

06 Mar 2017 | Analysis

Inside Israel: The Start-Up Nation Looks East For Investment

by Catherine Longworth

Israel is famous as the startup nation, an innovation hotbed for the medical industry, but how are investors faring in the face of ever challenging market conditions? *Medtech Insight* met with investors from across the Israeli incubator scene and others to discover more.

Despite its small size, Israel has grown to become a major player in the medical device industry. The country is famous as the 'start-up nation' and continues to boast an impressive R&D scene which is well supported financially by the Israeli government.

"Innovation is a growth engine for the Israeli economy, it accounts for over 40% of our export and 15% of our GDP and we have a unique model of the government giving money to actively support startup companies," Ora Dar, head of Life Sciences at Israel Innovation Authority tells *Medtech Insight*.

"We have a special granting system but we always grant money in collaboration with the private sector. The highest percentage we grant is 90%, that's for applied research in academia but even the additional 10% must come from the private sector because we want the involvement of people who really look at that outcome and get them involved in the plan and evaluating potential," explains Dar.

The Israel Innovation Authority, previously known as the Office of the Chief Scientist (OCS) of the Ministry of Economy is charged with the country's innovation policy and manages a total budget of ILS1.6bn (\$430m) a year to spur innovation. In all, about 30% of that budget goes to the life sciences via its different programs. 20% is usually allocated to Israel's growth incubation programs and early stage companies. The authority also grants money to larger companies for high-risk projects and supports infrastructure for companies including in digital health.

But despite extensive funding programs available, the country's innovation is not immune to

ever challenging market conditions. With western countries increasingly tightening their purse strings, Israel is looking to deepen its ties with China. "More Israeli companies are now collaborating with Chinese companies," says Dar. "Obviously to create such activities you have to have an exchange of visits and skills. A lot of Chinese companies are searching for investments in Israel and we are seeing an increase of Chinese investments in Israeli companies."

Strengthening the links between the two countries is actively encouraged by the Israel Innovation Authority and is expected to have great potential for the Israeli innovation ecosystem. "The Chinese are very interested in medical devices and are looking for new technologies to bring to China in order to enhance its healthcare system. They are coming to Israel in search of innovations," says Ruti Alon, former general partner at Pitango Venture Capital, Israel's biggest VC firm.

Israel's Hi-Tech Incubator Program

The government's hi-tech incubator program is one of the key sources of start-up funding in Israel. The program was founded in 1991 and today there are 18 incubators across the country, all of which have been privatized. The incubators function as a center for entrepreneurship and nurture companies from seed to early stage, thereby minimizing the risk to future investors. They also offer a supportive framework for the establishment of a company and development of a concept into a commercial product, with many companies' R&D facilities based at the incubator.

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Alon spent 16 years working in Wall Street before returning to Israel in 1997, "When I arrived it was an exciting time. The Israeli life science industry was at its early stages and growing fast," she says. After 35 years in the medtech industry, Alon recognizes the rapid changes occurring in the medtech market.

"In the past, if you were a medical device startup and your technology was deemed valuable, large companies would acquire it, even in early stages. Today, the winds have changed. Big

companies are seeking technologies that have gone through regulatory clearance or are already in the commercial phase.”

“Since companies and investors are taking less risks with investments, there's been an increase in fund flowing into digital health technologies which are perceived as being less expensive to develop,” she explains. Alon says the markets can't remain stagnant anymore and expects to see a rise in medtech M&A activity after a steady decline in recent years. “For a while, in order to cut costs, medtech companies were forced into mergers. Now in order to insure future growth, they will need to acquire new technologies with proven efficacy, rather than solely relying on [sales growth from the] emerging markets,” says Alon.

Managing partner of Tel Aviv Venture Partners and digital health expert Benny Zeevi says that “most of the funding now in the life sciences is not coming from Israel, it's coming from abroad from corporate financing, foreign VCs, Chinese or Japanese investors.”

“Less than 15% is coming from Israeli venture capitalists and there are not many angels in the Israeli life sciences industry,” he tells *Medtech Insight*. Further underlining Dar's comments on the increasing significance of China's role in Israeli medtech, Zeevi adds that China has invested “billions” in Israeli life sciences over the last five years and acquired many Israeli companies. Many of the Chinese investors want the technology to be implemented in China and this is a huge opportunity for Israel. However, he warns that the Chinese government is beginning to block Chinese money coming out of the country, so this could be a future challenge for investors to overcome.

Advancing In Digital Health

One field experiencing a significant boom in development is digital health, according to Zeevi, who says Israeli innovation within digital health technologies is rising fast. “There are now more than 500 companies in Israel dealing with health IT and digital health,” he says.

“Digital health is a big basket, covering wearables, health applications, remote monitoring, telemedicine, telehealth, electronic health record, enterprise solutions, data analysis, artificial intelligence and cybersecurity. Israel has companies in all these different subsectors of digital health. The advantage in Israel is that these technologies can be tested quite easily because of our large HMO's which are open to new technologies, so the opportunities for business are out there.”

“Another huge [digital health] development opportunity for Israel are the emerging markets in Africa, there are more than 650 million people in the continent and governments in Africa are becoming financially stronger and mobile phones are more popular than running water in Africa.



