

5th edition

Asia



QS University Rankings: Asia

2013

IELTS[™]

QS INTELLIGENCE UNIT



UTS:

EXPANDING HORIZONS

www.uts.edu.au/international

Sydney's city university

- > 29th in QS Top 50 under 50 index of newer universities
- > 5 Star Rated QS Stars™ (Research, graduate employability, teaching quality and infrastructure.)
- > Contemporary and innovative university
- > Practice-based learning

We offer undergraduate, postgraduate, study abroad and research programs in:

- | | |
|-------------------------------------|--------------------------|
| > Business | > Information Technology |
| > Communication | > International Studies |
| > Design, Architecture and Building | > Law |
| > Education | > Pharmacy |
| > Engineering | > Science |
| > Health | |



For a globally relevant education in a vibrant city, choose UTS.

Welcome

to the 2013 University Rankings: Asia – Report

The QS World University Rankings® appear to be more prophetic than other exercises of their type. Our rankings were the first to question Harvard's dominance at the top of the table, the first to telegraph the ascendancy of MIT, the first to plot the rising influence of Singaporean and Korean institutions. The rising influence of Asian institutions can be seen in other studies, but nowhere more profoundly than in our work.

There is a misconception that reputation measures are an inherent cause of inertia in rankings, that a long history is an insurmountable advantage. It is our reputation emphasis that reinforces the performance of more young institutions than any other, our reputation measures that improve the standing of smaller and more specialised institutions, our survey based indicators that are driving the buzz around Asian universities. It is this dynamic context that inspired the development of a separate ranking for Asia and which keeps the work relevant today.

The current and future advantages of Asian universities can be summarised in three categories:

1. ECONOMIC SYMBIOSIS

Asian economies have been comparatively insulated from recent global financial difficulties. Knowledge is seen as a key driver of economic growth and investment in education at all levels, and research, is seen as a fundamental pillar of economic development.

2. OPERATIONAL AGILITY

Asian institutions, on the whole, are younger than western counterparts, in many cases their governance structures are somewhat more autocratic, leaving more flexibility in the hands of their strategic leadership.

Compare an oil tanker to a speedboat, the first responds slowly to direction, the second is responsive and adaptive.

3. POLITICAL POPULARITY

However much we may hate to admit it, politics plays a vital role in the development and prioritisation of higher education. In the UK, higher education is stumbled into by many students, it is increasingly seen as a right rather than a privilege and the minority of students engaging in antisocial behaviour give students as a whole a bad name. Increasing investment in universities would be deeply politically unpopular. By contrast, in Asia higher education is seen as a privilege; parents want nothing more than to see their children attend the world's most prestigious universities and research and education are amongst the most highly respected professions. Further investment in HE is robust policy both politically and economically.

The results contained herein do not reveal radically different results to last year, although there are stories in the detail, but the reason why they are important is that institutions included here are increasing their global influence, and they are doing it quickly. At the current rate of development, Asian institutions may begin to dominate within two decades. Ivy League beware!



Ben Sowter

Ben Sowter is the Head of Division,
QS Intelligence Unit

Asia universities show a five-year surge in performance

New QS University Rankings: Asia shows five-year surge in performance of region's universities, says **Danny Byrne**

The fifth annual edition of QS University Rankings: Asia point to a five-year shift in the international balance of power, with several ambitious Asian institutions making strides towards becoming genuine global competitors.

This year's edition of QS University Rankings: Asia is topped by Hong Kong University of Science and Technology (HKUST), ahead of National University of Singapore (NUS) and Hong Kong University (HKU) who are tied for second.

Yet this year is only part of the story. Five years of accumulated data drawn from the regional rankings and the overall QS World University Rankings paint a picture of upward mobility for Asian universities, as the region's economic boom contrasts with the gloomy outlook in the West.

Mirroring global economic trends, Asian universities have made up significant ground on their Western peers in the period following the financial crisis. There has been a 17% increase in the number of Asian universities in the global top 200 during the last five years. The number of Asian institutions in the elite global top 50 has grown from nine to 11.

The rapid speed of change in the region is on display in a complementary ranking, QS Top 50 Under 50, which ranks universities established since 1963. Asia boasts five of the world's top six young institutions, perhaps a forecast of a future realignment of the global balance of power from West to East.

As Western governments struggle to maintain funding levels, Asian institutions have rapidly increased their ability to attract the world's best faculty and students. The rankings show a five-year surge in international students studying at ranked institutions in Asia, from 175,286 to 255,212, while total international faculty has grown from 21,223 to 35,677.

Both on a regional and global level, the overriding message from five years' worth of rankings data is clear: money matters. The changes in the relative fortunes of universities in the region correlate closely with the ability of governments to keep pace with the unprecedented investments being made in higher education in the region.

The booming economies of Hong Kong, Singapore and Korea have helped to establish their universities as major forces, while the inexorable rise of Mainland China is clearly in evidence. In contrast, Japan is clearly struggling to keep pace with the improvements made by its upwardly mobile regional peers.

HKUST REIGNS SUPREME

Hong Kong University of Science and Technology (HKUST) retains the top spot it gained in 2011, a remarkable achievement for an institution that is just 22 years old. HKUST also tops the second annual QS Top 50 Under

50 ranking, pointing to a uniquely rapid ascent to world-class status.

That HKUST has managed to achieve this during a period of transition from a three-year to four-year degree model is testament to the funding levels that have helped it maintain its staffing levels, research productivity and performance in the reputational indicators.

University Grants Committee funding for Hong Kong universities rose from 4.1% of total government spending in 2008/9 to 4.5% in 2011/12, in a period during which Hong Kong's economy has maintained growth following a slump in 2009. This translates to over 0.5% of total government expenditure on average for each of Hong Kong's eight universities, a remarkable figure.

HKUST has risen from fourth to first place since 2009 while Hong Kong University (HKU) rises one place to the second position, shared with National University of Singapore. HKU topped the table in both the 2009 and 2010 editions of the rankings.

However, despite this Hong Kong universities are not immune to the increased competition on evidence throughout the region. Hong Kong's other leading institution, Chinese University of Hong Kong (CUHK), has been overtaken.

CUHK has slipped from fifth to seventh this year, a marked decline for an institution that ranked second in the inaugural QS University Rankings: Asia in 2009.

City University of Hong Kong maintains its 2012 position of 12th, six places higher than its position in the original rankings in 2009.

SINGAPORE: THE NEW SILICON VALLEY?

On both a global and regional level, Singapore has seen a remarkable improvement in its

As Western governments struggle to maintain funding levels, Asian institutions have rapidly increased their ability to attract the world's best



fortunes in the past five years, driven by substantial investments, a pioneering approach to establishing partnerships with world-class institutions in the West, and the aggressive recruitment of leading international faculty and students.

National University of Singapore (NUS) maintains its second position this year, sharing it with Hong Kong University which move up one place to rank joint second in Asia. NUS has been one of the fastest risers in the last five years, having ranked 10th in 2009.

NUS is the top-performing institution in the employer reputation survey, testament to the excellent reputation of its graduates among Asian employers. It also ranks second for citations per paper, suggesting it is producing highly influential research.

Nanyang Technological University (NTU) also sees a surge in performance this year, rising from 17 to 10. Like HKUST, NTU has only been in existence for 22 years, and

ranks second in the QS Top 50 Under 50 ranking for the second year in a row.

The upward trajectory of NUS and NTU is partly due to a progressive approach to internationalization that has pushed up standards across the board and established the two as meeting places for leading minds from East and West. The two have also benefitted from a new Universities Trust that pledged a further \$4bn to Singapore's universities in 2010, facilitating their rapidly growing international profile.

NUS has launched research partnerships with prestigious international institutions including Yale and Duke University, while NTU has followed suit by collaborating with Imperial College London and Warwick University. Several of these collaborative projects are housed in campuses near state-of-the-art science parks to facilitate the development of spin-off companies.

The policy seems to be taking off, with a wave of internet start-ups and multi-national investors meaning the prosperous city-state has already been dubbed Asia's answer to Silicon Valley.

