Interview: Chih-Kung Lee – Minister of Economic Affairs, Republic of China (Taiwan)



"Recent trends in the pharmaceutical and biotech industries have transformed the way healthcare companies conceive their drug development strategies."

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Chih-Kung Lee, Minister of Economic Affairs of the Republic of China (Taiwan) provides insights into Taiwan's

"new economic model" *recently established by the new government to boost the country's economic growth and ensure Taiwan renews its role as an innovation pioneer. He also documents the crucial role that the pharmaceutical and biotech sectors will play in upgrading the industry and innovation profiles of Taiwan and how the Ministry of Economic Affairs intends to support these sectors' domestic and international development.*

Over the past eight months, Taiwan has been displaying stable economic growth and positive results for crucial economic indicators. Nevertheless, President Tsai recently vowed to turn *"Taiwan into a Tiger again"* and *"renew its role as a pioneer"* by building the country's *"new model of economic development"*. What are the main specificities of this new economic model that you have been entrusted to develop, as Taiwan's Minister of Economic Affairs?

President Tsai's vision for the long-term economic development of our country comes as the result of months of strategic analysis and industry consultation, which was started at the very beginning of the election campaign almost two years ago and has gradually been refined up to now.

Over the past three decades, Taiwan's remarkable economic development has been mainly propelled by our semiconductor industry, which still stands as one of our most dynamic sectors. Looking forward, we cannot expect to sustain the sound and continuous development of our 23 million people country by solely relying on the performance of a single industry, although the semiconductor industry is very competitive at the international level.

In parallel to the skyrocketing development of our ICT companies, Taiwan has also been nurturing the growth of other innovative, high value-added sectors over the past two decades. Although these sectors have yet to display the type of success story of our semiconductor industry, they have in fact reached a particularly interesting level of maturity. This information is the basis of the government's decision to implement our economic strategy with five new pillars which are the core of Taiwan's most innovative sectors: Smart Machinery, Green Energy, National Defense, Asian Silicon Valley, and Biotechnology/Pharmaceuticals.

Why does the government consider Taiwan's pharmaceutical and biotech sectors able to play such an important role in the future development of country?

Recent trends in the pharmaceutical and biotech industries have transformed the way healthcare companies conceive their drug development strategies. Recent technological improvements throughout the value chain have misled industry observers to believe that new treatments will reach the market within a shorter time frame, and necessary R&D investments will also decrease. Nevertheless, industry reviews spanning the last 15 years show that development timelines have – on the contrary – been increasing, while the number of new drugs actually reaching the global market has been decreasing. Within this industry framework, more and more pharmaceutical companies have been implementing innovative business models and novel drug development approaches, notably based on a broader use of CROs, CRAs and other drug development partners and third parties. The generalization of this new R&D pipeline approach, where drug development is licensed-in, then licensed-out, and then simultaneously advanced by various partners and service providers in different countries, has strengthened the competitiveness of Taiwan's pharmaceutical and biopharmaceutical companies.

Historically, a large share of Taiwan's top high school students have pursued medical careers. To date, the percentage of top high school students joining the medical field is still extremely high. Propelled by the excellence of our physicians and medical researchers, combined with the quality of our medical infrastructure, Taiwan's overall research and clinical capacity has been progressing fairly rapidly over the past few years. As a consequence, Taiwan boasts a second-to-none level of expertise in terms of clinical and medical research. As such, Taiwan can easily beat the competition

in these fields, even coming from some of the most developed countries in the world, including Japan.

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We have identified a clear opportunity to leverage the aforementioned industry trend, where drug development is no longer handled by a single entity from A to Z. Taiwan is strong in fundamental medicine, translational medicine and clinical research. In the meantime, Taiwanese companies can leverage our country's expertise in the ICT field to produce innovation at the crossroads of the medical and technological fields. From the very beginning of her campaign, President Tsai has been closely working with industry leaders, researchers and investors to further build up Taiwan's medical sector. Our conclusion is that Taiwan's pharmaceutical and biotechnology industry can play a fundamental role in transforming Taiwan's economy and can help Taiwan climb further up the innovation value chain.

How does the state intend to operate as a catalyst in the development of these industries?

Although our research capacity and our talent pool are already aligned with the best international standards, we believe our regulations have to be further upgraded. The first aspect relates to the deregulation of our capital and investment sectors. Taiwan already boasts one of the most active stock markets for biotech companies in the world. In addition to the Taiwan Stock Exchange and the over-the-counter Taipei Exchange, in 2014 we set up the GISA (Go Incubation Board for Startup and Acceleration Firms) a platform for small-size non-public innovation companies, which offers help in raising capital and assisting small-size innovative companies to grow larger. The Ministry of Economic Affairs has also recently revised a regulation, to broaden high-risk medical devices to not only include Class III medical devices but also Class II medical devices which require clinical trials before being approved to be marketed. Another item is looking at adding emerging biotechnology and pharmaceutical products to the list of products that are eligible for tax reductions.

