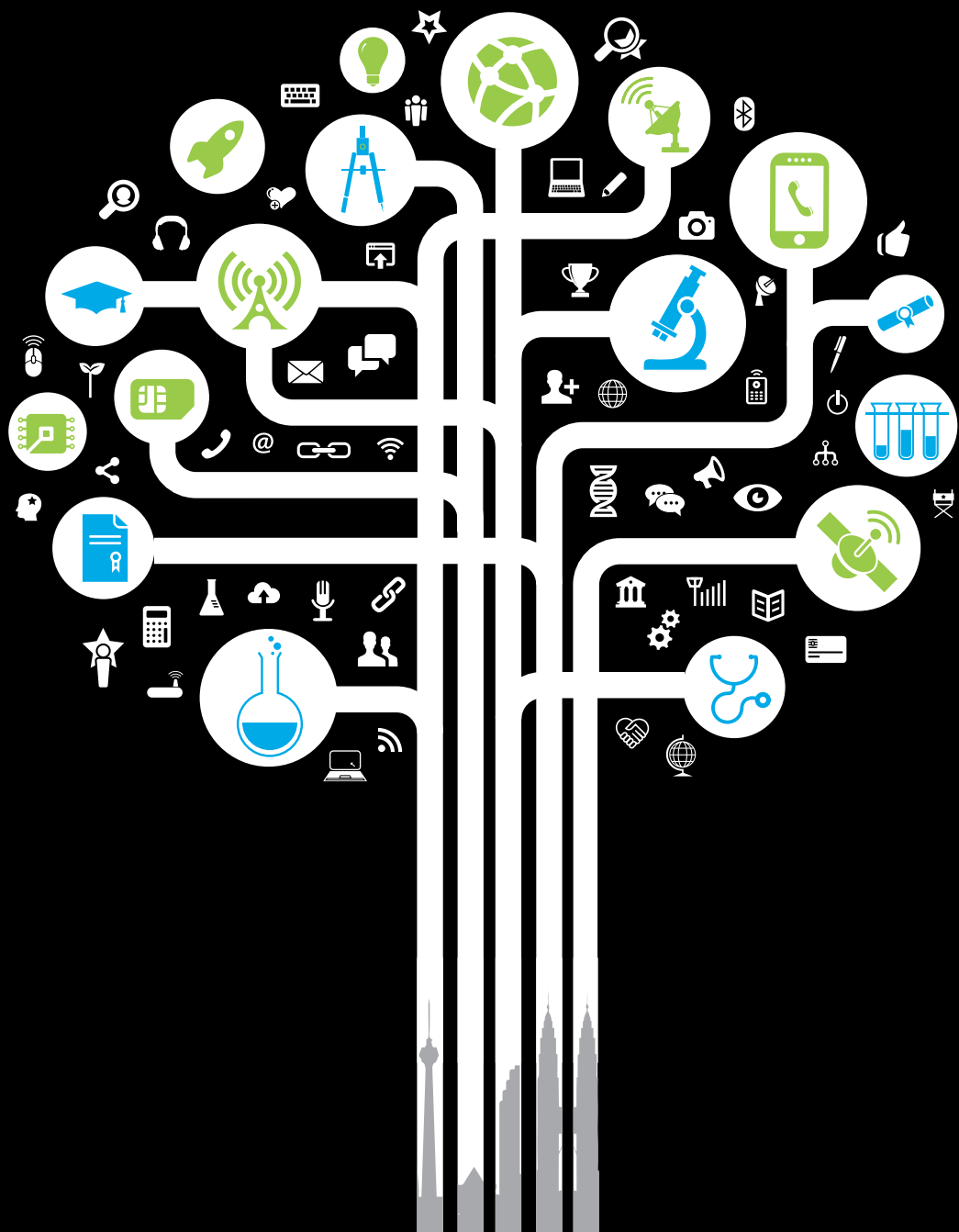


Greater Kuala Lumpur ASEAN's rising hub for talent and innovation



Foreword



Malaysia has seen steady economic growth throughout its history despite a challenging global economy. Kuala Lumpur, or KL as it is fondly referred to, is the gateway to the country and is well placed to benefit from the booming growth across the broader region of South East Asia in particular. Business has been a primary driver of the city's growth since its beginnings as a tin mining town in the 1850's. Its continuous rise has made it a natural choice to become the capital of a newly independent Malaysia a century later. Its progress during the Asian economic boom in the 1990's paved way for rapid development which provides KL a definitive advantage amongst the formidable Asian economies.

KL offers a cosmopolitan urban experience, yet maintains an exotic allure, with a rich and diverse cultural heritage that offers a "*Malaysia, Truly Asia*" experience to all who visit the city. Those of us who call KL home enjoy the convenience of affordable and exciting city living with abundant travel and adventure opportunities within and outside Malaysia. The city connectivity reaches effortlessly, evidently seamless from any point.

Attracted by opportunities for a better life, talented young individuals continue to move in to the city from across the country. Trade and businesses, from local giants like PETRONAS and Sime Darby to global players such as IBM, HSBC, Cargill and Philips, have come flocking to benefit from the vibrant talent and the business environment offered.

We will continue to do our utmost to ensure that Kuala Lumpur continues to prosper. A thriving business scene has been a key success factor for the city and we aim to keep it that way and nurture it to greater heights. Through sustained efforts in creating an enabling business environment and a high-quality urban lifestyle for everyone, we are proud to be steering KL towards its next big leap.

We welcome you to join us.

A large, stylized handwritten signature in black ink. The signature is fluid and cursive, with a long horizontal stroke extending to the right. Below the signature, the name and title of the signatory are printed.

Datuk Seri Haji Ahmad Phesal Bin Haji Talib
Mayor of Kuala Lumpur

Executive summary

ASEAN (Association of South East Asian Nations) is a new tier of emerging economies in South East Asia. While the investment compass for multinationals has long held a true north towards emerging markets particularly in BRIC economies (Brazil, Russia, India and China), in Deloitte's Business Trends 2013, we see a redrawing of this global trend due to economic growth deceleration especially in the vaunted BRIC markets. This shift to economies in ASEAN, including Malaysia, Indonesia and Philippines, can be attributed to their Gross Domestic Product (GDP) stability and growth surpassing that of certain BRIC nations, creating dynamic marketplaces, hence becoming attractive market priorities for expansion.

Malaysia, a leading economy in ASEAN, is firmly on a trajectory to being a high income nation/developed nation by 2020. It is on its fourth year of economic transformation since 2010 and is maintaining a strong and consistent momentum to fulfilling its vision. Rated as one of the best places globally to do business, the World Bank has ranked Malaysia 6th out of 189 economies in its recent Ease of Doing Business 2014 lifting it above Australia, Japan, South Korea and Thailand. A vibrant economy with a fast growing middle-class base, the country has also seen a rise in its Gross National Income (GNI) per capita by 49% (since 2010) to US\$9,970 and is on track to meet its target of US\$15,000 in seven years' time. Long characterised by its comprehensive range of strengths, from an enabling environment to the availability of cost-effective and skilled talent, Malaysia is ranked 15th by the IMD in their World Competitiveness Yearbook (IMD WCY) 2013, ahead of Australia, United Kingdom, South Korea, Thailand and France.

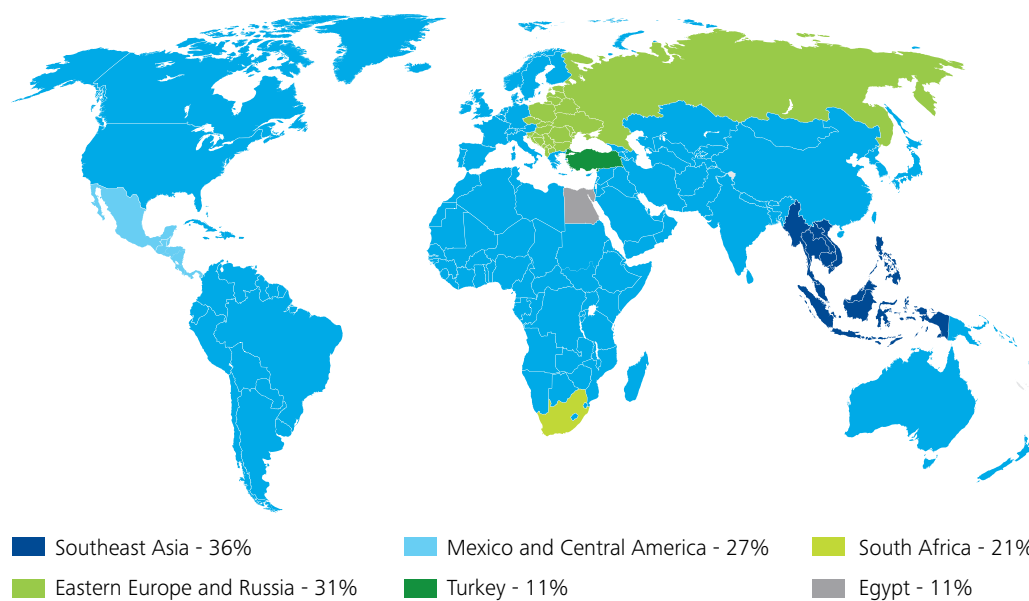
Greater Kuala Lumpur represents the city of Kuala Lumpur, together with nine surrounding metropolitan areas. It is Malaysia's most economically vibrant and commercially important region. Investing in this area not only provides a gateway to Malaysia, the world's 33rd largest economy (by GDP), but also to the rest of ASEAN, and the massive markets of China and India.

Greater Kuala Lumpur has long been a favoured destination for both multinational corporations and foreign direct investment. Its many attractions include an educated, skilled and cost-effective workforce; a supportive innovation ecosystem; intellectual property rights protection; pro-business government reforms, initiatives and funding; high standards of English; and KL's status as one of Asia's most liveable cities. The executive opinion survey results by IMD WCY 2013 confirms this with a rank of Malaysia's workforce motivation and skill levels at 10th and 12th respectively, ahead of countries such as India, Japan (in skill), Singapore, Taiwan (in motivation) and Thailand.

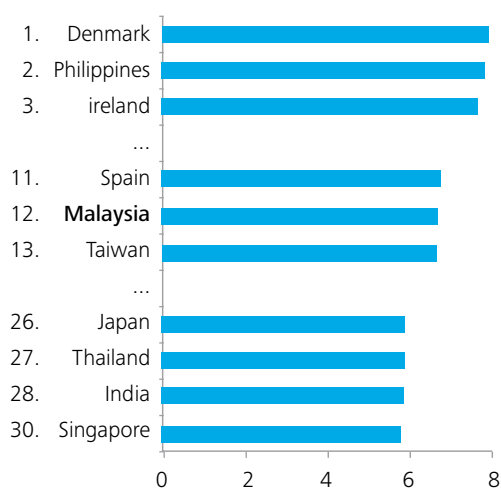
As the country's undisputed talent destination, Greater Kuala Lumpur attracts a third of all university graduates, and provides general talent in large numbers as well as generous training opportunities for specialisation. Public universities alone graduate over 113,000 students annually, covering all major fields. Local institutions have partnered with globally recognised names such as Johns Hopkins University and the MIT Global Supply Chain and Logistics Excellence Network to provide further education and training programme for increasingly specialised talent needs. A testament to this, the World Economic Forum (WEF) in its pioneer Human Capital Report 2013 placed Malaysia 22nd out of 122 countries comparing the countries' abilities to "develop and deploy healthy, educated and able workers".

In this inaugural study, you will be introduced to Greater Kuala Lumpur's talent and innovation landscape; the sectors of focus; infrastructure support by the government; and the underpinning skills and innovation base needed to support its development and vitality. Facilitated by InvestKL, a dedicated special purpose investment promotion agency of the Malaysian government, investing in ASEAN's rising hub for talent and innovation is a committed priority in sustainable growth and competitiveness.

Geographies prioritised for expansion by companies in developed nations with no emerging market revenues



Availability of skilled labour (World Competitiveness Yearbook 2013)



Human Capital Index 2013 detailed rankings

	Country	Score
1	Switzerland	1.455
2	Finland	1.406
3	Singapore	1.232
...
21	France	0.746
22	Malaysia	0.644
23	Korea, Rep.	0.640
...
44	Thailand	0.158
...
53	Indonesia	0.001

Source: World Economic Forum

Overview

Open for business

Ever since Kuala Lumpur started life as a tin mining camp back in the mid-19th century, it has been integral to Malaysia's commercial and economic life. Now home to some 1.6 million people, KL is a vibrant, modern, multi-cultural city. Greater Kuala Lumpur (the city of KL and nine other metropolitan areas in the surrounding Klang Valley) - is Malaysia's most economically important conurbation, with a population of over 6 million.

Malaysia has the third biggest economy in South East Asia, and the 29th largest in the world, with an estimated GDP for 2012 of RM936 billion (approximately US\$492 billion using the purchasing power parity, or PPP, measure). The latest World Bank forecast (October 2013) predicts GDP growth of 4.3% in 2013, and 4.8% in 2014.

Now characterised as a newly industrialised or upper middle-income nation, Malaysia has a long-standing aim of becoming a high-income/developed country by the end of this decade (2020). The government's overall strategy to achieve this is known as the Economic Transformation Programme (ETP).

Global business rankings

Malaysia is ranked by several reputable organisations as amongst the best places to do business in the world. The World Bank's **Doing Business Report 2014** compares the performance of 185 economies across a range of criteria. Overall it ranks Malaysia in sixth place, with particularly good scores for getting credit (1st), protecting investors (4th), and trading across borders (5th).

The World Economic Forum's **Global Competitiveness Report 2013-14** ranks Malaysia in 24th place out of 148 economies, the second best in South East Asia. There are especially good ratings for financial market development (6th), and goods market efficiency (10th). The report characterises Malaysia as being in transition from an efficiency-driven economy, to one driven by innovation.

The World Competition Yearbook 2013, published by the International Institute for Management Development (IMD), ranks Malaysia 15th out of the 60 economies surveyed. There are above average ratings in all four main pillars, with especially strong scores for business efficiency (4th), and economic performance (7th).

The Human Capital Report 2013 - produced by the WEF - ranks Malaysia 22nd out of the 122 economies surveyed, the best performance by any higher middle-income nation. It is rated better than all its South East Asian neighbours apart from Singapore. Malaysia performs especially well in the area of workforce and employment (18th).

Malaysia is ranked 32nd out of the 142 countries surveyed in the **Global Innovation Index 2013**, placing it top among upper middle-income nations, and second in South East Asia. The index is jointly produced by Cornell University, INSEAD business school, and the World Intellectual Property Organisation (WIPO).

Malaysia is rated third out of the 50 economies surveyed in the **AT Kearney Global Services Location Index 2011**. The index assesses countries on the basis of the quality of their offshoring capabilities. Malaysia is judged to be a good all-round performer, with particular expertise in the field of information technology (IT).

The World Economic Forum, the International Institute for Management Development, and the Global innovation index ranked Malaysia as one of the top 2 countries to do business within SEA. The latest World Bank forecast (October 2013) predicts GDP growth of 4.3% in 2013, and 4.8% in 2014.

Investing in Greater Kuala Lumpur not only provides a gateway to Malaysia, but also to South East Asia, and the massive potential markets of Middle East, India and China.

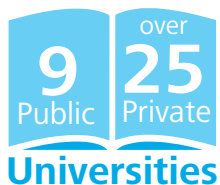
A gateway to South East Asia and beyond

Malaysia is at the heart, both economically and geographically, of the Association of South East Asian Nations (ASEAN). This 10-nation bloc, with a total population of roughly six hundred million people, has seen some of the most impressive growth rates in the world over recent years. Plans to establish the ASEAN Economic Community by 2015 will create a single market which is already worth some two trillion US dollars.

ASEAN has a very fortunate geographical position, on the doorstep of some of the world's largest and most dynamic economies.



**Home to foreign branch
campuses including**
Monash University and
University of Nottingham



Home to regional/global operations for
BMW, British American Tobacco, Citibank,
Exxon Mobil, GlaxoSmithKline, HSBC, Ikea,
Nestle, Nokia, PayPal, Philip Morris,
Prudential, Tesco, Motorola,
Schlumberger and Shell.



Malaysia

Greater
Kuala Lumpur

Just under 30% of Malaysia's total labour force of 14 million people (August 2013) work in Greater Kuala Lumpur, while more than a third of the country's fresh graduates move to the area.

Favoured destination

Greater Kuala Lumpur has long been a favoured destination for both multinational companies (MNCs) and foreign direct investment. MNCs who have set up operations in the area include BMW, British American Tobacco, Citibank, Exxon Mobil, GlaxoSmithKline, HSBC, Ikea, Nestle, Nokia, PayPal, Philip Morris, Motorola, Prudential, Shell and Tesco.

Among Greater Kuala Lumpur's many attractions are an educated, skilled, and cost-effective workforce; an enabling environment for innovation; intellectual property (IP) rights protection; pro-business government reforms, initiatives and funding; high standards of English; and KL's status as one of Asia's most liveable cities.

Talent

Nearly 30% of Malaysia's total labour force of 14 million people (Source: Department of Statistic, August 2013) work in Greater Kuala Lumpur, while more than a third of the country's fresh graduates move to the area. The graduates come from a wide variety of fields, including engineering; finance; information and communication technology (ICT); science; and healthcare.

There are nine public universities, and over 25 private universities in Greater Kuala Lumpur, including Malaysia's oldest and most prestigious higher learning institution, Universiti Malaya. A growing focus is on ensuring that students are as employable as possible after they graduate, principally by tailoring courses to meet industry needs.

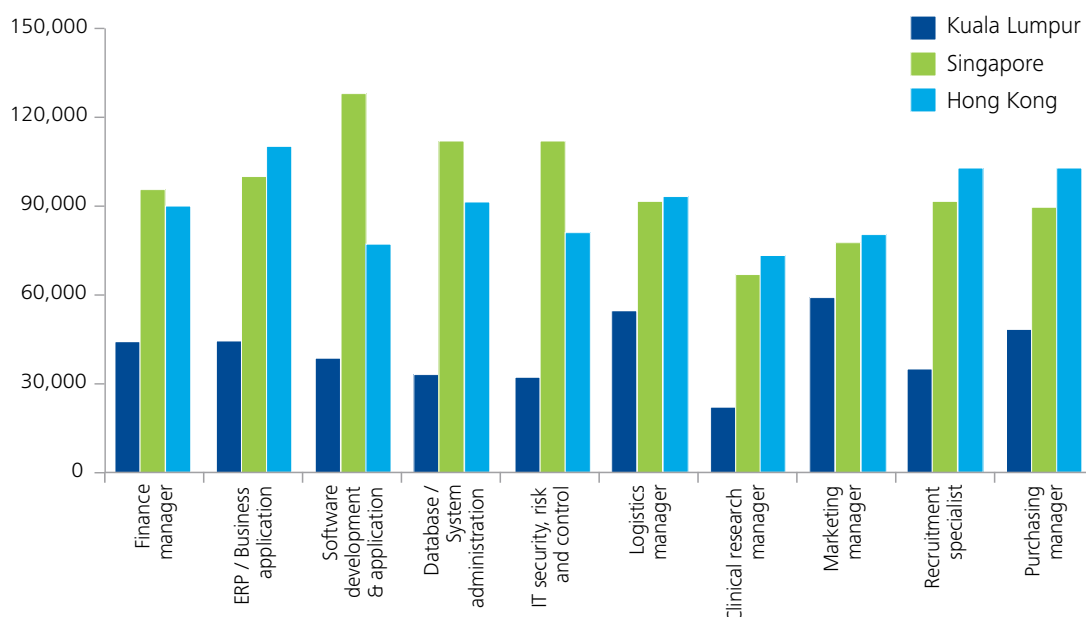
Cost-effectiveness

Malaysia offers a cost-effective workforce, particularly when compared to its more developed Asian competitors. The cost of talent is on average two to three times cheaper than in Singapore or Hong Kong. As an example, while a clinical research manager could expect an annual salary of US\$23,500 in KL, the same worker could command US\$66,915 in Singapore, and US\$73,504 in Hong Kong (Refer to table below).

Wage pressures are kept under control by the rapid expansion in the available talent pool. The tertiary education sector has tripled in size over the last two decades, with new private universities and university colleges turning out tens of thousands of graduates every year.

Median annual income of selected roles (2013)

US Dollars



Source: Robert Walters, Pikom, Adecco

Innovation

The innovation landscape in Greater Kuala Lumpur is advancing swiftly with the support from the government, as well as collaboration between academic institutions and industry. A wide range of government departments and agencies are involved in a multi-pronged strategy to drive innovation, including Agensi Inovasi Malaysia (AIM, www.innovation.my); the Ministry of Science, Technology and Innovation (MOSTI, www.mosti.gov.my); and the Multimedia Development Corporation (MDeC, www.mdec.my).

Several programmes are in place to encourage every stage of the innovation process, from research and development (R&D), through to commercialisation. Although some of this support is only available to Malaysian entrepreneurs and firms, foreign investors can still benefit through local partnerships and joint ventures.

Intellectual property protection

Malaysia has signed, and then put into law, a host of international conventions and treaties on IP protection to empower entrepreneurs and businesses to create and utilise technological innovations, who need to be sure that their intellectual property (IP) rights will be respected. Malaysia is not on the United States' list of countries committing intellectual property rights violations, unlike four of its ASEAN neighbours (Indonesia, Thailand, the Philippines and Vietnam).

The Ministry of Domestic Trade, Co-Operatives and Consumerism actively enforces IP protection regulations in Malaysia. There are two main avenues of enforcement: criminal action and civil litigation. Disputes can be resolved either at the Kuala Lumpur Regional Centre for Arbitration (KLRCA), or through one of the six dedicated IP courts.

