

Aerospace



ST Aerospace prides itself in having a clear focus on the interests of customers, big and small. Despite the aviation downturn over the last few years, it had a robust order book throughout 2004 that included PTF aircraft conversions, maintenance work and development activities.

INDUSTRY REVIEW

In 2004, with stronger global economic growth, air travel rose from the depressed levels of the previous three years. Profitability of the aviation industry, on the other hand, remained affected by the after shocks of 9/11, the war in Iraq, SARS and the rise in fuel prices.

While passenger load factors rose, flight frequency and yields did not recover to pre 2001 levels.

Some airlines appeared to be recovering to profitability or reduced losses. Legacy airlines in general continued to re-engineer their operations and reduce costs in the face of rising fuel prices, higher interest rates and increased competition from the rise of LCCs.

The weakening US dollar, coupled with rising US interest rates, led to higher financing costs

Flying High through Total Support

Singapore Technologies Aerospace (ST Aerospace), the Group's aerospace arm, is a leading third party aviation maintenance and engineering specialist.

With almost three decades of supporting the Republic of Singapore Air Force (RSAF), ST Aerospace is the strategic partner of the RSAF and has been meeting their exacting requirements for leading edge technologies. Today, it has a global customer base, serving military air forces, commercial airlines and freight carriers.

Penetrating new markets

Backed by its span of capabilities, range of innovative solutions and track record in turnaround time and quality work, ST Aerospace was able to capitalise on new market opportunities. One such market was the emerging Low Cost Carriers (LCCs). Through programmes such as Maintenance By the Hour (MBH™) and Total Aviation Support (TAS), ST Aerospace offered comprehensive and flexible solutions that enhanced its competitive position in this segment, especially in Asia.

In 2004, AirAsia awarded ST Aerospace a second contract of US\$63.5m (\$104m) for Maintenance, Repair and Overhaul (MRO) services for 10 of its aircraft powered by CFM56-3 engines. Valuair was the source of another similar TAS contract. Jetstar Asia became ST Aerospace's latest customer with a US\$47m (\$77m) contract for its fleet of A320s, which will grow to eight by 2005. The contract is for line, light and base maintenance, engineering and technical services, as well as components management and support.

for US operators. This added to their difficulties arising from falling revenues. Continued US dollar weakness may result in other complications; other currencies, including the Chinese yuan, may depeg from the US dollar and revalue.

The MRO industry was reported to have shrunk by 14% from 2001 due to reduced flying hours, the retirement of maintenance intensive older aircraft

Expanding capabilities

ST Aerospace's major facilities are located at Changi, Paya Lebar and Seletar airports, Singapore; Mobile and San Antonio, USA; and Bournemouth and Stansted, UK. A new capability for commercial airframe MRO was added this year in the expanding Chinese market with the establishment of Shanghai Technologies Aerospace Company (STARCO) in Shanghai. STARCO, a joint venture with China Eastern Airlines, gives ST Aerospace an important foothold in China's fast growing aviation sector.

The Aircraft Maintenance & Modification (AMM) group has, since 2003, strengthened its repair capabilities for all narrow and wide-bodied Airbus, Boeing and McDonnell Douglas aircraft types, including the most recent A330, A340 and the B777. For military aircraft, ST Aerospace extended its capabilities to the F-16 fighter aircraft and the Chinook helicopter. These capabilities included airframe as well as engines and components repair and overhaul. The company can now service a wide range of military aircraft and helicopters.

In 2004, in response to customer demands, ST Aerospace added three new hangars. Costing about US\$20m (\$33m), they comprise two at ST Mobile Aerospace Engineering (MAE), USA, and one at ST Aviation Services Co (SASCO), Singapore. ST Aerospace is also building two narrow-body slots at its Seletar facility for ST Aerospace Engineering. These are expected to be ready in early 2005. At the same

and postponement of non obligatory maintenance and modification work. Many MROs experienced difficult times and some have ceased operations. Nevertheless, the industry still faces overcapacity, and further consolidation is possible.

Legacy airlines are expected to continue to restructure their operations to focus on their core businesses and outsource their MRO work to reduce

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time, a wide-body aircraft hangar is being planned in STARCO at Pudong Airport to complement the existing two hangars at Hongqiao Airport, Shanghai.

