

# SINGAPORE

INVESTMENT NEWS

**EDB**  
SINGAPORE

November/December 2004

Focusing on Innovation and Investment Opportunities in Singapore

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## **35 Years In Singapore**

**STMicroelectronics  
continues its phenomenal  
growth**

## **Gateway To Asia And The World**

**Global companies using  
Singapore as a springboard**

# **Lodewijk Christiaan van Wachem**

**Honorary Citizen – A role model for the business  
community**

# CONTENTS

NOVEMBER/DECEMBER 2004

2

### Business Briefs

8

### Cover Story: Lodewijk Christiaan van Wachem

The 73-year-old former President of the Royal Dutch/Shell company is Singapore's Honorary Citizen 2004.

12

### Profile: STMicroelectronics

Celebrating its 35th year of operations in Singapore, STMicroelectronics continues its phenomenal growth in tandem with the country's economic development.



20

### Focus: Gateway To Asia And The World

Global companies are using Singapore as a springboard for their various operations, further boosting the country's status as an international hub.

24

### Focus: Mechanical Engineering – Pillar Of Strength

Underlying Singapore's reputation as a world-class manufacturing location are strong supporting industries and disciplines, among them, mechanical engineering.



16

### Profile: Upstream Ventures

International confidence is building in Singapore's venture capital industry, and enjoying this upswing is Upstream Ventures, one of VC's most proactive companies.

26

### Focus: 'Going Global' With Singapore-Based Education

With an emphasis on diverse and quality educational services, Singapore positions itself as a world-class education destination.

18

### Innovation & Technology: MobiApps™

Logistics can be a hard act to follow. But MobiApps™ offers solutions to improve the efficiency of logistics companies.

## AT A GLANCE: IMMIGRATION LAWS

Singapore has one of the least restrictive immigration laws for the import of foreign talent:

Singapore	3	Hong Kong	33
United Kingdom	8	Australia	38
China Mainland	9	USA	45
Malaysia	13	Korea	49
India	26	Indonesia	50
Thailand	30	Philippines	52
Taiwan	32	Japan	59

Source: International Institute for Management Development (IMD) (2004)

“Singapore not only offers one of the world's most business-friendly infrastructures, but also a cosmopolitan setting with a wealth of local and foreign talent.”

– M K Tsai, Chairman, MediaTek

## FIFTH IN ANTI-GRAFT INDEX

Singapore has landed a respectable fifth ranking amongst 146 countries surveyed in the Corruption Perceptions Index 2004, conducted by Berlin-based non-governmental organisation Transparency International (TI). The anti-graft report has consistently found Singapore to be one of the least corrupt nations in the world. This year was no different, with Singapore faring significantly better than such neighbouring countries as Hong Kong (16th) and Malaysia (39th).

The Corruption Perceptions Index is a poll of polls, reflecting the perceptions of business people and country analysts, both resident and non-resident. This year's figures were computed based on 18 surveys conducted by 12 independent institutions between 2002 and 2004.

The index awards a highest possible score of 10 points (highly clean), and generally, countries with a score above 9 are perceived to have very low levels of corruption and are predominantly rich countries. Out of the highest possible score of 10, Singapore garnered 9.3 points.

This is despite the fact that the city-state has yet to sign the United Nations Convention Against Corruption, the first worldwide anti-

**With a highest possible score of 10, Singapore garnered 9.3 points.**

corruption treaty aimed to combat organised crime and graft.

The Republic's Ministry of Foreign Affairs (MFA), Ministry of Law and the Corrupt Practices Investigations Bureau, noted that the Convention has not come into force yet and added that it was being reviewed by various government agencies. "Singapore already has a very strong anti-corruption reputation," MFA added. "Our anti-corruption laws and enforcement agencies have worked well to keep Singapore consistently ranked as one of the least corrupt countries in the world."

Country Rank	Country	2004 CPI Score
1	Finland	9.7
2	New Zealand	9.6
3	Denmark	9.5
4	Iceland	9.5
5	Singapore	9.3
6	Sweden	9.2
7	Switzerland	9.1
8	Norway	8.9
9	Australia	8.8
10	Netherlands	8.7

Source: TI 2004 Corruption Perceptions Index (CPI)

## SINGAPORE IS MOST ENVIRONMENTALLY FRIENDLY



In a recent Pollution and Other Environmental Problems survey conducted by the Political & Economic Risk Consultancy (PERC), Singapore topped the list as one of the most environmentally friendly countries.

"Few other governments in the world have been as aggressive in linking the quality of the environment to its business promotion and nation

Country	Quality Of The Government's Environmental Protection/ Enhancement Policies	Air Quality	Water Quality	Noise Pollution	Traffic Congestion	Average
1 Singapore	1.25	1.00	0.75	1.00	2.50	1.30
2 Australia	2.20	2.20	2.60	2.00	3.00	2.40
3 US	2.45	2.82	2.18	2.82	4.55	2.96
4 Taiwan	5.30	5.33	4.96	3.92	6.24	5.15
5 Japan	4.00	6.00	3.00	8.00	5.00	5.20
6 South Korea	4.67	7.10	4.33	5.67	9.53	6.26
7 Hong Kong	6.40	8.20	5.30	5.90	6.20	6.40
8 Vietnam	6.43	7.00	7.14	7.57	7.29	7.09
9 Malaysia	7.33	7.33	6.33	7.67	7.10	7.15
10 China	5.50	7.75	8.38	7.00	7.48	7.22

Grades range from zero to 10, with zero being the best grade possible and 10 the worst.

Source: Pollution and Other Environmental Problems survey, PERC

building efforts. The initiative has clearly impressed expatriates who are living on the island," said the report.

From a scale of zero to 10, with zero being the best possible grade,

the Republic bagged an average score of 1.30 out of five judging criteria (see table). The score is especially significant as participating Americans and Australians had to rate Singapore against their own countries.



## EUROCOPTER PLEDGES FURTHER EXPANSION

Eurocopter South East Asia (ESEA) which was conferred the International Headquarters (IHQ) Award by EDB recently, has pledged to expand its businesses from Singapore.

ESEA is a subsidiary of Eurocopter, a global market leader for helicopter export sales, which in turn is wholly-owned by EADS, the second-largest aerospace, defence and related services company in the world. The EADS Group includes the aircraft



manufacturer Airbus, Eurocopter and the 'joint venture' MBDA – the world's second largest missile manufacturer. The EADS Group has a consolidated turnover of 301 billion euros.

Pleased to receive the IHQ status, Fabrice Bregier, President and CEO of Eurocopter, said: "ESEA is certainly one of the most important subsidiaries of the Eurocopter Group. We intend to continue transferring a higher level of manpower expertise from Europe to enhance support locally and regionally." The company, which has

been in Singapore for 27 years, also has a training centre here, which is staffed by 10 qualified pilots and engineers to assist pilots, mechanics and avionics specialist for the entire Asia Pacific region.

EDB Chairman Teo Ming Kian added that Eurocopter's IHQ status is a boost to Singapore's aerospace industry. "Centralising regional activities would increase the vibrancy of Singapore's aerospace industry [and] create spin-offs for the logistics and IT industries," he said.

**"We intend to continue transferring a higher level of manpower expertise from Europe to enhance support locally and regionally."**

**– Fabrice Bregier, President and CEO, Eurocopter**

## NAKAMICHI UNVEILS PLANS FOR LOCAL HQ

Nakamichi, a leading entertainment system manufacturer, will leverage on Singapore's strengths to further develop the Nakamichi name in key markets worldwide.

Conferred the International Headquarters Award (IHQ) by EDB recently, the design driven audio/visual and multimedia systems manufacturer previously operated from Tokyo, Hong Kong and Singapore. It then consolidated its operations, including research and development, as well as sales and marketing to Singapore. The company also recently made Singapore its global headquarters. The country's infrastructure, expertise in professional services and highly qualified manpower resources were major considerations for that decision.

Christopher Yip, Managing Director of Nakamichi Corporation Limited, said: "IHQ status will help us leverage Singapore's strengths to further develop the Nakamichi name in our key markets around the world."

**"IHQ status will help us leverage Singapore's strengths to further develop the Nakamichi name in our key markets around the world."**

**– Christopher Yip, Managing Director, Nakamichi Corporation Limited**

Nakamichi currently employs some 40 staff members in marketing and brand management, research and development, operations and corporate services, and plans to double this number by end-2005. It also plans on doubling its investments in Singapore from \$10 million to \$20 million in the next five years.

From Singapore, the company will also focus on aesthetic design, as well as the development and application of advanced technology to keep its products at the competition's forefront. "We want to develop these strengths in our Singapore R&D division, as well as nurture the capability of our brand management

team to compete effectively in the most sophisticated markets," Yip added.



## HERRENKNECHT TO INVEST \$5M IN ITS ASIA-PACIFIC HQ



German-based Herrenknecht AG, the world's No. 1 maker of tunnelling machines, has set up its Asia-Pacific headquarters in Singapore to maintain its market position in Asia. The region accounts for 30 per cent of the company's annual sales, which amounted to 355.8 million euros (\$756.7 million) last year.

Herrenknecht Asia Headquarters will not only oversee its existing subsidiaries in China, Malaysia, Australia and Thailand, but will also help the company break into the Indian, Vietnamese, Korean and

Indonesian markets. Herrenknecht Asia should see sales hit \$10 million in the 2005-06 fiscal year, and rise to \$65 million four years later, projected Martin Herrenknecht, Chairman of the Board of Management at Herrenknecht AG.

"We plan to invest \$500,000 initially," he said, "and eventually have a total investment of \$5 million. We will hire 20 people (engineers) and will go up to about 40 people in about three years." Singapore will also be the centre of research and development to customise

**"We plan to invest \$500,000 initially and eventually have a total investment of \$5 million."**

– Martin Herrenknecht, Chairman,  
Board of Management, Herrenknecht AG

machines to Asian requirements. Herrenknecht's drive into Asia was given a boost when it was recently conferred the International Headquarters (IHQ) Award by EDB.

Reasons cited for Singapore to head Herrenknecht AG's Asian business included the country's proximity to the company's customers, the quality of the skilled and experienced local workforce, engineering and technological expertise as well as the stable economic and political environment.

