



## ISLAND OF INNOVATION

Occupying a total area of only 36,000 square kilometers and with a population of 23.4 million, Taiwan wields more influence on the global economy than countries around the world with more natural resources and manpower.

“Taiwan is very important and indispensable in the global supply chain, especially for certain industries,” said Taiwanese Foreign Minister David Lin.

Taiwan’s electronics and semiconductor sectors have contributed to its role as a known contributor to the global information technology industry. The country has emerged as a leader, innovating in biotechnology, green energy, and aerospace.

Institutions such as the Industrial Technology Research Institute (ITRI) and the Metal Industries and Research Development Center (MIRDC) have consistently supported the government in its goal to maintain Taiwan’s edge in industry.

With 97 percent of Taiwanese industry composed of small and medium enterprises (SME), the government has helped local companies move up the supply chain from second-tier and third-tier suppliers to tier-1 suppliers.

“We helped Taiwan transform from a labor-intensive into a technology-intensive economy. We shouldered very strong responsibilities of Taiwanese industry,” ITRI Chairman Ching-Yen Tsay explained.

2014 marks the thirty-fifth anniversary of the Taiwan Relations Act, the cornerstone of relations with the United States. Accordingly, Taiwan is pursuing ways to enhance economic ties with its third-largest trade partner and biggest source of foreign direct investment, country-wise.

“The relationship between the United States and Taiwan



Foreign Minister David Lin of Taiwan

is comprehensive, durable, and mutually beneficial. We feel and see that this is a strong basis for the United States and Taiwan relations to enter into the next era,” said Minister Lin.

“The Trade and Investment Framework Agreement talks should be the stepping stone for bilateral investment agreements. That is still the goal we are pursuing. We are also hoping that Taiwan will participate in the Trans-Pacific Partnership (TPP) negotiations for closer regional economic integration,” Lin added.

The foreign minister believes that Taiwan’s inclusion in the TPP negotiations will strengthen the Taiwanese and global economies alike.

“It is very important for Taiwan to establish its value globally. We cannot deny the economic relations and political factors between Taiwan and China. For that reason, Taiwan needs to strengthen its relationship with other countries, especially with a country like the United States. At the same time, this also fits America’s interest in

the Asia-Pacific region,” said Anita Chen, Managing Director of Park Strategies, which advises local and foreign clients on investment opportunities in the region.

Though the two countries share the same interests in seeing more prosperity and security in the Asia-Pacific, Taiwan can play an important role in the United States’ so-called pivot to Asia.

Taiwan’s role in global policymaking is understated, but international companies have taken note of its strengths in business, notably Taiwanese companies’ improved links to mainland China.

“We have a similar cultural background to China, but we also have a very similar background to the Western countries. If you want to do business with the Chinese, it’s very important for you to understand their market. Taiwan can be the gateway to mainland China,” Deputy Minister of Transport and Communications Men-Feng Wu proposed.

Although Taiwan’s size might be seen as a weakness, the island’s manageable scale is in fact an advantage. Its smaller market has acted as an accurate, low-risk testing ground for companies wanting to enter the massive mainland market.

Aside from being a bridge to China, Taiwan’s location on the eastern edge of East Asia makes the island an ideal hub of a regional market with more than one billion people.

“The project for the Taiwan International Airport was just completed last year. We have six major harbors and a number of which were developed into free trade zones. The ‘distance advantage’ is short to Shanghai, Tokyo, and Seoul. Taiwan can be a very important hub for the Asia-Pacific rim,” Deputy Minister Wu said.

Through its new infrastructure and ethos of innovation, as well as its vital contribution to the global supply chain, Taiwan will gain prominence in the future.

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# Mastering Adaptability for Growth

When Tim Cook launched a new line of iPhones in September, business reporters, tech geeks, and Apple fanatics listened intently as the Chief Executive Officer of the world's most valuable company outlined an extensive list of innovations made to the highly coveted smart phone.

In Taiwan, the iPhone launch – available via live stream for the first time – was watched just as closely because a number of Taiwanese companies make components for many of Apple's gadgets.

In fact, record-setting pre-sale orders for the iPhone 6 and 6 Plus are expected to boost Taiwan's technology-related export as the phones are rolled out around the globe.

Taiwan's Ministry of Finance reported that, as of the second quarter of 2014, technology-related exports had already exceeded 9 billion dollars, driven mostly by semiconductor sales.

Taiwan Semiconductor Manufacturing Corporation already reported sales of over 6 billion dollars to Apple.

Meanwhile, Taiwan's ASE Group, the world's largest provider of independent semiconductor manufacturing services, has been highly successful in servicing this important sector.