The need to innovate through research and development is one of the major drivers of global competition in higher education, and Singapore's pioneering investment and collaboration will increase its chances of producing the Googles, Apples and Microsofts of the future.

THE KOREAN EDUCATION MIRACLE CONTINUES

Korea has transformed its higher education participation rates from among the lowest to the highest in the OECD in the space of a generation, and plans are in place to boost the already substantial annual R&D budget to a whopping 5% of the nation's GDP.

This extraordinary emphasis on higher education is perhaps matched only by China, and has had a demonstrable effect on the

performance of Korea's leading universities in the last five years, on both a global and regional scale.

The leading seven Korean universities all either maintain or improve their position in this year's QS University Rankings: Asia. Seoul National University (SNU) maintains its fourth place, a notable improvement compared to 2009, when it ranked eight. In the same period SNU has improved its global ranking from 47 to 37th, and makes the global top 30 in the faculty rankings for both natural sciences and social sciences and management.

KAIST is consolidating its reputation as a major player in science and technology, and this year improves its regional rank by one place to rank sixth. KAIST also ranks 4th in the QS Top 50 Under 50 ranking, and has made rapid strides to improve its global standing. Having ranked 132 in the inaugural QS World University Rankings in 2007, KAIST now stands at 63rd in the world, and looks set to break into the global top 50 sooner rather than later.

With POSTECH (7) joining SNU and KAIST in the Asian top ten, Korea's rise shows a shift in the regional balance of power that has its roots in higher education investment.

However, despite

these positives the performance of Korean universities paints a polarized picture. While performance of leading institutions continues to improve, Korean institutions outside of the top 100 have seen a general decline. This suggests the realignment of funds towards producing internationally competitive institutions at the top end may have come at the cost of stalling the development of institutions further down the table.

JAPAN AND CHINA: A SHIFT IN THE BALANCE OF POWER?

While the years since the financial crisis have accelerated the long-term swing in the global balance of power from East to West, they have also seen a realignment of power within the region. Asia's dominant economy in the second half of the 20th century, Japan has been hit hard by the global downturn, and its universities are struggling to keep up with the pace of change in the region.

During the last five years, China has overtaken Japan as the world's second largest economy behind the US. In the past 20 years it has also revolutionized its higher education system, with an unprecedented expansion in participation and concerted efforts to create its own Ivy League, the 'C9 League'.

China's economy continues to expand rapidly, and with it its spending power. Central Intelligence Agency figures place China sixth in the world for annual growth in 2011, at 9.5% – a remarkable figure given its huge size. For context, the US and UK managed 1.5% and 1.1% respectively in that time period, and Japan's economy contracted by 0.5%.

This increased spending power has facilitated a boom in scientific research. China doubled its main scientific research budget between 2009 and 2011, and production of published research papers rose from just under 200,000 in 2006 to more than 330,000 in 2010.

China still has numerous challenges to overcome, not least a lack of the sort of international engagement that has facilitated the rise of universities in Hong Kong and Singapore. Though research volume has grown exponentially, this has yet to translate into work that is highly cited on a global scale.

Yet even with these ongoing issues, China's universities may still be on the way to emulating the performance of Japan sooner rather than later.

Japan's top institution, University of Tokyo drops one place this year to ninth, having ranked third in the inaugural QS University Rankings: Asia in 2009. In the same period, China's leading institution has moved in the opposite direction. University of Tokyo ranked seven places higher than University of Peking in 2009, yet sits three places behind it this year.

This trend is replicated on a national level. Though Japan still has more institutions than China in the top 200, the gap has shrunk from 17 in 2011, to just three this year.

Japan still has a far greater number of regionally elite universities than China, with seven making the top 20 compared to China's two. Yet the contrast between Japan's performance in 2009 and 2013 remains stark. It's representation in the top 20 has dropped from nine to seven, and its top five universities have dropped an average of five places each.

While Japan has long been Asia's higher education powerhouse, the rapid development of Hong Kong, Singapore, Korea and Mainland China are making that position look increasingly precarious.

INDIA STRUGGLES TO MATCH CHINA

While China has made major strides in the past five years, the region's other developing economic superpower has struggled to put its ambitious plans into practice.

India's plans to develop world-class universities and triple its participation rate in the coming years are well publicized, yet its sluggish progress towards these goals has been the source of keen debate.

The five leading Indian institutions all rank lower than last year, and there has been a general lack of progress since the rankings began in 2009 – surprising, since for much of that period the Indian economy was expanding at a rate of up to 9% per year.

The issues affecting India's rankings performance are clear. The highly selective intake of the IITs is reflected in an excellent reputation among employers, but in many other areas they lag behind their regional peers. Student/faculty ratios are often very high, and though their research productivity and impact has shown some signs of improvement, it still lags considerably behind the leading universities in ten region.

Yet it is in the international measures that one of the major issues preventing the development of India's universities into international centers of excellence is on display. Whereas Singapore has based its remarkable success on recruiting international talent and fostering collaboration with the West, India remains insular. No Indian institution makes the top 100 for either the proportion of international students and international faculty.

There are numerous reasons why this is the case, and it could well be argued that India has other more immediate priorities, such as improving access and infrastructure. Yet until it is able to effectively embrace the global nature of international higher education it is likely that its universities will struggle to break into the regional elite, despite the vast potential of the Indian economy.