On engine support, ST Aerospace further developed capabilities for the B737CG, B737NG and the F-16. Service centre agreements were renewed with Rolls Royce for the repair and overhaul of the T56/501D engines. New service centre status was also granted by Honeywell for the repair and overhaul of its T55 engines.

On non engine support, the Component/Engine Repair & Overhaul (CERO) group extended its capabilities for the A320, A310/300, B777, B767, B757, B737NG, B737CG and MD-11 commercial aviation components, as well as added new capabilities for the F-16 and Chinook military components. ST Aerospace received additional authorisation from Original Equipment Manufacturers (OEMs), including Howell Instruments, for the repair and overhaul of all its products in South East

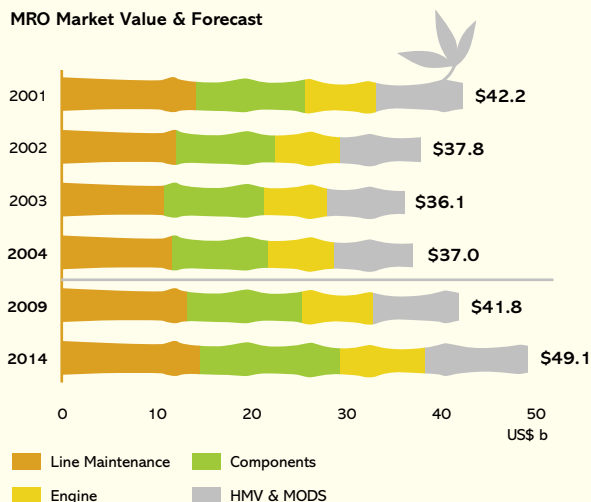
Asia; Sargent Controls & Aerospace for its hydraulic valves in Asia; and Parker Aerospace for the promotion and repair of its F-16 hydraulic pumps in Singapore. Notable service centre renewals included an agreement with Eurocopter for the SA-330, AS-332 and AS-550 helicopters in Asia.

The Engineering & Materials Services (EMS) group consolidated its strengths in engineering expertise. It began development on variants of the B757 Passenger To Freighter (PTF) conversion including a 15 pallet configuration and marketing its 14¹/₂ pallet configuration on an approved Boeing Supplemental Type Certificate.

ST Aerospace's Engineering and Development Centre completed Maintainability and Reliability Engineering studies that enabled customers to improve their fleet cost efficiency. This was an important service to customers, especially those on TAS programmes.

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MRO Market Value & Forecast



operating costs. This is a business model the LCCs have adopted from the start.

Strand Associates Inc, an aviation consulting firm, estimates that half of MRO work is now outsourced compared to one third 10 years ago, and expects about two thirds to be outsourced by the end of the decade.

Chart information and italicised text source: *Overhaul and Maintenance magazine, April 2004.*



ST Aerospace's quality MBH™ programmes secured a second contract for the maintenance of CFM56 engines used on AirAsia's 10 aircraft.



A joint venture company with China Eastern Airlines, STARCO is the latest addition to ST Aerospace's global network of facilities that offers MRO services for commercial aircraft.



Developed in less than two years for surveillance activities, ST Aerospace's hand launched mini UAV, the Skyblade II, was unveiled in 2004.

ST Aerospace used its Aircraft Maintenance and Engineering System, also known as AMOS, to support the maintenance planning needs of TAS customers. The software performs maintenance planning, reliability calculations, components and rotables tracking and aircraft scheduling. AMOS thus enables customers to be updated real time on the progress of their maintenance programmes.

In 2004, the engineering and development arm of ST Aerospace filed six patents.

Winning new customers

Major overseas military projects in 2004 included the US Pacific Air Force C-130 programme for depot maintenance work, the refurbishment of 20 UH-1H helicopters for the Philippines Air Force and a fleetwide avionics standardisation programme for another customer. ST Aerospace extended its range of capabilities in the Unmanned Aerial Vehicles (UAV) arena through the launch of its Skyblade II for surveillance activities.

In the commercial sector, ST Aerospace furthered its relationship with its blue chip customers such as All Nippon Airways, FedEx Express, Japan Airlines, Northwest Airlines and United Airlines. It signed a 10 year contract with United Parcel Service (UPS), for approximately US\$438m (\$715m), to exclusively maintain UPS' DC-8s, A300s and MD-11s at ST Aerospace's repair stations globally. There were also new customers, large and small, further positioning the aerospace group as a global service provider.