## ORACLE ESTABLISHES ADVANCED TECHNOLOGY AND SOLUTIONS CENTRE

Oracle's first solutions development centre in Southeast Asia was opened in Singapore recently at a cost of \$11 million.

Called the Oracle Technology and Solutions Centre (ATSC), it is a joint initiative of Oracle and EDB and has been in operation since July last year. Already, 18 Oracle solutions engineers are working on various projects.

Seventeen of these engineers are Singaporeans who had spent a year at Oracle's US headquarters familiarising themselves with the various technologies under EDB's

Training and Attachment Programme. "It is the special expertise of the Oracle ATSC solutions engineers that is making a difference in the kinds of solutions that are being developed in the region," noted Derek Williams, Executive Vice President of Oracle Asia-Pacific.

The solutions developed by the Oracle engineers will also help customers "increase efficiencies, reduce costs and gain competitive advantage," added Pascal Sero, Vice President of Research and Development at Oracle Asia-Pacific. Currently ATSC is working on a proof-



of-concept grid computing project with the Singapore Land Authority and an identity management project for a logistics company. ATSC will also manage the \$20 million Oracle-Red Hat Linux Porting Centre, which was launched last June in Singapore.

Singapore's strategic location, infrastructure, government support and talent pool were cited as reasons that will render it even easier for Oracle to work closely with its partners around the region.

**"It is the special expertise of the Oracle ATSC solutions engineers that is making a difference in the kinds of solutions that are being developed in the region."**

– Derek Williams, Executive Vice President, Oracle Asia-Pacific

## TELCO ALLIANCE TO BOOST REGION'S MOBILE MARKET

A consortium of seven telco giants has signed an agreement to jointly form a mobile alliance – the Asian region's biggest – called Bridge Mobile Alliance. Expected to commence operations by the first quarter of 2005, the new set-up will have access to the seven shareholders' initial subscriber base of over 56 million, which has the potential to balloon to as many as 300 million users.

Bridge Mobile Alliance will focus on delivering seamless as well as interoperable regional and mobile services across the region, with the establishment of a regional mobile infrastructure and common service platform. New products and services will also be developed, and better competitive advantages and differentiation will also be created for the mobile operators in their respective markets.

Bridge Mobile Alliance is likely to invest between US\$30 million and

US\$40 million over the next three years, and the company is intending to possibly roll out its inaugural suite of jointly developed services during the next few years. These include enhanced voice and data roaming services, and a single source of supply of mobile services in the region for multinationals and large corporate customers.

"The forming of Bridge Mobile is an indication of the level of commitment by the mobile operators to work closely and share the risks and benefits involved in making the partnership work," pledged Lim

Chuan Poh, Chairman of Bridge Mobile and CEO of SingTel Mobile, one of the seven founding alliance members. "Together, we can bring about a better mobile experience for users across the region."

The other six telcos are Bharti (India), Globe Telecom (Philippines), Maxis (Malaysia), Optus (Australia), Taiwan Cellular Corporation (Taiwan), and Telkomsel (Indonesia).

**"Together, we can bring about a better mobile experience for users across the region."**

**– Lim Chuan Poh, Chairman of Bridge Mobile and CEO of SingTel Mobile**



## A BOOST FOR THE WIRELESS INDUSTRY

A unique initiative, which provides resources to support activities ranging from conceptualisation to manufacturing and commercialisation of wireless products, has been launched here.

Called the Wireless Community, it marked a milestone in Singapore's vision of becoming the Asian leader for the wireless and mobility industry.

An EDB initiative, the Wireless Community is hosted by Nanyang Polytechnic (NYP) and is made up of a collaborative group of 11 founding

partners, which includes the likes of Agilent Technologies, Intel and Cisco Systems.

Already, the project has eight Singapore-based wireless product developers who have registered as members of the Wireless Community. They will be able to tap into numerous funding and business networking opportunities, intellectual property management and customised training programmes offered by the founding partners. In its role as Wireless Community host, NYP will manage and co-ordinate programmes to

promote interaction among these companies in the community while providing them access to its expertise in areas like design service, test solutions and technical consultancy.

Steven Santiago, Founder and Technology Director of WinEdge & Wireless Pte Ltd, one of the eight community members of the initiative, had much praise for the project. "The Wireless Community is a much-needed catalyst to propel our local innovators to the world's wireless arena," he said.

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**– Steven Santiago, Founder and Technology Director, WinEdge & Wireless Pte Ltd**



## CORDLIFE OPENS SECOND TISSUE PROCESSING & STORAGE FACILITY



Leading homegrown tissue bank CordLife, a subsidiary of stem cell biotechnology and immunotherapy company CyGenics, recently opened its second facility in Singapore.

The tissue processing and storage facility, valued at \$1.7 million, is the first of its kind in the region. Situated next to the company's existing facility at Camden Medical Centre, the new facility is custom-built and has double the storage capacity to meet the increasing demand for cord blood banking services in the region.

The new laboratory meets the stringent Good Manufacturing Practices (GMP) and American

Association of Blood Banks (AABB) requirements and is aiming to attain full AABB accreditation – which translates to the highest standards of cord blood handling, processing and storage in the world. Only seven other cord blood banks around the world have achieved this accreditation so far.

“After over two years of operations, I’m glad to say we have not had a single incidence of contamination in the lab,” said Soren Bested, Chief Technology Officer and Laboratory Director, who added that he is confident of maintaining that record at the new laboratory.

“As we expand in this region, this new facility will be the benchmark by which all future facilities will be measured,” added Chris Fullerton, Chairman, CyGenics. “The opening of this new facility is a measure of our commitment to Singapore and to Asia. From Singapore as our tissue banking business base, we are expanding our operations throughout the region.”

**“The opening of this new facility is a measure of our commitment to Singapore and to Asia.”**

– Soren Bested, Chief Technology Officer and Laboratory Director, CordLife

## JCCI CELEBRATES 35 YEARS IN REPUBLIC

The Japanese Chamber of Commerce and Industry (JCCI), Singapore commemorated its 35th anniversary in the city-state in October. From a mere 56 members at the time of the business association's inception in 1969, the figure has grown to 745, and JCCI is now also the second largest Japanese chamber in the ASEAN region after Bangkok's.

Japanese investor confidence in the Republic remains strong, with existing companies expanding their operations here such as Mitsui Chemical and Yokogawa Electric. In fact, Japan is the second largest

foreign investor in Singapore after the US, with cumulative investments accounting for 28 per cent of total foreign investment into the country. For every year over the last five years, Japanese companies have sunk in between \$1.2 and \$1.8 billion in fixed assets in Singapore.

Trade & Industry Minister Lim Hng Kiang, who delivered his speech to Japanese businessmen and dignitaries such as the Ambassador of Japan to Singapore, His Excellency Takaaki Kojima, also pledged Singapore's continued commitment to support their business interests. A case in example



was the ASEAN-Japan Closer Economic Partnership. “With the creation of a common customs and tariff regime across Asean, Japanese companies can leverage on the benefits of procurement and assembly at the most efficient locations in ASEAN, creating a diverse but highly effective manufacturing network,” said Mr Lim, who also lauded the JCCI for its efforts in boosting bilateral relations between Japan and Singapore, “whether through scholarships, training institutes, or other collaborative initiatives”.

**For every year over the last five years, Japanese companies have sunk in between \$1.2 and \$1.8 billion in fixed assets in Singapore.**



## LOGISTICS INSTITUTE STEPS UP CAPABILITIES

**“Our primary focus in this new phase is to further enhance our research and manpower capabilities for Singapore’s logistics industry”**

– Professor Tan Chorh Chuan, Chairman, TLI – Asia Pacific Advisory Board and NUS Provost and Deputy President

Boosting Singapore’s strength as a global logistics and supply chain management hub is The Logistics Institute (TLI) – Asia Pacific, a joint collaboration between the National University of Singapore (NUS) and the Georgia Institute of Technology (Georgia Tech). Established in 1999, TLI – Asia Pacific’s role is to develop and promote research, industry collaboration and education to nurture logistics excellence in the region.

In October, NUS and Georgia Tech signed a milestone Memorandum of Understanding (MOU) for TLI – Asia Pacific Phase II. During this five-year period, the two universities will continue to spearhead more industry-

relevant education and research such as an executive programme in Supply Chain Management (SCM), regionalisation of its professional short courses, an online knowledge portal of case studies and best practices from the logistics industry, as well as education in Radio Frequency Identification (RFID).

“Our primary focus in this new phase is to further enhance our research and manpower capabilities for Singapore’s logistics industry, to meet the ever-increasing demands of the future,” said Professor Tan Chorh Chuan, Chairman, TLI – Asia Pacific Advisory Board and NUS Provost and Deputy President.



Other highlights under TLI – Asia Pacific Phase II include an updated logo, a revamped organisational structure, and the appointment of Dr Robert de Souza as the institute’s new Executive Director.

“The excellent research and education culture at NUS; the strong support from the Government in pursuing logistics excellence; and the large international community in Singapore provide a strong basis for our continuing collaboration with NUS in TLI – Asia Pacific Phase II,” added Professor Jean Lou Chameau, Georgia Tech Provost and Vice-President of Academic Affairs.

## POLYTECHNICS PROMOTE ENGINEERING AS CHOICE CAREER

Singapore’s five polytechnics have joined forces to promote engineering as a choice of study and career. The five participating institutions are the Nanyang, Ngee Ann, Republic, Singapore, and Temasek Polytechnics.

Together, they will form a new Engineering Task Force that will raise the profile of engineering and engineers during a two-year campaign entitled “Engineering: Passion and Possibilities”. Kicking this off was the inaugural Engineering Week, held during the first week of November, which helped to actively boost awareness amongst post-secondary school students with its series of educational and informative talks, workshops and exhibitions.

At the official opening of Engineering Week, Prof Low Teck Seng, Principal and CEO of Republic Polytechnic and Chairman of the newly formed Engineering Task Force,

stressed that engineers will remain crucial to Singapore’s economy. “Engineering graduates have always been high in demand, even during the recent Asian economic crisis,” he noted. “A recent employment survey [also] showed that the demand for engineering jobs in the future is likely to remain strong.”

