Innovative Universities: Connecting the Dots

In conjunction with the second annual *Reuters Top 75: Asia’s Most Innovative Universities 2017* ranking compiled in partnership with Clarivate Analytics, Reuters editor David Ewalt moderated a live webcast discussion on June 8 to connect the dots between the rankings and the actual steps that universities in Asia Pacific are taking to drive innovation.

Professor Akiyoshi Yonezawa, professor and director, Office of Institutional Research, Japan’s Tohoku University and Professor Jay H. Lee, associate vice president of the International Office of KAIST (Korea Advanced Institute of Science & Technology) were the two expert guest panelists invited by Clarivate to share their perspectives on how universities throughout Asia Pacific are creating and disseminating knowledge, advancing science, and helping to drive the global economy to benefit society.
Innovative Universities: Connecting the Dots

Universities across Asia remain a powerful force of innovation. South Korean universities continue to lead the region in the second annual Reuters Top 75: Asia’s Most Innovative Universities 2017, but Japanese and Chinese universities feature prominently.

The rankings show that universities throughout Asia Pacific continue to tackle the challenge of nurturing both innovation and entrepreneurship to drive development and address some of the most fundamental issues facing society and business. Compiled in partnership with Clarivate Analytics, the Reuters ranking is a list that identifies and ranks the educational institutions doing the most to advance science and invent new technologies.

“Innovation is an implementation of knowledge creation that transforms and significantly improves products and business processes,” said Prof. Akiyoshi Yonezawa, professor and director, Office of Institutional Research, Japan’s Tohoku University.

Prof. Yonezawa and Prof. Jay H. Lee, associate vice president of the International Office of KAIST (Korea Advanced Institute of Science & Technology), were guest expert panelists interviewed by Reuters on how educational institutions throughout Asia Pacific are creating and disseminating knowledge, advancing science, and helping to drive the global economy to benefit society.

Moderated by Reuters editor David Ewalt, the aim of the live webcast discussion on June 8 was to connect the dots between the rankings and the actual steps that universities in Asia Pacific are taking to drive innovation. To view the webcast, click here.

“Innovation can happen in three different ways,” said Prof. Lee of KAIST, which once again led the rankings this year. “One is a major breakthrough discovery, something that is really different – because of this discovery, there is a whole new opportunity. Another way is infrastructure; for instance, when the Internet was invented, wireless communication, gene sequencing. The third is customer needs. Today, we are facing a lot of challenges from climate change to poverty. You watch out for these problems to spot opportunities.”
**Academic-industry collaboration is necessary**

One way to identify new and effective approaches to innovation is to define it. “Innovation can mean new ideas, new devices, new methods. In the business context, it has to have an application to create value, to be more effective and creative. In academia, we need to provide this ingredient and tools for innovation,” said Prof. Lee. “Cloud computing, wireless communication, endowing machines with intelligence. A lot of people believe this is going to change the world.”

The global shift towards Industry 4.0 – which includes the use of big data, automation and cyber-physical systems, the Internet of Things (IoT) and cloud computing – depends on and can open the door to new innovations.

The trend is underscored by the increasingly effective collaboration between universities in the region and business. The most innovative universities in Asia remain focused on basic research that they carry out but are also increasingly driving or being involved in spin-off businesses and startups that are disrupting existing business processes.

“The commitment to innovation by a university is a team effort,” said Prof. Yonezawa of Tohoku University. “Researchers should concentrate their time on knowledge creation, while other university staff members protect and support the transformation of these created knowledge into social value. These people are connected to the people in industries, who are trying to achieve a good relationship with people in universities. Facilitating this kind of innovation hub is key to the success of universities.”

“They [business and universities] are taking each other very seriously,” said Prof. Lee. “Good academic and industry relationships are very important. Innovation is key to everything now: to the national economy, problem solving and so on. We, academia, traditionally have many ideas and new understandings, but you cannot just play around with this forever. Industry is a way to make our ideas stick.”

**The human factor - nurturing entrepreneurs and relationships**

The main differences in the way innovation is done within academia and business lie in execution.
“A corporate environment is not an environment where you can conduct long-term basic research for a very long time without a purpose,” said Prof. Lee. “You have products to launch, milestones to achieve, and they don't have the patience. This kind of innovation ingredient, new discovery, they really need to understand. Without that you have nothing.”

Relationships are crucial to understand the inherent differences, said Prof. Yonezawa.