QS TOP 250 UNIVERSITIES

2013 rank	2012 rank	Institution	Country/Territory	Classification				Academic Reputation	Employer Reputation	Faculty Student	Papers per Faculty	Citations per Paper	International Faculty	International Students	Inbound Exchange Students	Outbound Exchange Students	Overall
				SIZE	FOCUS	RES.	AGE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	
1	1	The Hong Kong University of Science and Technology	HK	M	CO	VH	2	99.9	99.7	96.6	76.8	97.6	100.0	100.0	100.0	100.0	100.0
2=	2	National University of Singapore (NUS)	SG	XL	FC	VH	5	100.0	100.0	98.0	69.9	99.8	100.0	100.0	100.0	100.0	99.6
2=	3	University of Hong Kong (HKU)	HK	L	FC	VH	5	100.0	99.8	99.3	69.0	99.3	100.0	100.0	99.8	96.5	99.6
4	4	Seoul National University (SNU)	KR	L	FC	VH	4	100.0	99.7	96.1	89.4	96.4	81.7	97.8	76.4	47.0	99.2
5	6	Peking University	CN	L	FC	VH	5	100.0	100.0	94.8	87.9	87.7	94.2	81.2	75.0	95.7	98.5
6	7	KAIST	KR	M	CO	VH	3	99.4	90.5	98.2	96.9	87.1	74.8	58.1	86.7	81.5	98.1
7=	9	POSTECH	KR	S	FO	VH	3	88.6	78.9	100.0	97.4	99.3	91.0	47.0	96.5	82.2	96.3
7=	5	The Chinese University of Hong Kong (CUHK)	HK	L	FC	VH	4	99.9	92.9	85.6	75.6	94.8	100.0	98.6	100.0	100.0	96.3
9	8	The University of Tokyo	JP	L	FC	VH	5	100.0	100.0	98.4	93.3	98.7	24.4	69.3	17.8	10.1	95.9
10=	10	Kyoto University	JP	L	FC	VH	5	100.0	99.0	99.3	87.2	99.0	35.8	60.5	18.5	8.8	95.1
10=	17	Nanyang Technological University (NTU)	SG	L	CO	VH	4	99.8	99.9	88.2	65.1	89.6	100.0	100.0	99.0	100.0	95.1
12	12	City University of Hong Kong	HK	M	CO	VH	3	95.3	74.5	89.0	89.8	87.2	100.0	99.9	100.0	100.0	94.7
13	13	Tokyo Institute of Technology	JP	M	CO	VH	5	98.6	94.5	91.2	99.0	89.8	32.7	81.5	35.9	16.1	94.1
14	15	Tsinghua University	CN	XL	FC	VH	5	100.0	100.0	97.4	88.7	60.7	83.1	85.9	71.4	71.9	94.0
15	11	Osaka University	JP	L	FC	VH	4	99.8	90.1	98.9	80.5	98.2	32.6	53.7	48.4	24.5	93.8
16	16	Yonsei University	KR	L	FC	VH	5	98.4	98.1	95.8	54.7	94.7	35.5	83.9	99.7	92.3	92.9
17	14	Tohoku University	JP	L	FC	VH	5	98.1	85.8	99.7	89.0	91.1	34.3	54.8	44.3	8.8	92.8
18	18	Nagoya University	JP	L	FC	VH	5	95.3	84.0	98.4	79.8	97.0	38.3	70.2	30.6	13.5	91.2
19	21	Korea University	KR	XL	FC	VH	5	97.7	93.9	90.3	48.2	89.8	36.4	70.9	96.1	99.9	89.1
20	22	Kyushu University	JP	L	FC	VH	5	91.0	88.8	97.1	79.0	84.0	33.4	60.4	30.4	9.5	87.4
21	24	Sungkyunkwan University	KR	L	FC	VH	5	87.3	81.9	96.5	49.9	94.9	41.8	83.8	93.5	97.1	87.3
22	20	National Taiwan University (NTU)	TW	XL	FC	VH	4	100.0	88.2	52.5	98.0	93.4	41.5	39.6	61.1	35.7	86.4
23	19	Fudan University	CN	L	FC	VH	5	99.9	99.9	60.0	96.7	93.3	36.9	22.4			85.9
24	23	Hokkaido University	JP	L	FC	VH	5	89.6	83.2	96.5	75.2	89.0	29.6	51.1	12.2	11.4	85.7
25	26	The Hong Kong Polytechnic University	HK	L	CO	VH	4	91.9	72.5	60.0	81.0	81.1	100.0	100.0	79.5	65.0	83.6
26	27	University of Science and Technology of China	CN	L	CO	VH	4	91.8	59.0	77.5	96.5	92.2	27.8	5.1	31.1	33.8	83.5
27	29	Shanghai Jiao Tong University	CN	XL	FC	VH	5	98.8	99.8	60.4	99.5	60.4	40.9	35.2			81.3
28	25	Zhejiang University	CN	XL	FC	VH	5	96.0	96.9	56.9	99.4	60.1	30.1	16.7	13.9	72.0	80.8
29	28	Nanjing University	CN	L	FC	VH	5	96.1	78.5	57.7	86.2	82.0	71.9	11.7	9.5	8.1	79.6
30	49	National Chiao Tung University	TW	M	CO	VH	5	66.6	50.1	91.7	95.6	67.8	51.0	92.8	95.9	59.2	78.9
31	31	National Tsing Hua University	TW	M	CO	VH	4	91.2	55.4	44.0	99.3	84.4	75.6	36.5	68.8	46.5	78.5
32	30	Keio University	JP	XL	FC	HI	5	92.8	96.1	77.9	37.2	91.0	32.8	19.5	19.4	22.2	78.2
33	35	Universiti Malaya (UM)	MY	L	FC	VH	5	89.8	83.6	95.4	36.4	24.1	98.1	99.2	100.0	100.0	76.9
34	32	University of Tsukuba	JP	L	FC	VH	3	86.4	22.7	98.2	53.8	89.6	34.3	68.1	24.2	30.5	76.8
35	41	Kyung Hee University	KR	L	FC	VH	4	78.4	69.8	92.8	31.5	71.2	41.0	89.6	99.2	100.0	76.2
36	33	Hanyang University	KR	L	FC	VH	4	69.6	64.6	94.8	40.2	67.6	55.9	90.9	91.3	98.9	74.3
37	37	National Cheng Kung University	TW	L	FC	VH	4	78.2	55.8	59.3	91.0	75.2	44.3	74.4	31.1	33.6	73.8
38	36	Indian Institute of Technology Delhi (IITD)	IN	M	CO	VH	4	86.0	97.5	49.1	99.5	61.8	1.6	2.5	8.8	13.3	73.6
39	34	Indian Institute of Technology Bombay (IITB)	IN	M	CO	VH	4	89.9	99.8	38.5	89.6	68.8	7.7	1.5	9.8	6.4	72.4
40	40	Ewha Womans University	KR	L	FC	HI	5	70.4	61.1	76.5	26.8	97.4	48.8	90.6	84.4	86.9	72.2
41	39	Kobe University	JP	L	FC	HI	4	73.3	51.4	80.9	55.1	90.5	19.0	40.7	18.0	14.4	70.7
42	38	Mahidol University	TH	L	FC	HI	4	82.1	50.5	92.6	22.7	92.6	31.2	19.8	12.8	10.0	70.6
43	48	Hong Kong Baptist University (HKBU)	HK	M	FC	HI	4	57.3	24.6	90.3	40.9	93.6	99.6	99.8	99.1	73.6	70.4
44	42	Waseda University	JP	XL	CO	VH	5	96.7	98.5	48.4	24.8	64.2	66.3	64.2	20.5	49.0	70.1
45	50	National Yang Ming University	TW	S	FC	VH	3	38.4	44.5	99.9	86.8	93.8	26.9	29.6	29.7	14.4	68.7
45=		Beijing Normal University	CN	L	CO	VH	5	86.9	51.8	67.7	58.9	53.7	95.4	42.0			68.2
47	44	Hiroshima University	JP	L	FC	VH	4	88.2	23.4	86.8	60.0	88.6	19.1	40.4	12.5	7.2	67.5
48	43	Chulalongkorn University	TH	XL	FC	HI	4	98.0	80.1	50.3	26.8	67.9	33.3	8.7	24.8	23.8	67.0
49	45=	Indian Institute of Technology Madras (IITM)	IN	M	CO	VH	4	72.3	92.9	40.9	94.9	61.6	3.4	1.7	29.1	10.2	66.8
50	64	Taipei Medical University	TW	M	FO	VH	4	56.0	39.5	60.0	84.8	79.1	56.8	43.8	45.6	93.5	66.4