Government support

After decades of rapid economic growth, Malaysia is within striking distance of becoming a high-income nation. A key government strategy for achieving developed nation status by 2020 is making the local business environment as enabling as possible. Malaysia's progress is reflected in its rise up the World Bank's annual Doing Business Report standings, to its current 6th spot.

The government is driving the country's transformation to a knowledge-based economy, through three main ways: investing heavily in education; creating laws, facilities and funding to support innovation; and funding and facilitating key sector initiatives. This increasingly friendly business environment benefits local and foreign investors alike.

Agensi Inovasi Malaysia (AIM)

Agensi Inovasi Malaysia (AIM) is a national centre founded in 2010 and tasked with proposing policies and initiatives to encourage innovation in both public and private sectors. It's envisioned to become a key thought leader in innovation, able to encourage innovation and enterprise activities across Malaysia. AIM is currently coordinating a number of key projects covering a variety of themes from nurturing thinking skills to transforming key sectors.

(See Appendix 2 p64 for more details).

TalentCorp

TalentCorp was established in 2011 by the government as a key driver for creation and implementation of initiatives to improve the availability of talent in line with the needs of the growing economy. TalentCorp develops demand-driven initiatives focused on three specific areas; optimising Malaysian talent, attracting and facilitating global talent, and building networks of top talent.

(See p21 for more details).

“I have lived in the US and a number of countries in Asia and I find Malaysia to be very favourable. It has a rich heritage combined with modern conveniences and infrastructure that provides a very good working environment. We had no problem settling into Kuala Lumpur. It is also a great base to travel from, on both business and leisure trips throughout the region.”

Bert Braden (from the USA)

SEA Chief Operating Officer, Deloitte Southeast Asia

Language

Malaysia is ranked 11th out of the 60 economies surveyed in Education First's English Proficiency Test 2013, the best performance of any Asian nation. Nowhere is this ability more in evidence than in Greater Kuala Lumpur, where the language is widely spoken and understood. Education First notes a clear link between English proficiency and economic success.

English is far from the only linguistic capability which Greater Kuala Lumpur can offer. Most Chinese Malaysians can speak at least one Chinese dialect or language, most commonly Mandarin, Cantonese and Hokkien. As for the ethnic Indian community, there are speakers of a whole host of Indian languages, such as Tamil, Hindi and Punjabi.

Liveability

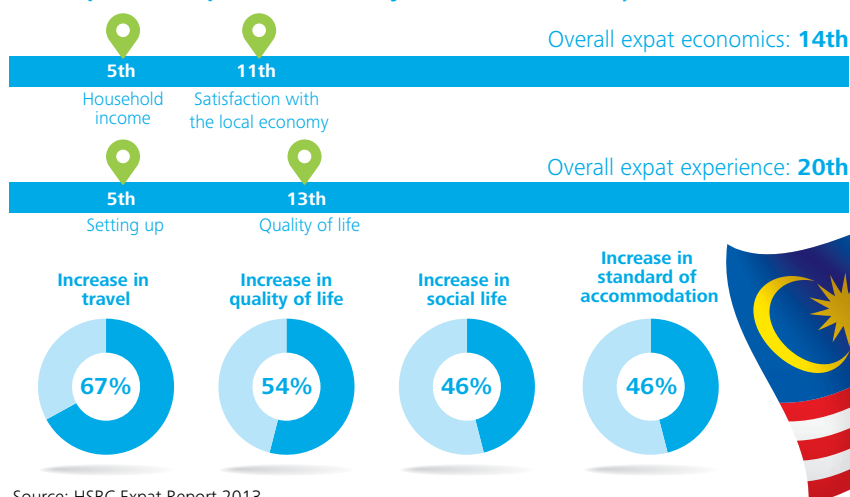
KL has a lot to offer in terms of quality of life, most notably the relatively affordable cost of living. In a whole range of areas—from luxury apartments, to healthcare—expatriate wages go a long way. There is much to recommend KL beyond value for money. The city is a vibrant, multi-cultural place, with a friendly, relaxed atmosphere. It is one of Asia's culinary capitals, has a thriving artistic scene, a vibrant nightlife, and according to CNN, **the fourth best shopping in the world**. What is more, several major projects linked to the ETP are expected to make KL a cleaner, greener and better connected place to live in over the coming years.

International schools

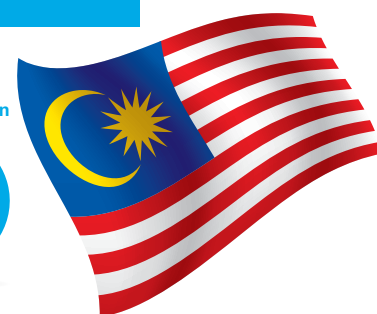
A key consideration for expatriates with families is the quality of education, and in this respect Malaysia can boast a growing number of well-respected international schools. English is the medium of instruction in the vast majority of the more than 90 schools. Other languages include Japanese, German and French. Greater Kuala Lumpur boasts the highest concentration of international schools within Malaysia.

A key development over recent years has been the rise of Malaysian students attending international schools, a process hastened by the removal in 2012 of the 40% limit on locals. Not only has this change helped to further expatriate integration, it has also expanded the number of young Malaysians with fluency in English.

The expatriate experience in Malaysia (37 locations surveyed)



Source: HSBC Expat Report 2013



Greater Kuala Lumpur's continuing economic and commercial success is considered essential for Malaysia to become a developed nation by 2020. Its planned transformation to a world-class metropolis, which will boast high standards in every area from business infrastructure to liveability, is an integral part of the ETP.

Although much of Greater Kuala Lumpur's development will be driven by local investment, both public and private, a core aim is to increase foreign investment. With this in mind, the government has established a special purpose investment promotion agency, InvestKL (www.investkl.gov.my), which is tasked with attracting 100 multinational companies (MNCs) to the area by 2020.

InvestKL is particularly focused on securing investments from service and knowledge-intensive businesses; technology firms; and the green technology industry. MNCs can set up a variety of operations, including headquarters, internal procurement centres, shared service centres, and centres of excellence.

The agency provides assistance throughout the investment process to ensure that the experience of doing business in Greater Kuala Lumpur is seamless. This is done through close collaboration with other Government Ministries, entities and agencies to formulate attractive fiscal packages, and help corporations identify business opportunities while strengthening their competitiveness regionally and globally.

InvestKL has so far encouraged 32 MNCs to either extend their existing operations, or to establish new operations, in Greater Kuala Lumpur. These include Aecom, AgustaWestland, Alstom, Altran, Cargill, Cerner, Clariant, Darden, Epson Precision, Hitachi Sunway Information Systems, IBM, International SOS, Linde, Oleon, Philips Health, Promat, Schlumberger, Service Source, Vale, Worley Parsons, Colas Rail, Huntsman, and Menard Asia.



Key sectors

The Economic Transformation Programme (ETP) is focused on 11 vertical sectors, and one geographical area (Greater Kuala Lumpur). Seven of these key sectors are of particular relevance to investors looking to locate business functions in Greater Kuala Lumpur: oil, gas and energy; electrical and electronics; business services; financial services; healthcare; agriculture; and wholesale and retail.

Oil, gas and energy

The oil and gas industry plays a prominent role in the Malaysian economy, contributing a fifth of national GDP over the past decade. While aiming to maintain the continued success of this industry, the government is also keen to encourage the growth of alternative energy, such as solar power and electric cars.

The national energy firm, PETRONAS, a Fortune Global 500 company, is a core player in maintaining the country's position as one of Asia's top oil and gas producers. The energy ecosystem is well-established in KL, which is home to not just PETRONAS, but also the regional operations of giant multinationals such as Shell and Schlumberger.

Greater Kuala Lumpur meets the talent needs of oil and gas industry players by providing a steady stream of graduates in engineering as well as in supporting disciplines such as finance and business administration. Universiti Teknologi PETRONAS (UTP), in turn, caters for more specialised oil and gas talent needs. UTP also cooperates extensively with industry players on research, as exemplified by a long-term Enhanced Oil Recovery project with Schlumberger.



Electrical and electronics

The local electrical and electronics (E&E) industry makes up 56% of Malaysia's exports and employs 29% of its total workforce. Over the years, the industry has developed significant capabilities and skills for the manufacturing of E&E components, such as semiconductors, as well as consumer electronics.

The government is now encouraging local players to move up the value chain into design, assembly, and packaging, with the ultimate aim of becoming total solution providers. In order for this to happen, the supply of highly qualified electrical engineers, computer engineers, computer scientists and supply chain managers, is being stepped up.

R&D activities in the electrical & electronics industry are led by the national ICT centre, MIMOS, and the national nanotechnology development agency, NanoMalaysia. Moreover, funding opportunities are offered by venture capitalist such as Malaysia Debt Ventures (MDV) for technology companies at every R&D stages focusing in electronics and semi-conductors.

Business services

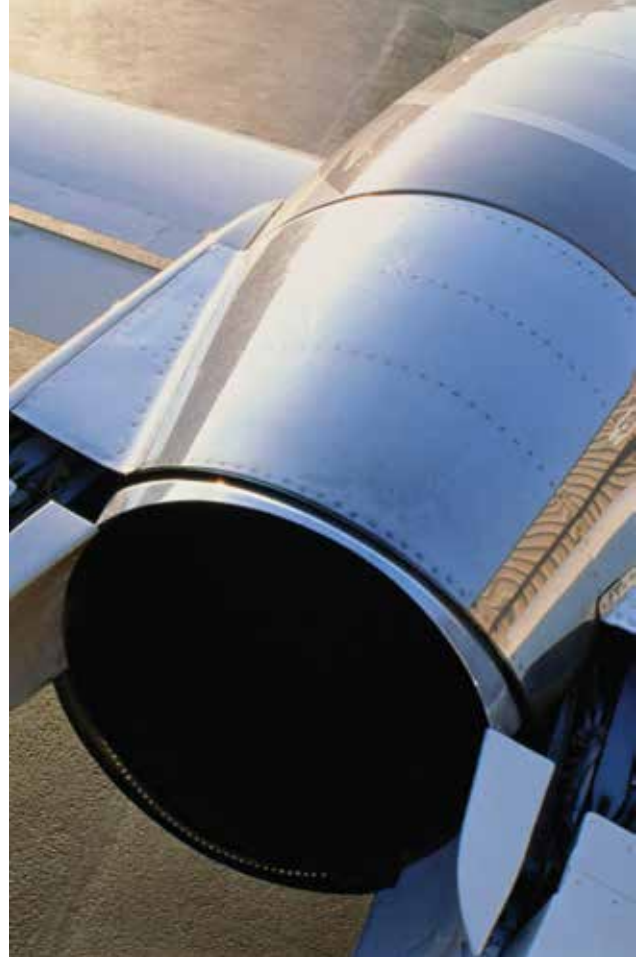
Although this sector is relatively small at present, it is developing quickly, with an annual growth rate of 8% from 2000 to 2010. The government is keen to encourage expansion into previously untapped sectors, including maintenance, repair and overhaul (MRO) services; business process outsourcing; data centres; green technology; creative multimedia content; and aerospace engineering.

Malaysia's drive towards being a knowledge-based economy is supported strongly by the business services talent pipeline from local universities and university colleges. More than 40,000 students graduate each year in the fields of finance; engineering; information and communication technology (ICT); and business administration.

“When we started in 1997, the management team were mostly expatriates. Today, I would say 99% of our workforce are locals, and the other 1% part of GE's global talent development programme. Through knowledge sharing, we have enhanced the capabilities in Malaysia, and now we have a healthy talent pipeline from local universities and colleges.”

Suresh Kumar Shanmugam

Managing Director, GE Engine Services Malaysia



Financial services

A primary contributor to the Malaysian economy, financial services make up an average of 11% of GDP. The industry is set to grow further, particularly in terms of Islamic finance, an area in which the country is the acknowledged world leader. The majority of Malaysia's financial services industry is based in Greater Kuala Lumpur.

With the support of the central bank (Bank Negara Malaysia), the Securities Commission Malaysia, and the stock exchange (Bursa Malaysia), Greater Kuala Lumpur is developing into one of Asia's most competitive and innovative financial services hubs. As well as building on existing expertise in Islamic finance and commercial banking, other sectors such as investment banking, asset management, and wealth management, are being developed.

Greater Kuala Lumpur is a good source for internationally certified finance talent. Local universities have built partnerships with established professional associations such as the Association of Chartered Certified Accountants (ACCA), the CFA Institute, and the Actuarial Society of Malaysia to maintain their relevance to the industry. Today, the workforce in Malaysia has 500 CFA charterholders, 11,000 ACCA members, and 100 Actuary Fellows.



Agriculture

Malaysia has moved from being a predominantly rural country, to an increasingly urbanised one, over the last few decades. Indeed, nearly three quarters of the population now live in urban areas. But there is still a large amount of economic potential for agriculture, particularly in terms of agribusiness. By making the industry more efficient, expected benefits include greater food security, and increased rural incomes.

As a Muslim-majority nation, with a developing expertise in halal certification, Malaysia is aiming to become a global hub for Islamic-compliant food production. Over 50,000 people have been trained in halal compliance and the Universiti Putra Malaysia runs a leading Halal Products Research Institute for review of halal products.

Biotechnology is another area of particular interest, where the government is working to increase research, development and commercialisation, of innovative products. Innovation activities in biotechnology are supported by funding from BiotechCorp; the Ministry of Science, Technology and Innovation; and the Malaysian Technology Development Corporation's Business Start-up Fund.

Healthcare

The Malaysian healthcare industry is estimated to be worth the equivalent of US\$8.4 billion a year, or nearly 5% of GDP, a figure which looks set to grow over coming years. Greater Kuala Lumpur is home to many of Malaysia's most well-respected medical facilities, as well as several leading educational and training institutions for healthcare professionals.

The government is keen to increase private investment in areas such as clinical research, medical devices, pharmaceutical products, and care services. Medical tourism is another area which shows great potential for future growth, with some 670,000 healthcare tourists in 2012, an increase of nearly 200% since 2007.

With the continuous effort to provide the best education in health sciences, Malaysia has also attracted top universities from abroad like Johns Hopkins University School of Medicine and Monash University to provide world class education to local talent.



Wholesale and retail

With domestic consumption representing 61% of Malaysia's GDP, the wholesale and retail industry is a major growth area, potentially creating 450,000 jobs by 2020. The overall strategy for this sector is to modernise it through information technology, better stock management, and improved customer service.

Legislation came into force in 2012 to boost both competition and consumer protection, through the provisions of the Consumer Act 2010. These regulations are enforced by the Malaysia Competition Commission (MyCC, www.mycc.gov.my). The other main government body charged with consumer empowerment and protection is the Ministry of Domestic Trade, Co-operatives and Consumerism. Most notably, it oversees a national system of consumer tribunals.

Import duties on more than 300 goods were withdrawn in 2011, which has fed through to lower prices in shops. In CNN's 2013 survey of the World's 10 best shopping cities, KL ranked fourth overall, scoring particularly well in terms of value (10/10), and variety (8/10). With three of the world's largest shopping malls in the world located in Greater Kuala Lumpur, the area represents a huge business opportunity for foreign investors and retailers.

Greater Kuala Lumpur provides wholesale and retail corporations a source of cost-effective talent in all key disciplines from business administration to finance. It also offers specialised talent and support in innovation through specialised institutions, such as the Malaysian Institute of Supply Chain Innovation, a member of the MIT Global Supply Chain and Logistics Excellence Network.



Growing workforce

The workforce now stands at more than 14 million people, a near 80% rise since 1995. With more than a quarter (26.5%, 2012) of Malaysia's total population of 29 million people aged 14 years and under, the steady supply of new workers will continue for the foreseeable future. What is more, the female workforce participation rate of just 49.5% (Source: Asian Development Bank, 2012), suggests a large source of untapped talent.

Currently defined as an upper middle-income or newly industrialised nation, Malaysia is well on the road to becoming a high-income/developed nation by the long-standing target date of 2020. The government recognises that the shift to being an economy driven by knowledge and innovation will require a constantly evolving workforce.

Global talent standings

The World Economic Forum (WEF) gave Malaysia good marks for talent availability, in two major international surveys. The country is ranked 22nd out of 122 economies in **The Human Capital Report 2013**, the best score of any upper middle-income nation. Malaysia is rated above average across all four main pillars: workforce and employment (18th); enabling environment (22nd); education (34th), and health and wellness (39th).

Looking further into the workforce and employment pillar, it is clear that cost-effective talent is an important characteristic of the local business environment. Malaysia is ranked first for the extent to which productivity is related to pay, also scoring well for staff training (11th); ease of finding skilled employees (12th); and capacity for innovation (15th).

The WEF's Global Competitiveness Report 2013-14 puts Malaysia in 24th place out of 148 economies, the second best in South East Asia. Performance is measured across 12 main pillars, each of which is divided into several sub-pillars, many of them related to the availability of qualified, cost-effective talent. Malaysia scores highly in several of these sub-pillars, including:

- The extent to which productivity is linked to pay (2nd)
- Effect of taxation on incentives to work (10th)
- Extent of staff training (11th)
- Quality of educational system (19th)
- Availability of scientists and engineers (19th)
- Country capacity to retain talent (20th)

Education spending

The availability and quality of education is an increasingly vital part of Malaysia's economic transformation strategy. The **National Education Blueprint 2013-2025** sets out a multi-pronged approach to optimise the potential of each child. The core aim is to raise standards in the key subjects of reading, mathematics and science.

Education has long been the single biggest item of Malaysian government spending, and this looks set to continue. The most recent budget - for 2014 - allocates RM54.6 billion (approximately US\$17.2 billion) to education, roughly 21% of total forecast spending. This allocation covers everything from building new pre-schools, to helping universities to publish more research papers.

Tertiary education

The last two decades have seen a massive expansion of tertiary education in Malaysia, in terms of both institutions and student numbers. 3.1 million workers now have a degree, a threefold increase in just 16 years. The government has invested heavily in public universities and appointed five as research universities (UM, USM, UKM, UPM, UTM). Private institutions of higher learning include both prominent local names as well as collaborations with and branches of reputed foreign universities.

Prominent institutions of higher learning

Public	UM, USM, UKM, UPM, UTM, UiTM, UUM,
Private	Putra Business School, UTP, Taylor's University, MMU, IMU, UNITEN, INCEIF, UniMy, UniRazak
Collaboration	PUGSOM (with Johns Hopkins), MISI (with MIT Centre for Transportation and Logistics)
Branch	University of Nottingham, Monash University,

There is a vast and growing list of courses on offer. Featuring prominently are fields related to key economic growth areas, such as engineering, finance, information and communication technology (ICT), management, science, and healthcare. Studies are increasingly aligned to the needs of potential employers, with most tertiary institutions ensuring students gain work experience before and after qualification. Greater Kuala Lumpur is home to many of Malaysia's most respected universities, university colleges and colleges, so it is no surprise that it is the country's leading destination for both local and international students. Furthering its status as Malaysia's undisputed talent hub, more than a third of fresh graduates begin their careers in Greater Kuala Lumpur.

English proficiency

Malaysians fall into three main ethnic groups - Malay, Chinese and Indian. There are also dozens of indigenous peoples, most of whom live in the Bornean states of Sarawak and Sabah. Malay is the national language, while English is widely spoken and understood, particularly in urbanised areas such as Greater Kuala Lumpur.

A world of languages

English is far from being the only linguistic ability which Malaysia can offer foreign investors and businesses. Chinese Malaysians are often fluent in at least one Chinese language, most commonly Mandarin, Cantonese or Hokkien. The same goes for the ethnic Indian community, among whom a large variety of languages are spoken, including Tamil, Hindi and Punjabi.

As Malaysia's most cosmopolitan area, Greater Kuala Lumpur can also draw upon the linguistic abilities of thousands of resident expatriates and international students. In an increasingly globalised world, the ability to communicate effectively with potential clients, suppliers and business partners, is a huge asset.

Cost-effectiveness of talent

Talent in Malaysia remains cost-effective, particularly compared to developed economies. The value of pay levels across a range of professions are two to three times smaller in US dollar terms, than in Singapore and Hong Kong. Indeed, the cost effectiveness of Malaysian workers is amongst the best in the world, according to the World Economic Forum.

Malaysia is ranked 11th out of 60 countries and territories in Education First's most recent English Proficiency Index (2013), the largest ever survey of its kind. The overall score of 58.99/70 is the highest in Asia, even beating three local rivals where English is an official language (Singapore, 58.92, 12th; India, 54.38, 21st; and Hong Kong, 53.54, 22nd).

Malaysia's English proficiency has benefited from a range of historical and cultural factors, such as being a former British colony, and the popularity of social media. The rapid expansion of tertiary education has also had a positive effect, as the vast majority of courses are taught in English. Education First notes a clear link between a country's success at exporting goods and services, and its proficiency in English.

Below are examples of employee-related expenses:

Personnel costs	
Employee provident fund contribution	12-13%
Social Security Organisation contributions (for employees earning less than RM3,000)	2.25%
Human Resources Development Fund contribution (applicable employer categories)	1%

Leave days	
Paid annual leave	8-16 days
Paid sick leave	14-22 days
Paid maternity leave	60 days

Source: MIDA

Strategic human capital reform

In order to build Malaysia's human capital strengths, and help move the country towards developed nation status, the government has initiated a multi-faceted strategy. Known as the **Human Capital Development Strategic Reform Initiative (SRI)**, it aims to drive the transformation of the Malaysian workplace.

Among the main reform areas are the modernisation of labour laws; the enhancement of labour safety nets; and the improvement of human resource (HR) management at small and medium enterprises (SMEs). An important reform, which is due to come into force in January 2014, is the introduction of a minimum wage.