In engineering and modification activities, ST Aerospace undertook more PTF modifications, design and development programmes. In 2004, apart from UPS, other airlines such as China Eastern Airlines, EVA Airlines and Lufthansa Cargo also commissioned MD-11 conversions. All in all, there were 38 MD-11 conversion orders secured, of which 18 were redelivered by yearend.

The Engines business firmly established its position as an MRO and MBH™ provider for the military aviation market and the CFM56 and JT8 market. Its components repair and overhaul capabilities assured good turnaround time and responsive support to customers with quality delivery. These represent a standard that customers have come to expect from ST Aerospace.

Electronics



Photo courtesy of Land Transport Authority, Singapore

With 35 patents filed since 1998 and 15 patents already granted, ST Electronics continued to innovate, launching customised solutions in communications, homeland security, electronics and Information Communications Technology (ICT).

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In 2004, major economies showed clearer signs of sustainable growth. Regional economic growth was also stronger. Several regional economies now have healthier public finances to address issues like inadequate transportation infrastructure and the consequent traffic congestion in cities. Hence, more Asian cities are planning to extend or build new rail and mass rapid transit systems.

However, uncertainties remain. If oil and commodity prices continue to rise, economic growth will inevitably slow; these higher raw material costs will affect profit margins. Terrorism remains a key concern, its effect on tourism and travel still severe in some parts of the world.

The need for heightened security is a sign of the times and countries are responding to this

Bringing Cutting Edge Solutions to the World

Singapore Technologies Electronics (ST Electronics), the Group's electronics arm, is a leading electronics and ICT system house with offices in Australia, China, Hong Kong, Malaysia, Mexico, Taiwan and the US, marketing to more than 60 countries. In 2004, ST Electronics penetrated new markets and won new customers, expanded its capabilities and continued to introduce cutting edge commercial and defence applications.

Penetrating new markets

ST Electronics and its subsidiaries made further inroads into China this year. Its Large-Scale Systems (LSG) division was commissioned by Guang Zhou Metro Corporation in Guangdong province to provide an Automatic Fare Collection (AFC) system for the Mass Rapid Transit (MRT) Line 4. It will design, supply, install and commission the AFC system, including the ticket vending machines. CET Technologies (CET) was also awarded a contract to provide on-train communications systems for another Guangzhou MRT Line. These contracts enhanced ST Electronics' profile in China in intelligent building, rail electronics and traffic management systems.

ST Electronics also broke new ground in Taiwan. It was awarded a contract for a communications and disaster recovery system and to supply a new fleet of forward command and communication vehicles by the National Fire Agency (NFA) (under Taiwan's Ministry of Interior). When delivered in 2006, this \$11.6m system will allow the NFA to mobilise and coordinate emergency rescue and disaster recovery efforts across Taiwan.

through various public safety and homeland security solutions.

There were also significant developments in China. To forestall overheating of the economy, Chinese policy makers tightened credit and spending, cutting or delaying large infrastructure projects. Indications so far are that the Chinese economy will not slow significantly. The spending curbs have also not been

Another success was Agilis Communication Technologies (Agilis) being selected by OSCMAR International of New Zealand to supply a commercial satellite broadband solution for its combat training, simulation and instrumentation products. Its Very Small Aperture Terminals will be used to form a high speed backbone enabling realistic ground troop combat training in real time over widely dispersed geographical locations.

SES Systems (SES) entered new markets in Africa and India. In Botswana, the Ministry of Energy, Mines and Water Affairs, the Department of Taxes and the Botswana Police Service contracted SES to develop and provide e-Government solutions. SES also won, against stiff international competition, a contract from the Airports Authority of India to supply an Air Traffic Control Aerodrome Visual Simulator for its Civil Aviation Training Centre.

Expanding capabilities

ST Electronics continued to innovate, launching customised solutions in areas like communications, homeland security, electronics and ICT.

It launched a purpose-built solution, Maritime, Aviation and Port Security (MAPS), to tackle today's terrorism threats and uncertainties facing ports, airports and key installations and infrastructures. MAPS integrates automated surveillance, threat detection, assessment and immediate response in one solution for key installations. Using state of the art sensors and electronic fences, command and control, secured

uniformly applied to the larger cities like Beijing, Guangzhou and Shanghai nor to major infrastructure projects. These cities will need to continue to build their infrastructure to prepare for major host activities like the Beijing Olympics in 2008 and the Shanghai World Expo in 2010. These various medium term requirements would likely create business opportunities for the sector.

