Virgilio Bento CEO, SWORD Health, Portugal

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Virgilio Bento, known as 'V' amongst his peers, invites readers to discover SWORD Health, an interactive solution for patients undergoing physical recovery programs. In this exclusive interview, he describes how best to tackle future obstacles, the stigmatization endured in the disruptive startup world and the future for one of Portugal's most promising healthcare startups.

Could you introduce SWORD Health to our international readers?

SWORD Health's idea is the implementation of a digital therapist that can empower patients to recover at home without the need for the physical therapist to be there. The one to one therapy of patients with therapists has been changed to a one to one N patients for each therapist. The last four years have been spent in startup mode, thinking and developing this complex technology in the most effective and engaging way for patients to use at home.

The key issue we notice is the need to switch healthcare from analog to digital, particularly in the way therapy is delivered, therefore democratizing the access to a full recovery using a high-quality therapy. SWORD Health is creating digital therapy, a novel and pioneering concept. During the last 60 years the physical therapy industry has not changed; indeed, the way therapy is delivered is still based on a one-to-one patient therapist interaction, which implies high costs and much human labor. As therapists are sinking under patient's requests, we observe a trend whereby fewer hours of therapy happen the necessary amount to maximize a full recovery.

Furthermore, there is a mismatch between supply and demand. There is huge demand for physiotherapists' services for knee problems, hip replacements, lower back pain and all musculoskeletal disorder therapies that require intense and high-quality recovery programs. Plus, the aging population is making the demand grow even more, when sadly, the supply is not there. SWORD Health enables PTs (physiotherapists) to bridge the gap between supply and demand by creating an artificial intelligence entity. Using a set of sensors that digitalizes patients' movements, which is then sent to a tablet, a software then analyses and provides feedback to the patient, training the patient similar to how a human therapist would.
In clinical outcomes, it truly demonstrates that the solution works—but patients have rated the solution 91/100! Success is apparent because patients do not need to spend time going to therapy centers, and they can do their physiotherapy exercise work whenever they want to during the day. SWORD implies freedom, convenience and empowerment for patients.

We understand that this new and groundbreaking solution is not actually made to replace physical therapists but to support them, although it does signpost potential job losses. How has SWORD been received by the medical community so far?
There is a natural discomfort from PTs regarding this solution as changes the definition of their role. It is crucial that the digital seeks not to take jobs, but to support clinical teams to allow coverage of more patients and deliver more hours of therapy.

For example, we have a big healthcare group using our solution as they have a waiting list of three hundred patients. With the digital therapist and our clients' currents PTs, they have effectively worked through their waiting list.

The physical therapist represents the human touch. One of the reasons the level of adherence from patients is so high is that this special link with the therapist lives on when using the digital solution. Patients can text or contact the therapist through the platform to inform them of any issue.

How is SWORD Health performing?
Firstly, the biggest secret behind SWORD Health's success is its people. The team was able to develop a complex technology that combines hardware, biomechanical and artificial intelligence algorithm, but also mobile and web development.

We entered the market during the first quarter of 2018, and already have important clients using the products, and more in the pipeline. Since the market entry in January, we are noticing that the bigger the player is, the more interested they are as the solution really is proven to be cost effective.

As the technology sits in a new category of products—something that never existed and represents a new standard of care—we are working with payers to see how best to reimburse this kind of therapy. We are already working with the National Health Service in the South of Portugal, but also in Australia, and several players in the US whom share our vision of a better future for physical therapy. We want to believe that the next fifty years will be shaped by our digital therapist.

What are the main challenges SWORD Health faces in 2018?

The main battle is education and the stigmatism around new artificial intelligence technologies. It requires educating the public, although also acknowledging that a startup's arrival within the physiotherapy domain, presenting a disruptive solution is not always well accepted in the world because all technology innovation seems aggressive to the status quo.

Moreover, the reimbursement is complex and hard to define. Established years ago and covering the old world and practices for face to face care, some payers are not yet ready to reimburse a model where the face to face interaction is provided by technology, remotely supervised by a clinical team.

Is there a risk that physical therapists are not ready to use such a connected and innovative technology?

It was a big potential issue we expected, but in fact, it is not a problem when looking at number of users and adherence. The team spent many hours designing the digital therapists, making it easy to use for patients of all age independently, from home, from the office or from the gym, without the assistance of PTs.

SWORD Health recently met with Adalberto Campos Fernandes, Minister of Health. How supportive is the government of the concept?

We are in close contact and discussion with the government, including the National Health Service. Our digital therapists are already being used in Hospitals, and stakeholders across healthcare are delighted with its progress. It makes sense to extend the use and define it as the standard of care in Portugal because it reduces costs, engages and empowers the patients and enables therapists to treat more patients. We are confident it will become the standard of care in Portugal but also around the world.

Ana Teresa Lehman, the secretary of state for the industry, commented that the number of Life Sciences start-up has tripled between 2008 and 2015. What would you say is the reason behind this important rise?

The secret is the incredible talents and the desire to turn innovative ideas into concrete products

and offerings.

Education in Portugal is very good. The country has amazing high schools and universities with great professors and students. The incredible talent pool of scientists and research that were ten or five years ago only researching, are now willing to bring their ideas to market. The transformation of scientists to entrepreneurs, the desire to create companies, and start ups to bring solutions to market has made the number of life sciences grow enormously.

SWORD Health is proud to be an example of how an idea born inside the university world can be brought to market, capitalized and then receive several millions of founding from investors in United States, Europe. Ultimately, however, we envisage SWORD's solution being used around the world.

Portugal is historically a first mover country. It was the first country to decriminalize all drugs, the first country in continental Europe to implement the Pharmacoeconomics models and the first European country to adopt the E-prescription. What makes Portugal and Portuguese to create and innovate that much?

Portugal is a very small country, with only 10 million inhabitants clustered around Spain. We have realised that opening to the world was the key to survive, and the best way to do it is to bet on innovation, science and education. The government is really embracing innovation and technology, which encourages new ideas to be marketed and later expanded to the world.

Where do you see SWORD Health in five years?

We truly believe that in five years, thanks to SWORD, digital therapists will define the new standard of care for physical therapist's provider. After being successful in this field, we wish to replicate the concept of our digital therapist in other therapeutic areas.

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