2013 rank	2012 rank	Institution	Country/Territory	Classification				Academic Reputation	Employer Reputation	Faculty Student	Papers per Faculty	Citations per Paper	International Faculty	International Students	Inbound Exchange Students	Outbound Exchange Students	Overall
				SIZE	FOCUS	RES.	AGE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	
51	47	Indian Institute of Technology Kanpur (IITK)	IN	M	CO	VH	4	77.7	88.0	34.7	98.8	59.5	2.0	1.5	5.3	3.7	66.1
52	51	Sogang University	KR	M	CO	VH	4	61.8	71.1	78.0	28.9	65.4	40.3	66.7	96.2	83.3	65.6
53	53	National Central University	TW	M	CO	VH	4	59.1	46.2	68.8	76.6	74.8	51.9	34.2	44.9	17.3	65.5
54	54	National Taiwan University of Science and Technology	TW	M	FO	VH	3	60.3	43.8	76.7	73.3	48.0	47.3	62.6	74.2	47.6	64.8
55	57	Sun Yat-sen University	CN	XL	FC	VH	4	68.1	52.5	52.3	55.9	79.3	29.5	33.4	57.2	81.7	64.4
56	55	Xi'an Jiaotong University	CN	L	FC	VH	5	60.3	78.2	83.2	67.8	28.0	21.3	25.7	61.1	65.6	64.2
57	58	Universiti Kebangsaan Malaysia (UKM)	MY	L	FC	VH	3	82.7	56.7	75.8	33.8	12.0	99.9	91.0	50.7	97.5	63.9
58	56	Indian Institute of Technology Kharagpur (IITKGP)	IN	M	FO	VH	4	66.0	79.9	36.2	98.6	63.2		1.0	7.7	31.4	63.2
59	61	Tokyo Medical and Dental University	JP	S	FO	VH	4	35.8	9.6	100.0	73.0	100.0	15.0	52.2	10.8	17.0	62.9
60	52	Chiba University	JP	L	FC	HI	5	50.8	11.1	93.2	62.5	89.6	13.9	44.3	8.0	4.5	62.4
61	63=	Universiti Sains Malaysia (USM)	MY	L	FC	VH	4	83.5	65.9	47.2	52.2	33.1	32.7	97.8	65.1	6.7	61.8
62	67	Nankai University	CN	L	FC	VH	4	55.7	59.4	69.0	52.1	92.9	6.1	19.7			61.7
63	60	National Sun Yat-sen University	TW	M	CO	VH	3	61.4	42.8	34.1	94.7	60.4	27.1	21.8	76.2	36.5	59.6
64=	63	Pusan National University	KR	L	FC	VH	4	64.3	48.5	63.7	47.6	67.8	27.3	31.4	15.8	21.1	59.3
64=	59	University of Indonesia	ID	XL	FC	MD	5	85.2	76.4	73.5	2.8	32.6	51.7	10.5	48.0	23.8	59.3
66	65	Indian Institute of Technology Roorkee (IITR)	IN	S	FO	VH	5	48.6	65.8	51.9	97.1	69.4					59.2
67	68=	University of the Philippines	PH	XL	FC	MD	5	83.8	85.0	51.5	5.2	72.2	3.9	5.1	6.3	3.9	58.7
68	74	Universiti Teknologi Malaysia (UTM)	MY	L	CO	VH	5	65.9	60.5	79.3	20.4	6.7	80.5	99.9	70.8	100.0	57.1
69	77	Kanazawa University	JP	M	FC	VH	4	24.1	10.5	85.2	77.1	96.9	16.9	27.1	25.2	12.7	56.0
70	79	Wuhan University	CN	XL	FC	VH	5	71.1	59.2	57.7	56.2	36.7		19.3			55.8
71	82	Chung-Ang University	KR	L	FC	HI	4	46.8	42.0	84.3	23.0	53.1	29.5	80.6	68.4	86.8	55.7
72	76	Universiti Putra Malaysia (UPM)	MY	L	FC	VH	4	74.1	65.5	61.2	33.0	15.7	28.7	86.4	27.2	48.4	55.6
73	66	Tongji University	CN	XL	FC	VH	5	61.3	66.2	67.9	71.4	19.0	6.2	25.2			55.5
74	62	Osaka City University	JP	M	FC	VH	5	37.0	7.7	69.9	78.8	92.9	11.7	19.0	4.9	2.0	55.1
75	69	Hankuk (Korea) University of Foreign Studies	KR	L	CO	MD	4	41.7	69.3	89.2	4.1	35.3	87.8	82.8	99.9	100.0	55.0
76	73	Tokyo University of Science	JP	L	FO	VH	4	70.2	42.9	4.6	99.9	71.3		4.9	1.5	4.6	54.7
77=	101	Beihang University (former BAUU)	CN	L	CO	VH	4	47.2	63.8	87.6	75.2	10.8	3.3	5.5			53.6
77=	70	Kyungpook National University	KR	L	FC	VH	4	45.4	33.8	51.1	55.9	85.7	26.9	35.8	16.8	27.2	53.6
77=	85	Southeast University	CN	L	FC	VH	5	42.5	20.3	74.2	78.5	27.6	14.1	26.0	98.6	86.0	53.6
80	78	University of Delhi	IN	XL	FC	HI	4	82.4	95.9	22.4	7.8	73.8	1.5				53.5
81	80	Tokyo University of Agriculture and Technology	JP	M	FO	VH	4	39.7	15.9	61.3	85.4	55.5	23.4	36.3	99.8	2.3	53.4
82	97	Renmin (People's) University of China	CN	L	FO	VH	4	62.0	81.6	64.5	10.9	37.4	19.0	45.6	48.5	36.0	53.1
83=	71	Tianjin University	CN	L	CO	VH	5	50.2	50.7	65.0	88.9	21.8	10.1		1.3	20.7	53.0
83=	83	University of Seoul	KR	M	CO	HI	4	51.0	37.2	61.7	27.7	59.1	18.4	40.1	94.7	94.0	53.0
85=	68	Inha University	KR	L	FC	HI	4	34.6	20.4	85.3	32.2	72.5	29.6	52.0	58.2	70.2	52.9
85=	87	National Taiwan Normal University	TW	L	CO	HI	4	68.8	34.8	48.9	29.5	55.9	31.5	47.4	44.3	25.6	52.9
87	90	Okayama University	JP	L	FC	HI	5	22.0	10.7	89.3	58.9	94.9	18.1	22.2	3.8	6.5	52.3
88	96	Beijing Institute of Technology	CN	L	FO	VH	4	55.2	56.1	61.8	85.2	11.7	16.9	8.8			52.1
89	89	Indian Institute of Technology Guwahati (IITG)	IN	S	CO	VH	2	45.2	33.0	50.8	85.0	61.9	2.1	2.7	2.9	3.4	51.7
90	84	Harbin Institute of Technology	CN	XL	FO	VH	4	43.9	59.6	58.9	98.8	20.5		6.1			51.3
91=	95	Shanghai University	CN	XL	CO	VH	2	71.7	41.3	47.1	57.6	29.3	13.9	8.6			51.0
91=	112	Xiamen University	CN	XL	FC	HI	4	67.8	25.5	47.0	39.7	63.9	20.8	11.8			51.0
93	92	Chang Gung University	TW	M	FO	VH	3	17.1	12.9	68.5	99.2	87.4	7.6	1.8	1.5	6.0	50.9
94	75	Tokyo Metropolitan University	JP	XL	CO	HI	4	48.5	19.4	14.3	86.7	98.2	22.5	3.9	1.0	1.1	50.1
95	105	National Chung Hsing University	TW	L	CO	VH	4	43.6	32.0	22.7	84.3	80.8	12.6	24.4	29.5	7.9	49.7
96	88	Kumamoto University	JP	M	FC	VH	4	29.2		67.2	66.7	89.3	14.6	18.3	32.2	5.3	49.6
97	103	Chonbuk National University	KR	L	FC	HI	4	33.5	29.2	66.8	34.2	77.5	26.7	43.6	22.5	74.8	49.5
98	91	Chiang Mai University	TH	XL	FC	HI	3	65.4	44.2	40.5	19.2	72.3	19.2	7.4	18.0	6.5	49.4
99	94	The Catholic University of Korea	KR	M	FC	VH	5	16.2	8.1	97.5	47.2	82.6	11.4	20.0	23.0	39.0	49.2
100	81	Yokohama City University	JP	S	CO	VH	5	12.8	9.3	100.0	38.5	99.0	12.8	22.5	5.1	3.4	48.7