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communication and tracking devices, MAPS offers surface and sub-surface surveillance protection to vessels at ports and wharves and, most importantly, helps secure port infrastructure.

LSG launched its third generation ST8100, SecurNet Integrated Security and Emergency Management System this year. The new system, operating on the latest Windows XP platform, integrates digital video surveillance and perimeter protection. It has been deployed in various defence and commercial sites.

To meet increasingly complex communications needs, Agilis developed and launched new solutions: the Coastal and Mobile Surveillance Systems offering 24x7, all weather automated surface surveillance radar; the C and Ku band high power BUC and dual feed antennae for operators that require simultaneous dual frequency operations; and an enhanced Network Management System for greater control and tracking of assets in a communications network for seamless system operations.

In another innovation, CET developed its fleet management and wireless communications capabilities into telematics solutions.

By integrating General Packet Radio Service (GPRS), Bluetooth and Global Positioning System (GPS), telematics equip vehicles with wireless communications and computing capabilities. Users can then access the internet, emergency assistance, information and services on the go. CET also developed a range of hardware based encryption devices for laptop computers and the world's first multi functional universal serial bus token for logical and physical access to meet the demand for data and communication security for people on the move.

ST Electronics also rolled out various training and simulation systems through ST Training & Simulation (STTS). These included cost effective training systems like the Unmanned Aerial Vehicle (UAV) Trainer and the Advanced Combat Emulator.

ST Electronics continued to form partnerships with, and invest in, regional and international players to provide value added solutions and penetrate targeted markets.

It acquired a 21.35% equity stake in ECS Holdings (ECS) through SES. ECS' products and services complement SES' real time solution thrusts, while SES will leverage on ECS' channel coverage and business networks in the region, particularly in China.

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Apart from economic developments, the industry is being influenced by shifts in customer needs and preferences towards intelligent infrastructure electronics systems.

The industry in the region is also being shaped by trends in business practices and models. In some countries or sectors, where customers lack funds, project financing is typical. These customers also

prefer arrangements like turnkey Engineering Procurement Contracts with full financing, Build Operate and Transfer or Build Own Operate and Transfer.



MMDS brought cable programmes to homes in Latin America.



Installation of VSAT Terminal in Marseille, Southern France.



Real time and mission critical software solutions.

SES also took a 25% equity stake in Sandz Solutions (Singapore) (Sandz) which provides solutions and products in high performance computing and other business solutions for the financial services and telecommunications industries and public sector agencies. SES will leverage on Sandz's expertise and its network of contacts, particularly in Indonesia and the Philippines.

In China, SES set up Xinke Information Systems in Shenzhen to tap the talent pool there to support customers and provide public safety solutions to Guangzhou and Shenzhen.

Winning new customers

ST Electronics continued to win new customers from around the world.

It will provide a rail communications solution for Taipei's MRT/MCT (Medium Capacity Transit) system. This \$61m contract to LSG is for a communications system for two MRT lines and for upgrading the existing radio analog system to the more advanced Tetra Radio System. This contract reinforces ST Electronics' reputation in Taiwan, where it has been providing quality rail solutions in Taipei and Kaohsiung since 1993.

CET was awarded a \$163m contract by Knowledge Internet Solutions for an automotive telematics system in Thailand. This will provide drivers with mobile information services including access to emergency roadside assistance and entertainment.

In Latin America, ST Electronics' Multi-channel Multipoint Distribution System (MMDS) downconverters continued to gain market share. Latin America is a potentially large market for this product as MMDS provides digital quality television transmission to areas where terrain makes it difficult to build terrestrial

communications infrastructure. Orders since 2002 amounted to about \$55m.

STTS secured a number of projects in 2004 including one from Mitsui OSK Line to provide security consultancy for their vessels passing through the Straits of Malacca. STTS will also provide ship handling training services to the Republic of Singapore Navy (RSN). The Royal Thai Armed Forces also awarded STTS a contract to upgrade its helicopter simulator programme.