Currently, manufacturing contributes to about 26 per cent of Singapore’s GDP, while the manufacturing-related services sector accounts for more than 12 per cent. “Together, they provide more than 600,000 jobs, and about 30 per cent are engineering-

related positions,” pointed out EDB Chairman Teo Ming Kian, who is himself a trained mechanical engineer.



**“A recent employment survey showed that the demand for engineering jobs in the future is likely to remain strong.”**

– Prof Low Teck Seng, Principal and CEO, Republic Polytechnic and Chairman of the Engineering Task Force





# A TRUE VISIONARY

Lodewijk Christiaan van Wachem is Singapore's Honorary Citizen 2004. *SI News* takes a closer look at the man, his passion for work, and his penchant for Singapore.

**H**is efforts have spanned decades: in 1994, for example, he played an instrumental role in securing Seraya Chemicals Pte Ltd, Singapore's first styrene monomer/propylene oxide plant (SM/PO). Under his guidance, other significant investments the Royal Dutch/Shell Group made were starting the company's Pulau Bukom refinery, the expansion of Petrochemical Corporation of Singapore and

a second SM/PO plant in partnership with BASF AG – the largest chemical company in the world. Indeed, van Wachem's sustained confidence in the city-state has proved well founded, as today, Singapore is a thriving petroleum hub in Asia. Just last year, output rose by 20 per cent to \$21.3 billion and value-add grew two per cent to \$1.5 billion.

Vision, coupled with a sense of unity and drive, he feels, is what makes Singapore an ideal location for an

investment. "It's good to have vision," he said, "but if you don't put it into action then you still don't get very far."

"Success with every project helps," he continued, "[because] investments don't usually come in one fell swoop. You try something and then you say 'oh my gosh! It works!' and move on to the next project."

Then how did he persuade companies such as Shell to invest heavily in Singapore? "It was, I think, knowledge of this part of the world, a certain affinity with it (that helped)," he said.

## THE BEGINNINGS

His parents themselves were Shell employees who were stationed in Indonesia while prospecting for crude oil, and a young van Wachem spent the first nine years of his life there.

"My parents went for a holiday to the Netherlands, but then the Second World War broke out, so we were caught and couldn't go back." After the war ended, he decided to complete his studies in the Netherlands.

Upon graduating from university, van Wachem too followed in his parents' footsteps by joining the Royal Dutch/Shell Group in 1953, where he spent the next 48 years in search of crude oil around the world. After spending nine years in Latin America, eight years in Africa and another

four years in Southeast Asia, he rose up the ranks to become Director of the Royal Dutch Shell Group in 1977, President in 1982 and Chairman of the Committee of Managing Directors in 1985. In 1992, he was appointed Chairman of the Supervisory Board of the Royal Dutch Petroleum Company, and held this position until July 2002.

## THE SINGAPORE SLANT

Almost four decades ago, in 1967, van Wachem first made his way to Singapore. At the time, the Royal Dutch/Shell Group of companies in Singapore, Malaysia and Brunei were operating collectively as a single unit. Stationed at Brunei by Shell, he made monthly trips to Singapore, and upon returning to the Netherlands, he visited at least once a year. And, as a member of the Singapore-Netherlands Business Friends Network and the EDB International Advisory Council since its inception in 1994, his relationship with Singapore is still going strong – he now visits the country at least once a year.

Born in Pakalian Brandan, a village near Medan in Indonesia, van Wachem feels an affinity for Singapore, due to the Republic's proximity to his birthplace. "I was born not that far away from here and that keeps on being meaningful to [me]," he stressed. He also loves meeting his friends in Singapore. "I've made friends in this part of the world, people I've known for many years. I feel at home... in any place, the attractiveness depends on the people you know and meet."

van Wachem holds a number of board memberships, including Chairman of the Supervisory Board for Dutch electronics giant Royal Philips Electronics N. V., which has its headquarters in Amsterdam.



Singapore's biggest attractions to the Royal Dutch/Shell Group were its vision, unity and drive. The vision, as formulated by the then-Prime Minister Lee Kuan Yew, recalled van Wachem, was that Singapore wasn't destined to be a location of low cost manufacturing, but was instead meant to concentrate on "high tech production, research and development, excellence of services" and most importantly, developing into a "world class transport hub". The drive to develop a good infrastructure and a first class education system also struck van Wachem as impressive. While some nations struggled with racial or religious problems, Singapore's "sense of unity", which was "for the benefit of all", also provided a stable environment to invest in. But beyond all these, he feels that the dedication to turn ideas into reality is Singapore's main advantage.

Despite having worked in both Europe and Asia, van Wachem displays a preference for Asia. "The problem with Europe," he explained, "is that it's very much a consensus society and it is struggling to become a European Union." The unification of different countries under a single banner is understandably a slow process, he said, but one he wished was faster. "Maybe it's because I'm growing old," he laughed, "I'm getting impatient."

**"... investments don't usually come in one fell swoop. You try something and then you say 'oh my gosh! It works!' and move on to the next project."**

– Lodewijk Christiaan van Wachem,  
Singapore Honorary Citizen 2004

The help that government agencies like the EDB have been giving foreign companies venturing into Singapore has also been vital. "It's the Ministry of Finance, and the Maritime and Port Authority of Singapore. They've all been trying hard to make [Singapore] attractive and to ease the introduction of new companies in Singapore," he said.

## A PASSION FOR WORK

Once he retired as President from Shell, the Indonesian-born Dutchman took on a number of board memberships. Until 2002, he served on the Supervisory Boards of Akzo Nobel, BMW and Bayer, and IBM in the US. And he remains busy: currently, he is Chairman of the Supervisory Board of Royal Philips Electronics N.V., as well as Chairman of the Board of the Zurich Financial Services and of the Board of Global Crossing. Thanks to his tenures on these various boards, he was able to play a pivotal role in helping Singapore obtain significant investments from these companies, namely Akzo Nobel and Royal Philips Electronics N.V. "Philips Electronics just launched a new



slogan – sense and simplicity. And it struck me that these are the two things [that] describe the attitude of the Singapore government vis-a-vis business," he quipped. "It always makes sense and they always try to make it as simple as possible for us. That has been a great help."

A consummate but unconventional leader, van Wachem explained his diversified portfolio. "I didn't believe that [only undertaking companies based in the Netherlands] would be fair to the companies that I served on. I don't think it helps if you were only parochially interested," he said. "I benefited because I liked it, and I hope they benefited because I think companies of that kind should know what the thinking and the problems are in other parts of the world."

## DEEPLY COMMITTED


Call him a workaholic with a passion, but as van Wachem declared, "My work is my hobby – and I'm enjoying it!" But he did confess to a need to slow down and have more time





for his grandchildren. "As you get old the travelling becomes more tiresome, but I couldn't visualise that I would be happy by just turning around in my own little country," he added. "I've already stepped down from most boards, but I will step down from a few more boards and then I will have more time."

Up to today, van Wachem still remains keen on attracting investments into Singapore, and on his travels, he continues to champion Singapore as a compelling global hub for business and investment. Thus, for his various contributions to the business field and deep commitment to Singapore, Lodewijk Christiaan van Wachem received the Honorary Citizen Award from President S R Nathan in November 2004.

Upon receiving the award, van Wachem, who was lurching in Singapore when he heard the news, said he was "very surprised, very pleased and very honoured". Ever humble and gracious, he hastened to add, "I have gained far more from Singapore than I have contributed." 

## THE MAN IN BRIEF

### **Born:**

1931 in Pakalian Brandan, Indonesia

### **Family:**

Married, with two sons, a daughter and five grandchildren

### **Education:**

Graduate of Delft University of Technology in the Netherlands

### **Career:**

Started with the Royal Dutch/Shell Company, 1953

Director of the Royal Dutch/Shell Group, 1977

President of the Royal Dutch/Shell Group 1982

Chairman of the Committee of Managing Directors of the Royal Dutch/Shell Group, 1985

Chairman of the Supervisory Board of the Royal Dutch/Shell Group, 1992

Member of the EDB International Advisory Council (IAC), 1994

Active member of the Singapore Technologies (ST) International Advisory Panel (IAP), 1999

Served on the Supervisory Boards of Akzo Nobel, BMW and Bayer, on the Board of IBM, until 2002

Currently serving as Chairman of the Supervisory board of Royal Philips Electronic N.V., Chairman of the Board of Zurich Financial Services and Global Crossing. He is also a Member of the Board of ATCO (Canada) Ltd and of the Executive Board of Rand Europe

### **Honours:**

Honorary Commander of the Order of the British Empire, 1977

Honorary Knight in the Order of the Netherlands Lion, 1981

Honorary Knight (Britain), 1988

Commander in the Order of Orange Nassau, 1990

Conferred Emeritus IAC status, 2000

The Public Service Star – Distinguished Friends of Singapore Award, 1998

Honorary Citizen of Singapore, 2004





# STMICROELECTRONICS: 35 YEARS IN SINGAPORE

Celebrating its 35th year of operations in Singapore, STMicroelectronics continues its phenomenal growth in tandem with the country's economic development.

**T**hey came, saw and conquered: It wouldn't be too far from the truth to say that STMicroelectronics (ST) did just that with regards to the local semiconductor industry. With 35 years of success here, the French-Italian giant officially opened its 180,000 sq m facility, known as the ST TechnoPark in Ang Mo Kio in December. The TechnoPark comprises ST's Asia-Pacific business headquarters and four wafer fabrication plants. Presiding over the landmark event was President and CEO of ST, Pasquale Pistorio, who acknowledged the role Singapore has played in the company's progress and ST's commitment to continue to grow with the Republic.

## PIONEERING THE FAB INDUSTRY

The French-Italian giant, then known as SGS-Thomson, was the first to see the potential of the Asian market as far back as 1969, a simple assembly and test operation was set up to support the parent company in Europe. Though staff headcount was just five, the facility marked the beginning of a great business partnership between the semiconductor conglomerate and Singapore.



STMicroelectronics opened its first assembly and test facility in Toa Payoh in 1969.