2013 rank	2012 rank	Institution	Country/Territory	Classification				Academic Reputation	Employer Reputation	Faculty Student	Papers per Faculty	Citations per Paper	International Faculty	International Students	Inbound Exchange Students	Outbound Exchange Students	Overall
				SIZE	FOCUS	RES.	AGE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE	SCORE
101	72	Nagasaki University	JP	M	CO	VH	4	22.2		95.4	45.3	83.0	16.5	23.9	9.9	1.3	48.5
102	98	Huazhong University of Science and Technology	CN	XL	FC	VH	4	44.6	43.6	65.8	69.5	25.6	5.9	8.1			47.7
103	102	Ajou University	KR	M	FC	VH	3	13.4	23.9	87.6	38.9	82.3	21.1	30.8	38.2	42.9	47.6
104=	123	East China Normal University	CN	L	CO	VH	4	45.4	26.5	66.3	40.1	62.2	4.7	10.8			47.4
104=	104	University of Science and Technology Beijing	CN	L	CO	VH	4	54.8	30.4	54.5	83.2	12.9	5.9	10.8			47.4
106	128	Dongguk University	KR	L	FC	HI	5	21.9	17.7	82.1	17.2	64.7	51.4	82.5	90.7	99.8	47.3
107	110	Thammasat University	TH	XL	FC	MD	4	69.7	62.5	24.2	12.1	58.8	32.0	5.5	29.1	24.9	47.1
108	120	Chonnam National University	KR	L	FC	HI	4	27.5	17.4	64.0	41.4	85.1	23.6	33.1	35.5	31.8	47.0
109	86	Ateneo de Manila University	PH	M	FC	LO	5	67.2	73.9	48.2	2.9	21.0	19.2	16.8	73.3	49.5	46.9
110	93	Niigata University	JP	L	FC	HI	4	20.1	9.3	70.4	56.3	86.3	17.3	13.7	46.3	10.4	46.8
111	99	University of Ulsan	KR	L	FC	HI	3	6.8	12.7	83.7	51.1	94.1	16.0	16.6	22.5	52.8	46.7
112	119	Shandong University	CN	XL	FC	VH	5	46.3	34.6	37.5	70.0	53.5	13.5	20.0			46.3
113=		Hitotsubashi University	JP	M	SP		5	58.4	88.1	45.7	9.6	20.9	44.7	76.7	20.8	17.7	46.2
113=	124	Jilin University	CN	XL	FC	VH	4	44.7	25.8	80.1	41.4	39.2					46.2
115	121	Lingnan University (Hong Kong)	HK	S	SP		5	33.9	24.9	62.3	24.4	33.6	100.0	95.1	100.0	100.0	45.8
116	113=	National Chengchi University	TW	L	CO	HI	4	54.3	51.9	45.0	17.7	28.3	36.5	40.4	91.6	75.2	45.6
117	122	East China University of Science and Technology	CN	L	CO	VH	4	24.5	18.1	96.2	30.5	69.4					45.5
118	100	Hallym University	KR	M	FC	HI	3	10.3	10.6	90.1	31.0	83.0	23.0	29.2	59.3	45.2	45.3
119		Quaid-i-azam University	PK	M	CO	VH	3	40.4	31.4	10.9	93.5	66.4	27.8	3.0	10.0	9.3	44.7
120	108	National University of Sciences and Technology	PK	M	CO	HI	2	50.1	40.6	92.6	14.6	9.4	10.9	11.6	1.3	6.6	44.0
121=	126	Chungnam National University	KR	L	FC	HI	4	31.2	25.7	56.3	47.8	63.2	17.1	27.8	11.4	26.2	43.9
121=	107	Osaka Prefecture University	JP	M	CO	VH	4	29.8	11.7	72.0	60.1	49.0	13.0	11.3	11.6	3.9	43.9
121=	130	Saitama University	JP	M	CO	VH	4	23.6		45.4	75.8	82.0	29.9	36.3	6.9	8.9	43.9
124	137	China Agricultural University	CN	L	FC	VH	5	31.8	15.5	50.6	75.5	59.0	8.2	2.8			43.7
125	115	Yokohama National University	JP	M	CO	VH	4	39.8	27.8	55.1	43.1	43.9	29.7	53.6	15.3	13.9	43.6
126	136	Beijing University of Technology	CN	L	CO	VH	4	53.6	27.0	48.4	74.5	8.6	6.8	17.7			43.5
127	111	Gunma University	JP	M	FO	VH	4	7.3		64.3	82.2	79.4	46.6	24.2	6.9	2.9	43.3
128	129	Beijing Jiaotong University	CN	L	CO	VH	5	45.2	38.4	53.5	75.3	9.0	12.0	7.1			43.2
129=	113=	Bandung Institute of Technology (ITB)	ID	L	CO	HI	4	78.7	77.0	31.1	11.5	9.8		5.8	4.0	7.8	43.1
129=	133	Dalian University of Technology	CN	L	CO	VH	4	37.0	23.7	37.6	95.8	35.1	9.0	2.9		8.9	43.1
129=	106	Gifu University	JP	M	FC	HI	4	8.9		86.1	58.8	73.8	11.7	28.1	10.2	2.0	43.1
132	109	Shinshu University	JP	M	FC	VH	4	12.7		65.6	61.6	86.3	29.3	17.1	12.1	2.2	42.6
133=	161-170	National Taipei University of Technology	TW	M	FO	VH	5	37.9	19.3	35.2	64.5	41.8	37.2	42.7	33.5	44.1	42.2
133=	118	Universitas Gadjah Mada	ID	XL	FC	MD	4	84.1	30.8	29.2	3.1	27.8	8.1	21.4	20.8	8.0	42.2
135=	151-160	Kagoshima University	JP	M	FC	HI	4	21.9	27.4	56.9	53.8	69.5	5.0	14.9	7.3	3.5	41.9
135=	116	Konkuk University	KR	L	FC	HI	4	22.3	13.7	48.6	38.1	72.5	36.4	67.7	53.7	67.4	41.9
135=	149	Sichuan University	CN	XL	FC	VH	4	39.7	27.3	38.1	68.5	48.5	1.9	4.2			41.9
138	151-160	Lanzhou University	CN	L	CO	VH	5	27.4	16.1	39.1	64.1	82.8	4.0	2.9			41.8
139	141	Beijing Foreign Studies University	CN	M	SP		4	33.2	51.2	98.0	1.7	5.5	97.4	65.0			41.7
140=	151-160	University of Mumbai	IN	XL	FC	MD	5	44.2	88.0	3.8	42.5	70.0					41.6
140=	125	Yamaguchi University	JP	M	FC	HI	4	20.1		83.4	38.2	67.0	21.4	17.1	6.7	2.3	41.6
142	139	Tokai University	JP	L	FC	HI	4	47.0	6.2	48.4	22.5	69.0	24.1	10.2	5.2	6.2	41.2
143=	143	University of Calcutta	IN	XL	CO	HI	5	59.2	44.2	1.0	48.7	35.2	1.3	1.0	66.0	100.0	41.1
143=	131	University of Miyazaki	JP	M	FC	HI	4	10.6		85.9	38.6	75.5	8.2	9.5	49.4	4.5	41.1
145	135	Airlangga University	ID	L	FC	LO	4	42.9	18.1	44.0	1.9	96.8	3.2	3.4	7.4	19.8	41.0
146	145	Prince of Songkla University	TH	XL	FC	MD	3	51.2	36.0	30.0	12.9	74.0	24.3	4.9	6.0	5.3	40.9
147	117	Toyota Technological Institute	JP	S	FO	VH	3	3.1		60.3	100.0	70.0		8.0	10.5		40.8
148	127	Gyeongsang National University	KR	L	FC	HI	4	23.3	10.6	49.2	46.0	79.4	31.6	15.1	14.7	16.1	40.5
149	134	Kitasato University	JP	M	FO	VH	4	1.7		93.4	38.4	90.2					40.3
150=	148	University of Santo Tomas	PH	XL	FC	LO	5	42.4	45.9	21.8	2.1	98.8	34.8	10.7	4.5	2.3	39.9
150=	150	Yeungnam University	KR	L	FC	HI	3	33.7	30.1	30.2	31.7	64.4	40.4	38.9	24.0	76.5	39.9

QS TOP 250 UNIVERSITIES

2013 rank	2012 rank	Institution	Country/Territory
151-160	201-250	Aga Khan University	PK
151-160	161-170	Central South University	CN
151-160	142	De La Salle University	PH
151-160	151-160	Donghua University	CN
151-160	140	Inje University	KR
151-160	151-160	International Islamic University Malaysia (IIUM)	MY
151-160	146	Mie University	JP
151-160	144	National Chung Cheng University	TW
151-160	151-160	Sookmyung Women's University	KR
151-160	161-170	Sophia University	JP
161-170	181-190	Beijing University of Chemical Technology	CN
161-170	171-180	Chungbuk National University	KR
161-170	171-180	Khon Kaen University	TH
161-170	161-170	King Mongkut's University of Technology Thonburi	TH
161-170	151-160	National University of Defense Technology	CN
161-170	138	Ochanomizu University	JP
161-170	151-160	Shizuoka University	JP
161-170	181-190	Soonchunhyang University	KR
161-170	171-180	Yamagata University	JP
171-180	171-180	Gakushuin University	JP
171-180	181-190	Hunan University	CN
171-180	191-200	International Christian University	JP
171-180	191-200	Kasetsart University	TH
171-180	151-160	Kyoto Institute of Technology	JP
171-180	147	Kyoto University of Education	JP
171-180	132	Nara Women's University	JP
171-180	201-250	Northwestern Polytechnical University	CN
171-180	161-170	Saga University	JP
171-180	161-170	South China University of Technology	CN
181-190	171-180	Beijing University of Posts and Telecommunications	CN
181-190	171-180	Feng Chia University	TW
181-190	151-160	Fu Jen Catholic University	TW
181-190	161-170	Kinki University (Kindai University)	JP
181-190	161-170	Ritsumeikan University	JP
181-190	181-190	Shanghai Normal University	CN
181-190	181-190	Soochow University	CN
181-190	161-170	Universiti Malaysia Sarawak (UNIMAS)	MY
181-190	181-190	University of Electronic Science and Technology of China	CN
181-190	191-200	University of Pune	IN
181-190	171-180	Yuan Ze University	TW
181-190	201-250	Yunnan University	CN
191-200	191-200	Burapha University	TH
191-200	201-250	Chongqing University	CN
191-200	201-250	Dankook University	KR
191-200	161-170	Kochi University	JP
191-200	251-300	Lahore University of Management Sciences (LUMS)	PK
191-200	171-180	Nanjing Agricultural University	CN
191-200	191-200	National Taiwan Ocean University	TW
191-200	201-250	Sejong University	KR
201-250	181-190	Akita Prefectural University	JP