Two of ST Electronics' subsidiaries have been awarded work for systems on five frigates for the RSN. The first locally built frigate was launched in July and outfitting work will commence with CET providing an advanced communications system. SES will provide Standard Operating Common Consoles for the Combat Information Centre, where the ship's command team will direct and orchestrate all warfare activities.

IT developments

ST Electronics stays on the forefront of technology with 35 patents filed since 1998 and 15 patents already granted.

Agilis has implemented a new automated Time Charging Management System (TCMS) for more cost effective project analysis and planning. The project also won the National IQC Convention 2004 STAR Award.

ST Electronics also introduced a supply chain management solution for e-shipping. This provides for better management of outshipment processes and enhances efficiency in validation of freight invoices.

Land Systems



ST Kinetics remained resolute in its efforts to access new markets and customers, packaging products and solutions for defence and commercial customers around the world.

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Commercial Sector

In 2004, Asian economies showed stronger growth, recovering from negative developments in the previous year, such as SARS. Their long term growth prospects seem intact, signalling continued infrastructure and project spendings over the medium term.

While China expects to cool its economy in the short term, it continues to offer exciting prospects.

Since 2003, annual Foreign Direct Investments (FDI) into China have exceeded FDI into the US. FDI into China was estimated at about US\$54b and US\$60b in 2003 and 2004 respectively (Source: CEIC Data). The strong FDI boosts China's plans to modernise its infrastructure and develop its energy and power sector. In turn, the construction industry and related sectors, such as heavy equipment and vehicles, will likely see sustained growth over the next few decades.

Setting the Pace for New Challenges

Singapore Technologies Kinetics (ST Kinetics), the Group's land systems arm, designs, manufactures and services a wide range of military and commercial vehicles, weapons and munition systems. In 2004, it continued to provide cutting edge technologies to address the growing needs in homeland security and the modern battlefield. Leveraging on core competencies, it has expanded its commercial business and accelerated its penetration into China's rapidly expanding construction equipment and automotive sectors.

Penetrating new markets

ST Kinetics remained resolute in its efforts to access new markets and customers, packaging products and solutions for defence and commercial customers around the world.

The Bronco All Terrain Tracked Carrier continued to attract interest from many overseas armies. In July, ST Kinetics was awarded a feasibility study contract to explore the development of a Future All Terrain Vehicle for the Finnish Defence Forces. This endorses ST Kinetics standing as an international defence company. As part of the evaluation, the Bronco clocked more than 8,000km over a six month period under harsh arctic conditions in Finland. It also surpassed expectations in mobility trials conducted elsewhere in Europe, Africa, Asia Pacific and the US.

As part of its US thrust, ST Kinetics sealed a Memorandum Of Understanding (MOU) with Lockheed Martin in February for joint cooperation in the area of

manned and unmanned ground systems.

In September, ST Kinetics joined forces with an industry partner to propose an integrated maintenance, repair and overhaul outsourcing solution to the United Arab Emirates Armed Forces. The result of this international tender is expected to be known in the first half of 2005.

On the home front, as the strategic partner to the Singapore Armed Forces (SAF), ST Kinetics continued to invest in new technologies to align its capabilities to the SAF's vision for a leaner and more potent Third Generation (3G) Army. There were also continued contractual deliveries of the Primus Self Propelled Howitzer, Bronco, SAR 21 Assault Rifle as well as other services.

In the commercial business sector, ST Kinetics achieved milestones in penetrating the Chinese market. In March, Beijing Zhonghuan Kinetics Heavy Vehicles (BZK), a 50-50 joint venture (JV) with Beijing Heavy Duty Truck Plant, commenced operations. In 2004, BZK produced 120 units of 20 tonne Off-road Dump Trucks (ODT) and 20 units of 32 tonne ODTs. It has also produced 10 Bulk Cement Tankers and expects type approvals for Concrete Mixers by early 2005.

Following the MOUs, STAR Automotive signed with Sino Stride Technology (SST) and Pacific City International Holdings (PCI), JV agreements were signed in December to set up two premier automotive repair and inspection centres to service the Guangdong, Jiangsu and

The long term growth prospects for China also highlight the growth potential of its automotive repair and maintenance services sectors.

Defence Sector

The 9/11 attacks, the threat of terrorism and the availability of technology driven weapons and systems had led armed forces to rethink their doctrines on training, equipment and warfare.