Taiwan's credibility in the global technology market is grounded in the government's efforts to empower its universities and businesses to act as centers of research and development. The Industrial Tech-

nology Research Institute was at the heart of this program.

"From the beginning, our purpose was clear. Through science, research and technology, we would lead Taiwan's industry by transformation and upgrading. We helped Taiwan transform from a labor-intensive to a technology-intensive economy. If you look at the developments over the past forty years, that has been the contribution of ITRI," ITRI Chairman Dr. Ching-Yen Tsay noted.

## Next in line?

Though Taiwan's semiconductor industry is one of its most celebrated, the country has nurtured other sectors, particularly biotechnology, pharmaceuticals, and green energy solutions, all of which have benefitted from significant investment in research and development.

"For biotech, there are only a few countries worldwide where you can list a company. One is the United States and the other one is Taiwan. Right now, we feel that Taiwan is the best place for us," ASLAN Pharmaceuticals President and Chief Executive Officer Carl Firth explained.

"For small- and medium-sized biotech companies less familiar with Asia, Taiwan is a good place to start. You have a country that has a rich history of drug manufacturing and drug development doing high quality work. From here, companies can reach out to other parts of Asia using Taiwan as a platform," Firth added.

For many years, Taiwan has been a springboard for many of the world's largest pharmaceutical companies to mainland China and the rest of Asia.

"Taiwan can provide very good quality clinical trials. The expertise in clinical trial protocols is very good. That is why the top five worldwide pharmaceutical companies choose Taiwan as their clinical trial center," said Development Center for Biotechnology Chairman Dr. Johnsee Lee, who also serves as honorary Chairman of the Taiwan Bio Industry Association.

The growth of Taiwan's biotech sectors has prompted companies on both sides of the Pacific to aggressively pursue partnerships.

"Unlike in the past, Taiwan is now more well-known in the United States, especially for health care. International companies recognize the level of opportunities that exist within Taiwan, particularly in its healthcare system. There is a tremendous opportunity not only for American businesses to expand into Taiwan, but also for Taiwanese companies to invest and thrive in the United States," said General Biologicals Corporation Chairman T.C. Lin.

"We are actively looking to expand operations in the United States via acquisitions. This can greatly benefit, in particular, our molecular diagnostics division," added Lin, whose company is marking its thirtieth anniversary this year.

Taiwanese medical device

manufacturers are also poised to benefit from growing health care ties.

"The United States consumes most of the world's resources in medical products. 55 percent of our business is generated there," said Apex Biotechnology Corporation Chairman and Chief Executive Officer Dr. Thomas Shen. Apex Biotech is Taiwan's leading exporter of blood glucose systems strips.

Taiwan also has a laudable level of awareness of environmental issues. According to a recent study by the Taiwan Institute for Sustainable Energy, nearly 91 percent of Taiwanese are aware of the effects of climate change.

That consciousness has sparked the development of a fast-growing clean energy industry. One such company, Topper Sun, developed rooftop, stand-alone solar tracking systems as part of its total solutions package, considered among the most efficient in the field.

"We are very proud that our product has one the highest efficiency ratings of Mono (monocrystalline silicon cells) with its current efficiency reaching 19.7 percent through the traditional process," said Topper Sun Chairman Summer Luo.

"Our Solar Tracker was launched in the market last year and received very positive feedback. We are currently looking for distribution channels in the US that we can partner with," Luo added.



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Taiwan also contributes to the global supply chain for wind turbines. According to the Metal Industries Research Development Center, Taiwan is among the top ten suppliers of key sub-systems and materials to large wind turbines manufacturers around the world.

In 2013, the industry's output reached around \$270.68 million, 90 percent of which represented exports.

"MIRDC is currently working closely with U.S. research institutions in metal material, vehicle chassis, medical devices, and the testing and certification field," said MIRDC President Dr. Ho-Chung Fu.

As Taiwan develops its international role, its economic reach is expanding to new up-and-coming sectors, such as aerospace.

"In Taiwan, the scope of aviation industry continues to expand and production values have grown from 2.4 billion dollars in 2011 to 2.8 billion dollars in 2013," said Aerospace Industrial Development Corporation President Butch Hsu.

### Backbone of development

Taiwan's path to global prominence in science and technology is a by-product of decades of investment in higher education. The Taiwanese government invests more than 400 million dollars annually in higher education.

According to the World Economic Forum 2012 Global Competitiveness Report, Taiwan ranked ninth in Higher Education and Training, and fourteenth out of one-hundred and thirty-three countries in Innovation.

As of 2012, Taiwan had more than 160 universities and colleges and its student population had exceeded 1.3 million.

