shu Ping (Partner-in-charge)
(Date of Appointment: 15 February 2017)

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