Interview: Benjamin Wu – Deputy Secretary, Maryland Department of Commerce, USA

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Benjamin Wu of the Maryland Department of Commerce discusses the importance of the life sciences to the state, how Maryland is performing in terms of technology transfer, and its potential as an innovation hub.

What is the status of life sciences in Maryland and its particularities?

Maryland is a very high-technology state; we are one of the wealthiest states in the US and we also have a highly educated and highly skilled workforce as well as the largest concentration of residents with university and advanced degrees. Moreover, we possess a great deal of assets leading to technology development – specifically our universities, such as the University of Maryland and Johns Hopkins, which is the largest recipient of US federal funding for research. Given our proximity to Washington DC, the government presence in Maryland is also very strong. We host the headquarters for the Food and Drug Administration (FDA), the National Institutes of Health (NIH), and the National Cancer Institute (NCI), among others.

Furthermore, Maryland hosts the headquarters for the US Cyber Command and is home to the Johns Hopkins Advanced Physics Laboratory, the Army Research Laboratory, and a number of related military installations and civilian research laboratories that conduct life sciences research including the National Institute of Standards and Technology, the Army Medical Research Institute

of Infectious Diseases, and the NASA Goddard Space Flight Center, among others. In short, with the government institutions and the university assets at our disposal, plus our workforce, we are one of the most high-tech and innovative states in the country.

We are endeavoring to leverage this excellent asset and resource base to promote local industry and create jobs in the life sciences industry sector. Our role at the Maryland Department of Commerce is to encourage entrepreneurship and try develop the ecosystem that allow scientists doing research to be able say “I can build a company out of this” or to be able to take basic research technologies and transfer them over into the commercial marketplace.

Technology transfer is probably the greatest challenge that states and government around the world have to face, especially in terms of capturing value. How is Maryland performing in this regard and what further efforts are needed?

I had the chance to work on our nation’s technology transfer laws before reaching my current position. I was the U.S. Commerce Deputy Under Secretary of Technology in the George W. Bush administration and worked in the US Congress where I helped write a number of the federal technology transfer laws to help promote technology licensing and cooperative research agreements. Also, as the U.S. Commerce Assistant Secretary for Technology Policy in President’s Bush administration, one of my tasks in promoting the national high-tech agenda was to head up the federal technology transfer taskforce.

Essentially, I was tasked to encourage and develop more technology research. For example, in the US, we have over 700 federal laboratories that do some sort of research. In Maryland, we have more than 70 such laboratories and trying to encourage the technology transfer out of federal laboratories has always been a unique and difficult process – mostly because many people may not fully appreciate and support the benefits of technology transfer. The federal government pays, for example, for NASA’s research and their missions to send people to the moon or to space, as well as a number of different mission-related-activities.

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The notion that somebody can benefit from research originally funded by the federal government and potentially profit from it is a mindset that we have to overcome. The truth is that if you can promote federal technology transfer, it will help create companies, jobs and growth in the private sector and also the federal government will be a beneficiary of any commercialised product and that success in turn can help support not only the federal treasury but also promote and encourage additional federal research for those agencies’ budgets.

To enlighten our international audience, are those agreements in the technology transfer laws federal or do they vary from state to state? Can Maryland offer something different from other states?

The federal laboratories are constrained by the federal requirements. Where we can have a direct impact is with universities, but we are also offering a support system for other federal laboratories in Maryland. For instance, we work with industries and trade associations to highlight federal technologies that are already on the shelf and then invite companies and individuals who are looking to commercialise an opportunity to explore those technologies and move them into the market place.

To take basic research from the scientist and convert it into a commercial product requires a lot of time, energy and money. We want to be able to incentivise people to do that more. Our job in the state is to try to create the linkage, support system and information sharing that allows us to be able to enhance the fact we have such a strong research presence. It would give more reasons for people to come to Maryland and start their own company.

Additionally, we also want to utilise the federal laboratories as partners in research through a federal technology license, either through a direct licensing agreement or a cooperative research development agreement or maybe through a joint venture. There are mechanisms for companies to collaborate and partner with federal entities and we want to enhance all the resources that we have. All these efforts would encourage companies to come or get there start in Maryland and then to stay here and continue to prosper in research and innovation.

Globally, there are a limited number of pharma and biotech companies making real breakthroughs; how important is it for Maryland to host some of the American, or even European, innovative life science companies looking for a first step into the US?

Maryland Governor Larry Hagan is actually in London right now, meeting with the heads of AstraZeneca. GlaxoSmithKline opened their US vaccineheadquarters here this past year and it is GSK’s only research headquarters outside Europe. We also have IDT Biologika and a significant international presenceAll in all, a number of international companies have chosen to come to Maryland and the main reason for that is because they seek research and collaboration opportunities, but also because our workforce is excellent and full of people who truly understand the industry and are highly educated.