QS TOP 250 UNIVERSITIES

2013 rank	2012 rank	Institution	Country/Territory
201-250	201-250	Beijing University of Chinese Medicine	CN
201-250	181-190	Bogor Agricultural University	ID
201-250	201-250	Cheju National University	KR
201-250	171-180	China Pharmaceutical University	CN
201-250	201-250	China University of Petroleum	CN
201-250	201-250	Chung Yuan Christian University	TW
201-250	251-300	Diponegoro University	ID
201-250	201-250	Dong-A University	KR
201-250	201-250	Doshisha University	JP
201-250	251-300	Fuzhou University	CN
201-250	201-250	Gangneung-Wonju National University	KR
201-250	201-250	Harbin Engineering University	CN
201-250	171-180	Hirosaki University	JP
201-250	201-250	Huazhong Agricultural University	CN
201-250	201-250	Huazhong Normal University	CN
201-250	181-190	Iwate University	JP
201-250	201-250	Japan Women's University	JP
201-250	201-250	Kangwon National University	KR
201-250	201-250	Kookmin University	KR
201-250	191-200	Kyushu Institute of Technology	JP
201-250	251-300	Meiji University	JP
201-250	191-200	Multimedia University (MMU)	MY
201-250	201-250	Nanjing Normal University	CN
201-250	201-250	Nanjing University of Aeronautics and Astronautics	CN
201-250	201-250	Nanjing University of Science and Technology	CN
201-250	191-200	Nihon University	JP
201-250	201-250	Northeast Normal University	CN
201-250	191-200	Northeastern University (China)	CN
201-250	201-250	Ocean University of China	CN
201-250	181-190	Padjadjaran University	ID
201-250	201-250	Pukyong National University	KR
201-250	201-250	Rikkyo University	JP
201-250	301+	Shaanxi Normal University	CN
201-250	301+	Shanghai International Studies University	CN
201-250	251-300	Shanghai University of Finance and Economics	CN
201-250	301+	The University of Shimane	JP
201-250	201-250	Universiti Teknologi MARA (UiTM)	MY
201-250	201-250	Universiti Teknologi Petronas (Petronas)	MY
201-250	251-300	Universiti Tenaga Nasional (UNITEN)	MY
201-250	251-300	Universiti Utara Malaysia (UUM)	MY
201-250		University Malaysia Perlis (UniMAP)	MY
201-250	201-250	University of Brawijaya	ID
201-250	201-250	University of Dhaka	BD
201-250	201-250	University of Engineering & Technology (UET) Lahore	PK
201-250	191-200	University of Karachi	PK
201-250		University of Macau	MO
201-250		University of the Punjab	PK
201-250	201-250	Vietnam National University, Hanoi	VN
201-250	201-250	Xidian University	CN

QS TOP 50 UNDER 50

Under 50 Rank	2012 Global rank	Institution	Country/Territory	Classification				Est. Year
				SIZE	FOCUS	RES.	AGE	
1	33	The Hong Kong University of Science and Technology (HKUST)	HK	M	CO	VH	2	1991
2	47	Nanyang Technological University (NTU)	SG	L	CO	VH	2	1991†
3	58	The University of Warwick	GB	L	FC	VH	3	1964
4	63	KAIST - Korea Advanced Institute of Science and Technology	KR	M	CO	VH	3	1971
5	95=	City University of Hong Kong	HK	M	CO	VH	3	1984
6	97	Pohang University of Science and Technology (POSTECH)	KR	S	FO	VH	3	1986
7	107	Maastricht University	NL	L	CO	VH	3	1976
8	155	University of California, Irvine (UCI)	US	L	FC	VH	3	1965
9	159	The Hong Kong Polytechnic University	HK	L	CO	VH	2	1994†
10	163	Lancaster University	GB	M	FC	VH	3	1964
11	176	Universitat Autònoma de Barcelona	ES	L	FC	VH	3	1968
12	178	University of Bath	GB	L	CO	VH	3	1966
13	196	University of Antwerp	BE	L	FC	HI	3	1971*†
14	203	University of Tsukuba	JP	L	FC	VH	3	1973†
15	206	Universidad Autónoma de Madrid	ES	L	FC	VH	3	1968
16	214	University of Calgary	CA	L	FC	VH	3	1966†
17	228	Universidade Estadual de Campinas (Unicamp)	BR	L	FC	VH	3	1966
18	233	Macquarie University	AU	L	FC	HI	3	1964
19	242	Loughborough University	GB	L	FO	VH	3	1966†
20	246	RMIT University	AU	XL	CO	HI	2	1992†
21	251	Universität Ulm	DE	M	CO	VH	3	1967
22	258	Curtin University	AU	XL	CO	VH	3	1987
23	261	Universiti Kebangsaan Malaysia (UKM)	MY	L	FC	HI	3	1970
24	264	University of Wollongong	AU	L	FC	HI	3	1975†
25	266	Universitat Pompeu Fabra	ES	M	CO	VH	2	1990
26	268	University of Newcastle	AU	L	FC	HI	3	1965
27	271=	Hong Kong Baptist University (HKBU)	HK	M	FC	HI	2	1994†
28	279	Universität Konstanz	DE	M	CO	VH	3	1966
29	281	Queensland University of Technology (QUT)	AU	L	CO	VH	2	1990†
30	282	Simon Fraser University	CA	L	CO	VH	3	1965
31	284	University of Technology, Sydney (UTS)	AU	L	CO	VH	3	1988
32	285	National Yang Ming University	TW	S	FC	VH	3	1975
33	293	University of South Australia (UniSA)	AU	L	CO	VH	2	1991
34	297	Umeå University	SE	L	FC	HI	3	1965
35	302	University of Eastern Finland	FI	M	CO	VH	3	1972*†
36	304	University of Tromsø	NO	M	FC	HI	3	1968
37	311	University of California, Santa Cruz (UCSC)	US	L	CO	VH	3	1965
38	318	University of Southern Denmark	DK	L	FO	VH	3	1966*†
39	321	University of Essex	GB	M	CO	VH	3	1964
40	324=	Dublin City University (DCU)	IE	M	CO	VH	2	1989†
41	327=	Universidad Austral	AR	S	CO	MD	2	1991
42	331	Brunel University	GB	L	CO	VH	3	1966
43	334	King Abdul Aziz University (KAU)	SA	XL	FC	MD	3	1967
44	336	Università degli Studi di Roma - Tor Vergata	IT	XL	CO	VH	3	1982
45	340	Linköping University	SE	L	CO	VH	3	1969
46	342	Flinders University	AU	L	FC	HI	3	1966
47	343	Universidad Carlos III de Madrid	ES	L	FO	VH	2	1989
48	344	Université Paris Dauphine	FR	M	SP		3	1968
49	345	Aston University	GB	M	CO	VH	3	1966†
50	346=	Universität Bremen	DE	L	CO	VH	3	1971

* Formed through the merging of institutions, some parts of the institution may pre-date this foundation year. Mergers where the dominant part in the merger pre-dates the last fifty years, particularly where an original name survives the merger, are not considered.