The government is keen to encourage flexible working practices, as part of the drive to increase female participation in the workplace, from its current low level of 49.5% (2012). In another move, a double tax incentive has been introduced to encourage firms to employ highly skilled women returning from career breaks.

Attracting expatriates

The government recognises that highly skilled expatriates can contribute positively towards economic development. At present there are two main work permits available to foreign professionals who are relocating to Malaysia: the **Employment Pass**, and the **Professional Visit Pass (PVP)**.

For the former, the candidate needs a minimum monthly salary of RM5,000, or roughly US\$1,600. Once approved, the Employment Pass lasts a maximum of two years. It only applies to the employer at the time of application. The PVP is available for roles requiring specialist skills, and is valid for no longer than 12 months.

Resident Pass - Talent

A new 10-year employment permit, the **Resident Pass - Talent (RP-T)**, is available to highly skilled expatriates, who have already been working in Malaysia for three years. One of the main benefits for RP-T holders is that they can move between employers without applying for a new pass. What is more, their spouses can work without an Employment Pass.

There are various requirements to meet, such as paying Malaysian income tax for two years; having a gross taxable income of at least RM144,000/year (approximately US\$45,000); holding a valid Employment Pass; and possessing five or more years of relevant work experience. As of August 2013, the programme had accepted 1,700 expatriates in critical sectors like business services, oil and gas, ICT, and financial services.

“Considering that I travel extensively, this (RP-T) has helped ease my mobility in and out of the country tremendously.”

Stuart Dean
Chief Executive Officer, GE ASEAN

TalentCorp

The RP-T is one of the main programmes overseen by TalentCorp (www.talentcorp.com.my), a government agency set up in 2011 to optimise Malaysia's talent pool. As well as attracting and retaining skilled expatriates, it is tasked with addressing the country's "brain drain", and making sure the skill set of local workers matches the changing needs of industry. The following are some of the major projects coordinated by TalentCorp:

The **Returning Expert Programme (REP)** aims to encourage highly skilled Malaysians living abroad to return home, by offering a number of incentives, including tax exemptions. Just under 2,000 people have utilised the programme so far. More than a million Malaysians live and work abroad, many of them with valuable professional expertise (Source: World Bank, 2011).

The **Sector Focused Career Fair (SFCF)** is a vehicle used to educate mainly undergraduates and young professionals on the career paths available in 11 strategic sectors. The C-Talk initiative, which operates under the SFCF, also provides a platform for young people to engage and interact with industry leaders.

Ready4Work (www.ready4work.my) is an online portal aimed at Malaysian undergraduates and graduates preparing to enter the job market. It is equipped with real-time information concerning job trends, industry insights, and personal stories. The portal also provides online training modules from top corporations.

The **Structured Internship Programme (SIP)** is a joint effort between TalentCorp and the Ministry of Education, to help provide a relevant and purposeful internship experience for local students. Participating companies are eligible for double tax deduction for related expenses.

The **Upskilling Programme** is aimed at providing industry-ready talent for entry-level, high-skilled engineering jobs in key sectors, including oil and gas; electrical and electronics; biotechnology; telecommunication; and aerospace.

The **Graduate Employability Management Scheme (GEMS)** is an initiative developed to equip graduates with commercially useful skills and experiences. So far more than 8,000 students have found a placement through GEMS in 800 participating companies.

“What really motivated me to return was the thought of being able to contribute to the development of this nation by sharing the expertise, skills and experience I gained during my time abroad.”

Toi See Jong

Chief Executive Officer, Tokio Marine Life Insurance Malaysia
Returning Expert Programme (REP)

Key talent sectors

One of the crucial challenges facing any company, whatever its size or location, is to find the right employees to drive its business forward. This is particularly true of firms setting up or expanding operations overseas. In a bid to help overcome this challenge, several key talent sectors have been identified in Malaysia, with a view to increasing supply:

Engineering

Malaysia has a rich resource of engineering talent at its disposal, with dozens of tertiary institutions offering a variety of degree courses, from civil engineering to nanotechnology. One of the most important economic priorities is to ensure that there is a steady source of engineering talent to meet the needs of both local and foreign firms. This includes Malaysian nationals who have developed their skills and experience overseas. *(See page 35 for more information).*



Information and communication technology (ICT)

In line with global trends, Malaysia's ICT sector has experienced rapid growth over the past two decades, with annual exports rising to some RM7 billion (approximately US\$2.2 billion). A particular source of expansion in the Greater Kuala Lumpur area was the establishment of the Multimedia Super Corridor in the early 1990s. Now known as MSC Malaysia, and overseen by the Multimedia Development Corporation (MDeC), its two core aims are to groom local ICT talent, and attract world class technology companies. *(See page 45 for more information).*



Science

Given the huge number of scientific disciplines, the government has chosen to focus on certain key areas, as part of Malaysia's move towards being a knowledge-driven economy. These include biotechnology, biochemistry, geology, and geophysics. The country's expertise in halal certification makes Islamic-compliant food processing a logical growth area. *(See page 54 for more information).*





Finance



Malaysia has a strong financial services industry, featuring local, regional and global players, which together employ about a quarter of a million people. Cooperation with professional associations and institutions of higher learning, together with government support, ensures both the quantity and quality of available talent. A particularly strong area of expertise is in Islamic finance, in which Malaysia is the accepted world leader.

(See page 40 for more information).

Business administration



Malaysia is one of the largest centres for international trade and manufacturing in Southeast Asia, and consequently also a key logistics destination. The local pool of business administration talent is growing every year, with thousands of fresh graduates joining the workforce. Important areas of expertise on offer to foreign companies include general management, human resources (HR), marketing, and supply chain management.

(See page 49 for more information).

Healthcare



The healthcare sector - public and private - has seen a major expansion over recent years, driven largely by the needs of an increasing population.

The rise of medical tourism is another key driver of growth. Investment in both facilities and human capital has boosted the availability, as well as the quality, of medical care. Efforts are underway to widen the talent pool in related fields, such as clinical research, medical devices and pharmaceuticals.

(See page 58 for more information).

For detailed information about each talent sector, including graduate availability, focused development programmes, and academic/industry partnerships. *(See Appendix 1: Talent by sector).*

Innovation in Malaysia

Recent years have seen major progress towards becoming a knowledge-driven economy, with advances across a wide range of criteria, from large year-on-year increases in research and development (R&D) spending, to growing sophistication in the commercialisation of innovative products and services.

Targeted government support, an enabling business environment, a growing talent pool, close cooperation between industry and academic institutions, and strict protection of intellectual property rights, are just some of the factors which contribute to making Malaysia, and in particular Greater Kuala Lumpur, such an attractive destination for innovation and knowledge-driven businesses.

Global innovation rankings

Malaysia is ranked 32nd out of the 142 economies surveyed in the **Global Innovation Index 2013**, placing it top among upper middle-income nations, and second in ASEAN. It covers a wide range of criteria, divided into seven main pillars, and dozens of sub-pillars. The index is jointly produced by Cornell University, INSEAD business school, and the World Intellectual Property Organisation (WIPO).

Malaysia scores well above average across all seven main pillars, both in terms of its regional competitors, and also other upper middle-income nations. It achieves particularly good ratings for market sophistication (23rd); knowledge and technology outputs (24th); business sophistication (27th); and infrastructure (33rd).

There are also high ratings across a raft of sub-pillars, including:

1st	2nd	3rd	4th
<ul style="list-style-type: none">• Ease of getting credit• Percentage of R&D financed by business	<ul style="list-style-type: none">• High-tech exports less re-exports	<ul style="list-style-type: none">• Knowledge absorption• Percentage of high-tech imports less re-imports	<ul style="list-style-type: none">• Graduates in science and engineering• Percentage of creative goods exports• Ease of protecting investors• Market capitalisation as a percentage of GDP

The World Economic Forum's **Global**

Competitiveness Report 2013-14 characterises Malaysia as being in transition from an efficiency-driven economy, to one driven by innovation. As well as a creditable overall ranking - 24th out of 148 countries - it scores well in several criteria which make up the innovation pillar (25th). These criteria include:

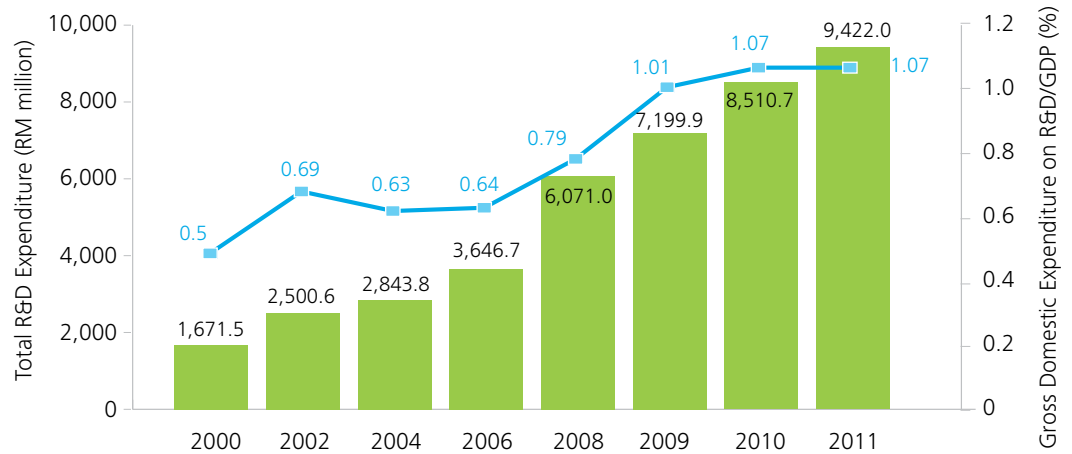
- Government procurement of advanced technology products (4th)
- Capacity for innovation (15th)
- University-industry collaboration in R&D (16th)
- Company spending on R&D (17th)
- Availability of scientists and engineers (19th)
- Quality of scientific research institutions (27th)

Research and development growth

Malaysia's R&D expenditure grew from 0.22% of GDP in 1996, to 1.07% in 2011, a fivefold increase. It should be noted that the country's GDP rose by an average of just under 4.8% a year in real terms

over the same period. Total R&D spending increased from RM490 million (approximately US\$154 million) in 1996, to RM9.42 billion (approximately US\$2.96 billion) in 2011.

R&D expenditure, 2000–2011

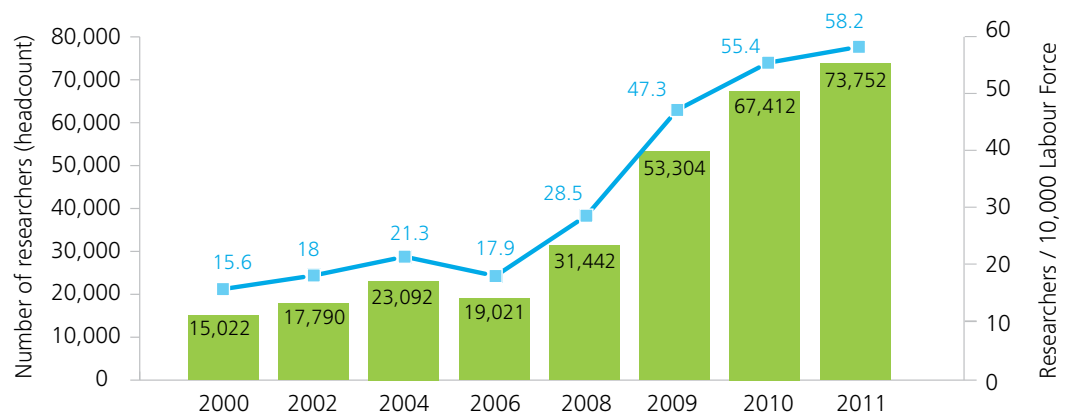


Source: National Survey of Research and Development

Innovation spending is coming from both the public and private sector, with a deepening collaboration between industry and academia. Of the total RM9.42 billion (approximately US\$2.94 billion) of R&D expenditure in 2011, more than half (56.7%) were carried out by businesses; while institutions of higher learning were responsible for over a third (28.9%); and government agencies and research institutes the remainder (14.4%).

The number of research personnel, another key innovation metric, is also on the rise. The total number of researchers in Malaysia grew from just 4,243 in 1996, to 73,752 in 2011, with nearly 55,000 added since 2006. As a proportion of the total workforce, the number of researchers increased tenfold over the space of 15 years.

R&D personnel (researchers), 2000–2011



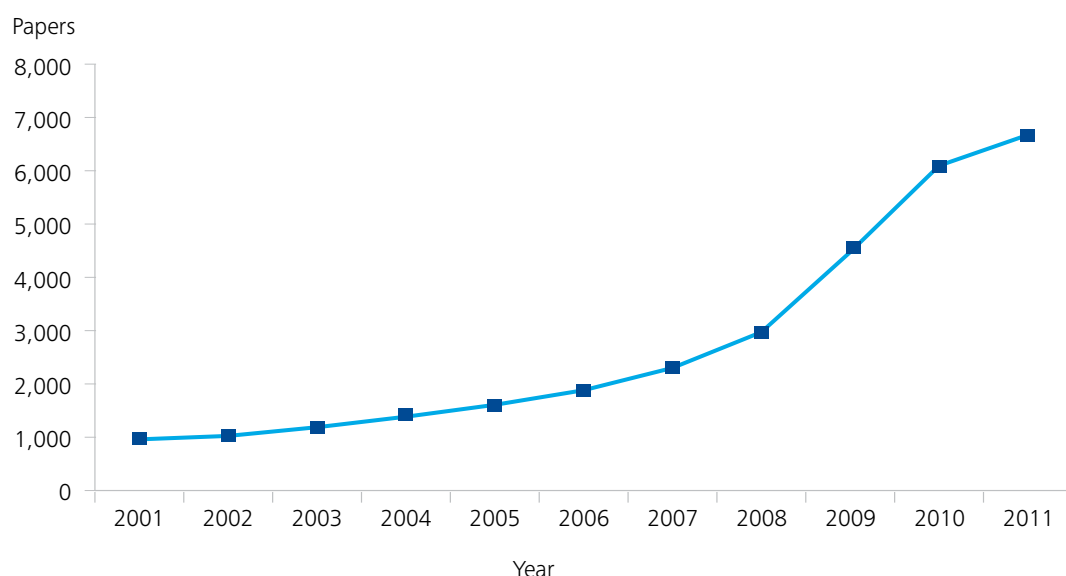
Source: National Survey of Research and Development

Academic research

A strong rising trend can also be observed in the number of academic papers published by local research universities, growing from 960 in 2001, to 6,673 in 2011. The government has allocated RM600 million (approximately US\$188 million)

to research universities in its budget for 2014, in a bid to continue this trend. Businesses stand to benefit both through collaboration with academic institutions, and through making use of the growing volume of primary research.

Number of academic papers by year



Source: Ministry of Science, Technology and Innovation, 2012

Driving the future of innovation

Malaysia has identified the growth of innovation as a core driver in achieving the country's long-standing aim of achieving developed nation status by 2020. The Economic Transformation Programme (ETP) places heavy emphasis on the creation of new business opportunities and jobs, through focused public and private sector investment in innovation. Several main strategies are being used to drive innovation in Malaysia:

- Spreading creative and critical thinking skills throughout the nation
- Facilitating commercialisation of intellectual property through public-private partnerships
- Creating a results-driven funding pipeline, in order to support the whole innovation life cycle, from inception to commercialisation
- Switching on the enablers of innovation, by making crucial knowledge available to citizens through digital platforms
- Bringing together citizens, government, industry, and academia, for innovation
- Encouraging the integration of public research institutes and centres of excellence into the broader innovation ecosystem
- Nurturing Malaysian companies to differentiate themselves through innovation
- Attracting talented Malaysians of all backgrounds to invest in innovation

The equivalent of US\$762 million worth of grants and funding has been allocated to support research activities throughout Malaysia. This money is targeted at research projects with high commercial potential, and disbursed by various agencies, such as MOSTI, MSC Malaysia and AIM.

Multi-agency approach

Given the massive challenge of moving from being an efficiency-driven economy, to one driven by knowledge and innovation, several different government departments and agencies have been given specific roles. The overall coordinator of both the ETP - and the complementary Government Transformation Programme (GTP) - is the **Performance Management and Delivery Unit** (PEMANDU, www.pemandu.gov.my). PEMANDU sits directly under the Prime Minister's Office and has been mandated to spur bold changes in public and private sector delivery, support the ministries in the delivery planning process and provide an independent view of progress and performance to the PM and ministers.

Agensi Inovasi Malaysia (AIM, www.innovation.my) is tasked with driving the National Innovation Strategy, by acting as a multi-sector, multi-initiative coordinator. It is also directly responsible for a myriad of programmes, from ones which aim to inspire the next generation of innovators, to those which provide funding to help commercialise innovative products or services.

(See Appendix 2 p64 for more details).

The **Ministry of International Trade and Industry** (MITI, www.miti.gov.my) is responsible for strategic initiatives to improve the country's global competitiveness in the international trade of value added goods and services. It plays a major role in accelerating high-technology, knowledge-intensive, and innovation-based, industries.

The **Ministry of Science, Technology and Innovation** (MOSTI, www.mosti.gov.my) has several core functions, including intensifying creativity and innovation; strengthening market-driven R&D; and developing and attracting talent. MOSTI oversees several subsidiary agencies, which act as national R&D development centres for key sectors.

The **Multimedia Development Corporation** (MDeC, www.mdec.my), oversees MSC Malaysia, formerly known as the Multimedia Super Corridor. Conceived in the early nineties, the MSC is a special economic zone within Greater Kuala Lumpur, which aims to nurture the local ICT industry, as well as

attract global technology companies. It is home to the largest concentration of ICT businesses in Malaysia, as well as leading multimedia academic institutions.

The **Ministry of Domestic Trade, Co-Operatives and Consumerism** (MDTCC, www.kpdnkk.gov.my/en) is tasked with fostering creativity and innovation through an effective intellectual property (IP) rights regime. Other core functions include promoting a conducive business environment, and empowering consumers.

Enabling innovation

Government support for research and development comes in various forms, including grants and other financial incentives; investments in public R&D infrastructure; and nurturing innovation skills in the broader populace. Institutions of higher learning and public R&D centres are encouraged to establish partnerships with industry players.

Financial support

The government supports R&D and commercialisation across the whole innovation value chain, with a comprehensive range of funding programmes. Most of these are only available to local entrepreneurs, businesses and academic institutions. But foreign investors and companies can still benefit through partnerships and joint ventures.

The equivalent of US\$762 million (Source: 10th Malaysia Plan) worth of grants and funding has been allocated to support research activities throughout Malaysia. This money is targeted at research projects with high commercial potential, and disbursed by various agencies, such as MOSTI, MSC Malaysia and AIM.

Government-linked R&D agencies

Various research institutes and R&D development centres have been established to boost innovation in key target areas. These include SIRIM (manufacturing, technology and services); MIMOS (ICT); NanoMalaysia (nanotechnology); Clinical Research Malaysia (CRM); the Clinical Research Centre (CRC); the Institute of Medical Research (IMR); and BiotechCorp (biotechnology).

(See Appendix 2, p67 for further details).

HICoE	Public universities	Area of focus
UM Centre of Research for Power Electronics, Drives, Automation & Control (UMPEDAC)	Universiti Malaya (UM)	Renewable energy
UKM Medical Molecular Biology Institute (UMBI)	Universiti Kebangsaan Malaysia (UKM)	Cancer biomarkers
Institute for Research in Molecular Medicine (INFORMM)	Universiti Sains Malaysia (USM)	Diagnostics Platforms
Institute of Bioscience (IBS)	Universiti Putra Malaysia (UPM)	Animal vaccines and therapeutic
Centre for Drug Research (CDR)	Universiti Sains Malaysia (USM)	Behavioural research in addiction
Accounting Research Institute (ARI)	Universiti Teknologi MARA (UiTM)	Islamic finance and criminology

Source: Ministry of Education

Tax incentives

R&D companies set up in Malaysia are eligible for a 10-year tax allowance, which allows all qualifying capital expenditure to be offset against 70% of income. In-house R&D is eligible for a 50% tax allowance, while companies providing R&D as a service to third parties can seek a five-year full tax exemption. Allowances can be carried over to subsequent years for further flexibility. Furthermore, companies can utilise a double deduction on non-capital expenditure related to qualifying R&D.

Higher Institution Centres of Excellence

Six public universities have been designated as Higher Institution Centres of Excellence (HICoE), each with different areas of focus. This was done as a strategic move to help these institutions to become international leaders in their respective sectors.

Technology parks and incubators

Malaysia has three main technology parks, and dozens of smaller ones. Technology Park Malaysia (TPM), which is located in KL, houses knowledge-based industries focused on research and development activities. The principal areas of focus are ICT, advanced engineering, and herbal biotechnology.

TPM is also home to the **Centre for Technology Commercialisation (CTC)**, which manages and monitors several innovation grants; and the **Innovation Incubation Centre (IIC)**, which has already nurtured some 1,000 start-ups, 28 of which have gone public on the Malaysian stock exchange. Malaysia has more than 106 incubators, all of which

help to accelerate the successful development of start-up and fledgling companies, by providing entrepreneurs with an array of targeted resources and services. This is more than Taiwan (97), and nearly as many as India (110).

Commercialisation

Malaysia offers a number of different funds for early-stage commercialisation. These are primarily targeted at companies where the majority of shares are held by Malaysians, but can be accessed by multinationals through local partnerships and appropriately structured subsidiaries.

(See Appendix 2, p69 for more information).

- The **Innovation Business Opportunities (IBO)** programme is a platform for marketing of innovations with high potential for generating business.
- **Lab2Market (L2M)** enables the marketability of innovations from research institutions and universities.
- **Malaysian Debt Venture (MDV)** manages the equivalent of US\$793 million for seeding venture capital funds that invest in early-stage high-tech companies.
- The **MTDC Business Growth Fund** bridges the gap between the R&D and commercialisation stages of high-technology products.