Defence forces are investing in new combat capabilities such as: smarter weapons which give mobility and are more lethal and accurate; multi role platforms that can operate in a wider variety of scenarios offering improved payloads without compromising transportability; network-centric systems that give commanders real time battlefield information and the capability to direct precision firepower and other responses.

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Zhejiang provinces. These will enable ST Kinetics to export its expertise as a one stop automotive centre to China. Both JV companies are expected to commence operations in the second half of 2005, subject to regulatory approvals.

In December, ST Kinetics divested its stake in its subsidiary, Solectria, in a share exchange agreement with Azure Dynamics. A company listed in London and Toronto, Azure Dynamics complements ST Kinetics' current capabilities in hybrid electric technologies and will offer greater leverage in terms of marketing and product expansion.

To grow its exports, ST Kinetics believes it has to partner with local operators. Whether for market access or complementary technologies, it is open to JV partnerships and acquisitions as part of its growth strategy. In 2004, ST Kinetics has been actively identifying and evaluating potential candidates for acquisitions in the area of specialty vehicles.

Expanding capabilities

Future land warfare calls for equipment that is multi role, adaptable and highly deployable. ST Kinetics has introduced innovative solutions that incorporate these

features. It unveiled a revolutionary Active Articulation Vehicle concept using its Bronco as a reference. Allowing articulated platforms to couple and decouple quickly into two independent vehicles, this concept could transform the potential role of conventional articulated carriers in both the battlefield as well as homeland security situations.

Another design achievement was the dual calibre Squad Support Weapon (SSW) that combined a semi automatic 40mm grenade launcher and a personal defence weapon into a single, light weight handheld weapon. Conceived for the challenges of military operations in urban terrain, the SSW is one of the few handheld weapons developed in the world with a fire control system that equips soldiers with a lethal air bursting capability formerly available only on crew served weapons.

ST Kinetics also launched the newly designed Spider – a six seater Light Strike Vehicle (LSV) with a collapsible roll cage frame to allow the stacking of two vehicles for more efficient transportation. The improved prototype features better speed, mobility, road performance and higher payloads for a greater variety of weapon configurations.

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As a result, military spending on conventional defence products has been reduced. Industry players are therefore required to transform themselves to meet the changing market trends.

Additionally defence budgets have come under scrutiny. The European industry has been hit by defence spending cuts by governments facing budget deficits. In the US, defence spending has

been maintained, due partly to the country's continued engagement in Iraq. However, US defence spending will be constrained by its large budget deficit.

Reflecting these trends, the defence industry in the industrialised countries is consolidating. The move is towards fewer but bigger and stronger players. This has fuelled changes in the way



Innovative designs like the Spider LSV enable efficient transportation by allowing two vehicles to be stacked.



BZK commenced production of heavy industrial specialty vehicles including ODTs in 2004.



Joint ventures, such as that with PCI, enable ST Kinetics to grow its commercial automotive expertise in China.

The threat of terrorism has created urgency for homeland security solutions. Leveraging on its experience in ordnance development, ST Kinetics embarked on R&D for comprehensive solutions in homeland defence. It is also collaborating with industry allies to package and market solutions on three fronts: prevention, protection and response.

A highly customised Threat Containment Vessel that can withstand up to 5kg of TNT blast capacity was developed to preserve surrounding vicinities in the event of explosive threats.

ST Kinetics has also developed a range of homeland security specialty vehicles. In August, it secured a Singapore Civil Defence Force contract for HAZMAT Support Vehicles. These are custom configured logistics vehicles equipped with detection and monitoring devices to support operational requirements for the containment of hazardous materials. ST Kinetics was also contracted in March to supply ambulances to the Singapore Ministry of Defence.

Winning new customers

In 2004, ST Kinetics' divisions and subsidiaries continued to add to their customer base. In Singapore,

STAR Automotive expanded its clientele and secured a three year fleet management contract from SMART taxis. Five new franchisees were introduced this year, bringing the total number of STAR franchisees to seven. As at end 2004, it is the appointed Accident Repair Quality Workshop to 23 insurance companies, an increase of three over 2003.