In just a few months, the small operation grew to a dedicated workforce of about 200 and its first year of operation saw manufacturing output reached an outstanding \$2 million. With such positive results, it didn't take long for Pistorio and his team to consider opening a wafer fabrication plant in Singapore. Said Pistorio, "This was the first time any European or American company was putting a fab in the Asia-Pacific region."

ST's decision to set up a fab here was both pioneering and visionary. "At the start of the 1980s, most investors considered Asia as quite a dynamic region, but viewed it primarily as a region for low-cost manufacturing," said Pistorio. He and his team, however, begged to differ. Convinced that Singapore was an ideal location in a region that would soon evolve into a mature, more sophisticated market, especially for high-end manufacturing, the country's first wafer fab was opened in Ang Mo Kio in 1984. ST moved ahead with a number of pioneering achievements. For example, it became the first semiconductor supplier to set up a regional integrated circuit (IC) design centre in 1984 engaging in full and semi-custom design. Also, in 1994, ST was the first company to be conferred the prestigious Business Headquarters (BHQ) award by the Economic Development Board.

## MAKING IT WORK

Since then, the company has slowly but steadily raised its profile in Singapore. "Twenty years ago, we were processing simple wafers of a few hundred transistors in one integrated chip. Today, our wafer fabs are so complex that within one manufacturing line, there can be as many hundreds of process steps capable of fabricating millions of transistors in one chip," said Jean-Claude Marquet, Corporate Vice President and CEO Asia-Pacific. There are now a total of four well equipped and fully-automated facilities processing 5-inch, 6-inch and highly advanced 8-inch micron wafers at the ST TechnoPark in Ang Mo Kio. Together, these plants roll out about 30 per cent of ST's total global semiconductor production. In fact, the Singapore facility is the semiconductor giant's largest single site in the world. It also has the distinction of being the most cost efficient and productive of all of ST's plants worldwide.

The assembly and test facility at Toa Payoh, which kick-started ST's great venture here has also come a long way over the years. It is the core centre of expertise for SMart Optical Package (SMop), a process that is unique to the plant, which employ ST's silicon science and know-how to realise a fully integrated automatic line in assembly and test stage. SMop is used in the manufacture of modules for ST's range of Complementary Metal Oxide Semiconductor (CMOS) imaging solutions, from image

sensor modules to co-processors. In terms of production, the assembly and test plant produces some 605 million units in a wide range of packages a year.

**The Singapore facility is the semiconductor giant's largest single site in the world... it is also the most cost efficient and productive of all of ST's plants worldwide.**

In addition to wafer fabrication, ST's activities here span the full value chain of the semiconductor industry from regional headquarter operations, IC design, research & development, test and assembly to sales and marketing and supply chain management. As Pistorio himself noted, this integrated business model is a key point in ST's success. By the end of 1999, the Singapore operation was ringing up one-third of total company revenues, and by early 2001, the Asia-Pacific region had become ST's most important market. With Asia-Pacific accounting for 42 per cent of ST's total sales in 2003, the trend looks set to continue in the upward arc.

## AN ENDURING PARTNERSHIP

Not one to sit on its laurels, ST has in the last three years invested \$2.7 billion to further expand production capacity at its plants. This brings the total amount the company has already pumped into operations here to a whopping \$4.7 billion.

The investment stands testament to ST's vote of confidence in its host country and the part that Singapore continues to play in its growth and success. As Pistorio once noted, "Singapore embodies all the attractive attributes a company can seek in a business partner: world-class infrastructure, flexibility, excellent education system,



Jean-Claude Marquet, Corporate Vice President and CEO Asia-Pacific

## By adding R&D activities to its repertoire of operations, ST has cemented its unique position as a full service provider.

technology mindset, pro-business environment, manpower capabilities and an excellent springboard to the region.”

Singapore too couldn't get a better business partner than ST. For its contribution to the local economy, the company was presented Singapore's highest corporate accolade, the Distinguished Partner in Progress (DPIP) Award in 2000. The award recognises companies which are not only pioneers in their field but also key contributors in a wide range of economic, social and community activities. ST was the first semiconductor company to receive this award since its inception in 1999. The longstanding partnership is also aided by the perfect fit between ST's corporate strategy and Singapore's vision. "ST feels very much at home in Singapore," said Jean-Claude Marquet, Corporate Vice President and CEO Asia-Pacific, "ST has climbed the value-added ladder at the same speed Singapore was foreseeing the need for evolution for the country. It was excellent timing for both of us."

### REVVING UP

ST has moved in tandem with Singapore which has shifted from low-end, labour-intensive manufacturing industries to technology and knowledge-intensive ones. The company is involved in skilled, high-end manufacturing and R&D activities. "There is a great availability of highly skilled people in Singapore," said Marquet. That, and Singapore's ability to attract top talent worldwide, strong IP regime, stable infrastructure and strong governmental support for innovation were some of the reasons attributed to this development.



ST's business headquarters building – a testament to its long-term strategy in Singapore.

ST's strong manufacturing presence is supported by its Asia Pacific Microchip Design Centre (APDC) set up in 1984 with an initial core of eight engineers all trained in the parent company in Europe. The APDC has seen steady growth and has helped to generate revenues when local designs were transferred to production. The centre's current staff of 60 are involved in IC design for a number of different markets such as computer peripherals, smart card, imaging and consumer. "ICs are the brains behind the finished products that the everyday consumer is familiar with," explained Marquet. "Our designs lie hidden within the many hard disc drives, sound cards, monitors, CTVs and printers."

The centre is also developing advanced Application Specific ICs (ASICs) and sophisticated System-On-Chip solutions with system based technologies. Since 2001, the APDC has also shifted its attention to the increasing popular CMOS imaging technology to develop sensors and image co-processors for digital still camera and mobile phone applications. The cumulative revenues from locally designed products have exceeded US\$500 million. The APDC is so successful that it has spawned similar operations in Shenzhen, China with the new generation of designers being trained at APDC in Singapore.

## ST has moved in tandem with Singapore which has shifted from low-end, labour-intensive manufacturing industries to technology and knowledge-intensive ones.

### MOVING TO R&D

By adding R&D activities to its repertoire of operations, ST has cemented its unique position as a full service provider.

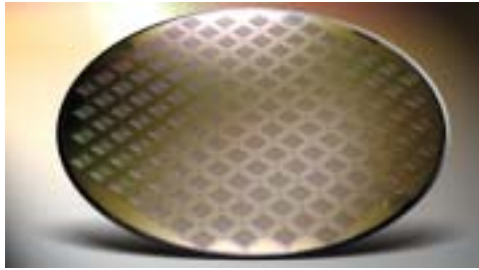
The R&D centre focusses on video and audio capabilities as well as wireline and wireless development. "We intend Singapore to be a key resource for expertise like third generation Wideband Code Division Multiple Access (WCDMA) and Digital Signal Processing (DSP)," said Marquet.

In 2004, Kay Das, Director of ST's R&D in Asia-Pacific, was awarded the distinguished National Science and Technology Medal. Under Das, the research team is credited for developing exciting intellectual property in the audio, video, wireline and wireless markets, paving the way for ST to deliver new products for the audio, video and 3G market. So far, the team has filed more than 70 patents.



## ENGAGING THE EMPLOYEES

ST's phenomenal success is due in part to its work culture. "Our people are hardworking and committed. Everyone is striving for efficiency and productivity," said Marquet. Ensuring that its people are constantly upgrading their skills and expertise is the company's ST University Asia Pacific (STU AP), also located in Singapore. The learning institute caters mainly to the needs of the company's 13,000 strong workforce scattered across the region. While most of the programmes are developed by ST, the company also works with reputed universities like INSEAD, which has a Singapore-based campus, to come up with suitable training modules.



Research (I<sup>2</sup>R). The two organisations have been working together since 1999, and their efforts have yielded significant intellectual properties (IP) and generated great returns in R&D expertise for both parties. With the centre of excellence, ST is looking to develop the IP into business reality and collaborate with key customers to capitalise


on the lucrative Asian telecommunications market. Singapore is once again expected to serve as the launchpad for ST to secure a foothold in China and other countries in the region. All in all, the partnership between Singapore and ST looks set to grow even stronger.

## AN EYE ON THE FUTURE

Nanotechnology features high in ST's plans for the future. As a result of the long-standing relationship and working experience in Singapore, the company recently moved its research in carbon nanotubes to the country's shores. The facility, known as ST Nanotube Centre, will focus on the material aspects and the device applications which make use of the outstanding properties of functionalised carbon nanotubes. Nanotubes are forecast as a revolutionary way to build ever-smaller devices that will go beyond the current limits of silicon-based technology.

Also, ST set up a new centre of excellence for 3G mobile terminal development in Singapore following the successful completion of its collaboration with A\*STAR's (Agency for Science, Technology and Research) Institute for Infocomm

## SEMICONDUCTOR INDUSTRY TAKES OFF

Having begun in the early 1960s, the sector saw rapid growth in the 1980s and in under 10 years, the number of wafer fabrication plants in operation grew to 10. Today, there are about 40 IC design centres, 12 wafer fabrication plants and 18 IC assembly and test facilities in Singapore. The semiconductor industry is also vertically integrated with a number of research and development activities. Last year was a good year for the semiconductor industry which saw a number of leading giants including ST stepping up their operations here. The increase in semiconductor-related activities saw the industry's output soar to \$22.3 billion in 2003. 

For more information on STMicroelectronics, visit: [www.st.com](http://www.st.com)  
On EDB's Electronics and Precision Engineering Industry, visit: [Industry Opportunities/Electronics and Precision Engineering section of www.sedb.com](http://Industry Opportunities/Electronics and Precision Engineering section of www.sedb.com)





# MOVING UPSTREAM

It's boom time for venture capital firms operating in Singapore. As local VC company Upstream Ventures puts it, being based here is to be at the crossroads of investment activity and opportunities in Asia.

**F**rom a modest-looking renovated shophouse just behind Boat Quay, a Singaporean permanent resident and his Singapore-based expatriate partners are charting the country's course as a land of opportunity for venture capital (VC).

