Jack Wang – Founder & CEO, Biomobie, China

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31.01.2019

Tags: China, Medtech, Biomobie, Digitalization, Innovation, Regenerative Medicine

Jack Wang, founder and CEO of Biomobie, shares the inspirational story behind the establishment of the company, the regenerative principle driving the technology of the Bioboostie device, and the innovative commercial partnerships he has established with leading health insurance companies in China.

Could you introduce yourself to our readers and explain the reasons why you decided to create Biomobie back in 2008?

I come from a very large family with more than 60 members, a lot of whom are suffering from chronic conditions such as diabetes and cardiovascular diseases. As a result of my family's medical history, I am also suffering from a chronic heart condition with high blood pressure. I consulted a heart doctor who prescribed drugs to me that did not improve my health. Therefore, I did my own research, trying to find alternative solutions. This is how I found out about regeneration.

Of course, my knowledge of biology and medicine was very limited at the time since my background is in electrical engineering. But I had the feeling that regeneration might help me get better. The first article that sparked my interest was regarding NASA astronauts' loss of bone density and mass during space flight. In order to heal them, NASA built a recovery chamber for them, and it worked!

The other article was written by Robert O. Becker, a pioneer in regeneration research. The key insight from this article is that regeneration is automatically triggered by an injury. When someone gets injured, a signal is sent to the brain which in turn sends a return signal to activate cell regeneration. The signal acts like a key. If you cut or damage the nerves carrying the signal, regeneration will not be triggered.

As I said, my medical knowledge is limited. But I do not need to know everything. All I need to understand is the signal. If I can simulate the key to this regeneration, then I can trigger the body's own repair mechanisms. In order to explore how these insights could be used to create a regeneration-triggering device, I decided to start the company with one research team in the U.S. and another in China.

How has your experience in IT helped you move into the healthcare space?

First of all, I considered Biomobie as an IT firm and not a healthcare company initially. I have been managing it as such from the start. In IT, we need to get results quickly by finding shortcuts. The way that is done is by rapidly building a working prototype and testing its effectiveness in the real world by forming partnerships with companies interested in the new technology.

This is exactly what we did with our innovative product called Bioboosti. We approached hospitals that were both interested in a medical device with the potential to stimulate cell repair, and willing to conduct small-scale clinical trials. In that way, we were able to gather a treasure trove of data to prove our device's efficacy with minimal time and investment. If instead, we had gone the traditional way by doing multi-step large-scale clinical trials, patients would have had to wait a decade or more before benefiting from our therapy.

Why do you think Big Pharma and medtech companies have not focused on using the body's regenerative system?

In my opinion, it has to do with ingrained research practices. During World War II, penicillin was used effectively to combat infection in soldiers. After that discovery, the pharmaceutical industry went down the single path of chemical drug discovery and development. But there are only 250 chemical reactions in the world right now – and how many age-related diseases are there in the world right now? I personally think there must be a more efficient way of discovering new therapies. A lot of investment is poured into Phase I, Phase II and Phase III clinical trials. Many new

biotech companies actually say, they lack their own systems for drug discovery. They always go down this tough, multi-phase clinical trials route of chemical drug development.

My approach is inspired by Chinese traditional medicine, which puts emphasis on good blood circulation and improving the body's immune system to prevent or cure diseases. Today's medical approach is totally different. Nowadays there is a different therapy for every ailment. However, the body's own regenerative processes can potentially cure or attenuate all sorts of conditions, especially those related to age. In many parts of the world, including China, the population is aging rapidly, which increases the incidence of chronic diseases that negatively affect quality of life. I want to help people live better lives, outside of the hospital and off medication.

The second reason is that the existing regulatory framework is not fitted for solutions like mine. When it comes to pharmaceutical drugs, there is a well-established system of multi-phase clinical trials to obtain market authorization. There is no such system for biotechnologies, which creates uncertainty for investors. As a result, innovative approaches not based on pharmaceuticals are often overlooked. This is also true in academic research. To go back to Robert O. Beker, he had trouble publishing his papers on electromedicine and regeneration in mainstream scientific journals. Fortunately, I come from IT where the culture is to disrupt the status-quo.

As this is very different from the status quo, have you received any pushback from the industry?

Absolutely. Back in 2011, a few years after starting the company, I tried to apply for market approval through what was then the SFDA. They would not let Biomobie submit the documents because they said the device does not work, even though the results were there. As a result, it was difficult to convince hospitals to work with us.

However, today, things have changed. Doctors are becoming more open-minded about trying new approaches to medicine. The healthcare community and patients are beginning to realize that a purely pharmaceutical treatment is not always the right approach for age-related conditions. They are starting to see the value in preventative and self-healing approaches.