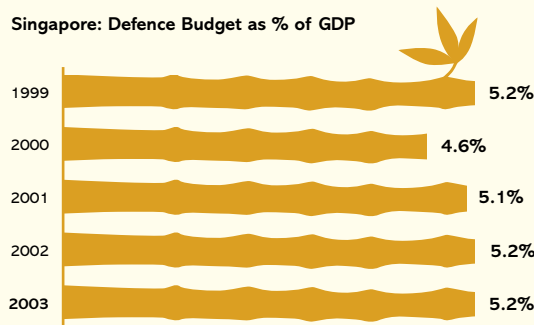
STA Inspection secured vehicle inspection contracts for CityCab taxis and a fleet of police vehicles in 2004. It is seeking approval to operate a sixth Independent Damage Assessment Centre.

Singapore Test Services extended its scope of accredited services to include the inspection of lifting devices, flowmeter calibration and microbiology tests on Chinese proprietary medicines, pharmaceutical and health products. It also set up an additional climatic walk in chamber for reliability testing of computer peripherals, storage media and wireless infocomm products.

ST Kinetics will continue to embrace new opportunities and strengthen core capabilities to stay relevant to its customers. It will also commit resources to grow its commercial interests, especially in specialty vehicles.

defence companies operate and participate in major programmes. Defence spending in Singapore, by contrast, has remained consistent with the defence budget maintained at between 4.5% to 5.5% of Gross Domestic Product (GDP).

Singapore: Defence Budget as % of GDP



Source: Singapore Ministry of Finance, various reports

Marine



Together with its US operations, VT Halter Marine, ST Marine secured new contracts and achieved significant milestones during the year, planting it firmly in the league of premier shipyards in the world.

INDUSTRY REVIEW

Commercial Newbuilding

Boosted by a strong increase in freight rates, the shipbuilding market in 2004 saw many orders for mega container vessels, Liquefied Natural Gas (LNG) vessels and Very Large Crude Carriers (VLCC). The corresponding rise in prices of steel and other newbuilding materials saw shipyards operating at lower profit margins. Competition among the shipyards has also been keen, especially from

the Chinese, Japanese and Korean shipyards. In particular, Chinese shipyards were successful in securing a significant share of newbuilding orders due to the low prices they offer.

In Singapore, with growing world trade and an ageing fleet, the feeder container and the tanker newbuilding markets will be more buoyant. In addition, legislation for all tankers to be double hull

Spanning the Oceans

Singapore Technologies Marine (ST Marine), the Group's marine arm, is a premier shipyard that provides turnkey shipbuilding, shiprepair and ship conversion services for a wide range of naval and commercial vessels. It has a global clientele, spanning Asia, Europe, the Middle East and the US.

Penetrating new markets

Since its incorporation in October 2002, VT Halter Marine has been ramping up its operations and has extended its market reach, securing a variety of new contracts. The US Defence Security Cooperation Agency has named VT Halter Marine a prime contractor for a possible foreign military sale of three Fast Missile Craft to Egypt. The total value of the sale between the two governments, if all options are exercised, could amount to US\$565m (\$925m).

VT Halter Marine's capabilities in delivering innovative shipbuilding solutions were again affirmed when it secured a US\$85m (\$146m) contract, which includes the cost of owner furnished equipment, to construct two Articulated Tug Barge (ATB) units for Vessel Management Services, a subsidiary of Crowley Maritime.

In November, it secured a US\$31m (\$51m) contract to build a double ended passenger/vehicle ferry for the Nantucket Steamship Authority.

Other contracts signed included one with Lockheed Martin, valued at US\$18m (\$31m), for the design and construction of two Harbour Tugs and a US\$5.2m

(\$9m) contract to build a Stevedoring Crane Barge for Tide Leasing Company.

VT Halter Marine began the year with the delivery of a state of the art Offshore Supply Vessel, 'Seacor Pride', to a reputable offshore operator in the US.

Shortly after, VT Halter Marine delivered superstructures for the retrofit and upgrade of Island Class Cutters in February under the US Coast Guard Deepwater Programme. VT Halter Marine is contributing its expertise through the Halter-Bollinger joint venture.

For newbuilding projects, the keel was laid for the National Oceanic and Atmospheric Administration's (NOAA) second Fisheries Survey Vessel (FSV). The FSVs, which VT Halter Marine is currently constructing, meet the exacting standards of NOAA and are the most technologically advanced in their class. During the year, VT Halter Marine also laid the keels for two ATBs for Vessel Management Services.

