Interview: Lydia Leung â?? CEO, Belun Technology, Hong Kong

> â??As a start-up, how your brand and position yourself is crucial in order to stand out. This is how we decided to begin at the top â?? create a professional level product and later expand into consumer goods.â?•

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Lydia Leung, CEO of Belun Technology, introduces us to the start-upÂ´s flagship product, the Belun Ring. She also discusses the impact that Artificial Intelligence (AI) and preventative care can have on the healthcare industry in Hong Kong.

Having been in a government research institute for ten years before joining Belun Technology as CEO, what differences have you experienced after transitioning to a start-up company?

As a start-up, the focus is completely different. You have to be able to finance yourself. In an institution like Hong Kong Applied Science and Technology Research Institute (ASTRI), a majority of the funding comes from the government. This is good in the sense it helps nourish new R&D talent, which is much needed in todayÂ´s biotechnology and start-up environment of Hong Kong. There is a need for people who are familiar not only with technology but also regulatory procedures. Medical devices are very different from consumer electronics. The regulatory knowledge needed for creating medical devices is much broader than consumer electronics. The technology being created can be linked to the life or death of consumers.
The ability to recruit talent is also a difference. Over the last 20 years, not many people have been entering into the R&D field. To combat this, the government has imposed new policies that will help attract international talent to Hong Kong. Housing is another issue here. Large research institutions have the capacity to promise salaries, which are high enough to match the cost of living, which are necessary in order to bring in new talent. On the other hand, a small start-up cannot always offer such a high salary.
Another challenge is the necessity of ensuring the product you are trying to create is manufacturable. In a university or other research institute, the R&D can simply be for proof of concept. However, a company must operate on a tight schedule because generating revenue is the only way to be self-sustaining.
Please introduce Belun Technology and your flagship product, the Belun Ring.
The name Belun comes from a German opera about a ring with magic powers, and we hope that the ring we have developed will empower people and physicians to take control of sleep health. Before, when people needed to have sleep diagnostics, they would need to spend a night in the hospital. Now, patients get the device from a clinic or healthcare institution and bring it home. Before they go

to sleep, they put the ring on their finger and throughout the night the ring detects heart rate, stress level, oxygen saturation in the blood, and motion. When they wake up, they put the ring back into its cradle where the ring will be charged and the data collected will be uploaded. After being worn for three or four nights, the ring can be sent back to the clinic where a sleep report is generated automatically. This way, physicians will be able to see if patients have a risk of having conditions such as sleep apnoea. About 15 per cent of people over the age of 40 will have this issue, and about 80 per cent of sufferers go undiagnosed.

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What was the motivation behind the creation of the Belun Ring?

For some people, going to see a doctor is perceived as taking too much time and a waste of money. In addition, in Hong Kong, it can take 12 to 16 months of waiting to have an appointment in a sleep lab. Many people do not have an incentive to go through this. Our motivation is not to get rid of the sleep lab, but to give patients the opportunity to do a pre-screening at home.

Other wearable products cannot rely on the collection to make any diagnosis because the analysis method has not been proven. In our case, the parameters are all there â?? we had the clinical trials and are compliant with FDA standards. This way, physicians can actually use our product as a tool to review the data and make suggestions regarding health.

This was our major motivation behind creating the Belun Ring â?? to see how daily habits can influence sleep health. With untreated sleep apnoea, patients are at risk for chronic conditions like stroke, diabetes or even dementia. For preventative health care, especially due to the ageing population, the earlier a condition can be identified, the more significantly the burden of treatment for chronic diseases can be reduced.

How will the consumer-aimed model of Belun Ring differ from the current model being used by clinical institutions?

The current ring is more of a medical device that can be temporarily given to patients by hospitals or clinics. Moving forward, we will have an application for patients to upload the data directly to their mobile device in order to be more user-friendly. This will create a simplified report for the general population rather than just professionals. This kind of interface will empower users to take control of their sleep health.

If patients use the ring and find out they do have sleep apnoea, high stress, or other conditions, this will give them the motivation to change their daily habits. For example, they might incorporate activities to reduce stress or improve their nutrition and then see how this affects their sleep.

How does the Belun Ring stand out from other wearable technologies that are currently on the market?