An additional pillar of our regulation upgrade aims to ease the hiring of international talents, a reform which would not only impact the biotech sector but all Taiwan's high-tech companies in general. By adapting our tax incentives and immigration processes, we want to encourage international professionals and experts to come to Taiwan, further diversify our talent pool, and help our innovative companies to get the human resources they need to compete on the global stage.

In the meantime, we have put in place closer monitoring and stronger support towards all significant investments coming into Taiwan so that we can more quickly assess investors' needs, smoothly guide them through the regulations, and help them find the right business partners. Monitored on a daily basis, these investment reviews are then reported on a weekly basis to the Executive Yuan and to President Tsai's office, providing our government with a better understanding of the progress and issues faced by the companies investing in Taiwan. In addition to the game changing impact for investors, this also demonstrates our government's commitment to support in-bound investments and to ensure that companies can fully leverage the economic potential of their investments in Taiwan.

Considering the size of Taiwan's domestic market, accessing new markets and strengthening ties with current economic partners will be absolutely crucial to the development of Taiwan's new economic model. What will be your strategic priorities to diversify and intensify Taiwan's trade relationships with regional and international partners?

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Taiwan's industry cannot survive by drawing only on the resources of its domestic market. All large companies are extremely dependent on international trade; this is also especially true for smaller organizations. We should remember that 98% of all Taiwanese companies are SMEs. More surprisingly, it has been found that Taiwanese SMEs account for a large percentage of the overall international M&A activities completed by Taiwan around the world.

Fostering sound and thriving trade relationships with international partners is absolutely crucial to our economy. We are actively pursuing any new kind of international collaboration and cross-border investment opportunities. In terms of priorities, integrating multilateral free trade agreements such as the TPP has been high on our agenda over the past few years. However, we will not overlook the importance of establishing new bilateral agreements.

Although a relatively large share of Taiwan's trade and investments are related to China, we are however looking at further diversifying the origin of international investments coming to Taiwan. In light of President Tsai's "New Southbound Policy", Taiwan has recently been bolstering trade relationships with countries in the Southern Asia Pacific region, while also reconnecting to other countries in Europe and the US. Many observers are particularly eager to see how US President-elect Trump will view the issue of global trade and trade with Taiwan in particular. As a reminder, the US is already Taiwan's second largest economic partner, while Taiwan is America's ninth

largest economic partner.

The semi-conductor industry has been the main driver of Taiwan's outstanding economic development over the past decades. As Taiwan looks at reinventing its economic and innovation profiles, what are the lessons taken from this success story that could be applied to the development of new, innovative industries like the biotech sector?

Although our semi-conductor sector has given birth to several technology pioneers and industry leaders globally, we should remember its commercial operations initially emerged with the production of musical chips for Christmas cards, only 30 years ago. At that time, nobody could have imagined that Taiwan would eventually reach such a level of industrial sophistication. The musical Christmas card chips have provided Taiwan with a successful penetration strategy, leading our foundries to steadily become the supplier for the most complex electronic and digital devices in the world.

From Christmas cards to supercomputers, Taiwan has been able to remarkably develop its capacity to detect and train talents, while also implementing needed research incentives and at the same time build a powerful, nation-wide incubation framework. The success of our semiconductor industry has highlighted the importance for Taiwan to develop our translational research capacity. It is critical that Taiwan adopts the right commercial approach when it comes to translating R&D efforts into desired economic outcomes.

> "In Taiwan, there is a popular saying which says "It is easier to train a good scholar than a good businessman."

Nevertheless, we cannot strictly repeat similar strategies to these new innovative industries, where human, technological, and financial capital requirements are undoubtedly more substantial. The development of our biotech sector requires us to determine the right commercial strategy which can allow us to bring our R&D investments to fruition. In Taiwan, there is a popular saying which says "It is easier to train a good scholar than a good businessman." This is precisely the challenge that our biotech sector is currently facing. Taiwan need to be a pioneer in a way that goes beyond technology. This requires developing and implementing new business models which best fit Taiwan and its industrial capabilities, while allowing the companies to rapidly stand out from the international competition. This will require that Taiwan use its unique skills and expertise to bring an increasing number of life changing products onto the global stage over the upcoming years.

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