2004 also saw several vessels launched at VT Halter Marine. These included the sea going ferry 'Caribena' for the Puerto Rico Port Authority; 'MG Robert Smalls', the second of two Logistic Support Vessels (LSVs) for the US Army; and 'Jean Anne', a Pure Car Truck Carrier (PCTC) built for Pasha Hawaii Transport Lines. The latter is the largest vessel to be launched by a mid sized shipyard in the US and the first car carrier to be built in the US. Finally, Tide Leasing Company's Stevedoring Crane Barge, 'Columbia 5' was launched in the last quarter of 2004.

by 2010 will also present opportunities for local shipyards.

Competition in the US among the mid sized shipyards is also intense. However, there are niches of business opportunities. This includes increasing demand, deriving from the Jones Act*, for tankers and container ships, large Offshore Supply Vessels and Anchor Handling Tug/Supply

vessels, as well as large, fast Ro/Pax vessels for both military and commercial use. New orders, especially for Articulated Tug Barges, are also expected for replacement of ageing vessels and for vessels that comply with the Oil Pollution Act.

* The Jones Act requires that vessels used to transport cargo and passengers between US ports be owned by US citizens, built in US shipyards and manned by US citizen crew.



Expanding capabilities

The frigate newbuilding programme for the Republic of Singapore Navy (RSN), which started in 2002, is in full swing. For this major project, ST Marine upgraded its facilities to meet the requirements for extensive scheduling, logistics, technical and project management expertise. ST Marine staff also rose to the challenge by creatively redesigning work processes.

This programme gathered pace during the year. In July, the first locally built frigate, 'RSS Intrepid', was launched by Mrs Lee Hsien Loong, wife of Singapore's then Deputy Prime Minister and Minister for Finance.

The successful launch of 'RSS Intrepid', the largest and most sophisticated warship ST Marine has built, affirmed ST Marine's capabilities as a world class naval shipbuilder and shipyard.

The RSN frigates are significant for the local defence industry as they will be the most sophisticated addition to the RSN fleet. These state of the art warships have stealth features and advanced combat capabilities to

counter surface, air and underwater threats. They are also highly automated and technologically advanced, requiring a crew of only 70.

During the year, ST Marine also held keel laying ceremonies for Frigate 4 in May and Frigate 5 in November.

Winning new customers

In October, ST Marine was awarded a contract worth about \$20m by the Ministry of Interior, Kuwait, to design and build a 49m Landing Supply Craft. This is a multi purpose vessel for both transport and supply operations and for law enforcement duties in the Arabian Gulf. It will be designed to carry Roll-on-Roll-off goods as well as liquid, refrigerated and general cargoes. This is the second newbuilding contract from Kuwait's Ministry of Interior. The first, for two 43m Landing Supply Craft, was awarded in 1994.

ST Marine successfully won this tender over five other shipyards which had qualified. This testifies to the quality of the earlier Landing Supply Craft it had delivered.

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Naval Newbuilding

Opportunities continue to be available in the naval newbuilding market. In the US, the US Coastguard's Deepwater programme and the US Navy's Joint High Speed Vessel (JHSV) programme will spawn shipbuilding opportunities. There is also an emerging demand for specialty products such as research vessels and patrol craft.

Shiprepair

Competition within the shiprepair sector remains keen, especially from Chinese yards which quoted lower steel renewal rates. However, shipyards with the proven capability to provide quality and reliable shiprepair services will have a competitive edge.



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Keel laying ceremonies for Frigate 4 and Frigate 5 were held at ST Marine during the year.



VT Halter Marine launched 'Jean Anne', the first PCTC to be built in the US.

The shiprepair business continued to grow its customer base even as it continued its relationships with prominent players such as Stolt Nielsen, USA; Odfjell, Norway; Van Oord and Boskalis International, Holland; and the Belgian company, Dredging International. New shiprepair customers included Accord Ship Management, India; Inai Kiara, Malaysia; Star Management, Japan; Osterreichescher Lloyd Group as well as Schlusel Reederei, Germany.

ST Marine also completed major assignments such as the grounding damage repair of the bulk carrier, 'Ocean Hope 2', from MK Shipmanagement of Japan; collision damage repair of the bulk carrier, 'Katerina', from Eurocarriers, Greece; as well as major steelwork repairs for the bulk carrier, 'Emir', from E-Maritime, Singapore.

The dredger repair market continues to remain soft because of curbs by regional governments on the export of sand for regional reclamation projects.