Malaysia is home to 6 Higher Institution Centres of Excellence and 3 Technology Parks focusing on research and development activities.

- The **Commercialisation of Research and Development Fund (CRDF)** supports the commercialisation activities of locally developed technologies, undertaken by Malaysian-owned companies.
- The **Technology Acquisition Fund (TAF)** enables eligible Malaysian companies to acquire foreign technology for immediate incorporation into manufacturing activity.
- The **Cradle Investment Programme (CIP)** helps budding innovators and aspiring entrepreneurs to transform technology-based ideas into viable businesses.
- The **Business Start-up Fund (BSF)** supports new start-up technology-based companies, through a mixture of loans and equity.

MyIPO has granted almost 50,000 registrations since its inception in 2003, during which time it has seen an average annual growth rate of 12.4%.

Capitalising on innovation

The traditional way to profit from innovations is to incorporate them into a product or service, however increasingly the innovations themselves can be bought and sold like physical goods. The government is keen for Malaysia to become a hub for the IP trade, and with this in mind has drawn up guidelines for valuing intellectual property (IP).

The **Intellectual Property Training Centre (IPTC)** has been established to carry out research, teaching and training, in the field of IP valuation. The government is working with local banks for a unified model for valuing intellectual property, with an expected implementation date of January 2014. This model would allow businesses to use their IP rights as collateral for funding from commercial banks across the country.

Intellectual property protection

To empower businesses to create and utilise technological innovations and other non-material forms of capital, they need to be secure in the knowledge that their intellectual property (IP) rights are respected. Over recent years, Malaysia has thoroughly modernised its legislation and institutions for patent, trademark, industrial design, geographical location, copyright, and layout design protection.

International best practice

By implementing into law international conventions and treaties on IP rights, Malaysia has created a modern environment for the management of intellectual property. Local institutions have been established to allow the brisk processing of registrations and claims; making intellectual property management a straightforward matter.

In 2012, the US Trade Representative Office removed Malaysia from its **Special 301** list of countries it accuses of committing IP rights violations. The office gave Malaysia high marks for copyright protection and anti-piracy enforcement. By contrast, fellow-ASEAN members Thailand, Indonesia, Vietnam, and the Philippines, remain on the list.

The **National Intellectual Property Policy (NIPP)** promotes IP-related activities, by helping to make the management of R&D more effective in research institutions, universities, small and medium enterprises (SMEs), and among individuals, as well as through the acquisition of foreign IP rights in selected priority areas.

Protection in practice

The **Intellectual Property Corporation of Malaysia (MyIPO)** is responsible for the development and management of the local IP system, including patents, trademarks, industrial designs and copyright. MyIPO has granted almost 50,000 registrations since its inception in 2003, during which time it has seen an average annual growth rate of 12.4%.

Patents

The application process for patents is subject to the requirements of the Patents Act 1983. A patent or utility innovation is protected for 20 years from the date of filing. Applicants can file an international patent application to seek protection for an invention simultaneously in all countries which have ratified the Patent Cooperation Treaty (2006).

Trademarks

Registrations of trademarks in Malaysia are governed by the Trade Marks Act 1976. Registration is valid for ten years from the date of application, and may be renewed every ten years. Foreign individuals and companies can register trademarks in Malaysia, so long as they are the legitimate owners.

Industrial design

Protection is governed by the Industrial Design Act 1996 and the Industrial Design Regulations 1999. A registered industrial design can be protected for up to 15 years, subject to renewal, but is only protected in Malaysia. In order to have designs protected in other Paris Convention countries, the IP holder must apply for registration in these countries within six months of filing.

Copyright

Protection is governed by the Copyright Act 1987, and enforced by the Ministry of Domestic Trade, Co-Operatives and Consumerism. There is no system of registration for copyright, however eligible work is protected automatically, if it is deemed original in character and has been written down or otherwise recorded, or if the work is made or published in Malaysia.

Geographical indication

This is protected under the Geographical Indications Act 2000. A registered geographical indication is initially given ten years of protection from the date of filing, and can be extended every ten years. Beyond globally recognised names, such as Champagne, MyIPO also lists local designations, like Sarawak Pepper and Sabah Tea.

IP rights enforcement

Intellectual property rights are enforced by the Ministry of Domestic Trade, Co-Operatives and Consumerism, with two main enforcement avenues: criminal action and civil litigation. Cases can be resolved through arbitration in the Kuala Lumpur Regional Centre for Arbitration (KLRC), or through one of the six dedicated IP courts. There are several internationally recognised IP law firms with offices in Malaysia, including Baker & McKenzie; Allen & Gledhill, and Marks & Clerk.



Recap

Malaysia is at the heart, both economically and geographically, of the Association of South East Asian Nations (ASEAN). This 10-nation bloc, with a total population of roughly six hundred million people, and an estimated GDP of about two trillion US dollars, is due to form a single market by 2015, the ASEAN Economic Community by 2015.

Greater Kuala Lumpur—the city of Kuala Lumpur, together with nine other metropolitan areas in the surrounding—is Malaysia’s most economically vibrant and commercially important region. Investing in Greater Kuala Lumpur not only provides a gateway to Malaysia, the world’s 29th biggest economy, but also to ASEAN, and the massive potential markets of India and China.

Now characterised as a newly industrialised or upper middle-income nation, Malaysia has a long-standing aim of becoming a high-income/developed country by the end of this decade (2020). The government’s multi-pronged strategy to achieve this is known collectively as the Economic Transformation Programme (ETP).

Favoured destination

Greater Kuala Lumpur has long been a favoured destination for both multinational companies (MNCs) and foreign direct investment, with the likes of BMW, Citibank, GlaxoSmithKline, HSBC, Nestle, Nokia, PayPal, Prudential, Shell and Tesco, having operations in the region. Greater Kuala Lumpur’s many attractions include:

- It has just under 30% of Malaysia’s total labour force of 14 million people, while more than a third of the country’s fresh graduates move to the area. There are nine public universities, and over 25 private universities in Greater Kuala Lumpur, offering courses in a comprehensive range of subjects.
- Wages for skilled staff are extremely cost-effective in international terms. Indeed, they are two to three times less than in Singapore and Hong Kong. Business surveys rank the country’s workers as being amongst the best value in the world, when pay is set against productivity.

Global business rankings

Malaysia is ranked by several reputable organisations as among the best places to do business in the world. The high rankings point to a comprehensive range of strengths, from an enabling environment, to the availability of cost-effective, highly skilled talent:

- 3rd in the Global Services Location Index 2011 (AT Kearney)
- 6th in the Doing Business Report 2014 (World Bank)
- 15th in the World Competition Yearbook 2013 (International Institute of Management Development)
- 22nd in The Human Capital Report 2013 (World Economic Forum)
- 24th in the Global Competitiveness Report 2013-14 (World Economic Forum)
- 32nd in the Global Innovation Index 2013 (Cornell University, INSEAD, and the World Intellectual Property Organisation)

- The innovation ecosystem is advancing swiftly with the help of government support, as well as growing collaboration between academic institutions and industry. A myriad of programmes is in place to facilitate every stage of the innovation process, from research and development (R&D), through to commercialisation.
- Malaysia has put into law international conventions and treaties on intellectual property (IP) protection. Businesses in Greater Kuala Lumpur can create and utilise technological innovations, secure in the knowledge that their IP rights will be respected.
- The government has acted to make the local business environment as enabling as possible, through a series of reforms, initiatives and financial support. These include investing heavily in education; creating laws, facilities and funding to support innovation; and funding and facilitating key sector initiatives.
- Malaysia is ranked 11th in Education First's English Proficiency Test 2013, the best performance of any Asian nation. Nowhere is this proficiency more in evidence than in Greater Kuala Lumpur, where the language is widely spoken and understood.
- KL is a vibrant, multi-cultural place, with a friendly, relaxed atmosphere. It can also boast an extremely affordable cost of living, particularly in terms of accommodation, healthcare, international schools, eating out and shopping.

InvestKL

Greater Kuala Lumpur's continuing economic and commercial success is considered essential for Malaysia to become a developed nation by 2020. Its planned transformation into a world-class metropolis, which will boast high standards in every area from business infrastructure to liveability, is an integral part of the ETP.

Although much of Greater Kuala Lumpur's development will be driven by local investment, both public and private, a core aim is to increase foreign investment. With this in mind, the government has established a special purpose investment promotion agency, InvestKL (www.investkl.gov.my), to make the investment process as smooth as possible for foreign companies and entrepreneurs.

Key sectors

The ETP is focused on 11 broad business sectors, and one geographical area (Greater Kuala Lumpur). Seven of these key sectors are of particular relevance to investors looking to locate business functions in Greater Kuala Lumpur:

- Oil, gas and energy
- Electrical and electronics
- Business services
- Financial services
- Healthcare
- Agriculture
- Wholesale and retail

Whatever sector you operate in, you will have all the tools at your disposal in Greater Kuala Lumpur to achieve business success. A cost-effective, increasingly educated and skilled workforce; government support; a dedicated agency (InvestKL) to facilitate your investment; and a growing innovation ecosystem; are just some of what the region has to offer. Invest in Greater Kuala Lumpur and be part of ASEAN's rising hub for talent and innovation.

Appendix 1: Talent by sector



Engineering

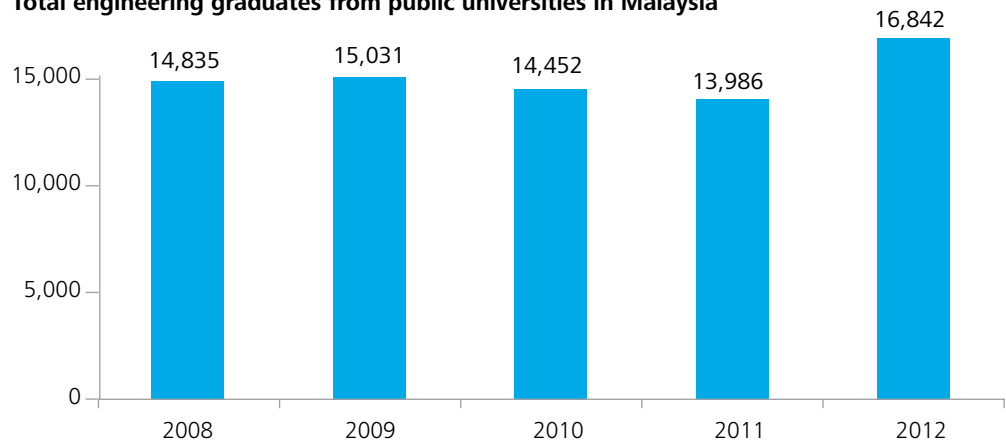
Both public and private institutions of higher learning in Malaysia have placed great emphasis on their engineering courses, ensuring graduates are equipped with a balance of theory and practical knowledge. Global corporations, such as General Electric, Vale, and Alstom, with operations in the country have found a ready supply of skilled employees, while also investing in the long-term development of their local workforce. Several federal and regional government programmes, such the High Income Talent Research Scientist Engineer (HIT-RSE) and Technology Specialist in Specific Domain Expertise (TeSSDE), drive further specialisation of engineers.

Fresh graduates

Public universities alone produced 16,842 engineering graduates in 2012, a sign of the growing demand for talent. Of these, nearly a third (5,614) studied in the Greater Kuala Lumpur area. According to Ministry of Education statistics from 2010 and 2011, the three most important fields of study were civil engineering; electronics and automation; mechanics and metal work.

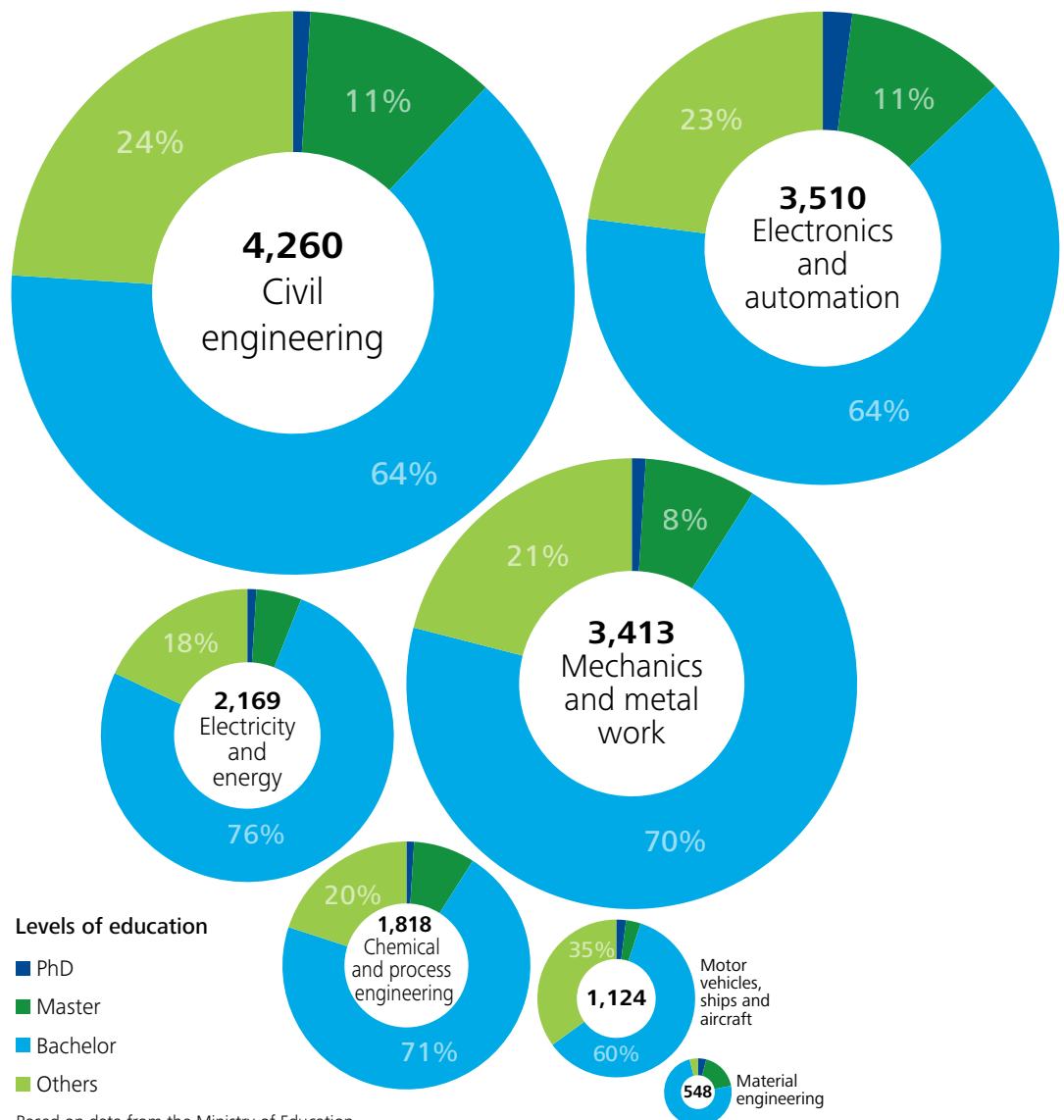


Total engineering graduates from public universities in Malaysia



Source: Ministry of Education

Graduate output by field of study, 2012 (public universities)



Levels of education

- PhD
- Master
- Bachelor
- Others

Based on data from the Ministry of Education

Global rankings

Five of Malaysia's public research universities are rated in the top 200 for all four of the broad engineering disciplines, in the QS World University Rankings 2013.

QS world university rankings by subject, 2013

Chemical engineering	Civil and structural engineering	Electrical and electronic engineering	Mechanical engineering
USM (38)	UPM (101-150)	UM (51-100)	UKM (101-150)
UM (51-100)	USM (101-150)	UKM (101-150)	UM (101-150)
UTM (101-150)	UTM (101-150)	USM (101-150)	UPM (101-150)
UKM (151-200)	UKM (151-200)	UPM (151-200)	USM (101-150)
UPM (151-200)	UM (151-200)	UTM (151-200)	UTM (101-150)

Universiti Sains Malaysia (USM)

Malaysia's second oldest university has built up a strong reputation for engineering, ever since it was founded in 1969. Indeed, one of USM's three campuses is wholly dedicated to the field. It scores strongly across all four main categories in the QS rankings, with chemical engineering rated an impressive 38th in the world. Overall, USM's engineering and technology courses are ranked 169th in the world.

Universiti Malaya (UM)

UM is Malaysia's oldest and most prestigious institution of higher learning (167th overall in the QS rankings). Universiti Malaya offers a comprehensive selection of study areas at its main campus in KL, from civil to mechanical engineering. UM's engineering and technology courses are rated 213th in the world in the QS rankings, with top 100 performances in both chemical engineering, and electrical and electronic engineering.

Universiti Teknologi Malaysia (UTM)

UTM has provided degree-level engineering courses since 1960, and now offers students a massive range of focus areas, from petroleum engineering to aeronautics. Most of these courses are based in the southern state of Johor, but the branch campus in central KL is home to several centres of excellence, heavily focused on postgraduate research.

Universiti Kebangsaan Malaysia (UKM)

UKM offers a large number of engineering courses, at its main campus in Greater Kuala Lumpur. It rates well across all four main engineering subject areas in the QS rankings. UKM has graduated more than 150,000 students since it was established in 1970, a figure which looks set to rise drastically over coming years, given the rise in its total student population to about 27,000 at last count.

Universiti Putra Malaysia (UPM)

Starting life as an agricultural school in 1931, it is now a research university with 16 faculties, including one dedicated to engineering. UPM is rated in the top 200 in the world in all four engineering areas in the QS rankings. It scores especially highly for civil and structural engineering, and mechanical engineering.

University of Nottingham Malaysia Campus (UNMC)

UNMC offers a comprehensive range of study areas, from civil engineering to renewable energy. It has established MyResearch to enable Malaysia-based firms to make use of its research. UNMC's parent institution, the University of Nottingham, is rated 75th in the QS World University Rankings 2013. UNMC prides itself on the employability of its graduates, which is achieved by balancing academic theory, with practical experience.

Universiti Teknologi PETRONAS (UTP)

UTP, which was established by the national oil and gas company, PETRONAS, in 1997, offers a focused selection of engineering and technology courses. It has built up strong expertise in geosciences and petrochemical engineering. UTP requires all students to complete seven-month internship programmes.

Monash University Malaysia

Engineering is one of the core disciplines offered at the Monash University Malaysia, the local campus of highly regarded Monash University (69th in QS World University Rankings 2013). It offers four Bachelor of Engineering programmes - mechanical; electrical and computer systems; chemical; and mechatronics - and two postgraduate courses.

Universiti Tenaga Nasional (UNITEN)

UNITEN offers a unique combination of academic programmes, and training in engineering technology skills, on the same campus. It has some 3,000 engineering students in all. One of Malaysia's first private universities, it is wholly owned by the country's largest utility company, Tenaga Nasional.

Taylor's University

One of Malaysia's best regarded private institution of higher learning, Taylor's provides a focused selection of engineering courses, at foundation, undergraduate, and postgraduate levels. All these courses are accredited by the Board of Engineering Malaysia. Taylor's places a strong emphasis on combining theory with practical experience, to help ensure the future employability of its students.

“I am particularly proud of the high level of employability among graduates from the University of Nottingham Malaysia Campus; over 96% are employed within six months of graduation.”

Professor Christine Ennew

Pro-Vice-Chancellor and Provost,
University of Nottingham Malaysia Campus (UNMC)

Study abroad

In addition to providing strong support for local universities, the Malaysian government recognises the value of sending some of its best and brightest young people to study at prestigious institutions overseas. More than 40% of Public Service Department scholarships are awarded to engineering students, who study at the likes of the Massachusetts Institute of Technology (MIT), the University of Cambridge, and the University of Melbourne.

Total workforce

The Board of Engineers Malaysia has 83,000 registered members, with civil engineers the largest single group (32,000), followed by mechanical engineers (19,000), and electrical engineers (15,000). On average, chemical, mechanical, and civil engineers in Malaysia (with less than five years of experience) are paid the equivalent of US\$16,000/year. The growing supply of engineering talent over recent years has kept wages competitive.

Development opportunities

Several government programmes exist to support the further education of engineers. Employing a mix of classroom learning, mentorship, and industry placements, these programmes allow organisations to further enhance the skills of their workforce, as well as boost the employability of fresh graduates.

High Income Talent Research Scientist Engineer (HIT-RSE)

HIT-RSE is a skills-enhancement programme run by the Selangor Human Resource Development Centre (SHRDC) to help companies attract, retain, and develop top local engineering talent. It is aimed at engineers with between one and two years work experience. SHRDC recruits, selects, and prepares the candidates, as well as providing support throughout the programme.

Technology Specialist in Specific Domain Expertise (TeSSDE) programme

TeSSDE is a human capital development programme sponsored by the Economic Planning Unit (EPU), and owned by MIGHT-METEOR Advanced Manufacturing. It is targeted at fresh engineering graduates from public universities. The total duration of the programme is one year. The first four months focus on intensive lectures, seminars and tutorials, while the remaining eight months are reserved for work attachments at participating companies.

Strand Aerospace Malaysia

Strand Aerospace Malaysia is an engineering service supplier, which specialises in aero structure analysis. Its clients include global giants such as Airbus and SAFRAN. In its early years, the company often hired Malaysian engineers who had studied abroad, but now 60% of its engineers are graduates from local institutions. Strand has developed its own training development programme, which it aims to grow into a human capital development centre for the engineering industry.