As the country aims to make its educational system more international, the country's top universities attracted, nearly 50,000 foreign students, according to the Ministry of Education.

"In terms of the growth rate for international students, we are number one among the top-tier universities. In terms of the percentage of degree-

seeking international students, we are number one as well," said National Cheng Kung University Executive Vice-President Dr. Huey-Jen Su.

Beyond student and faculty exchanges, Taiwan has also bolstered its efforts to enhance institutional links with other universities and corporations.

"This university is eager to partner with foreign and local companies. We are already doing a lot of research with foreign companies. I would like to set up more research laboratories with local and international companies to enhance our core competitiveness," Taipei Tech President Dr. Leehter Yao said.

Kaohsiung Medical University, the country's first private university, has also developed its international relationships.

"KMU values the significance of international exchange and cooperation in developing students' global perspectives," KMU President Dr. Ching-Kuan Liu noted.

Looking forward, Taiwan's universities are adjusting their plans to adapt to the changing

needs of business and industry. National Chiao Tung University, already considered a leader in science and engineering, is consolidating its reputation in health care.

"We have a special program called BioICT, which combines biology, biomedicine, information, communication, and technology. Basically it combines our strengths in engineering to contribute to healthcare. Traditionally, Taiwan is very good at high quality manufacturing but we are also in need of change. This year, we are making a change to make our university more comprehensive," explained NCTU Vice-President Dr. Han-Ping Shieh.

"There are many start-ups and venture capitalists in Silicon Valley, and we'd like to be recognized by them. We hope that they notice our research and hope that our students have the opportunity to go there and have internships and come back with their what they have learned. Joint cooperation is what we are looking forward to," Shieh added.



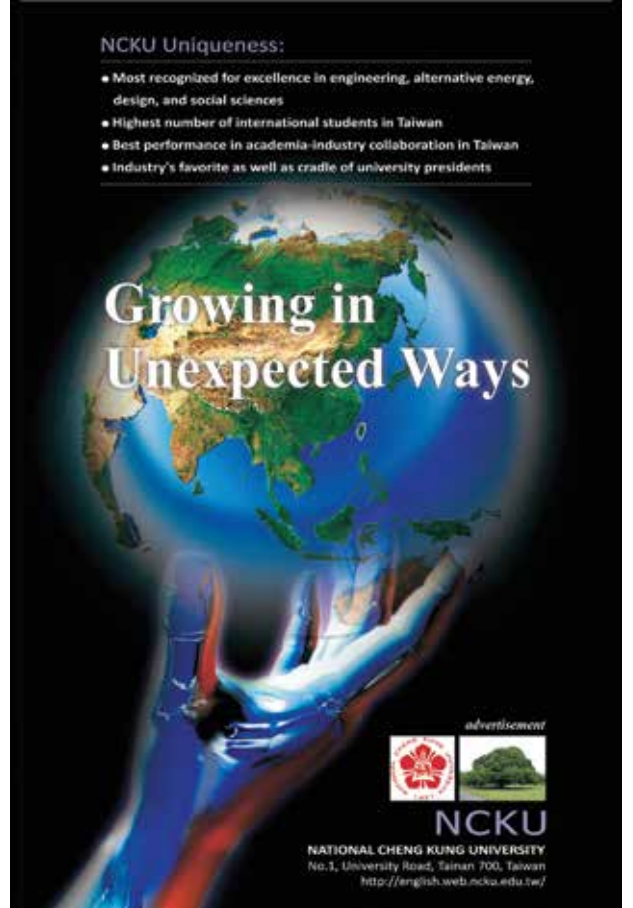
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# Building for the Future

As Taiwan pursues broader regional economic integration, the country's leaders have taken significant steps to ensure that the island can handle the expected growth. Infrastructure development is central to those plans.

Early this year, the Ministry of Finance unveiled a massive 6.6 billion dollar infra-

structure development package that aims to bring Taiwan closer to its objective of becoming a regional trade and logistics hub.

Tasked with upgrading the country's road and transport network, the Ministry of Transportation and Communications (MOTC) has identified ways to improve Taiwan's

railways, mass rapid transit, roads, highways, airports and seaports, as well as telecommunications and tourism-related infrastructure.

As it stands, Taiwan already boasts a highly advanced road and rail network, which includes a mass rapid transit system in the two largest cities, Taipei and Kaoshiung, with plans for a third system in another city to begin operations in 2017.

The immensely efficient High Speed Rail (HSR) system, which carried 268 million passengers in 2014, has eight stations and will add another four by the end of 2015.

Six major harbors, the airports, and a growing number of free trade zones make up an efficiently planned engine for economic growth.