The government is also changing its stance since these new approaches can help save taxpayer money by avoiding expensive surgery and drug therapies especially later in life when chronic diseases are most prevalent. Nevertheless, it is not evident how to implement such preventative approaches. Getting people to live a healthy lifestyle and exercise is not easy. Maybe using the

body’s own regenerative and repair mechanisms is the way to go. After all, nobody disagrees that these mechanisms exist. Now the research is showing that they can be exploited. In fact, I recently visited the Weill Cornell Medical Center in New York, where I met with Dr Shahin Rafii, a renowned expert in regeneration. At his lab, he is even regenerating blood vessels outside of the body! Today, this technology is gaining more widespread acceptance.

Biomobie has a foot in China and the other in the U.S. Do you view yourself as a Chinese or an American company?

I would say we are both. We use the latest scientific knowledge from the Western world to leverage the wisdom of traditional Chinese medicine. Moreover, our mission is global. It does not matter where you are from. If you are thinking out of the box, then you need to look outside of your own country’s border. We work with leading universities like Harvard University and Cornell University in the U.S. as well as many different hospitals in China.

Do you think people abroad still doubt that true healthcare innovation can come from China?

Yes, definitely. Even Chinese people do not believe it themselves. When I first came up with my idea, Americans did not believe in it. I came to China because I thought that maybe the Chinese would, but I was wrong. Chinese healthcare professionals did not see the value in the technology, because, again, they are used to treating diseases with chemicals. But if I explained it to the average layperson, they seemed to understand the principles very well.

The story of how I was able to convince my first professor of our technology is very interesting because I faced many rejections and a lot of scepticism as well. One of my friends offered to introduce me to the Dean of Fudan University’s School of Pharmacy, and I told him that my device can cure high blood pressure. He said I have high blood pressure! You are kidding, if you cure it, I will give you USD 1 million! He was very sceptical, but because I was introduced by a mutual friend, he referred me to his brother, who is at the Fudan University Medical College, who was doing some experiments on rats with high blood pressure. He delegated one of his PhD students to do a quick study on a dozen rats. They were shocked when they saw positive results! That was the beginning.

He then introduced me to a doctor at Shanghai Jiaotong University that was more involved in medical research. When I met with that doctor, there was another professor with him that was at

Tongji University that had received the bad news that he needed a pacemaker to fix his irregular heartbeat. So that doctor told me, let us see if your device can fix his irregular heartbeat. So the Tongji University professor accepted this – as he had no alternative – and travelled a few hours each day to my office to undergo treatment.

After a few months of treatment, he went to the hospital to check his heartbeat. His heartbeat had stabilized so much that the hospital staff initially thought the equipment was malfunctioning and double-checked with a different machine! But the results were correct. Therefore, his friend, the professor at Shanghai Jiaotong University, was convinced and decided to start clinical trials of our Bioboostie device. That was how everything started, and as a result, he published two papers on the efficacy of our device!

Now that you have all this promising clinical data, what is the commercial strategy for the Bioboosti device?

After we had evidence that our Bioboosti device worked, we started commercial operations in 2016, where we sold 80 million in the very first year!. We received amazing positive feedback from both patients and healthcare professionals. The most surprising fact is that the device was shown to be effective for 20 to 30 different diseases, some of which are incurable with pharmaceuticals. The best indicator of our success is that even though we sold each unit at a fairly high price, from RMB 12,000 to 30,000, the return rate was less than 1 percent. This was how we knew we were doing something right. That was when we started rethinking our business model. In order to get the device in as many hands as possible, we decided to implement a subscription model where patients pay a monthly fee to use it – instead of charging for the machine, we charge for the use of it, much like a phone plan.

Instead of going through the hospitalization route, which is a bit complicated, we decided to go down the preventative route.

We, therefore, decided to approach insurance companies to finance the device’s use, and this business model started in 2019. As our device can both alleviate chronic conditions and prevent them, insurance companies can potentially save millions of dollars. We have already signed contracts with major insurance companies like PingAn Insurance, Taiping Insurance and Taikang Insurance. Whereas before insurance companies might refuse to sell insurance to people with high blood pressure or other pre-existing conditions, they will now sell a bundled insurance package under the condition that they use Bioboosti every day, and the usage will be monitored through an

app.

The corporate world is also interested in this idea to manage the health of their employees. One of the largest Chinese banks is going to be covering its 300,000 employees with such a bundled insurance package. Not all of them are going to be using Bioboosti, only the ones at risk – and when they use it, their rates will go down.

The next step is to start selling to international markets since Bioboosti is currently only available in China. But before we can enter developed markets, we need to conduct clinical trials for different therapeutic areas. We are currently conducting clinical trials in collaboration with a CRO to prove Bioboosti’s efficacy against coronary heart disease in USA and China.

In the future, we are looking for international partners in both research and distribution to help us spread our technology to global markets.

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