“Long term human relationships are very important,” he added. “A continuous process of having a long-term network is very important.”

A hurdle is that this is easier said than done. For companies, innovation goes hand in hand with risk. The larger the company, the bigger the innovation, the bigger the risk.

“Innovations are inherently synonymous with risk-taking. From the corporate standpoint, big companies (find it) very hard to innovate. Because they have commitments to investors, legacy products, they are unlikely to take risks as opposed to small companies,” said Prof. Lee.

South Korea, a country where chaebols – large conglomerates – control about a fifth of the economy, is increasingly aware of the importance of nurturing innovative startups. And that understanding impacts the innovative approach of the country’s universities.

“The government sees the need for small companies... We have casebooks teaching students how to launch their own start-ups – we are really active in this,” said Prof. Lee.

KAIST has taken it further by establishing a liaison office in San Jose, California, United States, to support entrepreneurial graduates, students and faculty. The KAIST Silicon Valley Innovation Platform (SVIP) gathers information and analyzes trends on emerging technologies; provides entrepreneurship and technology translation education; offers opportunities to engage with industry, research and government organizations; and assists Korean startups in accessing markets in North America.

KAIST is launching an entrepreneur-focused major-less major: “In some sense it is an interdisciplinary major. That is, being able to take many courses from different areas and synthesize this into entrepreneurship. It's necessary,” said Prof. Lee. “You
have to have an environment to awaken them (entrepreneurs). But these are a special breed of people in my opinion... I would advise against everyone becoming like that.”

All these activities are part of a widespread push to nurture innovation.

Prof. Yonezawa emphasized that this kind of local commitment can be a powerful catalyst for innovation: “The advantage that universities have is this kind of direct linkage [connecting business and research],” he said.

In Japan, private enterprise appears to be in the driver’s seat of nurturing entrepreneurship.

"In case of some advanced countries, it is the enterprises that globalize first and then collaborate with universities. This kind of global collaboration is ongoing, supporting the change of the paradigm in one country," Prof. Yonezawa said.

“Given the industrial structure of Japan, we also need to encourage students to have an entrepreneurial mind. The Japanese industry and the government are encouraging universities to introduce curriculums for graduate students on how to develop new business,” said Prof. Yonezawa. “People, especially graduate students, work hard to get a degree first and then to get a job. It is not so easy for us to persuade them to [be an entrepreneur]. We are trying to make a start-group for innovation.”

The China Factor

South Korean universities make up four of the top five most innovative universities in the 2017 rankings and eight of the top 20, but China continues to have the highest number of universities on the list: 25 in total when counting both Hong Kong and mainland China institutions. Last year, China had 22 universities on the Reuters ranking, more than any other country in Asia Pacific. Some Chinese universities, like the University of Hong Kong, Huazhong University of Science & Technology and Beijing University of Chemical Technology, jumped up the rankings.

“A lot of Chinese are open-minded,” said Prof. Lee. “They reflect a big country and have experience with different cultures. They are comfortable managing these diversities. They are very aggressive and adaptive in their investments. Their market is big, so if they have one good idea they can create big value for
themselves as well as the institution. And the market is developing; it's not established.”

One step that could improve innovation further would be to strengthen links between countries. For this to happen, institutions as well as people themselves will have to find ways to overcome historical and political differences. Language and culture are also barriers – KAIST is working on this with English-language courses and English-only zones and promoting the study of Korean amongst its international cohort.

There are excellent researchers throughout Asia Pacific. The question is how to best collaborate with them.

“What we are doing at Tohoku University is a cross-appointment system. We invite those people and they work collaboratively as our staff for three months in a year, for example. That kind of horizontal, casual exchange could work well,” said Prof. Yonezawa. “Regional collaboration could really change the landscape. We [Japan] have a large commitment to engineers in the ASEAN region. This regional, industrial network has energized and helped universities spark ideas and innovate.”

Innovation cannot happen in isolation, but through collaboration

Universities across the region are finding new and innovative ways to work with business and industry to take full advantage of their research and innovative power. At the same time, the size of economies in the region, particularly in South Korea, Japan and China, means that there is no shortage of opportunities.

“This attitude is growing in the Asia-Pacific region,” said Prof. Yonezawa. “Some of the countries like Japan, Korea and China, to some degree, have large companies. Those companies are now going in the direction of a so-called open innovation. This really changes the landscape of the relationship between industry and universities. This is a healthy and interesting challenge for most of the Asian countries.”

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