“The syllabus for foreign and local institutions of higher learning is largely similar. Currently, 60% of our hires are local graduates from schools such as UniKL MIAT and Universiti Teknologi Malaysia. They have shown a great hunger to develop and are more than willing to put in the hours. With the increase in demand over the last few years, we have been able to provide our people with the right exposure to enhance their skills.”

Hafeiz Hassan

General Manager, Strand Aerospace Malaysia

Linde

The world’s largest industrial gas company, is setting up a regional operating centre in Greater Kuala Lumpur, which will remotely operate 32 plants, located in 11 Asian countries. Its strategy is to recruit chemical engineers mainly from local universities. These engineers will receive mandatory training from senior co-workers, before they are allowed to run plant operations.

“Fresh graduates in chemical engineering who we have hired from local universities have good communication skills and the necessary technical knowledge.”

Yong Niam Pyng

Head of Remote Operating Centre, South East Asia, Linde Gas Asia



Finance

Malaysia is home to a flourishing financial services industry, which makes up some 11% of national GDP, and employs over a quarter of a million people. Professional associations represent a large number of certified finance professionals, including 11,000 ACCA members and 100 Fellows of Actuary. Schlumberger most recently joined a rich list of large corporations with financial hubs in Greater Kuala Lumpur, leveraging the local supply of talent.

The sector's impressive growth over recent years has been accompanied by a steady expansion in the available talent pool. Both public and private institutions of higher learning, many of them based in Greater Kuala Lumpur, turn out thousands of finance graduates every year. In 2012, public universities alone produced nearly 15,000 graduates in the fields of economics, finance, banking, insurance, accounting, taxation, and statistics.

Fresh graduates

The financial services industry's need for fresh talent is being met by a healthy number of graduates in a wide range of fields, including accounting, taxation, economics, banking, insurance, and statistics. Public universities alone graduated some 15,000 finance students in 2012, with more than a third completing their studies in the Greater Kuala Lumpur area.

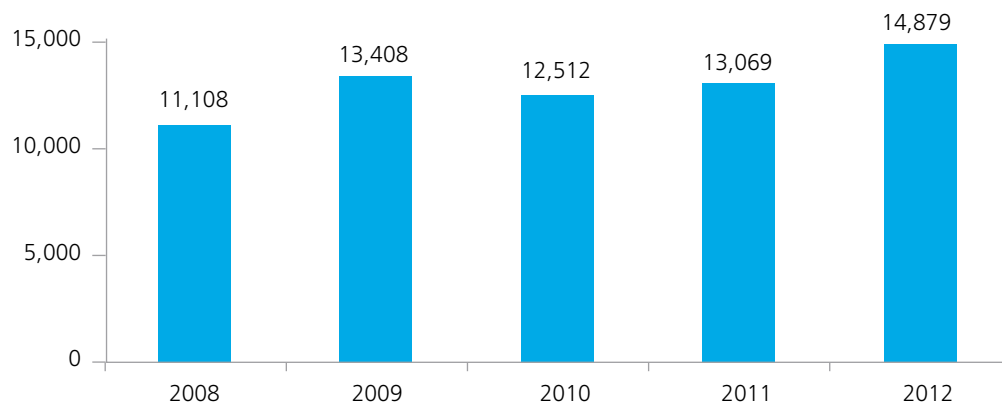
Recognising the evolving nature of the field and the need for further talent development, the government has established a portfolio of upskilling initiatives, most notably including the Financial Sector Talent Enrichment Programme (FSTEP). The country has also established itself as a global player in the field of Islamic finance, complete with the establishment of The International Centre for Education in Islamic Finance (INCEIF), a university specialising in postgraduate studies in Islamic finance.

Malaysia, the leader in islamic finance

Malaysia is home to the largest Islamic banking assets with a current value of US\$86 billion; has the highest number of Islamic fund managers with 152 firms managing a total of US\$6.5 billion of funds; its Bursa Malaysia topped the world's exchanges in sukuk listings, recording a total of US\$17.6 billion in sukuks last year; and with 1,080 sukuk issuances amounting to US\$67 billion, the country accounted for 63 per cent of the global sukuk issued since 2006.

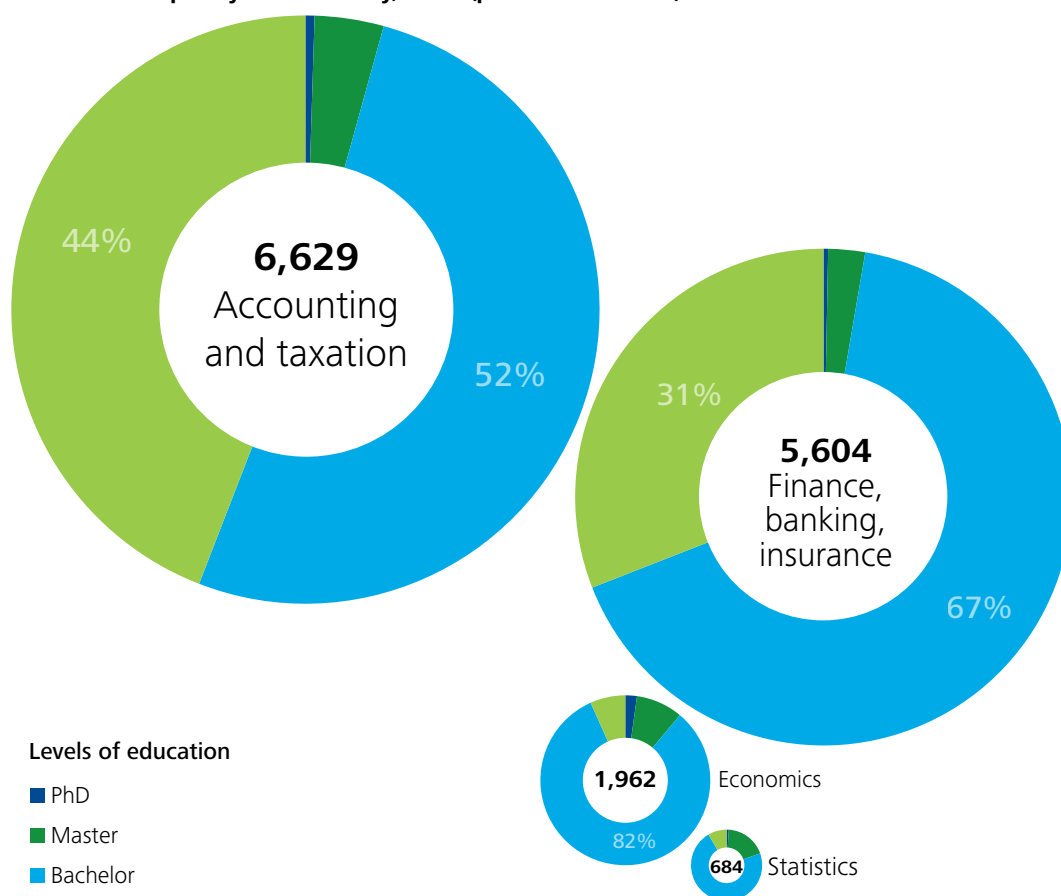
Source: Business Times

Total finance graduates from public universities in Malaysia



Source: Ministry of Education

Graduate output by field of study, 2012 (public universities)



Based on data from the Ministry of Education

Global rankings

Three of Malaysia's public research universities rate in the top 200 schools in the world under category of economics and econometrics, according to the QS World University Rankings 2013:

QS world university rankings by subject, 2013

University	Economics and econometrics
Universiti Putra Malaysia	101-150
Universiti Malaya	151-200
Universiti Sains Malaysia	151-200

The International Centre for Education in Islamic Finance (INCEIF)

Located in KL, this is the only university in the world which is wholly dedicated to postgraduate studies in Islamic Finance. It has graduated 600 students so far, across three main degree programmes: Chartered Islamic Finance Professional; Master of Science in Islamic Finance; and Doctor of Philosophy in Islamic Finance.

INCEIF is also home to the International Shari'ah Research Academy for Islamic Finance (ISRA), and the Islamic Banking and Finance Institute of Malaysia (IBFIM). The complementary functions of these three institutions are helping to drive Malaysia's existing leadership in the field of Islamic finance.

University Malaya (UM)

Malaysia's oldest university produces some 540 finance graduates a year. It is the country's only institution to be a programme partner of the Chartered Financial Analyst (CFA) Institute. The institute recognises several courses run by UM, including Bachelor of Business Administration; Bachelor of Accounting; and Master of Business Administration. As a CFA programme partner, scholarships and educational resources are available for students.

“My learning experience at INCEIF has been incredibly rewarding. I feel the main advantages that INCEIF has over other Islamic finance education providers are the strength of its faculty members, and the diversity of its students. Student diversity is seen in the multitude of nationalities and backgrounds. My classmates come from banking, law and accounting, so I get to mine a wealth of knowledge from their respective fields.”

Norhazlina Ibrahim, Doctor of Philosophy in Islamic Finance
Lecturer, Universiti Sains Islam Malaysia

Study abroad

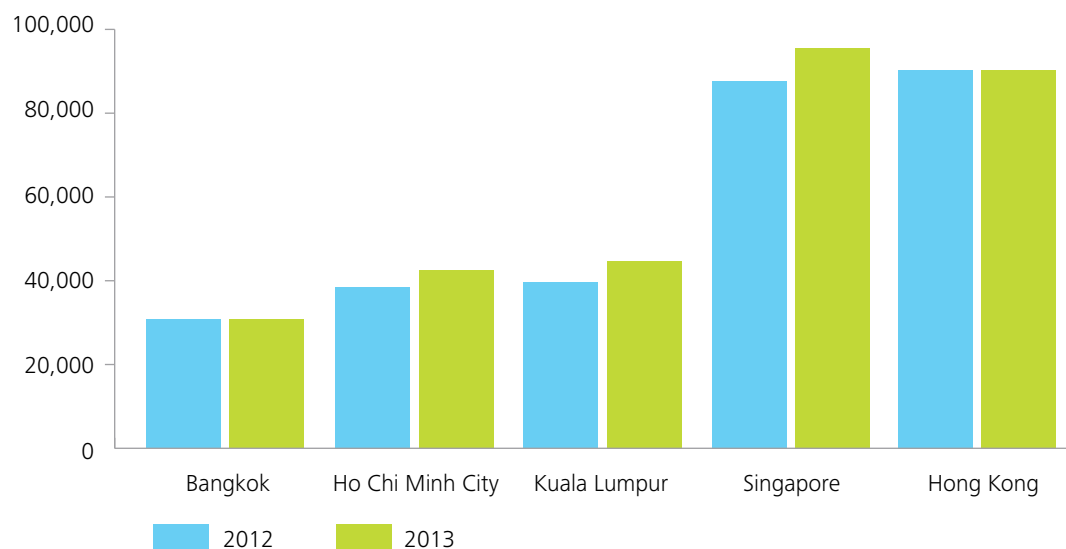
Scholarships are available for eligible students to continue their finance studies at prestigious institutions overseas, including Harvard University, the University of Oxford, the University of Chicago, Australian National University, and the London School of Economics. The Public Service Department awarded more than 200 of these scholarships in 2012 to finance students.

Total workforce

The steady supply of financial services graduates has served to deepen the already large pool of available talent. The industry employs at least 300,000 people at last count (Source: Department of Statistics Malaysia), with steady growth predicted over coming years, due both to rising local demand, and to the opportunities offered by an increasingly globalised market for financial services and products. The steady supply of new graduates also keeps wage levels competitive by international standards.

Median annual income of Finance Managers, 2012-2013

US Dollars



Source: Robert Walters

Professional associations

A large part of the workforce belongs to respected professional associations, including the Association of Chartered Accountants (ACCA), and the Actuarial Society of Malaysia (ASM). Increasing cooperation between these bodies and local higher education providers, ensures the relevance of finance studies to industry needs.

ACCA Malaysia

This body has close to 11,000 members, and 34,000 students and affiliates. There are also 3,000 Malaysians with ACCA credentials residing abroad. In June 2012, students in Malaysia made up 9% of the total global ACCA graduates, establishing the country as a world class destination for finance talent.

The Actuarial Society of Malaysia (ASM)

ASM is the sole representative for the actuarial profession in Malaysia, encompassing members from the Society of Actuaries (USA); the Institute and Faculty of Actuaries (UK); and the Actuaries Institute (Australia). It has a total of 629 members, of which 100 are fellows, and 42 associates.

Development opportunities

The government recognises the evolving nature of the finance industry, and thus the need for continual career development. To this end, it has established a portfolio of programmes to match available skill sets to the needs of businesses. Some cater primarily to young executives, while others are for more experienced personnel.

Financial Sector Talent Enrichment Programme (FSTEP)

FSTEP supports the growth of the Malaysian financial sector, by providing intensive one-year training programmes for entry-level executives. It is managed by the Institute of Bankers Malaysia (IBBM), with direct industry support. Participating financial institutions include Maybank, CIMB, Citibank, and Great Eastern Life Assurance.

International Centre for Leadership in Finance (ICLIF)

ICLIF aims to develop world-class finance leaders, with the capability to adapt and effectively manage an organisation in a rapidly changing environment. The programmes focus on roles, responsibilities, and key issues, in areas such as risk management, corporate governance, and financial reporting. The ICLIF's Financial Institutions Directors' Education (FIDE) programme is directed at board members of financial institutions.

Asian Institute of Finance (AIF)

The AIF focuses on developing human capital for the financial services industry. Through round-table discussions, and targeted training sessions, the institute looks to elevate Malaysia's position as a leading provider of comprehensive financial solutions. Training areas include micro-finance, risk management, and risk governance.

“There were countless learning opportunities in FSTEP, including the knowledge on banking, as well as more specialised courses in conventional, investment, Islamic and insurance fields. Another interesting aspect was having very good mentors to guide and encourage you during your internship period. Last but not least, the programme allowed us to expand our networking among the trainees.”

Ranjini Menon Gopala Krishnan
FSTEP Batch 6, Bachelor of Commerce (Accounting and Law) Monash
University, Australia



Information and communication technology (ICT)

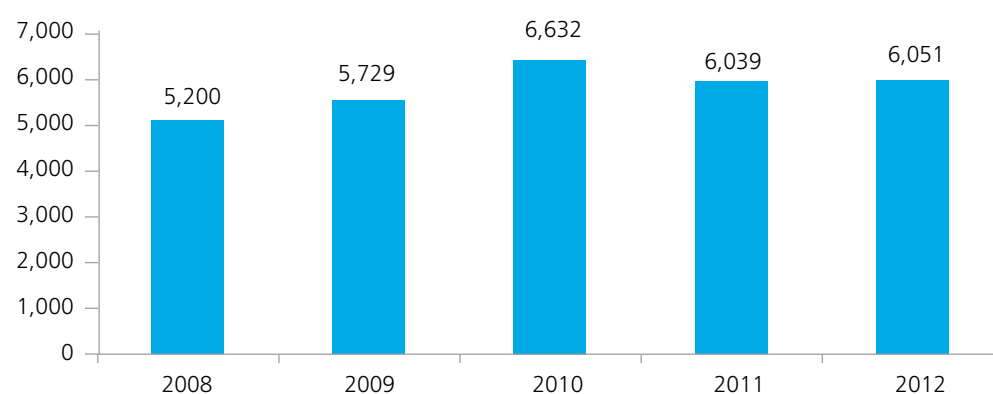
Malaysia's ICT industry has seen enormous growth over the last two decades, and now employs more than 130,000 people. Both public and private institutions of higher learning have risen to the challenge of boosting the supply of skilled information and communication technology workers. Greater Kuala Lumpur is at the heart of the local ICT industry, in terms of both available talent, and business opportunities. Large multinationals like IBM, DELL, and HP have benefited from this and have forged close ties with local academic institutions to develop specialised talent.

To meet the growing talent needs of the sector, two ICT focused universities, Multimedia University (MMU) and Universiti Malaysia of Computer Science and Engineering (UniMy) were established. Programmes such as MyProCert enhance post-graduation education in an evolving technology landscape, including collaboration with Oracle, IBM, Apple, Huawei, and Autodesk.

Fresh graduates

Public universities alone graduate more than 6,000 ICT students every year, making it one of the most popular fields of study in Malaysia. The total rose by an impressive 16% in the space of just four years, from 5,200 in 2008, to 6,051 in 2012.

Total ICT graduates from public universities in Malaysia



Source: Ministry of Education

Global rankings

Two Malaysian universities are rated in the top 150 schools in the world for computer science and information systems, in the QS World University Rankings 2013: Universiti Malaya (UM) and Universiti Sains Malaysia (USM).

QS world university rankings by subject, 2013

University	Computer science and information systems
Universiti Malaya	101-150
Universiti Sains Malaysia	101-150

Universiti Malaya (UM)

Malaysia's best-rated institution in the overall QS World University Rankings (167), UM has been at the forefront of ICT technology for nearly half a century, building its first computer centre in the mid-1960s. These days it offers undergraduate and postgraduate studies in six core areas: artificial intelligence; computer system and technology; information system; software engineering; library and information science; and multimedia.

Multimedia University (MMU)

Established as Malaysia's first private university back in 1996, it is now home to nearly 19,000 students. MMU has always played a key role in the development of ICT talent, with one of its two campuses located at the heart of MSC Malaysia (formerly known as the Multimedia Super Corridor), a special high-tech economic zone. It has close links with several major technology companies, including IBM, Cisco Systems, Microsoft, and Intel.

University Malaysia of Computer Science and Engineering (UniMy)

UniMy was established in 2013 to boost the available talent pool of computer science graduates. Its annual intake is forecast to grow to 10,000 by the end of the decade. To ensure a quality education, it has partnered with the University of Melbourne, which is ranked 13th in the world for computer science and information systems (QS World University Rankings 2013). Like MMU, UniMy is located in Cyberjaya, within MSC Malaysia.

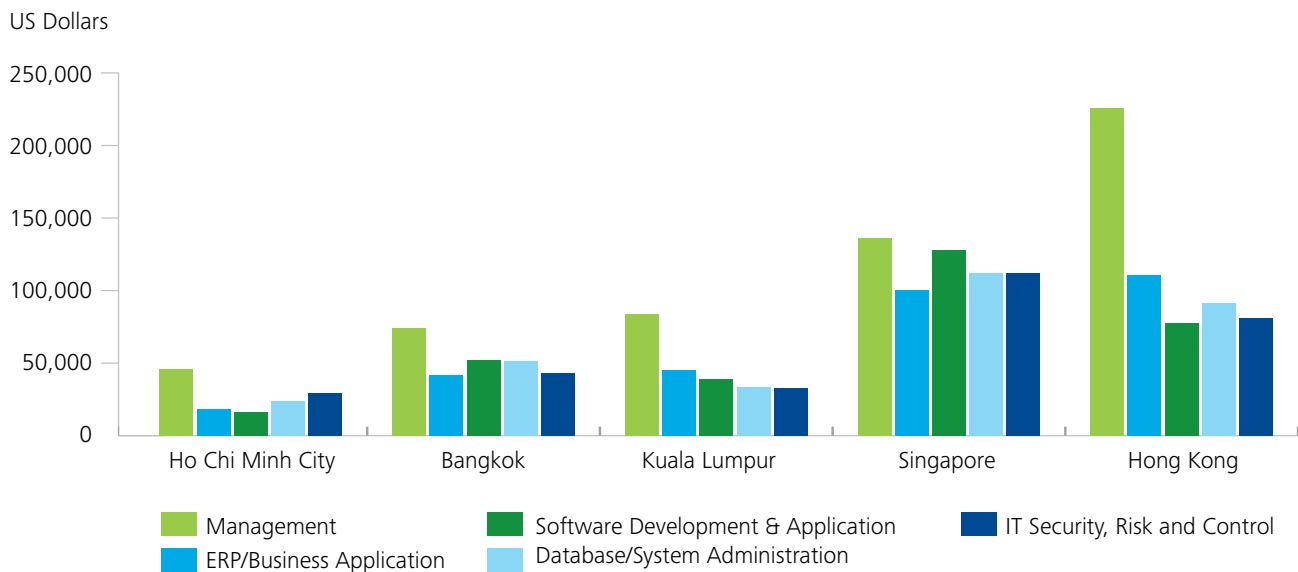
Total workforce

The ICT sector has risen rapidly over the last two decades, and now employs more than 130,000 people. The greatest concentration of high-tech companies is in Greater Kuala Lumpur, meaning that the city attracts the brightest and the best talent. What is more, of the 6,000 ICT graduates from public universities in 2012, an estimated 45% studied in Greater Kuala Lumpur. Despite the pressures created by the fast-growing sector, salaries remain competitive.

MSC Malaysia

This special economic zone was established within Greater Kuala Lumpur in the mid-1990s, in a bid to recreate the success of Silicon Valley. At last count, more than 3,000 ICT companies have been attracted to the area, the majority working in information technology (2,392); with smaller numbers in creative multimedia (373); and the remainder (292), in shared services and outsourcing.

Median annual income of ICT workers in 5 countries, 2013



Source: Pikom

Development opportunities

Upskilling of the current ICT workforce and extra-curricular preparation of ICT students is primarily the territory of the Multimedia Development Corporation (MDeC). MSC Malaysia, which is administered by MDeC, runs a number of programmes to deepen the ICT talent pool, through workplace training. More than 6,000 working professionals have received training since 2006, as part of the MSC Knowledge Worker Development Initiative (MSC KDI).

MyProCert

This programme aims to provide an accelerated path to professional ICT certifications. It is targeted at local information and communication technology professionals with two to eight years of experience. Certification and technology partners include Huawei, Apple, SAP, Autodesk, Oracle and IBM.

MyUniAlliance

As part of this programme, global technology companies team up with institutions of higher learning for curriculum development and teacher training. In 2012, 18 universities participated in the programme. Industry partners include SAP, Apple, Google, and Huawei.