† An institution of higher education, although typically not one with university status, existed at the site where this university now stands - the university can "trace its roots" back further than fifty years but cannot claim to have been a university prior to that period

The unstoppable rise of young universities

By **John O'Leary**

A new leader emerged this week in the QS ranking of universities that are less than 50 years old. The Hong Kong University of Science and Technology (HKUST), one of the youngest institutions of all, takes the accolade after moving up from third position last year's inaugural ranking.

HKUST was already the leader in the QS Asian University Ranking, also published this week. Established only in 1991, it has shown its quality against much older institutions, rising seven places to 33rd in the overall global ranking for 2012.

The latest "Top 50 Under 50" ranking sees one Hong Kong university replace another at its head. Last year's leader, the Chinese University of Hong Kong, is now too old to qualify, having reached its half-century along with four others from the 2012 top 50. The universities of York, East Anglia and Victoria, and King Fahd University of Petroleum & Minerals are in the same position.

However, HKUST has overtaken the University of Warwick to reach the top. It is one of three universities from Hong Kong in the top ten.

Second-placed Nanyang Technological University is of the same vintage as HKUST, although another university had occupied the same site previously. The Singaporean institution has moved up from fourth place, having also entered the top 50 in the 2012 QS World University Rankings.

Partly because of the loss of the five 50-year-olds, 29 of the universities in the new ranking have moved up since last year. However, the progress made by these young institutions is genuine: those in the Under 50 ranking have, on average, risen 2.7 places in the global ranking in the last 12 months.

All 50 institutions in the new table fall within the top 350 in the QS World University Ranking, despite the advantages enjoyed by historic universities in such comparisons.

New entrants are Argentina's Universidad Austral, a private university based in Buenos Aires; Brunel University, in London; King Abdul Aziz University, in Jeddah; Università degli Studi di Roma - Tor Vergata; Linköping University, in Sweden; and Germany's Universität Bremen. All have been moving up the overall world rankings.

The ranking is guaranteed further upheaval next year, when Warwick, Lancaster and Macquarie universities will all be lost from the top 20 as they celebrate their 50th anniversaries. The complement of British universities will thus fall further and Asian institutions will have the opportunity to tighten their grip on the leading places.



Research and Innovation. The ambitions of Asian universities

By **Martin Ince**

The QS University Rankings: Asia have now appeared five times, and have established themselves as the definitive account of academic excellence in the world's most populous continent.

A glance at the top of our 2013 rankings reveals one obvious fact. Four of the top 10 universities have some combination of the terms "science" or "technology" in their title, including the first-ranked Hong Kong University of Science and Technology. This suggests a strong awareness in the region of the importance of new scientific and technological knowledge, which we reflect in the rankings by our measures of research paper outputs and citations.

But how good is Asia at producing science and technology breakthroughs? One quick way of finding out, at least in the science arena, is to look at recent awards of Nobel Prizes in chemistry, physics and biomedicine (formally called physiology or medicine).

A quick look suggests that Asian nations are right to fear that their best scientists are leaving home to maximise their careers. One of many examples is the 2008 chemistry prize, won by Osamu Shimomura, born in Kyoto and working at Boston University, and collaborators. Venkatraman Ramakrishnan, joint winner in 2009, was born in India but is now in Cambridge, England.

However, the globalised structure of modern science means that it is not necessary for the top talent to leave Asia to work with the best scientists around the world. The 2010 chemistry prize was won by Ei-ichi Negishi, born in China and working at Purdue University in the US, along with Akira Suzuki, born in Japan and still working there, plus Richard Heck of the US. Their work on catalysing chemical reactions will allow drugs and other complex chemical compounds to be synthesised more readily and possibly with lower energy inputs.

Nobel Prizes have such prestige that various Asian nations such as Japan and China have set targets for the number they wish to win. And there has been some success. The 2009 physics prize was won by a group including Charles Kao, born in Shanghai and working jointly between the Chinese University of Hong Kong and STL, a British company. His work could hardly be more topical. It describes the performance of fibre optics, which are now replacing metal wires as the backbone of the world's telecommunications systems.

Also in physics, the 2008 prize was won by three Japanese scientists. Yochiro Nambu had by then moved to Chicago, but Matao Kobayashi was based at Tsukuba and Toshihide Maskawa at Kyoto. Their work was rather less applied than Kao's, and has to do with possible existence of new categories of sub-atomic particle.

Indeed, it seems that Japan is unique in Asia for supporting highly theoretical research on a large scale. Elsewhere in the continent there is a stronger emphasis on applied research of obvious economic value. An example is Singapore, whose research base spreads from biomedicine to engineering, two topics that are converging steadily as knowledge advances.

Singapore has two universities in our Asian top 10, the National University of Singapore in joint second place, and Nanyang Technological University at number 10. NUS is plainly a global research centre in a wide range of disciplines. One example of many is the work of Mohan Balasubramanian, winner of the President's Science and Technology Award, the nation's top prize for research. His work looks at cell division, one of the most basic processes in biology. Although cell division is an essential part of life, it can also go wrong, most damagingly in cancer. This means that his work on the timing and mechanism of cell division is of universal interest.

Nanotechnology is an approach to materials science that could alter everything from

surgery to spaceflight. It has been adopted by universities across Asia as a key part of their research portfolio. David Lou of NTU is applying it to the key area of energy storage. His work creates materials structured an atom at a time to store power more effectively in batteries or capacitors. This technology is growing in importance because of the spread of mobile devices and because of plans to use more solar and wind power around the world. Perhaps for that reason, he has an H-index of 36, a figure that would normally be regarded as unattainable except in medical research.



Nobel Prizes have such prestige that various Asian nations such as Japan and China have set targets for the number they wish to win



Another of the Asian Tiger nations that has made research and innovation a national priority is Korea, which has an impressive three universities in the top 10 of this ranking. They are led by Seoul National in fourth place, the highest-ranked university not working primarily in English. Universities have been key to the success of Korean businesses such as Sam-

sung and LG. These firms' world lead in display technology, in particular, has been built almost as a joint venture with Korean universities.

One SNU researcher, Kim Sung Hoon, is working on one of the knottiest problems in the world of medicine, the astounding amounts of time and money needed to develop new drugs. He claims that it may be possible to get the time needed from 12 years to perhaps nine and to reduce costs by as much as 80 per cent. This would make new drugs viable. But it would also allow new companies, not least in Korea, to get into a business now dominated by US and European firms.

A third Asian tiger nation that attaches a high value to education is Hong Kong, and the University of Hong Kong appears in second equal place in our ranking this year alongside NUS. It is a broad, general university with a full range of teaching and research, but some of its activities have an unmistakable local flavour.

One that remains stubbornly topical is bird flu, since mainland China is the most frequent source of problem flu epidemics. HKU researchers led by Yo Guan, and working with colleagues from other institutions, recently showed that the H7N9 flu virus can infect experimental animals by aerial transmission. This form of the virus has already been responsible for outbreaks of infection in Shanghai and other parts of China, so this finding is a significant warning sign.

It is noticeable that the fourth of the Asian Tigers, Taiwan, is less visible than the other three as a research power. It is an economy of small businesses and its best-known big companies such as Foxconn, contract maker of high-technology devices in mainland China, tend to use innovation from elsewhere. One area in which Taiwan does have a strong position is the study of the fast-changing

Pacific and Asian environment, an area of growing importance in an era of climate change.

CHINESE AMBITION

While many Asian nations want to be world research powers, the sheer rate of growth in mainland Chinese research puts it in a league of its own in the region. Government research spending has been growing at 20 per cent a year for six years and at the current rate will overtake European and then US budgets within the coming decade.

China has yet to win its first Nobel Prize in the sciences. But it is becoming a world power in engineering research. An example from Peking University, up from sixth in Asia in 2012 to fifth today, concerns turbulence. Turbulence in flows of water, air and other fluids has long been regarded as an important but excep-

tionally tricky phenomenon, vital to understanding everything from aircraft design to the flow of blood around the body. A Peking group led by Chen Shiyi is a world leader in the study of compressible turbulence, which occurs in high-speed flows such as those found around an aeroplane wing. This analysis is of technological importance, but also informs astronomers' understanding of gas clouds in deep space.