Carmelo Pistorio, Pierre Hennes, David E. Wynne and Cristiano Torresi (who is based in San Francisco), are the people behind Upstream Ventures, a venture capital fund management company. It invests globally with a particular focus on the trends and opportunities transforming Asian economies, in sectors including semiconductors, security and biometrics, biotechnology, mobile content and applications, and IT software and solutions.

Encouraged by a number of successful private 'angel' investments made by its founder Pistorio between 2001 and 2004, Upstream Ventures was incorporated in March 2003 and currently manages a global portfolio of 15 companies, led by their team of four investment professionals. They have, under their belt, a diverse yet complementary mix of venture capital, start-up and corporate business experiences, as well as international business development expertise.

"Upstream Ventures is modelled on the traditional venture business of building and growing early stage companies," explained Hennes, Director, Upstream

Ventures. "Successful venture capital investing in Asia requires a thorough understanding and familiarity with the local business environment, and the ability and experience to work with management. It also requires international networks and expertise to position, grow and market investee companies. We can do all that; we're not financial investors and we're not afraid to roll up our sleeves and work with our companies to propel them to success."

## VCs MAKING WAVES

About 10 years ago, venture capital was virtually unheard of in tiny Singapore. But today, Singapore is home to more than 150 private equity and VC firms, as well as over 50 incubators or VC units that help to nurture business start-ups. They hail from such countries as Germany, the US and India, and have helped manage about \$16 billion in venture capital funds, benefitting over 700 companies here.

Upstream Ventures has been instrumental in the local VC industry's growth. In fact, just seven months after its conception, the young company became part of an international group of six partners under the Startup EnterprisE Development Scheme (SEEDS) launched by the Economic Development Board (EDB) in 2001. SEEDS, a \$50 million equity finance fund for start-ups and businesses, is aimed at strengthening the working

## ENCORE TECHNOLOGIES – BRIDGING THE DIGITAL DIVIDE



Established in 2002, Encore Technologies (ETS) was a start-up with a grand agenda: to simplify information technology for consumers by doing away with the one-size-fits-all approach, and giving them only what they needed at an affordable cost. Their product – The Encore Simputer, a handheld computing platform – supports data and voice communications on Internet protocols, enterprise applications access, secure transactions and personalised information delivery. The company's big break came in 2003 when they caught the attention of Upstream Ventures; they later received a financial shot in the arm to qualify for the Economic Development Board's "Growth Financial Scheme".

Since then, ETS has launched several new initiatives, including ETS MyBook, a handheld computer touted as an affordable and practical wireless solution for schools, and the Retail Interactive Project, an innovative solution for customer management in the retail segment. The company has also generated opportunities for various partnerships designed to expand their market reach and boost profitability. Two such partnerships are currently in the advanced stages of formulation, with many more opportunities looming in the future.

"ETS represents an investment opportunity in what we see as the lucrative market for bridging the digital divide. Socially responsible investments can prove to be very lucrative, and this is particularly true for companies targeting the highly underserved markets for computing and communications in Asia. Based in Singapore, ETS is positioned to capture a large share of the markets in India, China and Southeast Asia," said Pierre Hennes, Director, Upstream Ventures.

arrangements with co-investors, to respond to opportunities efficiently and nurture investee companies more effectively.

## Singapore is home to more than 150 private equity and VC firms

To date, Upstream Ventures has secured and invested US\$4 million for its first fund, the Upstream Angel Fund. It is now in the process of closing its second fund of US\$50 million, the Upstream Pioneer Fund. Singapore's premier location as an Asian hub and the favourable conditions in Asia are some of the reasons for doing so.

## TO ASIA... AND BEYOND

The company believes that conditions in Asia are again offering the opportunity for outstanding returns, as Asia is increasingly a source of new and diversified technologies with global potential.

Indeed, hands-on venture capitalists with knowledge in building a global company will be one of the most attractive alternative sources of financing to fund these new companies. Given Upstream Ventures' strong and growing network of companies, co-investors, corporate partnerships and talent in the region, this company with its indefatigable 'can-do' attitude seems well positioned to be ahead of the competition in the market for value-add venture capital. 

For more information on Upstream Ventures visit: [www.upstreamventures.com](http://www.upstreamventures.com), and on Encore Technologies visit: [www.etsg.com](http://www.etsg.com)

For more information on the Startup Enterprise Development Scheme (SEEDS), visit the Startups section of [www.sedb.com](http://www.sedb.com)

## VENTURE CAPITAL: WHY SINGAPORE



Upstream Ventures' Managing Director Carmelo Pistorio offered some compelling reasons why Singapore has the potential to become a hub for VC to thrive. First and foremost, Pistorio gave the thumbs-up to the Republic's sound

infrastructure which he described as equal to, or even exceeding that of Europe and the US, such as "an efficient legal system, established corporate governance and practices, a transparent fiscal system and a stable political environment".

Singapore's ideal location also serves as a springboard to the emerging powerhouses of China and India, as well as the burgeoning Southeast Asian financial markets. Pistorio pointed out that these "unique deal flow opportunities" open to the global VC community are present due to "the combination of highly educated professionals and a fast growing entrepreneurial ecosystem with access to advanced technology and infrastructure".

Pistorio also lauded the country's efforts in setting in place tax incentives to encourage the presence of VC firms. These include Section 13H of the Income Tax Act for approved equity and VC funds, as well as the Pioneer Service Incentive of the Economic Expansion Incentive Act that serves fund management companies. "Although these incentives allow venture capital firms to enjoy extraordinary tax-related benefits, Singapore remains a highly complex, productive society with an extremely diversified economy," he added.

# TRACK ON TIME

Logistics can be a hard act to follow. But Sanjay Chakrabarty, founder of MobiApps™, has good news. One of the company's products, m-Trak, combines Global Positioning Systems, wireless communications and the Internet to track vehicles on the move.

**R**eal time control: the need to know where your delivery trucks are, exactly when they will arrive, and the condition of the goods, is important for anyone worth their salt in the logistics business.

The good news is that this *is* possible. With Global Positioning Systems (GPS) and wireless communications technology, Sanjay Chakrabarty, Founder, President, and CEO of MobiApps™, is offering exactly that: the ability for logistic companies to eradicate inefficient vehicle routing, ambiguities over bills, rising transportation costs, late deliveries, client complaints and changes in orders and deliveries.

## SINGAPORE BECKONS

MobiApps™, a company Chakrabarty founded in the US in 2000, is a provider of hybrid terrestrial and satellite technologies for industrial communications; it converges terrestrial wireless communications technologies and satellite communications to provide ubiquity in coverage at a marginal cost.

The MobiApps™ headquarters is now in Singapore. Said Chakrabarty, "The good infrastructure, large talent pool and strong financial grounding are reasons why we're based here. EDB also took a very proactive and innovative approach." He added that Singapore would provide access

to key growth markets while allowing MobiApps™ to leverage technology development resources in India, as it embarks on enhancing its Singapore-based technology development capabilities in the coming year.

The company has received more than US\$13 million in funding in the past three years from various companies including 3i and Singapore Technologies. Among the company's leading customers are GM, Hyundai, Ford, Dell, SafeExpress and Transport Corporation of India (TCIL). The company also services the Bangalore Metropolitan Transport Corporation, a state-owned bus company with a fleet of 1,400 buses plying the Bangalore area.

## PRODUCTS THAT DELIVER

m-Trak is a mobile fleet management system, which tracks, manages and monitors mobile assets. It integrates GPS technology, wireless communications and a web-service platform to provide companies with location-relevant





## m-Trak is a mobile vehicle tracking system which tracks, manages and monitors mobile assets.

and time-sensitive information pertaining to their resources.

Applying global positioning and wireless technologies to the transportation and logistics segments stretches far beyond navigation. Integration of mobile devices can increase the accuracy of traditional vehicle management applications as the devices provide fleet managers with real-time tracking of their vehicles.

The system can also provide supporting information such as keeping tabs on speeding vehicles, unscheduled stops, detours and other in-vehicle conditions.

The MobiApps™ m-Trak 100 series, for example, streamlines the management of fleets by providing reports and analyses of vehicle journeys. The m-Trak 100 supplies complete journey records for all vehicles for easy planning, tracking and scheduling. It gives fleet managers better control over operations while enhancing value-added service to their customers.

Other solutions in the m-Trak series include the m-Trak 50, a low-cost fleet tracking device, and the m-Trak 75, a wireless tracking and messaging transceiver.

The company's tracking solutions are cost-effective, versatile and can be used in a variety of transport industries including cash movement and cash handling, chemical, gas and fertiliser transport, couriers and perishable cargo movers.

### FORGING AHEAD

And it gets better. MobiApps™ is currently developing a satellite transceiver the size of a credit card (to be released in 2005). It is a breakthrough in satellite-based communications for a variety of industrial applications.

Explained Chakrabarty: "The current transceivers are the size of a brick, whereas our product will be the size of



a credit card thereby drastically changing the economics of deployment. The cost of the product and deployment could be brought down to 1/8th of the current technology."

Besides being cost-effective, the small device will also be easy to install. Furthermore, it consumes only 1/10th the power of the current technology.

Moreover, the compact design of the product allows industrial users to embed the satellite modem on any equipment to enable the transmission and reception of low bandwidth information. It is not limited to terrestrial services as the transceiver operates over global satellite telecommunication company ORBCOMM's low-earth orbit satellite network.

"Satellite transceivers allow two-way data communication anywhere in the world. For example, a person can track and monitor his vehicle even if it is passing through a remote mountainous region in another part of the world," Chakrabarty said.

There are currently hundreds of thousands of satellite modems operating in the world. With the introduction of the MobiApps™ satellite modem on a chipset – m100 OEM Subscriber Communicator – the company is expecting to sell more than a million modems over the next few years.

The company's India development centre is involved in the baseband and digital design of the transceiver while the US centre is involved with radio frequency integrated chip (RFIC) design. This continuous innovation and research has resulted in the company's application for four patents for various technologies of the transceiver.

"We expect to have the advantage of offering a low-cost compact solution, which could drive volumes in the market," Chakrabarty said. MobiApps™ plans to license the technology to original equipment manufacturers (OEMs) across the world. The successive generation of this design can lead to substantial enhancements, and MobiApps™ expects Singapore to provide the base for creating such breakthroughs.