UGRAD-SIP

The Undergraduate Apprenticeship and Development - Structured Internship Programme (UGRAD-SIP) matches ICT students with industry mentors. So far some 3,500 undergraduates have taken part in the programme, benefiting from at least 12 weeks of mentoring.

IBM

This multinational technology and consulting corporation first established a base in Malaysia in 1961, and started running an education centre five years later. Its country headquarters are in Greater Kuala Lumpur. Some 90% of staff at its Global Delivery Centre in Cyberjaya are Malaysian. One of main ways IBM has succeeded in hiring the right people, is by forging close ties with local academic institutions, such as Tunku Abdul Rahman College and Universiti Kebangsaan Malaysia.



Business administration

As the Malaysian economy has developed, both in terms of size and sophistication, so has the available pool of qualified business administrators. Over 15,000 graduates from public universities join the workforce every year. Experienced professionals further their development through membership in professional associations such as The Chartered Institute of Logistics and Transport, and The Institute of Marketing.

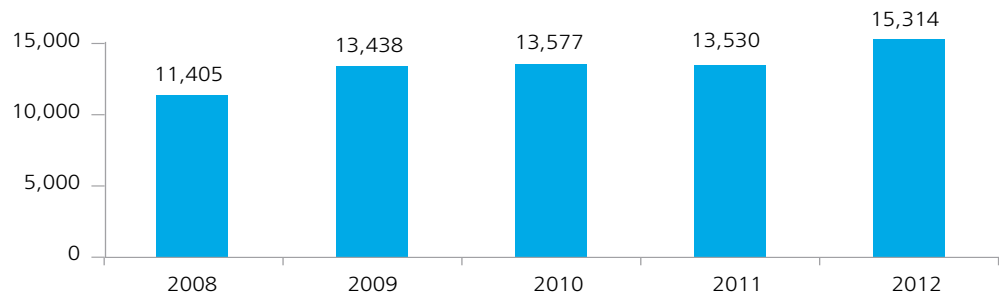
Corporations looking to invest in Greater Kuala Lumpur are guaranteed a diverse pool of business administration talent, ranging from marketing to supply chain management. Organisations such as the Malaysian Institute of Management offer a broad menu of development courses in general business skills, while others cater for more specialised needs. Malaysian Institute of Supply Chain Innovation, for example, is a centre of excellence in logistics training and research, and a member of MIT's Global Supply Chain and Logistics Excellence network.

Fresh graduates

Institutions of higher learning have been seamlessly producing business administration graduates. More than 15,000 students graduated from public universities alone in 2012, with just under a third of them studying in Greater Kuala Lumpur. The three most popular areas of study were management and administration; marketing and advertising; and wholesale and retail sales.

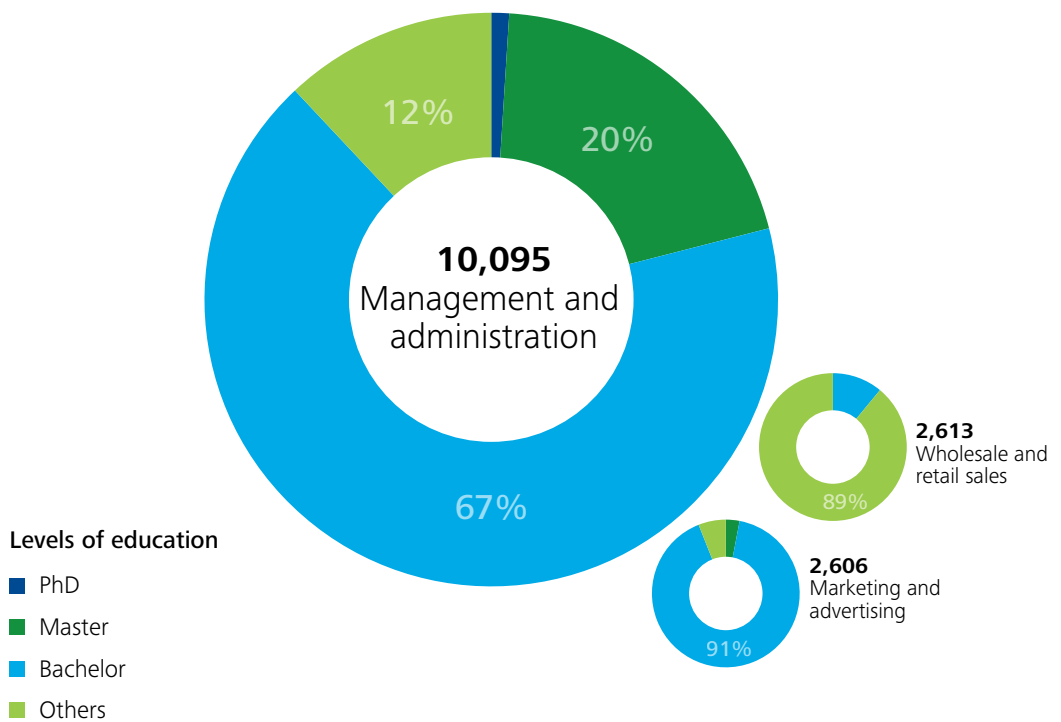


Total business administration graduates from public universities in Malaysia



Source: Ministry of Education

Graduate output by field of study, 2012 (public universities)



Based on data from the Ministry of Education

Universiti Teknologi Mara (UiTM)

UiTM has the largest business faculty in Malaysia, with some 6,000 students graduating every year. It offers a massive range of courses, at diploma, undergraduate and postgraduate levels. Marketing is a core area of expertise, with the specialised Bachelor of Business Administration course recognised by the Chartered Institute of Marketing (UK). UiTM produces approximately two thirds of all marketing graduates from public universities.

Universiti Utara Malaysia (UUM)

UUM's primary role is to develop management education, recently signing a memorandum of understanding to that effect with the Malaysian Institute of Management (MIM). It has about 20,000 students, and 1,300 academic staff. UUM has built a particular expertise in logistics and transportation, with a dedicated Bachelor of Business Administration course, which is accredited by the Chartered Institute of Logistics and Transport in Malaysia (CILT).

Universiti Tun Abdul Razak (UniRazak)

UniRazak has graduated more than 17,000 students since it was established as a centre of excellence for managerial leadership and entrepreneurship in 1997. It is recognised by both the Association to Advance Collegiate Schools of Business (AACSB); and the European Foundation for Management Development (EFMD). It has developed a range of entrepreneurship and business development courses in partnership with the highly-regarded Babson College.

Nottingham University Business School (NUBS) Malaysia

NUBS Malaysia offers a range of foundation, undergraduate and postgraduate courses, at a state-of-the-art campus in Greater Kuala Lumpur. The school has roughly 1,000 students and 30 academic staff. The key selling point for all its programmes is the international reputation of its parent body, Nottingham University Business School. NUBS is one of only 142 business schools in the world to be accredited by the European Quality Improvement System (EQUIS); while is rated 74th in the world in The Economist's Which MBA? 2013 rankings.

Taylor's Business School

Founded in 1993, this has become one of the largest and most respected business schools in Malaysia. It is part of Taylor's University, a private institution which has forged close partnerships with industry players, professional associations, and leading foreign universities. Industry affiliates include BMW, Citibank, Deloitte, DHL, General Electric, HSBC, and Siemens.

Putra Business School

Part of Universiti Putra Malaysia (UPM), this school offers a focused range of postgraduate programmes at Master and PhD level. Putra Business School is the first in Malaysia, and only the sixth in South East Asia, to be accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Asian e-University (AeU)

AeU offers e-learning courses in a number of business administration areas, which are certified by professional associations such as the Chartered Institute of Purchasing and Supply; and the Chartered Institute of Logistics and Transport. In all, AeU comprises of eight schools, and 20 learning centres round the region.

Total workforce

By their very nature, senior managers account for only a small proportion of the total workforce, while at the other end of the scale, tens of thousands of fresh business administration graduates step onto the corporate ladder every year. What they share is a strong value placed on being a member of, and/or being accredited by, international and local professional associations.

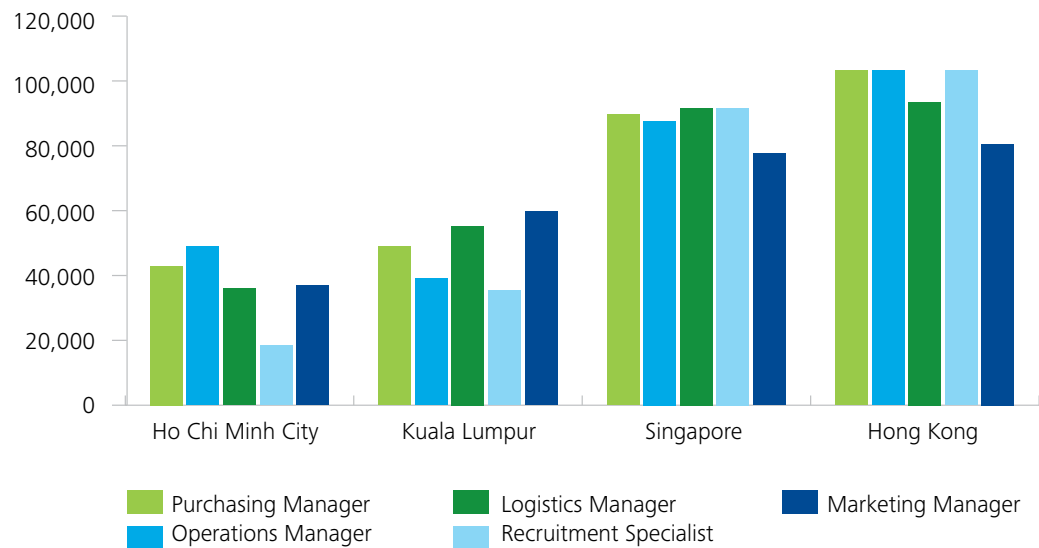
- The Chartered Institute of Logistics and Transport in Malaysia (CILTM) has approximately 2,000 members. This represents 6% of the global members of the Chartered Institute of Logistics and Transport (CILT).

- The Institute of Marketing Malaysia (IMM) represents some 1,000 marketing professionals.
- MSC MyProCert is increasing the number of certified project management professionals (PMP).
- The Malaysian Institute of Management (MIM) has more than 10,000 members. As a member of the Asian Association of Management Organisations (AAMO), MIM has grown to be the country's leading voice of management.

The Malaysian workforce can be considered globally competitive in all the main fields of business administration, while still commanding cost-effective salaries.

Median annual income for business administration roles, 2013

US Dollars



Source: Robert Walters

Development opportunities

The various associations representing experts in their respective trades also offer development and certification programmes. Organisations such as the Malaysian Institute of Management offer a broad menu of courses in various business skills, while other organisations, such as the Malaysian Institute of Supply Chain Innovation, cater for more specialised fields.

The Malaysian Institute of Supply Chain Innovation (MISI)

MISI seeks to bring academics and practitioners together for supply chain advancement in Asia. It is a joint initiative between the Malaysian government and the Massachusetts Institute of Technology's Centre for Transportation and Logistics (MIT CTL). MISI joins three other international centres under the MIT Global SCALE (Supply Chain and Logistics Excellence) network dedicated to development and dissemination of global innovation in logistics and supply chain.

The Malaysian Institute of Management (MIM)

MIM offers a range of professional development programmes, ranging from marketing and sales, to strategy management and finance. They include:

- CPM/PERT introduces a structured project management approach called the critical path method (CPM)/programme evaluation and review technique (PERT). The course includes sessions such as project planning, scheduling, controlling, and risk management.
- HR for non-HR managers introduces an effective human resource management curriculum, encompassing employee retention and work motivation; internal employee relations; and organisational effectiveness.





Science

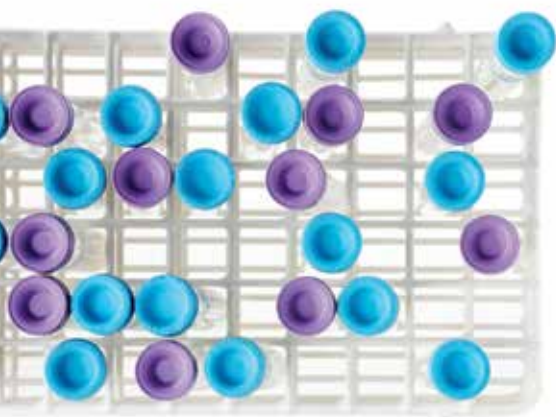
Where scientific study once consisted of four broad subjects — physics, mathematics, chemistry and biology — it now encompasses a bewildering array of topics, such as earth science and food processing. The availability of talent for regional roles and the current state of the art infrastructure are major factors that have drawn multinationals like European oleochemicals producer Oleon to establish its regional headquarters in Greater Kuala Lumpur.

The country has invested heavily to build expertise in halal food production. According to the Halal Industry Development Corporation, there are over 50,000 people trained in Halal Compliance. As the pioneer in halal certifications, the country has done well to build their knowledge and solutions for a broad range of businesses outside the traditional food sector.

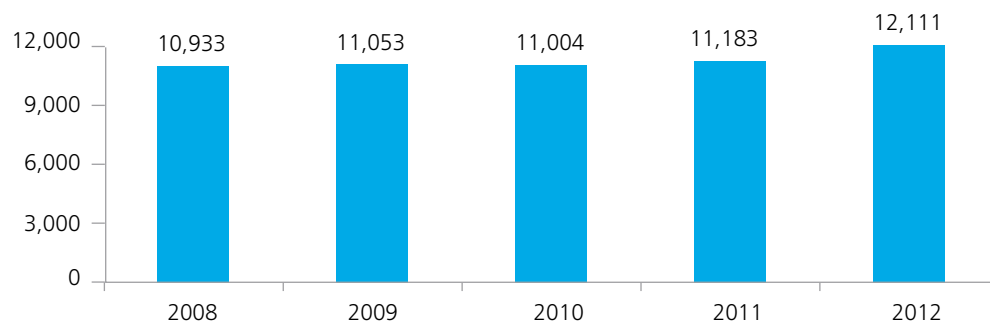
Biotechnology is another key growth area as Malaysia moves towards a knowledge-driven economy. The sector is backed by a healthy supply of biology and biochemistry talent with an average of 2,400 graduates a year from public universities alone.

Fresh graduates

Malaysia has seen a rising supply of science graduates, in fields as diverse as geochemistry, and astrophysics. Public universities alone graduated more than 12,000 students in 2012. Biology and biochemistry accounted for some 20% of this figure, a sign of the growing importance of the biotechnology industry in Malaysia. Graduates from physical science, mathematics, applied science, and chemistry were also well represented.

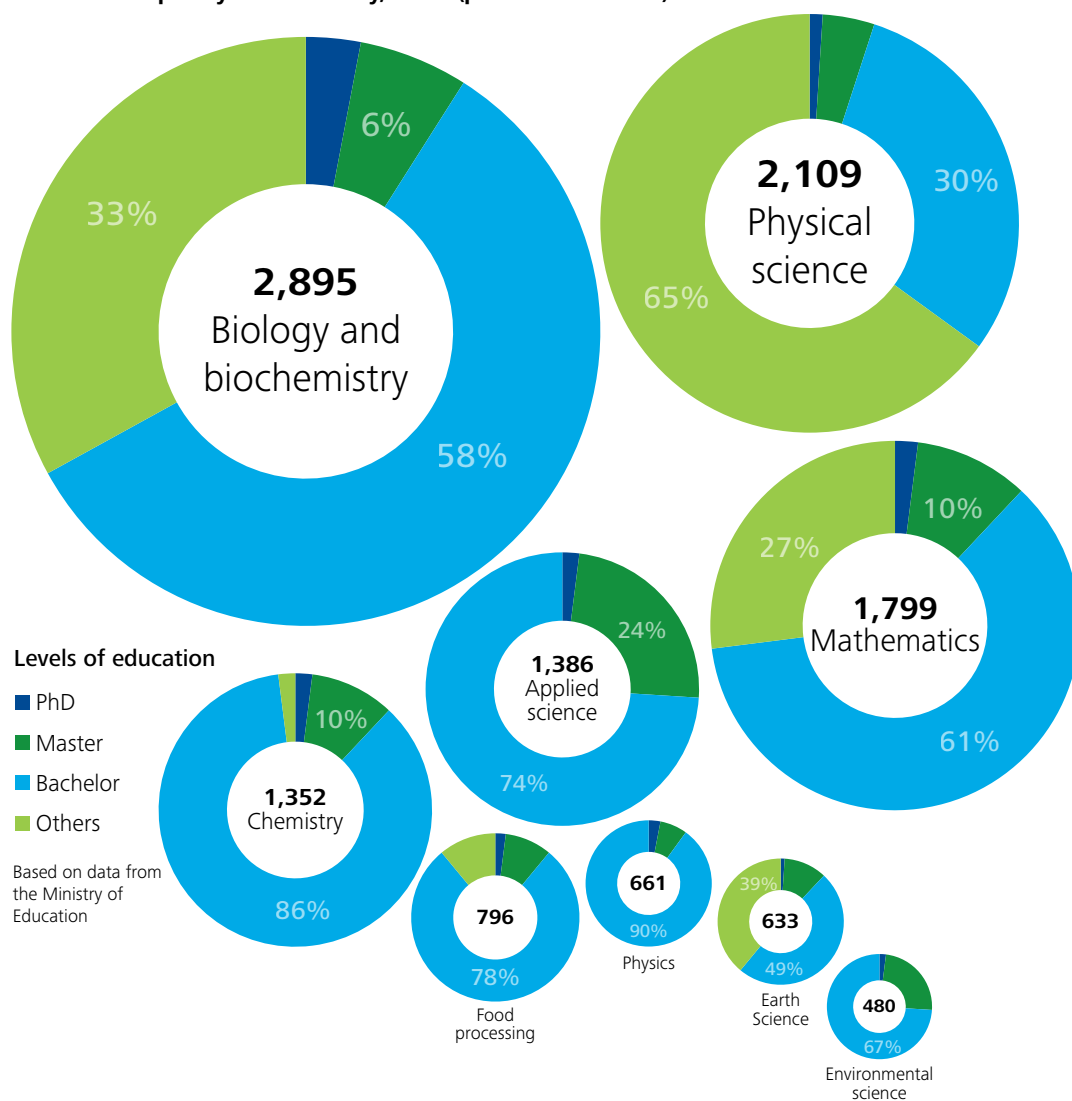


Total science graduates from public universities in Malaysia



Source: Ministry of Education

Graduate output by field of study, 2012 (public universities)



Global rankings

Four of Malaysia's public universities have natural science schools which are amongst the top 200 globally, according to the QS World University Rankings 2013. A particular area of strength is in environmental sciences, with Universiti Sains Malaysia rated 30th, and both Universiti Putra Malaysia and Universiti Malaya in the top 200.

QS world university rankings by subject, 2013

University	Environmental sciences	University	Mathematics
Universiti Sains Malaysia	30	Universiti Kebangsaan Malaysia	151-200
Universiti Putra Malaysia	101-150		
Universiti Malaya	151-150		

Universiti Sains Malaysia (USM)

When USM was established back in 1969 as Malaysia's second university, its initial enrolment consisted of just 57 science-based students. Now it is home to some 20,000 students, studying across a huge range of courses. USM has developed a globally-respected specialism in environmental sciences, as seen by its impressive QS ranking (30th in the world).

Universiti Malaya (UM)

UM is Malaysia's oldest university and has been perceptive to the evolving needs of the country's economy. An example of this is the core role it plays in supplying talent for Malaysia's growing biotechnology industry. UM has a dedicated Institute of Biological Sciences, which offers programmes in several fields, including bioinformatics and computational biology; genetics and molecular biology; and microbiology.

Universiti Putra Malaysia (UPM)

Starting life as an agricultural school in 1931, it is now one of Malaysia's leading research universities, with some 24,000 students, and more than 2,000 academic staff. Several of its 16 faculties are dedicated to different scientific fields, from environmental sciences, to food science and technology. UPM has built a particular expertise in Islamic-compliant food processing, at its Halal Products Research Institute.

Universiti Kebangsaan Malaysia (UKM)

UKM's mathematics school is ranked in the top 200 globally according to the QS World University Rankings 2013. As well as mathematics, students are offered scientific studies in a wide choice of specialisms, including biosciences; applied physics; food technology, and natural resource sciences.

The Academy of Sciences Malaysia (ASM)

ASM is drawn from the highest ranks of the Malaysian science, technology and innovation (STI) community. At present it has five honorary fellows, 24 senior fellows, 40 fellows, and 63 associates. ASM has six core roles related to STI development within Malaysia:

- Foster a culture of excellence
- Advise the government
- Promote public awareness
- Upgrade industry capabilities
- Increase international collaboration
- Publish scientific publications

Development opportunities

Malaysia offers interesting specialisation programmes for science professionals, in line with the country's ecosystem approach to innovation and human capital development. The Biotech Corporation and the Halal Industry Development Corporation are two prominent providers of upskilling programmes.

Biotechnology

This has been identified as a key growth area, as Malaysia moves towards being a knowledge-driven economy. As well as measures to boost the supply of biology and biochemistry graduates, financial incentives are available to eligible bio-economy companies. So far, some 225 firms have been given BioNexus status, a programme managed by BiotechCorp. BioNexus status-companies are estimated to employ nearly 3,000 people, of whom 45% are knowledge workers. BiotechCorp also manages the Biotechnology Entrepreneurship Special Training (BeST) programme, which provides specialised training for knowledge workers in the biotechnology sector. Originally aimed at fresh graduates, the programme has been extended to final year students as well.