Today, each major city on the island is reachable within 3.5 hours from each other.

As far as international connectivity is concerned, Taiwan continues to push forward.

"We have many projects to enhance our capabilities to handle the overseas freight transportation," said MOTC Deputy Minister Wu Meng-Feng.

Taiwan International Ports Corporation President Lee Tai-Hsin shares a similar position: "We can be an excellent trans-shipment partner in bridging the United States and mainland China."

Amid a thaw in cross-strait relations, tourism in Taiwan has also experienced record-breaking success.

According to MOTC statistics, 4.82 million tourists traveled to Taiwan as of the third quarter of 2014, up 26.7 percent and the highest figure on record. Air transportation also posted record arrivals, with more than twenty-six million travelers passing through Taiwan's airports as of last August, the highest level in fifteen years.

In anticipation of this upward trend, Taiwan's legislative body recently approved the urban plan for Taiwan's flagship megaproject, the Taoyuan Aerotropolis, which stands as the centerpiece of the island's aim to be a global leader in transportation and logistics.

"In many ways, the destiny of Taoyuan will also determine the destiny of Taiwan," said Taoyuan Mayor Wu Chih-Yang.



Asia's next hub: Taiwan Taoyuan International Airport

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Aside from providing visitors with that all-important first impression of the country, major international airports serve as a fair indicator of economic health. In the case of Taoyuan International Airport in Taipei, it becomes very clear that Taiwan remains a dynamic center of business.

Situated an average of only two and a half hours by plane from any major city in East Asia – closer than any other major airport in the region – the Taiwanese capital's airport has seen its air traffic soar. To date, Taoyuan International Airport serves 164 destinations worldwide, including 48 destinations in mainland China.

"The airport is doing very well in terms of passengers and the number of cargo this year. Traffic growth in half a year has increased double-digits by 13 percent, said Taoyuan International Airport Corporation Presi-

dent and CEO David H.J. Fei.

With a growing economy and improving cross-strait relations, Taipei attracted 8.03 million visitors in 2013, a sharp increase from the 3.85 million tourists it welcomed in 2008. And the upward trend is expected to continue over the next few years.

Among its achievements, Taoyuan International Airport was among those that received the Airports Council International's annual Airport Service Quality Awards last year and was ranked the third-best airport in the world in its size category (between 25 and 40 million passengers).

According to officials, Taoyuan airport can currently accommodate 32 million passengers. By the end of the year, officials predict that passenger traffic to reach 34 million, which underlines the

urgent need for expansion, a priority of its leadership.

"Taoyuan airport has to pave the way for its future through expansion to give passengers a comfortable area, free showers, a buffet area, and even a sleeping area. This is something that is urgent to this airport," explained Fei.

As Taiwan unveils its massive Aerotropolis flagship project, Taoyuan International Airport has become a vital component of this ambitious vision. Plans have been unveiled for the construction of a third terminal, a multi-functional building, as well as additional roadways and rail links.

Taiwan's aerotropolis project presents an opportunity for international involvement and collaboration.

"T3 and the multi-functional building, which will



serve a very important purpose, will create a so-called cluster for industries. For example, an international business branch can be set up here as a service center or a regional logistic center to enhance their competitiveness," said Fei.

In addition, Taoyuan International Airport is undergoing a major upgrade as it transforms itself into a smart and green facility and introduces a variety of important airport management systems, many of which come from the United States.

Given the long list of infrastructure upgrades, Taoyuan International Airport is looking to seek more partnerships with international investors.

"We may be an underestimated market for overseas investors, but Taoyuan Airport has strong potential in the near future. Our attractiveness and far-sighted views will surely grab attention around the world," said Fei.



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## ITRI Transforms Taiwan's Industrial Landscape

The Industrial Technology Research Institute (ITRI), founded in 1973, was the main driving force of Taiwan's economic growth as it shifted from a labor-intensive economy into a value-added, technology-driven one.

At the early stage, ITRI targeted the burgeoning semiconductor sector and forged its first collaboration with Radio Corporation of America in 1976. That partnership eventually led to spin-off groups, such as Taiwan Semiconductor Manufacturing Company and United Microelectronics Corporation, which today remain global leaders in the industry.

Over the past 41 years, ITRI has been fostering the development of industries, including semiconductors, personal computers and displays, LED, machine tools, bicycles, and their key components.

In a bid to stay competitive, ITRI keeps forming ties with partners from all over the world, including top U.S. concerns like Corning, Intel, Applied Materials, and Stanford University. Meanwhile, ITRI also supports Taiwan's entrepreneurs and capitalizes on their technical know-how.

Moving forward, ITRI looks towards the United States as an essential partner for collaborative projects.





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