In addition to all this, we have opportunities for partnerships with federal agencies and, for those who seek regulatory approval, we have the crucial attraction of proximity to the FDA. If you

consider the FDA White Oak headquarters campus, there is a large development parcel that is adjacent to the FDA that has the potential to be very significant because big multinationals want to co-locate next to the FDA where they believe it can help speed up their regulatory approvals. This parcel's project is just being unveiled at the BIO 2017 international conference in San Diego. The multinationals could go anywhere they want because they have the money to be mobile – to Boston or California – but actually many believe the best constellation of assets is actually right here. Due to our workforce, our proximity to the FDA, our quality of life, and our international community, Maryland is an exceptionally attractive hub. A number of life science multinationals have chosen to come to Maryland because they believe it makes sense to establish a strong presence here in order to continue to grow.

As one of many innovation hubs in the US, how are you going to make a difference and attract these companies to come to Maryland? Isn't there a risk that this is just yet another cluster, among many?

There has already been a great deal of interest on behalf of international and local companies. In Baltimore, for example, we have a very large presence within Johns Hopkins with its Fast Forward incubators for life sciences companies, and we also have the University of Maryland BioPark to develop emerging firms. In fact, Maryland has one of the largest incubator networks in the country. The concept behind these incubators is that if you have an emerging or a start-up company and you are looking for space to do your research, an incubator will provide you with a relatively affordable office space and the additional benefits of being together with a number of other similar ventures. This is particularly beneficial for networking purposes and for sharing best practices. When these incubator companies grow, they will eventually graduate out of the incubator and other new companies will come in. It is a nurturing model. A number of these companies are tied to universities so that allows for start-up companies to share resources and some of the academic research and resources.

> "When these incubator companies grow, they will eventually graduate out of the incubator and other new companies will come in. It is a nurturing model."

Can corporate venture capital be a good alternative to this hub model?

We do have a VC presence in Maryland, but admittedly it is not quite as robust as in Boston or San Francisco. We're trying to change that by highlighting all of the potentially successful technologies and research being done in our state. One of the aspects that characterises Maryland is that we do not have the same risk culture as Silicon Valley – people here have not incorporated into their DNA

the feeling of failing and learning from it in building their next business. . We can provide limited financial resources and sometimes we take equity in companies to support them and we understand that perhaps some of these companies may not be successful. And they should not be afraid of it, because Silicon Valley's success has shown us that "it is OK to fail". We are trying to change these mentalities so Maryland can fully achieve our entrepreneurial potential.

Obviously, life sciences are very broad and competitive. Are there any areas you think Maryland should focus a bit more on?

20 years ago when the Human Genome Project was created here, it seemed that Maryland was going to be the epicentre for genomic research. And indeed, we were for a while, but then the life-sciences industry shifted and genomic research was no longer seen to be the future. Now it is all about personalised medicines for instance. The life sciences industry has this particularity of constantly evolving, and we must therefore adapt.

That being said, there are areas in which Maryland has shown a national and international leadership, one of which is vaccination and vaccine research. Also, because of the health risks surrounding contagious diseases, we find ourselves one of the foremost protagonists in the bio-defence sphere. Maryland therefore enjoys clear leadership in some specific niches.

Big multinationals obviously know where to go, who to call and how to establish their presence in the US. But there are many other European companies looking to establish R&D centres here. Given your complex administration, who would be the first point of contact for new companies that want to move to Maryland?

They should feel free to reach out to us – the Maryland Department of Commerce (www.commerce.maryland.gov) – and we can help steer them in the right direction. Not just European companies but Asian companies are also very interested in coming to Maryland. For example, a number of Chinese companies may be big in China but do not have a presence in the US so they search for a place where they can come. They like the fact that we have the workforce and an established international community that would make their employees coming from Asia more comfortable. They also like that we have the proximity to the federal government.

What would you tell people who see the US as a place that is becoming increasingly closed to foreigners?

> "I think that there is still a great deal of interest from foreign companies to come to the US, despite the current federal political situation."

In Maryland, we have not seen any drop in interest and I think that there is still a great deal of interest from foreign companies to come to the US, despite the current federal political situation. What is important is that these companies go to the right place in order for them to be successful.

What is the motto of Maryland?

We have several – one of our latest is ‘Write Your Own Anthem’. The US national anthem was written by Francis Scott Key, a lawyer who was trying to negotiate the release of an American prisoner when he was on a British ship as they were bombing Baltimore during the War of 1812. It was a massive firefight. In the wake of the fight, he wrote a poem which later became the Star-Spangled Banner. So, this slogan basically means ‘Come to Maryland, create your own destiny, and in doing so write your own anthem – whether it is in life-sciences, in cyber or innovation. If you want to start a business, you can write your own future in Maryland.’

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