Halal product processing

Islamic-compliant products represent another major growth opportunity for Malaysia, particularly given the country's growing experience in halal certification. At present the industry employs some 1,000 people, but this is expected to rise rapidly over the coming years. This expansion is being driven by the Halal Industry Development Corporation (HDC).

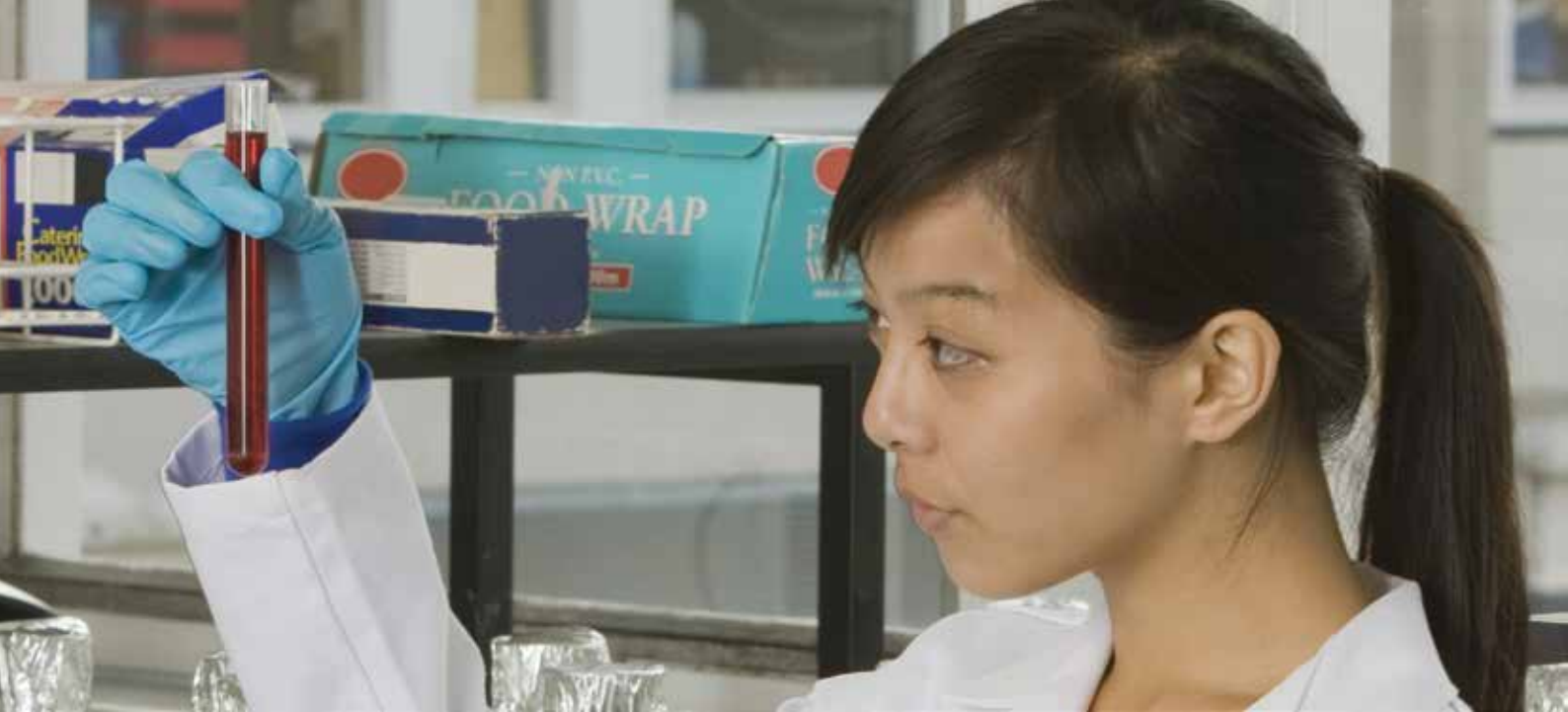
The HDC has several main roles, including developing standards; certification, and capacity building. According to its latest figures, some 220,000 products have undergone the halal certification process in Malaysia, while an estimated 50,000 people have received halal awareness training.

Another key organisation is the Halal Products Research Institute (HPRI) at Universiti Putra Malaysia, which acts as a one-stop centre for reviewing all aspects of halal products. It runs three dedicated research units:

- The Halal Science Research Laboratory, which conducts research and development on the latest techniques to detect the purity and safety of food products.
- The Halal Policy and Management Laboratory, which focuses on research activities related to the development of laws, policies, management, and marketing of halal food products.
- The Halal Services Laboratory, which researches halal products, as well as alternatives to replace non-halal products in the market.

In the first quarter of 2013, RM8.5 billion of halal products were exported from Malaysia, while in 2012 the amount was RM32 billion, contributing to almost 5% of total exports.

Source: Malaysia.my



Healthcare

The healthcare sector in Malaysia has seen major growth over recent years, and now accounts for nearly 5% of national GDP. With nearly 40% of the country's facilities, Greater Kuala Lumpur is at the heart of the healthcare industry. In an effort to provide further options for specialisation, local institutions have partnered with globally recognised names such as Johns Hopkins University and Monash University to provide programmes in Malaysia. Philips has also partnered with Universiti Malaya to establish The ASEAN Sleep Research and Competence Centre.

Through the ETP, the government is supporting private investments in areas such as clinical research, medical devices, and pharmaceuticals, while also furthering the development of relevant talent in those areas. With the availability of talent and support from the government, Malaysia has seen an increase of 17% in industry sponsored clinical trials since 2012, including heavyweights like Novartis, Pfizer, and Roche.

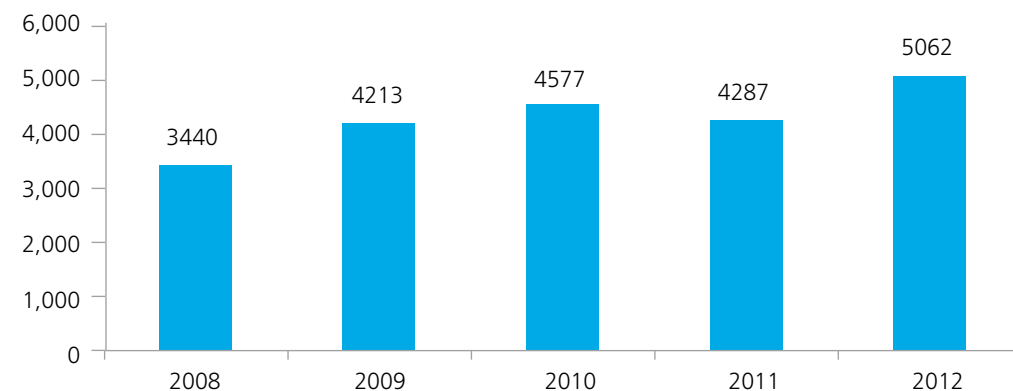
Fresh graduates

As of September 2013, there were 21 universities offering medicine and healthcare science courses, 11 of them located in Greater Kuala Lumpur. Add in dozens of university colleges and colleges, and you have a rapidly expanding pool of qualified doctors, nurses and other medical professionals. Public universities alone produced more than 5,000 healthcare graduates in 2012, up from 3,400 in the space of four years.

Among these graduates, medicine represented the biggest field of study, with close to 1,900 while pharmacy accounted for nearly 700 of the total. The number of graduates in medical diagnostics and treatment (837), was 93% higher than in 2008.

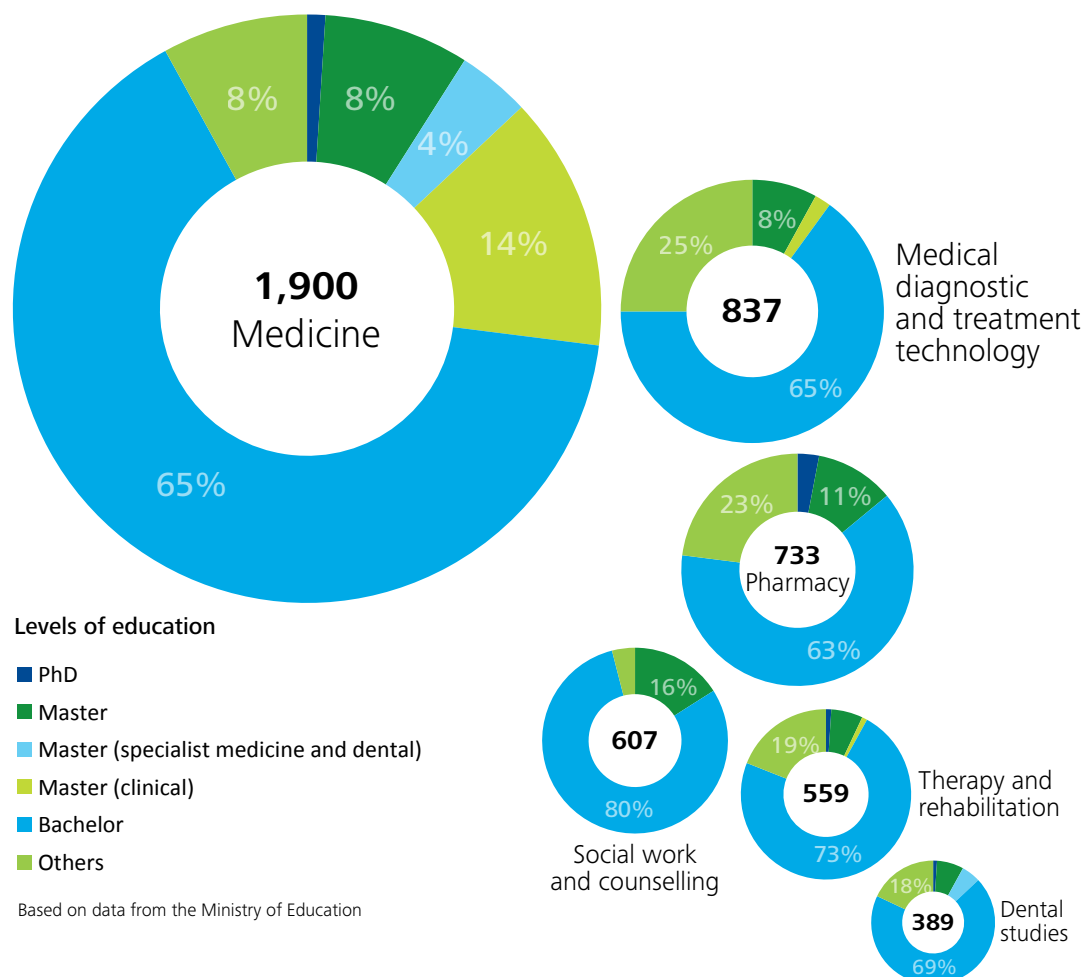


Total healthcare graduates from public universities in Malaysia



Source: Ministry of Education

Graduate output by field of study, 2012 (public universities)



Based on data from the Ministry of Education

Global rankings

Three of Malaysia's public universities have among the best pharmacy schools in the world, according to the QS World University Rankings 2013. Universiti Sains Malaysia (USM), which has a dedicated health campus, rates in the top 150. Both University Malaya and Universiti Putra Malaysia rank in the top 200.

QS world university rankings by subject, 2013

University	Pharmacy
University Sains Malaysia	101-150
Universiti Malaya	151-200
Universiti Putra Malaysia	151-200

Universiti Malaya (UM)

UM admitted its first 40 medical students back in 1963, and has been at the forefront of healthcare education in the country ever since. It offers five main undergraduate courses - medicine and surgery; nursing; pharmacy; biomedical science; and biomedical imaging - and dozens of postgraduate courses in medical specialisms. One of UM's key advantages is that it has its own 900-bed teaching hospital located on campus.

International Medical University Malaysia (IMU)

Malaysia's first private medical and healthcare centre, IMU offers a comprehensive range of undergraduate and postgraduate courses. Unusually, studies in both conventional and western medicine are offered in the same medical school. Another pioneering feature is to allow students the choice of completing their degrees at more than 30 partner institutions overseas. Its main campus, in KL, currently has nearly 2,900 students.

Monash University Malaysia

The Malaysian campus of Monash University, in Greater Kuala Lumpur, is home to the Jeffrey Cheah School of Medicine and Health Sciences (JCSMHS). The school offers four undergraduate courses, including Bachelor of Medicine and Bachelor of Surgery (MBBS), and three postgraduate courses. All benefit from Monash University's experience of providing globally-respected medical courses.

Perdana University Graduate School of Medicine (PUGSOM)

This is Malaysia's first American-Style graduate-entry medical school, established in collaboration with the renowned Johns Hopkins University School of Medicine. John Hopkins is the fourth best medical school in the world, according to the QS World University Rankings 2013. Perdana University also offers a five-year undergraduate degree in partnership with the Royal College of Surgeons in Ireland (RCSI).

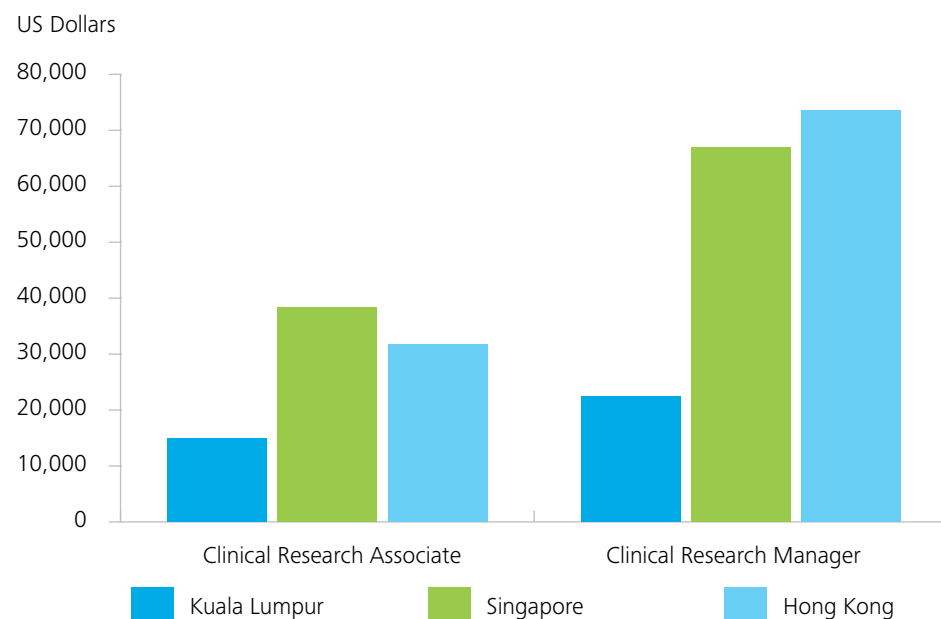
Study abroad

Financial support is available for eligible students to study at leading medical schools overseas, such as the University of Melbourne, the University of Manchester, and Trinity College Dublin. On average, nearly a third of Public Service Department scholarships are awarded to students for health studies in dentistry, pharmacy, and medicine.

Total workforce

Recent years have seen a massive expansion in medical facilities in Malaysia, mainly to meet the needs of a growing population, but also to support the development of the healthcare tourism industry. By 2010, the total of health services establishments risen to more than 6,500, including hospitals, specialists medical services, clinics, dental services and medical laboratories. Of the 180,000-strong workforce, there were close to 33,000 doctors, 60,000 nurses, and more than 20,000 skilled professionals. The growing supply of talent over recent years has kept wages competitive.

Median annual income of healthcare professionals, 2012



Source: Adecco

Development opportunities

Clinical Research Malaysia and the Clinical Research Centre offer a series of programmes to further develop local healthcare talent. All programmes emphasize practical application, allowing participants to immediately apply what they have learned.

Clinical Research Malaysia (CRM)

Clinical Research Malaysia (CRM) is a not-for-profit organisation set up in 2012 to facilitate and enable industry-sponsored clinical research. Part of CRM's responsibility is to assist companies in identifying investigators and trial sites. Since its establishment, there has been a 17% increase in industry-sponsored clinical trials, involving the likes of Novartis, Pfizer, and Roche.

The Clinical Research Centre (CRC) also plays a pivotal role in the development of the clinical research ecosystem. Founded in 2000, CRC strives to be the leading clinical research institution in Asia, and now has 27 centres across Malaysia. Together with CRM, it runs a number of skills- enhancement programmes, including a three-day course which gives an overview of clinical trial methods.

PROTEGES

Introduced by CRM, the Preparing Outstanding Clinical Research Talents by Engaging Eminent Malaysian Scientists (PROTEGES) programme aims to raise research standards in clinical trials, by matching research scientists with medical practitioners. Currently there are 24 mentors, and 67 mentees, in the programme.

Institute of Medical Research (IMR)

IMR acts as the biomedical research arm of the Ministry of Health, carrying out about 300,000 specialised diagnostic tests every year. It is the only centre in the country to offer biochemical genetic testing for inborn errors of metabolism; the detection of trace elements and heavy metals in biological fluids; and molecular diagnostics for genetic diseases. IMR collaborates with the World Health Organisation in several important areas, such as the fight against malaria and polio.

“We believe that the experience and expertise of UMSC can help us spread the vision and scale of ASRCC to a higher level, while tapping on specific needs and opportunities. This also promotes Malaysia as a regional hub for business, innovation and talent.”

Naeem Shahab Khan
CEO, Philips Malaysia

The ASEAN Sleep Research and Competence Centre (ASRCC)

The ASRCC is a collaboration between the Universiti Malaya Specialist Centre (UMSC) and Philips Malaysia. It will function as a training academy for sleep professionals in the region, as well as carrying out clinical research. The ASRCC will also act as a telemedicine and corporate service centre. All participants are expected to benefit from knowledge sharing.

Appendix 2: Innovation initiatives

Encouraging young innovators



Agensi Inovasi Malaysia (AIM) - the country's national innovation agency - has started rolling out programmes to cultivate the innovation skills of the younger generation. It's hoped that by starting at an early age, the culture of innovation will eventually spread throughout the population.

i-THINK

This programme aims to equip the next generation of innovators with the mental tools necessary to think critically, and to adapt to changing circumstances. The project helps schools impart thinking skills to students, allowing them to be lifelong learners. Emphasis is placed on science, technology, and information technology, as well as on good moral and work ethics.

International Baccalaureate Middle Years Programme

In collaboration with the International Baccalaureate (IB), ten national schools are being prepared to become IB World Schools. Part of this involves training to raise the skills of teachers at these schools. The long-term aim is to distil the learning from these schools, and roll it out to 10,000 schools across the country, affecting the lives of 5 million students.

Genovasi Innovation Ambassadors

This is a learning programme focused on the cultivation of innovation competencies, created in partnership with the Hasso Plattner Institute for Design Thinking at Potsdam University. Genovasi offers a human-centred experience of learning innovation for social inclusion, active citizenship, and personal development. The programme aims to nurture more than 4,000 innovation ambassadors over the next five years.



Key research universities

Several public research universities have been designated as Higher Institution Centres of Excellence, with the core aim that they become world leaders in their respective fields.

Universiti Putra Malaysia (UPM)

To date, UPM has filed 516 national and international patents (pending and granted) and commercialised 21 products. UPM employs 180 PhD-holding scientists and lecturers, and has 16 faculties which are engaged in research activities. It has made headlines in several key areas:

- **Food technology:** MNCs such as Yakult (Japan), Sensus BV (Holland), Tetra Pak (Sweden), Cargill (USA), and Westcorp (Australia), have collaborated with UPM on R&D efforts in food-related research.
- **Nanoparticle catalysts:** UPM researchers have developed a new method that allows these catalysts to operate at lower temperature, with higher yield, and shorter preparation time.
- **Halal product research:** New technologies have been developed to test the presence of alcohol and other non-halal products in food, animal feed, herbals, pharmaceuticals, cosmetics, and medical devices.

Universiti Kebangsaan Malaysia (UKM)

UKM organises its research around eight areas that employ 24 research clusters, 189 research groups and 2,000 academics. These include renewable energy, health technology and medicine, climate change; and nanotechnology and advanced materials. Among the highlights of its research are:

- **Biodiversity:** UKM has seven “living lab” research stations around Malaysia, which are working on projects to conserve biodiversity and local communities.
- **Solar energy:** Researchers are working on ways to increase the efficiency of solar energy collection and transmission within a sophisticated research park.
- **Human tissue engineering:** The first clinical trials will soon be conducted on a breakthrough treatment for skin injuries from major accidents and burns.

Universiti Sains Malaysia (USM)

USM scores highly for several subjects in the QS World University Rankings, including 30th for environmental sciences, and 38th for chemical engineering. It aspires to be a leader not only in academic terms, but also by improving people’s lives, particularly the poorest members of society. Key research areas include:

- **Nanotechnology:** USM is collaborating with BiotechCorp to send three researchers to France for a year, as part of a technology transfer agreement with French company Nanobiotix (NBTX).
- **Carbon nanotubes (CNTs):** USM researchers have developed a more efficient and less costly way of producing CNTs, which are used in a wide variety of high-tech devices. The product is being commercialised.

Universiti Malaya (UM)

Malaysia's premier research university focuses on eight key areas, from advanced engineering and technology, to social and behavioural science. It collaborates extensively with leading overseas universities, such as Victoria University, Queen's University Belfast and Tokyo University; as well as working closely with major companies operating in Malaysia, like PETRONAS, Shell and TNB. UM has produced a total of 284 patents so far, several of which have been commercialised:

- **Solar energy:** A device that allows small scale solar energy production to be connected to the power grid.
- **Medical treatment:** A digital operating room that enables seamless management of all data related to patients undergoing surgery and other intrusive procedures.
- **Molecular biology:** A one-step method to detect the DNA of bacteria which cause typhoid and paratyphoid fever.
- **Alternative energy:** A low-emission biodiesel made from palm oil waste products, which won a Double Gold Award, at the British Invention Show 2013.