We begin by aiming at people who are health conscious. To us, the iWatch and Fitbit are not our competitors. We focus on the sleep health market, therefore, we are complimentary. These technologies record daily activity and the Belun Ring shows how they affect sleep. For example, how does walking 10,000 versus 1,000 steps a day change the way we sleep at night?

Additionally, other medical grade healthcare devices are bulky and difficult to use. We position ourselves by leveraging our medical-grade technology with the interface and ease of usage delivered by consumer electronics. We also differentiate ourselves in pricing. Consumer grade wearable technology is priced around USD 250 while medical-grade technology can be as high as USD 800. By combining the two, we are a middle ground priced at around USD 600. There are very few other products similar to ours with FDA clearance on the market. However, since we have the approval, all the data collected from the Belun Ring can be used professionally by physicians and medical staff.

As a start-up, navigating the FDA process can be a huge task. Why did you take on this challenge?

It was a very long journey with many obstacles. There were many criticisms arguing that it is easier to begin with consumer electronics rather than medical technology. However, we had a different approach to our product. As a start-up, how your brand and position yourself is crucial in order to stand out. This is how we decided to begin at the top â?? create a professional level product and

later expand into consumer goods.
We began by earning certificates through several clinical trials such as ISO13485, biocompatibility and health safety tests â?? this took almost a year. After finally submitting our application to the FDA, it took another nine months to receive the certification. It was a long journey but it paid off in the end.

What is your prediction for the impact of Artificial Intelligence in the future of healthcare in Hong Kong?

Due to the ageing population, there is a shortage of professional and medical staff. There are many people who need medical resources, and the rapid expansion of this age group is putting a lot of strain on the healthcare community. Artificial intelligence (AI) will not completely replace medical staff, but it can partially reduce the heavy workload faced by industry professionals. As a complementary tool, the technology can increase efficiency in areas like data analysis, patient prioritization, and resource allocation.
Pairing AI with preventative care can lead to the diagnosis of conditions before they become a problem. In a single case of stroke, there is a huge amount of medical resources that need to be allocated for patient treatment. AI can assist in pre-screening these conditions. In a lifetime, 80 per cent of medical resources are used during the last 20 per cent of a patientÂ´s life. With such a large elder population, we want to use AI and preventative healthcare to shift this statistic.

How does Belun Technology plan to develop its product portfolio?

We are working to create a product that will monitor the cardiovascular health of users. This product will be able to analyze the arterial age of users for the use of preventive care as well. This way, consumers can figure out the root cause of their conditions and change their health habits to combat future complications. Having high cholesterol, high glucose levels or hypertension can all cause further issues in the cardiovascular system. This project is in synergy with our current Belun Ring. Sleep health and cardiovascular health coincide with each other. When users see and feel the benefits, they are more motivated to take control of their health.
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What is the expansion strategy of Belun Technology? What role does China and the Greater Bay Area play in the growth of the company?

After receiving our FDA clearance, we are considering distribution partners in the US, Japan, and Taiwan. These are the markets we are currently interested in â?? our product is already on the market here in Hong Kong. We are also considering applying for CFDA approval in order to enter China. Although we are so close, the CFDA process in China is very complicated and we are not quite familiar with it yet. The language difference is also another challenge. In Hong Kong, we are used to having all the research done in English. This was convenient when applying for FDA approval but it will take some time to translate into Chinese for CFDA approval. Additionally, we felt that having the FDA certification is very symbolic of the level of quality our product has. Already having this approval opens up many doors for us and should help to expedite the CFDA procedure. We are also a small company still, so starting with nearby markets such as Hong Kong and Taiwan will help transition us internationally. Since the Belun Ring works with AI, we need to make sure the technology is up to scale and secure before we can enter massive markets such as China.

What vision do you have for the company in the near future?

Initially, we did expect the quick expansion we have experienced â?? we have gotten an enthusiastic response from the healthcare industry and the public. We are hoping to continue our development not only in the hardware of the product but also the AI technology. Our major goal is to use these innovations to bring preventative health to consumers and support them in controlling chronic disease more comfortably. In the future, we are looking to also focus on other chronic conditions such as diabetes.

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