MobiApps™ is also working on a transceiver that is a hybrid of satellite and terrestrial GSM or CDMA communication that will be launched in end-2005. Meanwhile, the company is looking to set up a development centre for product engineering in Singapore, integrating its expertise from around the US, India and Singapore to substantially accelerate its product design and engineering competencies. 

For more information on MobiApps™, visit: [www.mobiapps.com](http://www.mobiapps.com)

For more information on EDB's Headquarters Services, visit: Industry Opportunities/Headquarters Services section of [www.sedb.com](http://www.sedb.com)





# GATEWAY TO ASIA AND THE WORLD

More global companies are using Singapore as a springboard for their various operations, further boosting the country's status as an international hub across a variety of sectors.

**W**ith a population of three billion and an estimated economic growth rate of seven per cent per annum, the Asia-Pacific is one of the world's fastest-growing regions. Singapore is also strategically situated in the heart of the region, playing host to some of the world's most prominent industry movers and shakers. Among these are 27 international non-governmental organisations, seven international organisations and 4,500 professional services firms in fields such as audit/accounting (800 firms), management consulting (2,000 firms), and legal services (60 offshore law firms). There are also numerous listed companies in fields

spanning market research, advertising and public relations, as well as human capital services. Companies looking for business partners to jumpstart their activities can tap into a strong network of business linkages, with a selection of more than 7,000 MNCs across all sectors.

With its modern, world-class facilities, it is not surprising that Singapore is one of the top five cities in the world for holding **conventions/conferences**. The city-state is also home to a vibrant **education** industry that boasts a variety of local institutions of higher learning and 11 renowned foreign universities – providing endless possibilities for collaboration in research. Another thriving local sector is **infocomms technology**. Some 12,000



software developers are based in the country, and 69 of the global top 100 IT companies have substantial operations here as well. Of equal importance is Singapore's stature as an international **financial** hub, with many companies offering a broad range of products and services such as trade financing, foreign exchange, derivatives products, capital market activities and so on. With the world's best airport and busiest container transshipment port, Singapore has also earned a stellar reputation as a premier **logistics** hub.

## HUB HAVEN

### Chemicals Hub

Ranked amongst the world's top three countries in oil trade, Singapore is a global hub for oil refining and is Asia's largest petrochemical manufacturing centre. Jurong Island, the country's dedicated and vertically integrated chemicals hub, is home to the world's biggest names in oil & gas and petrochemicals. Specialty chemicals are not left out of the value chain either, with an assortment of key players dealing in flavours and fragrances, electronic chemicals, materials and gasses, and lubricants and fuel additives.

### Maintenance, Repair and Overhaul (MRO) Hub

Singapore is Asia's largest MRO centre. With some 58 foreign and homegrown aerospace companies providing a comprehensive spectrum of capabilities for airframe, engine and avionics repair and overhaul, and component repair, the sector accounts for about six per cent and 20 per cent of the global and Asian MRO markets respectively.

### Biomedical / Pharmaceuticals Hub

Accelerating Singapore's efforts to establish itself as a full-blown biomedical hub is the country's spanking new Biopolis, an interconnected, 18.5-hectare nucleus for R&D, manufacturing and healthcare delivery. Biopolis will serve as a vibrant work and play site to over 1,500 international scientists in both the public and private sectors.

**Singapore is strategically situated in the heart of the region, playing host to some of the world's most prominent industry movers and shakers.**

The presence of key industry players in Singapore, including the world's top six pharmaceutical companies, further underscores the Republic's vision to be the Biopolis of Asia – an epicentre for biomedical sciences manufacturing, R&D, clinical development and management, drug discovery, critical research and HQ activities.

Companies with active pharmaceutical ingredients (API) manufacturing capabilities in Singapore include Pfizer, Merck Sharp & Dome, GlaxoSmithKline and Schering Plough. These MNCs have their operations based in the Tuas Biomedical Park, a sprawling tract of land earmarked for industrial use.

### High Value Manufacturing Hub

Manufacturing continues to be a strong growth engine of Singapore's economy – and it continues to perform well. The Government is on track to target the doubling of manufacturing output in the next 15 years. Electronics continues to be the main contributor to manufacturing FAI, accounting for 56 per cent of total manufacturing FAI in 2003. Other clusters that have helped steer manufacturing to its impressive growth levels include chemicals, biomedical, semiconductors and infocomms and consumer electronics.

Buoyed by skilled and multi-disciplinary manpower, Singapore's varied and dynamic value manufacturing hub spans the entire value chain, from R&D, development, production, commercialisation and supply chain management, to post sales. Indeed, manufacturing and technology giants such as Seagate and STMicroelectronics have tapped into this intelligent business environment to grow their R&D, design, product development, manufacturing, marketing and other HQ functions. Seagate, in particular, recently revealed its new 1-inch hard disc drive, which was entirely designed, developed and manufactured locally for global export.

Singapore has further upped its stake as a world-class manufacturing hub, by being at the forefront of emerging technologies such as nanotechnology, photonics, micro-electromechanical systems and industrial IT. This puts the country in good stead to emerge as an even stronger manufacturing base for high-tech, value-added production.



### Regional Professional Services Hub

Many of the world's top names in professional services are gearing up to take the region by storm – and one of their strategies is to anchor their operations right here in Singapore.

In legal services, the areas of arbitration, regional law and intellectual property have undergone new developments to cater to the growing needs of the region. Eight of the top 20 international law firms in the world, including Baker & McKenzie, Jones Day and Linklaters, already have a significant presence here. The Big Four accounting firms – PricewaterhouseCoopers, Ernst & Young, Deloitte & Touche and KPMG; and top global management consulting giants like Accenture, AT Kearney, Bain and McKinsey, have also made Singapore their base for managing their business in the Asia Pacific.

In the area of human capital, SHL Group has located its Asia-Pacific HQ in Singapore, whilst the US-based Center for Creative Leadership and the Gallup Organization have both set up their first Asian campuses here to 'Asianise' their curriculum and provide customised training in leadership development. In advertising and public relations, the world's four largest marketing communications global conglomerates – Omnicom, Interpublic, WPP and the Publicis Groupe – are represented in Singapore through various network agencies. Among those with Asia-Pacific HQs in Singapore are Millward Brown, a global market research organisation, international market research giant Synovate and market research leaders like AC Nielsen, Taylor Nelson Sofres and GfK.

### Supply Chain Management Hub

To date, more than 3,000 international and local third-party logistics players, distributors, air-sea carriers and SCM technology companies are tapping into the island's excellent connectivity and communications infrastructure to boost their businesses. In 2003, Changi Airport handled some 1.6 million tonnes of air cargo and the container ports handled a record 18.4 million TEUs (20-foot equivalent unit) of containerised cargo. Singapore is also the world's busiest port, with some 400 shipping lines to 700 ports worldwide.



Singapore's 26-hectare Airport Logistics Park (ALPS) allows for third-party logistics players to conduct value-added integrated logistics and regional distribution activities in a free trade zone environment to accelerate the product-to-market cycle. Additionally, the 80-hectare Banyan LogisPark on Jurong Island services the regional transshipment, break-bulk and distribution needs for chemical companies. And to bring existing IT infrastructure up to speed, the Singapore government will invest up to \$50 million over five years to consolidate existing IT systems in the trade and logistics platform into a single integrated IT platform, thus enhancing cost effectiveness, increased competitiveness and overall efficiency in the logistics industry.

### Global Schoolhouse

About 50,000 foreign students are currently studying in Singapore, and by 2012, the country hopes to draw an additional 150,000 students to its shores. One way Singapore is doing that is by positioning itself as a "Global Schoolhouse" – essentially, a world-class education hub that provides top-notch learning programmes geared



## SINGAPORE'S FTA NETWORK

### Concluded

- United States
- Japan
- European Free Trade Association
- Australia
- New Zealand
- Hashemite Kingdom of Jordan
- ASEAN

### Ongoing

- People's Republic of China (ASEAN-CHINA)
- India
- Canada
- Republic of Korea
- P3 (New Zealand, Chile, Singapore)
- Sri Lanka
- Panama
- Egypt
- Bahrain



towards all levels, from pre-school to post-graduate institutions.


Being at the crossroads of Asia, Singapore combines the best of both the Eastern and Western worlds, which serves as a strong magnet for candidates in search of an enriching learning experience. To date, the Lion City is home



Ian Wright, host of *Globe Trekker*,  
Discovery Travel & Adventure

to 11 leading foreign universities in Singapore, among them INSEAD (France), Johns Hopkins University (US) and the University of New South Wales (Australia).

### Broadcast Hub

With 17 international cable and satellite broadcasters based in Singapore, including HBO, ESPN, MTV, Disney and Discovery, Singapore has grown to become the broadcast hub in Asia. Come 2005, media companies will also enjoy a nucleus of their very own – the Fusionpolis – which brings like-minded enterprises and professionals together in one dynamic plug-and-play environment. Presently, Singapore's arts, media and design clusters contribute about \$10 billion to the economy and this is expected to double by 2012. 

For more information on Singapore's business environment, visit: Why Singapore section of [www.sedb.com](http://www.sedb.com)

## SINGAPORE'S PRO-BUSINESS ENVIRONMENT

### COMPETITIVE TAX REGIME, which offers:

- Among the lowest corporate tax rates of 20 per cent and individual tax rates (22 per cent for top income tier, to be reduced to 20 per cent in coming years) in the region.
- Exemption of tax on foreign-sourced dividends, branch profits and services income from jurisdictions with headline tax rates of at least 15 per cent.
- No withholding taxes on dividends.
- No tax on capital gains.
- Automatic write-down for IP acquisition.
- Unilateral tax credits for income streams including services income and royalties from all non-treaty countries.
- No tax on all foreign-sourced personal income remitted to Singapore by resident individuals.