Asia's other billion-person state, India, has an intellectual tradition that deeply respects theoretical fields of knowledge, and has produced distinguished mathematicians and cosmologists. Its current base of scientific discovery is not strong by world standards. However, it is building a strong position in research connected to climate change. The existence of the Monsoon gives India a unique set of problems in this area. In a very wide-ranging initiative, the Indian government is funding research on everything from the loss of Himalayan glaciers to ways of growing cotton with lower carbon emissions.



Eastern Excellence: Asia rises to conquer the global education landscape

By **Elke Schwarz**

Asia's unparalleled rise in terms of economic and political power in recent years has become a permanent feature in economic and political analysis around the globe. The region's economic and geopolitical role in the world has without doubt become one of the key drivers for global markets in a range of sectors and industries, specifically in science, engineering and technology. A cursory glance at the capitals of Asian countries like Cambodia, Vietnam or Malaysia reveals the high levels of investments made in this region in general. Foreign investment, paired with accelerated levels of wealth generation by regional businesses have made this area such a shooting star in terms of global power. Hailed as the new Silicon Valley tech hot spots like Singapore and Hong Kong attract substantial investments from the US and Europe and a growing number of established firms as well as start-ups choose to set up their operations in these highly dynamic markets.

With global interest in the region at a high, the share of Asian countries in terms of global growth will continue to increase for a while to come still. With buying power on the rise, Asia will cement its position as a central hub for growth – not only in the region, but also well beyond. It is estimated that the region's economy will exceed that of the United States and Europe's combined by 2030. The Brookings Institute projects that Asia will comprise 64% of the world's middle class by 2030. Poverty levels decrease, per capita income is on the rise and the wealth creation within the entire Asian region is well underway. As many have quipped, the 21st century is certainly poised to be the Asian Century.

The tremendous boost in higher education the region has experienced in recent years plays a significant role in this growth as Asian universities increasingly challenge the West's role as leading the global market in terms of research, innovation and education excellence. Asian countries have made considerable investments into research-focused higher education institution and research centres, specifically in

Foreign investment, paired with growth of regional businesses, have made this area a shooting star in terms of global power

China, Singapore, Hong Kong, Japan and South Korea, and the efforts now pay off. In the most recent QS World University Rankings, Asian universities were represented with 11 institutions among the top 50.

As the highest ranking Asian university in the overall table, Hong Kong University (HKU) is firmly placed at rank 23, just behind University of California, Berkeley. Following closely, in 25th place, is the National University of Singapore, while the prestigious University of Tokyo ranks at 30. During the last five years, there has been a 17% increase in the number of Asian universities represented in the global 200. This cluster of research excellence is indicative of the drive toward becoming world-class education and knowledge hubs evident in China, South Korea, Japan, Singapore and Hong Kong and the fact that these universities have firmly established their place in the league tables speaks for itself. While the struggle for university funding so palpable in the Western higher education landscape certainly contributes to the improved performance of Asian universities in the rankings in recent years, there are certain

conditions specific to the Asian market that have facilitated and will continue to promote, the laudable rise of Asian institutions and there are some attributes that make this region specifically suited for growth.

One of these attributes is the Asian attitude toward education. Asian societies have a tremendous respect for the importance of education and scholarship in a personal and societal context. Many families, if they have the means, will save up religiously for university tuition fees for their offspring. The significance of education is also reflected in policy decision enacted by China, Singapore, Malaysia, Japan and other countries in the region, that specifically foster education, research and innovation by investing in excellence initiatives and dedicated centres for research and innovation. Korea, for example, has launched the 'World Class University' project in 2008 as well as the Korea-Brain21 (KB21) program which aims to create 10 top tier research universities of world-class standing, in order to produce, in turn, the next generation of world-class leaders for the country. Similarly, China's Project 985, instituted in 1998, aims to actively promote China as a country of education and research excellence by making funding available for research centres, improved facilities and intellectual exchange with scholars around the globe. Initially only available to 9 universities in China, the program now comprises 39 universities who receive such funding.

Another aspect characteristic for the Asian region which aids in making Asian universities set for accelerated development is the comparatively high levels of population growth taking place in the region overall. It is estimated that by 2020, 50% of the world's university-age people – between 18 and 22 years – will be from India, China, Indonesia and Pakistan. While these levels of growth will eventually slow down, they will continue to propel the region toward new heights in the

international context. A third important aspect is the sheer economic dynamism in engineering, technology and science Asia experiences at the moment. Many Asian universities have long placed a specific focus on STEM subjects that will become increasingly relevant in the years to come, such as environmental technology, medical research and ecological sciences. With this focus, Asian universities have attracted researchers and professors from across the globe to work at the cutting edge of these sciences and technologies and help shape this interesting and superbly dynamic region.

The university landscape in the Asian region is quite diverse, with some universities boasting a long historical traditions - University of Tokyo, for example, and a number of newcomers who have conquered the education market by storm. They also vary in size and focus. Leading the QS University Rankings : Asia is such a newcomer, the Hong Kong University of Science and Technology. HKUST opened its doors to the first cohort in 1991 and currently hosts more than 12,500 students and 500 academic staff. The institution comprises five schools which respectively focus on sci-

ence, engineering, business and management, the humanities and social science. A relatively new university, it has consistently been able to attract growing levels of research funding. Following suit in the QS University Rankings: Asia is the National University of Singapore (NUS), which is comparatively large with 37,000 students. NUS has a highly international profile and strives to engage in intellectual exchange and collaborations through partnerships with a range of other institutions around the globe. NUS features 3 research Centres of Excellence (RCE) and is at the forefront

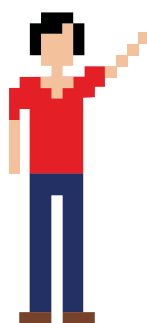


of research in technology, medicine, ecology, as well as digital media. Ranking consistently high in the global rankings, NUS is strong in Engineering and Technology and Life Science subjects in particular. Tied in second place in the rankings is Hong Kong University (HKU) another rather small institution with 20,000 students, but nonetheless a powerhouse in itself in terms of research and education.

While the top ten of the QS University Rankings: Asia are dominated by Hong Kong, Singapore and Korea have also performed consistently well. China now has the largest number of universities among the Top 300: 75 versus Japan's 71. The prestigious University of Tokyo heads the individual subject tables for the AUR in Arts and Humanities, Engineering and Technology, Life Sciences and Medicine, Natural Sciences and ranks second in the Social Sciences and Management. Established in 1877, the University of Tokyo comprises 28,798 students in total, whereby 2,913 are international students. The University has 6 state of the art research institutes: Medical Science, the Earthquake Research Institute, the Institute for Solid State Physics, the Atmosphere and Ocean Research Institute and the Research Center for Advanced Science and Technology.

With cutting edge research centres as the ones offered by NUS, HKUST or the University of Tokyo, it is not surprising that the region will continue to attract researchers, scholars and academic staff from across the globe in order to draw on top research facilities in a specific field. This, paired with a growing student interest in the region, and the high levels of economic growth, will continue to drive demand for higher education in Asia and drive enrolment levels toward Western standards. Both Japan and Hong Kong have reached participation levels that compare to those in the UK and are set to exceed the UK by 2030. Of course, the Asian education market, as all markets, will consolidate, change and become less quantity-focused and more quality-focused. But for the foreseeable future this education and research arena is

one with tremendous potential for internationalisation and research excellence, ready to soar to new heights.





Study anywhere... with the tests that give you more.



The **TOEFL**® and **GRE**® tests

More choices

Study anywhere — Thousands of graduate and business school programs worldwide accept *TOEFL*® and *GRE*® scores.

More convenience

Choose from many test locations — ETS has the world's largest testing network to help you achieve your educational goals with testing sites in more than 160 countries.

More opportunities for success

Get the added advantage — Your *TOEFL* and *GRE* scores can help you stand out from the crowd — and show you have what it takes to succeed!

Learn more at
ets.org/getmore





IELTS puts you first

- You can book a test up to once a week in over 130 countries
- You will take your test in a quiet, comfortable location
- You will receive your results in less than 2 weeks
- You can submit your results to thousands of institutions in Australia, Canada, the UK and the US

Book now at www.ielts.org

IELTSTM