Universiti Teknologi PETRONAS (UTP)

UTP, a university owned and operated by the national oil and gas firm, PETRONAS, focuses research on a number of high-tech areas, including carbon dioxide management, nanotechnology, green technology, biomedical technology, hybrid energy systems, and sustainable resources. It has several centres of excellence, most notably one dedicated to enhanced oil recovery (EOR), which is chaired and driven by Schlumberger, the world's largest oilfield services company.

The Brain Research Institute Monash Sunway (BRIMS)

This centre is a joint collaboration between Monash University Malaysia and Sunway University. It is the country's leading brain research institute, and focuses on five main areas: reproductive ageing; depression, anxiety and epilepsy; addiction; sleep disorder; and neurodegeneration and neuroprotection.

Malaysia Institute for Supply Chain Innovation (MISI)

MISI is a joint initiative between the Massachusetts Institute of Technology (MIT) and the government of Malaysia. It is part of an international alliance of leading edge research and educational organisations, focused on supply chain logistics, known as MIT Global SCALE (Supply Chain and Logistics Excellence) centres.

Close cooperation between industry and academia will present opportunities for funding and commercialisation of the research results.

National R&D centres and development agencies

To further streamline the governmental support for research activities, several subsidiary agencies were established under the Ministry of Science, Technology, and Innovation to guide the development of the country's technological focus areas.

MIMOS

MIMOS is a national research and development centre for information and communication technology (ICT), which has filed the majority of Malaysia's patent applications. Its main focus areas include advanced analysis and modelling; advanced computing; information security; intelligent informatics; knowledge technology; microelectronics; and wireless communications.

NanoMalaysia

NanoMalaysia is a central coordination body for the development of nanotechnology in Malaysia, in charge of everything from developing human capital, to the commercialisation of R&D. It works closely with five nanotechnology centres of excellence:

- The Centre of Innovative Nanostructures and Nanodevices at Universiti Teknologi PETRONAS
- The Ibnu Sina Institute for Fundamental Science Studies at Universiti Teknologi Malaysia
- The Institute of Microengineering and Nanoelectronics at Universiti Kebangsaan Malaysia
- The Institute of Nano Electronic Engineering at Universiti Malaysia Perlis
- MIMOS Nanoelectronics

IBM partnership

NanoMalaysia has agreed a joint development agreement with US technology giant IBM, on the research and development of nanotechnologies, in areas such as energy storage, electronics, healthcare, and computational science. The collaboration will last an initial three years, with three main phases of engagement, each lasting 12 months.

SIRIM

SIRIM is the national R&D development centre for manufacturing, technology, and services sectors. It also functions as the national standards development agency. SIRIM is recognised as one of the nine founding members of the Global Research Alliance (GRA), a grouping of leading knowledge intensive technology organisations from nine countries, across four continents.

BiotechCorp

BiotechCorp is a development agency tasked with identifying biotechnology R&D and commercialisation opportunities, and supporting these ventures via financial assistance and development services. BiotechCorp initiated the BioNexus Partners Programme (BNP) to support the needs of Malaysia's life sciences industry for high-end research facilities, infrastructure, and capabilities.

Clinical Research Malaysia (CRM)

CRM was established to facilitate and enable industry-sponsored clinical contract research in Malaysia. By leveraging on the extensive network of local hospitals, it assists in identifying investigators and trial sites. CRM is also involved in capacity development of investigators, research assistants, and research nurses.

Clinical Research Centre (CRC)

The CRC is a provider of integrated clinical trial services to researchers from the public and private sectors. It is administered by the Ministry of Health, and located at Hospital Kuala Lumpur. CRC works with clinical trials, clinical epidemiology, patient registries, and national healthcare statistics. It also trains clients, investigators, and health professionals in clinical research.

The Malaysian Palm Oil Board (MPOB)

The MPOB is tasked with promoting and developing objectives, policies, and priorities for the Malaysia's oil palm industry. Through research, development, and services, the institution looks to strengthen the capacity of the sector. A recent success was the discovery of a gene which increases palm oil yield, during a joint research project with Orion Genomics.

The Innovation Incubation Centre (IIC)

Based at Technology Park Malaysia, in Greater Kuala Lumpur, the IIC incubates and nurtures knowledge-based enterprises by providing expertise and support in technical and business skills. Since the establishment of the incubation programme, some 1,000 new start-up companies have graduated. Of these, 28 of them have listed on Bursa Malaysia, including companies like Iris Corp, Ingenuity Consolidated, and Solution Engineering Holdings.



Development funds

A whole host of programmes is provided by government departments and agencies to support every stage of the innovation process, from research and development, to commercialisation of viable products. While not directly eligible for this support, foreign investors and businesses can benefit through partnerships and joint ventures.

Fund name:	Science Fund
Fund offered by:	Ministry of Science, Technology, and Innovation
Description:	A fund for research leading up to a laboratory proof-of-concept or towards development of new products or processes. It is available for use through collaboration with government research institutions; with government science, technology, and innovation agencies; and with public and private institutions of higher learning, which have accredited research programmes.
Focus areas:	Applied sciences
Eligibility:	Through collaboration
Quantum:	Variable
Innovation life stage:	Research
Type of funding:	Grants

Fund name:	Pre-commercialisation TechnoFund
Fund offered by:	Ministry of Science, Technology, and Innovation
Description:	A fund for pre-commercialisation of established proofs-of-concept for a maximum of 30 months. It is available for use to minority-owned small and medium-sized enterprises, or through collaboration with institutions of higher learning and research institutes.
Focus areas:	Life sciences; agricultural sciences/ agricultural engineering; environmental sciences; advanced materials science; chemical sciences; physical and mathematical sciences; engineering; medical and health sciences; and social sciences and humanities.
Eligibility:	Through minority ownership or collaboration
Quantum:	US\$500,000 to US\$1 million
Innovation life stage:	Pre-commercialisation
Type of funding:	Grants

Fund name:	Pre-commercialisation Enterprise InnoFund
Fund offered by:	Ministry of Science, Technology, and Innovation
Description:	A fund for the development of new or existing products, processes, or services with the potential for commercialisation. It is available for use to minority-owned small or medium-sized companies.
Focus areas:	Applied sciences
Eligibility:	Minority ownership
Quantum:	US\$160,000
Innovation life stage:	Development
Type of funding:	Grants

Fund name: **MSC Malaysia R&D Grant Scheme (MGS)**
Fund offered by: MSC Malaysia
Description: A grant for research and development projects that is open for application to minority-owned companies with MSC status, which contain more than 50% Malaysian employees.
Focus areas: ICT and multimedia
Eligibility: Minority ownership and MSC status
Quantum: Up to US\$380,000
Innovation life stage: Research and development
Type of funding: Matching grants

Fund name: **Fundamental Research Grant Scheme (FRGS)**
Fund offered by: Ministry of Higher Education
Description: A fund for research leading up to the development of new products or processes. It is available through collaboration with public institutions of higher learning.
Focus areas: Pure science; applied science; social science; literature; medical science, technology and engineering; natural science ; and national heritage.
Eligibility: Through collaboration
Quantum: Varies
Innovation life stage: Research
Type of funding: Grants

Fund name: **Prototype Research Grant Scheme (PRGS)**
Fund offered by: Ministry of Higher Education
Description: A fund for the prototype development of research output. It is available through collaboration with public institutions of higher learning.
Focus areas: Not applicable
Eligibility: Through collaboration
Quantum: Varies
Innovation life stage: Prototype development
Type of funding: Grants

Fund name: **Commercialisation of R&D Fund (CRDF) 1**
Fund offered by: Ministry of Science, Technology, and Innovation
Description: A fund for the commercialisation of developed research output by spin-off companies of public and private institutions of higher learning, and government research institutes. This is available through collaboration with the spin-off company.
Focus areas: Priority technology clusters identified by MOSTI (excluding ICT): biotechnology; industry, science and technology core; and sea to space.
Eligibility: Through collaboration
Quantum: Up to US\$160,000
Stage of R&D: Commercialisation
Type of funding: Partial grants

Fund name: **Commercialisation of R&D Fund (CRDF) 2**
Fund offered by: Ministry of Science, Technology and Innovation
Description: A fund for the commercialisation of developed research output by a small and medium sized companies. This is available for minority-owned SMEs.
Focus areas: Priority technology clusters identified by MOSTI (excluding ICT): biotechnology; industry, science and technology core; and sea to space.
Eligibility: Minority ownership
Quantum: Up to US\$160,000
Stage of R&D: Commercialisation
Type of funding: Partial grants

Fund name: **Commercialisation of R&D Fund (CRDF) 3**
Fund offered by: Ministry of Science, Technology and Innovation
Description: A fund for the commercialisation of developed research output by a non-SME company. This is available for minority-owned companies.
Focus areas: Priority technology clusters identified by MOSTI (excluding ICT): biotechnology; industry, science and technology core; and sea to space.
Eligibility: Minority ownership
Quantum: Up to US\$412,000
Stage of R&D: Commercialisation
Type of funding: Partial grants

Fund name: **Technology Acquisition Fund (TAF)**
Fund offered by: Ministry of Science, Technology and Innovation
Description: A fund for the acquisition of foreign technology for immediate incorporation into the company's manufacturing activity. This is available for minority-owned companies.
Focus areas: Priority technology clusters identified by MOSTI (excluding ICT): biotechnology; industry, science and technology core; and sea to space.
Eligibility: Minority ownership
Quantum: Up to US\$635,000
Stage of R&D: Not applicable. Fund is to acquire foreign technology.
Type of funding: Matching grants

Fund name: **Biotechnology Commercialisation Fund (BCF) Credit Facility**
Fund offered by: BiotechCorp
Description: A fund for the commercialisation of biotechnology products and services, or the expansion of existing biotechnology businesses. This is available for minority-owned BioNexus companies.
Focus areas: Biotechnology
Eligibility: Minority ownership
Quantum: US\$159,000 to US\$953,000
Stage of R&D: Product commercialisation or business expansion
Type of funding: Term loan/financing facility

Cradle Investment Programme (CIP)

Malaysia's first development and technology commercialisation funding programme, the CIP is managed by the Cradle Fund. The US\$31 million programme enables budding innovators and aspiring entrepreneurs to transform their raw technology-based ideas into commercially-viable ventures, as well as helping local start-up companies to attain commercialisation.

Fund name:	CIP Catalyst
Fund offered by:	Cradle Fund
Description:	A fund to support innovative companies at different stages of development. It is available through collaboration with local start-ups.
Focus areas:	ICT and other high-growth technology industries
Eligibility:	Through collaboration
Quantum:	Up to US\$48,000
Innovation life stage:	Research and development
Type of funding:	Grants

Fund name:	U-CIP Catalyst
Fund offered by:	Cradle Fund
Description:	A fund for the commercialisation of research output. It is available through collaboration with local research institutes, private and public universities, colleges, and institutes of higher education, as well as through various commercialisation units within organisations.
Focus areas:	ICT and other high-growth technology industries
Eligibility:	Through collaboration
Quantum:	Up to US\$48,000
Innovation life stage:	Research and development
Type of funding:	Grants

Malaysia Venture Capital Management Berhad (MAVCAP)

This is the country's largest venture capital company with investments in the ICT sector, and other high-growth industries. MAVCAP is a wholly-owned subsidiary of the Minister of Finance Incorporated. The company focuses direct investments on start-ups and early-stage businesses, as well as high-growth companies looking to expand. The investment size of MAVCAP varies by the business stage of the investees.

Fund name: **MAVCAP 100**
Fund offered by: MAVCAP
Description: A partnership support for the development of innovative seed and start-up businesses. It is available through minority ownership of a small or medium-sized company.
Focus areas: General ICT; hardware/software; domain; multimedia services application service providers; and MSP/ASP providers.
Eligibility: Minority ownership
Quantum: US\$320,000 to US\$3 million
Innovation life stage: Seed and start-up deal stage
Type of funding: Equity

Fund name: **MAVCAP 110**
Fund offered by: MAVCAP
Description: A partnership support for the development of innovative early-deal stage businesses, or businesses looking to expand. It is available through minority ownership of a small or medium-sized company.
Focus areas: New media; games; e-content; community and networking; and wireless and mobile.
Eligibility: Minority ownership
Quantum: US\$1 million to US\$4.8 million
Innovation life stage: Early and expansion deal stage
Type of funding: Equity

Fund name: **MAVCAP 110**
Fund offered by: MAVCAP
Description: A partnership support for the development of innovative late deal stage businesses or businesses looking to expand. It is available through minority ownership of a small or medium-sized company.
Focus areas: Software applications and services; and digital content, including high definition (HD) and games.
Eligibility: Minority ownership
Quantum: US\$1.6 million to US\$6.4 million
Innovation life stage: Late-deal stage
Type of funding: Equity

Malaysian Technology Development Corporation (MTDC)

The Business Start-up Fund (BSF) was established to fund new technology based start-up companies. It incorporates elements of loan and equity, offering companies flexible funding via convertible notes and preference shares. The fund's aim is to support and encourage entrepreneurship, as well as the creation of new strategic businesses, with high-growth potential.

Fund name:	Business Start-up Fund (BSF)
Fund offered by:	MTDC
Description:	Flexible funding for the commercialisation of developed technology. It is available through minority ownership of a small or medium-sized company.
Focus areas:	Industrial technology; biotechnology; sea to space; science and information core; and information and communication technology.
Eligibility:	Minority ownership
Quantum:	Up to US\$1.6 million
Innovation life stage:	Commercialisation
Type of funding:	Loan or equity

Multimedia Development Corporation (MDeC)

The Product Development and Commercialisation Fund (PCF) is aimed at assisting local MSC-status companies to accelerate their development, by the commercialisation of innovative, market-driven products, solutions, and services; as well as by increasing the creation of intellectual property for commercialisation.

Fund name:	Product Development & Commercialisation Fund (PCF)
Fund offered by:	MDeC
Description:	A fund for the development or commercialisation of a developed product, solutions, and services. It is available through minority ownership of an MSC-status company.
Focus areas:	Internet of things and big data
Eligibility:	Minority ownership
Quantum:	Up to US\$238,000
Innovation life stage:	Commercialisation
Type of funding:	Grant

Malaysia Debt Ventures (MDV)

MDV manages US\$793 million worth of funds for seeding venture capital funds that invest in early-stage high-tech companies in Malaysia. It invests in emerging markets; biotechnology; ICT; and other high-growth sectors in Malaysia. It offers venture financiers interest payments, principal, or even warrants, and the right to invest in a future round.

The MDV Commercialisation Financing Programme

This programme caters to technology companies at their early and pre-commercialisation stages, as well as companies at their post R&D pre-commercialisation stages. The financing is provided in a manner structured towards Islamic compliance, in the form of loans and convertible financing. It is available to companies incorporated in Malaysia, with Malaysian-majority ownership, and covers up to 85% of contract or asset costs.

BioNexus

This is a special status awarded to qualified international and Malaysian biotechnology companies. Qualified BioNexus companies undertaking value-added biotechnology and life sciences activities are entitled to fiscal incentives, grants, and assured a list of privileges. Existing companies include Vivantis, Stempeutics, Stell Gen, Altona Diagnostics. They range from start-ups to mature companies, with a trend towards growth.

IP collaterals

To spearhead the use of intellectual property as collateral, the government has allocated the equivalent of US\$64 million to an IP financing scheme operated by Malaysia Debt Ventures. The objective of the fund is to increase productivity and innovation. Under this scheme, SMEs can seek financing using their IP rights as collateral. Credit Guarantee Corp Malaysia will provide a guarantee of up to 50%, the government will give a 2% interest rate subsidy, while the rest will be borne by banks.

The Innovation Business Opportunities (IBO) programme

This is a platform for the marketing of innovations with high potential for generating business. It is led by Agensi Inovasi Malaysia (AIM), and aims to provide investors with access to commercially viable innovations from Malaysian companies, universities, and research institutes. AIM not only pre-screens the innovations, but also provides analysis of the core business idea, potential business models, market and competitor analysis, business requirements, and financial projections.

Interested investors will go through a competitive open bidding process to win over the commercialisation rights for a given innovation. AIM has gathered a total of 200 opportunities within a year, which have attracted 119 bidders. To date, 14 innovations have successfully been commercialised, while 42 others are still under various stages of negotiation.

The Innovation Business Opportunities cover a total of eight sectors



Agriculture



Business services



Content, communication and infrastructure



Education



Electrical and electronics



Financial services



Healthcare



Palm oil and rubber

Lab2Market

This is a programme to facilitate the marketability of innovations from research institutions and universities in Malaysia. Sponsored by The Indus Entrepreneurs (TIE) Malaysia, Cradle Fund, Agensi Inovasi Malaysia (AIM), and Technology Park Malaysia, the programme is also a platform for researchers to receive mentoring and coaching. Lab2Market is run in a series of cycles, where projects are presented, and the best selected for commercialisation assistance.

Acceleration of industry development

While many of the funding opportunities available target early-stage commercialisation, Agensi Inovasi Malaysia (AIM) is also tasked with accelerating innovation in sectors strategic for Malaysia, such as the food industry and biomass. To this end, the agency has set up a series of sector-specific initiatives, which have already resulted in a number of prominent market entries by large multinationals.

Food Valley Southeast Asia

Food Valley Southeast Asia aims to broaden Malaysia's share of the Asian food industry through innovation. The initiative involves establishing a hub with consumer sensory labs where food industry companies can research ingredients, brands, and other aspects of their products, in relationship to consumer behaviour.

National Biomass Strategy

The goal of this strategy is to increase the use of byproducts from the palm oil industry, which total more than 80 million tonnes every year. AIM has established partnerships with 20 government agencies, 10 universities, and 20 private sector companies, to find ways to create high value products out of the waste, fuelling the creation of new jobs and increased exports.

Oleo-derivatives joint venture

United Plantations Bhd, one of Malaysia's largest palm oil companies, has teamed up with Oleon NV, Europe's biggest oleo-chemical producer, to develop a US\$32 million food emulsifier plant in Pulau Indah. The state-of-the-art factory is expected to start producing oleo-derivatives in early 2014, to be used in baked goods, dairy, and confectionary.

Darden Restaurants

Darden Restaurants, one of the largest full-service catering companies in the world, is to establish a 9,300 hectare integrated lobster and mussels farm in Malaysia. As well as commercial farming, the facility will carry out commercial trials, and research and development. Darden has also set up the management centre for its Asian restaurant business in KL.

iGene

An advanced medical informatics company, iGene's technological focus is on high-intensity computing and high-definition visualisation. It has developed a digital system which allows for autopsies to be conducted without having to dissect a body. In October 2013, iGene launched the first of 18 state-of-the-art digital autopsy facilities in the United Kingdom. Prior to this commercial success, the company benefited from several governmental grants.

Appendix 3: Merdeka Award

Inspired by the Nobel Prize, the Merdeka Award recognises individuals and organisations for their contributions to Malaysia's growth, and for inspiring greatness in others.

Professor Dr Halimatun Hamdan

Professor Halimatun has led 25 research programmes and 80 projects, during a distinguished academic career. Her research work has focused on the chemistry of silica-based materials, synthesised from rice husk waste. She is best known for developing a cost-effective way to produce aerogels, materials which combine lightness with exceptional insulation properties.

Together with the Zeolite and Nanostructured Materials Laboratory at Universiti Teknologi Malaysia, Professor Halimatun has set up a spin-off company to commercialise her breakthrough. The innovative product, known as Maerogel, is to be produced initially at a factory in Malaysia, with international expansion to follow.

As well as the Merdeka Award, Professor Halimatun has received numerous honours, at home and abroad. She is a fellow of both the Academy of Sciences Malaysia, and the American Academy of Sciences; and is recognised by Marquis Who's Who in Science and Engineering. She is currently Vice Chancellor of the University Malaysia of Computer Science and Engineering.

Emeritus Professor Dr Augustine Ong Soon Hock

As well as authoring some 400 academic articles and two books, Professor Ong has 16 patents to his name, in the United States, the United Kingdom, Japan, Australia, and Malaysia. Most of these patents touch on the nutritional value and chemical composition of palm oil, as well as technical training and waste management within the industry.

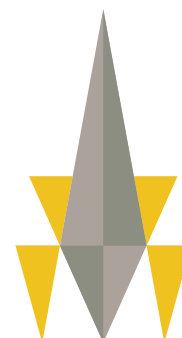
Professor Ong is best known for conceptualising the conversion of palm oil to biodiesel, jumpstarting its production in Malaysia. The country is now one of the world's leading biofuel producers, with 58 plants approved for production. Other research has led to the discovery of a zero-waste milling process.

Among his other achievements, he founded the Malaysian Invention and Design Society (MINDS) in 1987, and remains its President today. He is a senior fellow of the Academy of Sciences Malaysia; an officer of the International Order of Merit of the Inventors (IOMI); and a fellow of King's College, Cambridge.

Dr Kenneth Yeang

Best known for his work in the field of environmentally-friendly building design, Dr Yeang laid the conceptual foundations for bioclimatic design, a low-energy design philosophy that takes into account the local climate. After some successful small-scale projects, he became known as the "father" of the bioclimatic skyscraper. Dr Yeang started his distinguished design career in London, at the Architectural Association School, and went on to earn a PhD in Architecture from the University of Cambridge in the 1970s. At Cambridge he worked as a research assistant on the Autonomous House project, an early green building concept.

Dr Yeang has been recognised with adjunct professorships at several universities, including Universiti Malaya; the University of New South Wales (Australia); and Curtin University (USA). He has received a myriad of international honours, including the Aga Khan Award for Architecture, the Auguste Perret Prize, from the International Union of Architects; and the Robert Matthew Award, from the Commonwealth Association of Architects.



M E R D E K A
A W A R D

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