### ACCESS TO MARKETS, which includes:

- A clientele base of over 2.8 billion professionals within a seven-hour flight radius.
- A domestic market of 7,000 MNCs, 1,200 Chinese and 1,500 Indian companies and numerous homegrown ones.
- Free Trade Agreements (FTA) provide increased market access, protection of intellectual property and investments, and mutual recognition of professional qualifications. Upon successful conclusion of ongoing FTA negotiations with countries inside and outside of Asia, Singapore-based companies will have access to 60 per cent of the world's total GDP.

### A LAUNCHPAD AND TESTBED FOR INNOVATION, which offers access to:

- A multi-cultural Asian community that is an excellent source of market intelligence and a hothouse for innovation in unique Asian products and offerings.
- A strong brand name and intellectual property protection regime ideal for championing new standards and codes of practices for the region.
- Partnership opportunities with academic institutions

(e.g. 11 world-class foreign universities), research bodies and business associations.

### AN IDEAL PLACE TO LIVE

- English is the lingua franca and most of the population is effectively bilingual.
- Singapore's cosmopolitan society and good quality of living is attractive to top regional practice leaders. Singapore is also home to over 100,000 professional expatriates.
- Singapore has a lower cost of living compared to other Asian cities such as Tokyo, Osaka, Seoul, Taipei, Hong Kong *[source: Mercer 2004]*.

### INTELLECTUAL PROPERTY (IP) MANAGEMENT CENTRES

Singapore's strong legislative and IP enforcement policies make it ideal for such activities as rights patenting, IP audit, valuation, enforcement and licensees sourcing. It is a member of IP-related conventions and organisations such as the Paris Convention, Berne Convention, Madrid Protocol, Patent Cooperation Treaty, Budapest Treaty, World Economic Forum and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which provide added protection for companies seeking to maximise their IP potential.

Within Singapore, there are institutions such as the Intellectual Property Office of Singapore, Singapore International Arbitration Centre, Composers & Authors Society of Singapore, Recording Industry Association (Singapore), and Singapore Mediation Centre.

These initiatives encourage more IP-based companies to invest in and protect their intellectual assets from Singapore. Companies further benefit from new IP-friendly tax policies like an automatic writing down allowance for IP acquisitions, tax deductions for patent costs, and unilateral tax credits for royalty income.

# MECHANICAL ENGINEERING: PILLAR OF STRENGTH



The foundation  
for Singapore's  
manufacturing  
excellence.

**A** strong pillar of Singapore's economy, manufacturing accounted for 26 per cent of the Gross Domestic Product (GDP) in 2003. Its success is due to strong supporting sub-sectors, amongst them, mechanical engineering. The vital backbone of a range of industries spanning electronics, transport, chemicals and even medical equipment, mechanical engineering is a discipline of engineering that involves the design, operation and construction of technology and equipment.

In 2003, mechanical engineering enjoyed an output of \$25 billion, a combined value-add of \$9 billion, and contributed to 17 per cent of total manufacturing output and 24 per cent of the value-add of Singapore's manufacturing sector (see chart).

## WHERE MANUFACTURING THRIVES

Singapore's reputation for manufacturing excellence remains a lure for international investments, particularly in the area of such higher value-add products as chip design, advanced displays and consumer electronics like DVD recorders and flat-panel TVs.

These increasingly sophisticated manufacturing activities require the expertise of higher skilled workers. In fact, Singapore's labour force was ranked first in the world, according to a 2003 Business Environment Risk Intelligence (BERI) report. Also, nearly 30 per cent of the country's 2.15 million workers are equipped with tertiary or diploma educational qualifications. And, crucial to today's

knowledge intensive economy, close to 20 per cent of the 35,000 university and polytechnic graduates each year have industry-relevant information and communications technology or related training.

To serve the changing needs of the industry, Singapore is focussing on moving up the manufacturing value chain by harnessing higher automation and advanced manufacturing processes, as well as undertaking more research and development to boost its efforts. By embarking on this strategy, the city-state is positioning itself as a prime destination for enterprising companies looking to tap into and create new businesses and opportunities. Last year, manufacturing fixed asset investments (FAI) in Singapore totalled an impressive \$7.51 billion. Leveraging on Singapore's manufacturing strengths in advanced technology and services, these companies will be able to create and manage new markets, products and processes, technologies and applications.

"Investors continue to see Singapore as an attractive investment destination because of our speed, extensive connectivity, relevant skill-set and sound infrastructure," said Tan Choon Shian, EDB Director, Electronics and Precision Engineering.

Strong mechanical engineering ensures successful engineering sectors. **Precision engineering**, a key segment of mechanical engineering, raked in \$500 million in manufacturing FAI.

**Transport engineering** projects in 2003, for example, contributed \$206 million in fixed assets investments commitments. The Republic is responsible for 25 per cent

of Asia's maintenance repair and overhaul (MRO) output – or six per cent globally – in the aerospace industry. Major players like Pratt & Whitney, Rolls Royce and Hamilton Sundstrand conduct significant MRO operations in Singapore. Homegrown giants such as Singapore Technologies Aerospace and SIA Engineering Company have also consistently ranked in the global top three in terms of MRO service manhours. Last year, the aerospace industry accounted for an annual output of \$3.8 billion.

For the marine and offshore engineering industry, Singapore boasts diverse mechanical engineering strengths to boost activities in ship repair and conversion and construction of offshore structures. Again, international heavyweights such as MTU, MAN B&W, Deutz and Wartsila have pledged their confidence in Singapore by establishing regional service centres here for their marine engine manufacturing operations. They are supported by the country's shipyards, amongst them Keppel Shipyard and Sembawang Shipyard, which possess skilled manpower, resources and facilities. Oil and gas (O&G) is another thriving area of the marine and offshore engineering sector. And with Singapore making its global mark as a choice equipment manufacturing and services locale, it is no wonder that seven of the top international O&G equipment companies carry out manufacturing operations here. With this beehive of activity, the marine and offshore engineering industry delivered \$5 billion in output in 2003.

Land transport, another sub-sector of transport engineering, generated \$817 million in output last year. Diverse manufacturing activities that span engine control modules to air-con compressors drive the growth of the industry, with at least 25 principal original equipment manufacturers and Tier 1 suppliers, as well as 15 automotive companies utilising Singapore as a key manufacturing base.

**In 2003, mechanical engineering enjoyed an output of \$25 billion and a combined value-added of \$9 billion.**

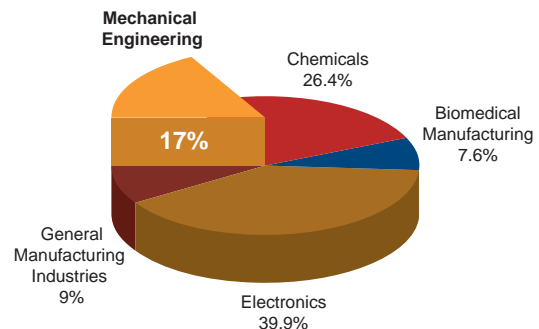
Transport engineering aside, the precision engineering industry also rests heavily on strong mechanical engineering capabilities to support its two major sub-sectors: design and assembly of machinery and systems, and precision modules and components.

The diversity of Singapore's precision engineering fuelled by mechanical engineering, has scored the country global leadership positions in the following:

- 30 per cent of the world's disc drives
- 50 per cent of the world's photo flash lamps
- 40 per cent of the world's wirebonding machines
- 60 per cent of the world's auto-insertion machines
- 10 per cent of the world's refrigeration compressors

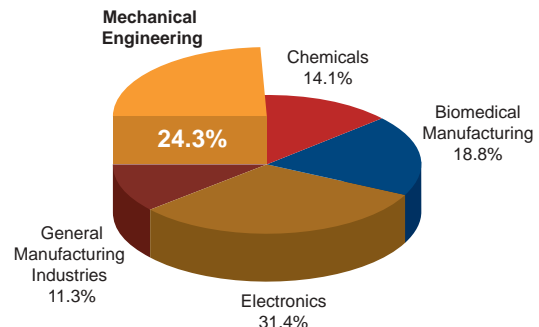
Last year, the precision engineering industry accounted for \$16.8 billion worth of output. The sector also makes up about 2.5 per cent of Singapore's GDP. This figure is poised to soar, as more efforts are being channelled to strengthening the country's already stellar reputation as a top-notch precision engineering hub for manufacturing solutions and high value-added components for the global market.

### MANUFACTURING OUTPUT 2003




### VALUE-ADD

(Value-add is the resulting increase in the value of goods and services from the production activities of a company. It is the expected contribution to GDP per annum when the project is fully implemented.)



Source: Economic Development Board, 2004

## POISED FOR GROWTH

Indeed, investors hold Singapore's broad mechanical engineering capabilities in high regard. Whether it is production engineering, quality tools and methods, automation and rapid prototyping, e-manufacturing, energy management, Computer Numerical Controlled high-speed machining technology or Computer Aided Design and Computer Aided Manufacturing, Singapore's savvy mechanical engineers possess the right knowledge, skills, flexibility and adaptability to keep up-to-date in demanding and ever-evolving fields where the discipline is required. Aided by some of the best facilities in the region, these professionals are able to consistently perform and deliver in a variety of fields they are engaged in. 

For more information on EDB's Mechanical Engineering Industry visit the Industry Opportunities/ Electronics and Precision Engineering section or Logistics and Transport Engineering section of [www.sedb.com](http://www.sedb.com)



# 'GOING GLOBAL' WITH SINGAPORE-BASED EDUCATION

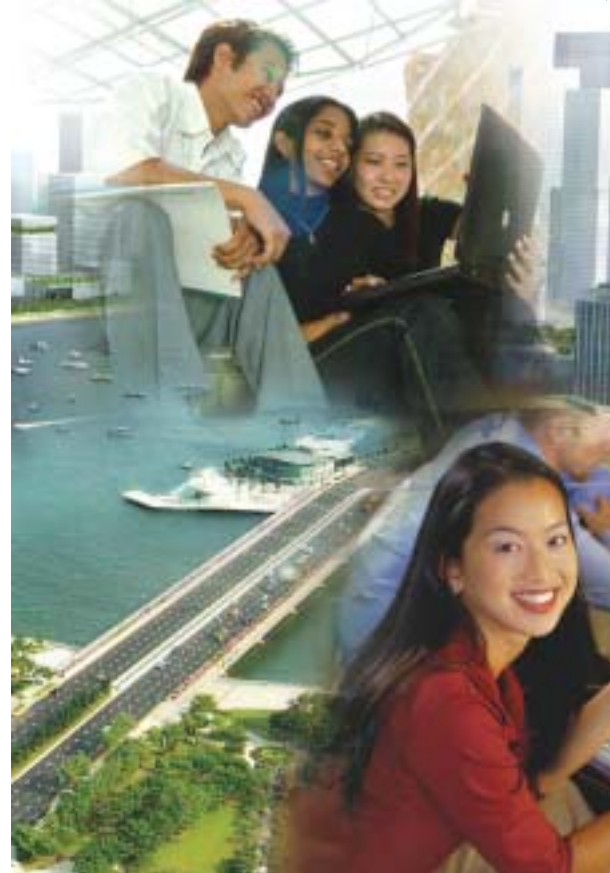
With an emphasis on diverse and quality educational services, Singapore is pulling out all the stops to position itself as a world-class education destination.

**T**he writing is on the wall. Singapore's education industry, singled out as a key growth driver, is gearing up to grab a larger slice of the world education market, which is worth a whopping US\$2.2 trillion.

Today, at least 1.8 million international students pursue higher education outside their home country. Forty-five per cent of these students are from Asia, mostly from China, India, Japan, South Korea and Malaysia. And judging by the growing importance of education in the current knowledge-based economy, this figure looks set to soar even further. Analysts forecast that the global demand for international higher education will exceed seven million students by 2025, with 70 per cent of this future influx dominated by Asia. In anticipation of this, Singapore intends to welcome a large portion of the Asia market to its shores by positioning itself as a world-class education hub, one that is home to a variety of renowned international Institutes of Higher Learning (IHLs).

Currently, about 50,000 foreign students are pursuing their education here. The country is looking to double or triple this population, by attracting at least an additional 100,000 more full fee-paying international students and 100,000 more corporate executives to Singapore by the year 2012.

To do so, Singapore will be banking on its proximity to the pulse points of Asia, its strong global



networks, high standards of living as well as progressive East-meets-West culture. "Our objective is to make Singapore a 'Global Schoolhouse' providing educational programmes of all types and at all levels from pre-school to post-graduate institutions, and that attracts an interesting mix of students from all over the world," stressed Foreign Affairs Minister George Yeo.

**Currently, about 50,000 foreign students are pursuing their education here.**

## LAYING THE FOUNDATION

A three-pronged initiative has been set in place to realise Singapore's vision of becoming a full-fledged global schoolhouse. "First, we need to attract good foreign institutions into Singapore. Second, we need to develop our own local institutions and enterprises. And, third, we need to bring in large numbers of international students," said Yeo.

Some of these measures are already well underway. In 1998, the Economic Development Board launched the World-Class University programme to attract up to 10 leading universities to establish a significant presence here within the next 10 years. The goal was reached five years ahead of schedule in 2003 when the US-based Stanford University teamed up with the local Nanyang Technological University to offer Master of Science (MS) and Doctorate programmes in environmental science and engineering. Currently, Singapore plays host to 11 world-class universities (see box story for list). On 25 October 2004, the Georgia Institute of Technology (Georgia Tech) and the National University of Singapore (NUS) signed a





educational excellence in the Asian region," said Professor John Ingleson, Deputy Vice-President, Chancellor (International) UNSW. Ingleson added that UNSW's first overseas venture into Singapore heralds the next stage in the internationalisation of the university. UNSW Singapore is scheduled to open its doors in 2007 with an intake of about 15,000 students, of which at least 70 per cent will be foreign. When fully operational, the university is expected to pump about \$500 million a year into the local economy.

Complementing the foreign universities are the three home-grown universities. National University of Singapore (NUS), Nanyang Technological University (NTU) and Singapore Management University (SMU) are quickly gaining a reputation for quality education worldwide. This year, NUS welcomed 5,600 freshmen from 71 different countries, while SMU reported a 10 per cent increase in international student applications from last year.

## TOWARDS A BRIGHTER FUTURE

Having anchored the tertiary segment, attention has now shifted to other areas like specialty schools, boarding schools and educational companies. These will further develop the local education sector by providing a wider and more comprehensive spectrum of learning opportunities. With the development of the private education market, the total education sector is expected to grow to about five per cent of the economy in the next decade or so, compared to the current 3.6 per cent.

Memorandum of Understanding to kick off the second phase of The Logistics Institute (TLI) – Asia Pacific. Under the MOU, Georgia Tech will continue to provide its world renowned logistics knowledge and expertise for the next five years.

Singapore made further headway in its drive to foster a vibrant intellectual climate when Universitas 21 Global – a consortium of 16 well-known universities and Thomson learning – established its global headquarters here last year. Not only is the online university the first of its kind in Asia, it adds another dimension to Singapore's global schoolhouse vision – e-learning. Dr Mukesh Aghi, Universitas 21 Global CEO, said the university "aims to [combine] excellence and expertise of traditional on-campus teaching with an innovative and flexible online solution, with the end result being a world-class branded degree".

## BLAZING NEW TRAILS

The latest addition to Singapore's vibrant intellectual community, the University of New South Wales (UNSW), gives a major boost to the global schoolhouse strategy. Unlike the other foreign universities, which are mainly joint campus operations, UNSW Singapore, an A\$100 million (A\$1=\$1.20) research and teaching campus with a strong focus on science and technology, will be wholly-owned and independently run by the leading Australian university.

"We are honoured that the Singapore government has chosen UNSW to spearhead its vision to develop Singapore as a hub of

Recently, new initiatives for the Education Excellence Framework were announced to boost the Global








Schoolhouse Programme and to make Singapore a more attractive location for international students. These initiatives focus on three components for the private education organisations (PEOs): academic excellence, organisational excellence and good student protection and welfare practices.

For academic excellence, an accreditation council will be set up by the Ministry of Trade and Industry by the first quarter of 2005 to accredit institutions for their capabilities to deliver quality programmes.

The second component of the Framework focusses on enhancing the organisational excellence of the private schools by encouraging them to upgrade. This is being done through the Singapore Quality Class for Private Education Organisation (SQC for PEO), initiated by EDB and SPRING Singapore (Standards, Productivity and Innovation Board) last year. Based on criteria which are benchmarked against internationally recognised standards, the award aims to encourage the private schools operating here to step up their business processes and compete for a larger market share in the region. Sixteen private companies, including AEC Edu Group Pte Ltd, Informatics Group (Singapore) Pte Ltd, Singapore Institute of Management and Management Development Institute of Singapore were recently conferred the prestigious SQC for PEO status.

The third component focusses on PEOs adopting good practices in student protection and welfare through the CaseTrust for Education scheme. The CaseTrust for Education, customised by the Consumers Association of Singapore, will ensure that proper systems and practices have been put in place to look after the welfare and interests

of international students in Singapore. This includes the Student Protection Scheme.

“Having more quality foreign and local private education players will bring about creation of new knowledge and a variety of offerings via competition,” said Teo Ming Kian, Chairman EDB, “This will bring us a step closer towards being an attractive education hub.” 

For more information on EDB’s Education Services visit the Industry Opportunities/Education Services section of [www.sedb.com](http://www.sedb.com)

## WORLD-CLASS FOREIGN UNIVERSITIES IN SINGAPORE

1. Georgia Institute of Technology (US)
2. INSEAD (France)
3. Johns Hopkins University (US)
4. Massachusetts Institute of Technology (US)
5. Shanghai Jiao Tong University (China)
6. Stanford University (US)
7. Technische Universiteit Eindhoven (The Netherlands)
8. Technische Universität München (Germany)
9. The Wharton School of the University Of Pennsylvania (US)
10. The University of Chicago Graduate School of Business (US)
11. University of New South Wales (Australia)



The Economic Development Board (EDB) is Singapore's lead agency responsible for planning and executing strategies to sustain Singapore's position as a global hub for business and investment.

We work closely with local and foreign companies across a diverse range of activities in both manufacturing and services to help them move towards higher value-creating operations in an increasingly knowledge-based and innovation-driven environment. We also encourage companies to use Singapore as a headquarters and total business centre to manage their global or regional functions to service their global or Asia-Pacific operations.

Singapore is today a "Global Entrepolis" – a unique marketplace where deals are made; funds are raised; creative ideas are exchanged and realised; new innovative enterprises incorporated; and partnerships forged. EDB acts as a catalyst and facilitator to ensure a thriving "enterprise ecosystem" in Singapore. We encourage innovation and entrepreneurship by helping to create an environment which is conducive for startups and companies of all sizes to interact with each other, with good corporate governance practices and where intellectual property is protected.

For more information on how EDB can help in your business and investment, please visit [www.sedb.com](http://www.sedb.com).

**Head Office:**  
250 North Bridge Road #28-00  
Raffles City Tower  
Singapore 179101  
Tel: (65) 6832-6832  
Fax: (65) 6832-6565  
Website: [www.sedb.com](http://www.sedb.com)

**North American Offices:**  
Boston, Chicago, Dallas,  
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**Publication Team**  
Editorial Adviser:  
Mavis Kuek ([mavisk@edb.gov.sg](mailto:mavisk@edb.gov.sg))  
Editorial Team:  
Patricia Ng ([patricia\\_ng@edb.gov.sg](mailto:patricia_ng@edb.gov.sg))  
Anne Koh ([annekoh@edb.gov.sg](mailto:annekoh@edb.gov.sg))  
Cathy Tan ([cathy\\_tan@edb.gov.sg](mailto:cathy_tan@edb.gov.sg))  
Editorial Contributor:  
Cheryl Sim ([cheryl@paperclip.com.sg](mailto:cheryl@paperclip.com.sg))  
Art Director:  
Leslie Neo ([leslie@paperclip.com.sg](mailto:leslie@paperclip.com.sg))  
Project Manager:  
Khim Yap ([khim@paperclip.com.sg](mailto:khim@paperclip.com.sg))



**Publishing Consultant: Paperclip Communications Pte Ltd**

Please email your comments/feedback to: [annekoh@edb.gov.sg](mailto:annekoh@edb.gov.sg)

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