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Mobile phones can be used in remote areas for healthcare solutions and because the development process in Israel is less expensive than in the US, we are seeing more investors in technologies for Africa." Health IT is set to be one of the subjects explored at the MIXiii BIOMED annual conference, Israel's leading international life science industry conference. The conference, now in its 16th year, will be held in Tel Aviv in May and is expected to attract over 6,000 participants. This year the leading theme is aging and Alon and Zeevi, co-chairs of the event, divided the conference into nine different tracks to cover a broad range of subjects all related to aging and longevity

"We deal with subjects at the cutting edge of science as being dealt by the industry," says Alon. "We also have leading physicians and researchers from academia, yet the focus is on applied science."

"BIOMED also serves as the annual meeting place for Israel's healthcare industry with colleagues from across the globe. The meeting offers an opportunity for forming new partnerships and strengthening existing business relations between the Israeli and international life science industry." (See box at the end of the article for more info on MIXiii BIOMED 2017).

MindUP: Medtech Industry/Investor JV

MindUP, a new kid on the incubator block aims to capture this wave of digital health innovations. The digital health-dedicated incubator was established in March 2016 as a joint venture between [Medtronic PLC](#), IBM, Pitango, Rambam and Impact First investments.

"Israel is well adapted to digital health needs as it was one of the first countries to adopt electronic records. The HMO's and medical providers in Israel have been working with electronic records for already two decades," says Dan Shwarzman, CEO of MindUP. "So the infrastructure for extracting and analyzing data is available. There is also the mindset of working electronically and the data sets can be used for research and development."

MindUP signed its first portfolio company, Hemonitor, in Jan. 2017. The startup is developing an autonomous, continuous and non-invasive ultrasound-based system for patient monitoring. "Part of the things we are looking for is innovative and riskier products that hold promise," explains Lior Teitelbaum, VP of business development at MindUP. "There's a lot of innovation out there and unmet clinical needs. Our focus in digital health is on treating chronic diseases, precision medicine and applying preventative medicine to screen for diseases and better management of population health. Another area that is of interest to us is the democratization of care, transitioning healthcare to point of care and to the patient's home."

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"Digital health has seen a surge over a few years and some of it has to do with the increased interest in potential, but now there's a higher barrier and proof is needed to show usability, user traction and actual clinical value or healthcare service."

MindUP say digital health entrepreneurs entering the market can expect to face the many challenges confronting an early stage company in this field. "Firstly, the regulatory environment is continually being shaped and IP is not easy to gain," says Shwarzman. "Another major challenge is related to the market and the ability to execute. With digital health you're looking at multiple customers and different customers/targets for the same product and sometimes different geographies that require different versions of the product. All of these factors can complicate the route to market."

"In addition, there is the navigation of payment and reimbursement structures," he continues. "More customers also want to see data and proof of efficacy and see that products work at their own specific hospital first. Plus, small digital health players have to contend with the intensifying competition, with more established companies entering this field. We also see challenges with data privacy, security and compliance with specific country regulations," adds Shwarzman.

The ever growing presence of Chinese investors has also touched Israel's digital health scene.

"China is certainly a dominant player in the field. It's a very attractive market as the numbers in China are huge and developing fast, and they digest new technologies fairly fast. They are also making steps to catch up with the US so there's a great opportunity and very specific market needs," says Shwarzman.

Although MindUP began operations less than a year ago it has already evaluated over 150

projects internally and aims to attract entrepreneurs from across the world. "As long as entrepreneurs are willing to come and register the company in Israel and spend at least two years in Israel, we're more than happy to host overseas entrepreneurs," says Shwarzman.

Trendlines: Innovation Commercialization

Trendlines, one of the larger incubators in Israel, was founded in 2007 and now has 30 medtech companies on its books. "What we found over the years is that when young tech based Israeli companies fail it's usually not because of failure on the technology side or lack of market need, but rather because of poor execution on the business side," says Steve Rhodes, Trendlines CEO and Co-Founder.

"We're in the business of commercializing innovation. Our business is to start companies. We are early stage investors and start around 8-10 companies each year," says Rhodes.

"We're typically the very first money into a company and there's a lot of risk inherent in the companies we invest into. So in order to reduce the risk of investments, we use incubators to surround the companies with support – we provide capital but we are also deeply involved."

Trendlines' portfolio companies are supported by a team of 40 people across the business development process. In 2015, Trendlines listed on the Singapore Stock Exchange in a bid to tap into the coveted pool of Asian capital. "We chose Singapore for several reasons," said Rhodes. "First, we felt that Trendlines was not ready to list on the Nasdaq and we had been expanding greatly in the last five years in Asia. When we visited Singapore, we found an orderly market that was very well regulated with no 'monkey business' and a lot of Asian investors, including Chinese capital."

Singapore welcomed the listing as part of the government's initiative to encourage business enterprise in the country. "Life in Singapore is so good and comfortable that there's not a lot of entrepreneurship going on there," jokes Rhodes.

To date, Trendlines has sold six of its portfolio companies to large international partners including Baxter International Inc., Covidien (before it was acquired by Medtronic), and [Teleflex Inc.](#) One of its portfolio companies that is currently gathering pace is ApiFix, a correction system for treating Adolescent Idiopathic Scoliosis (AIS). The implant incorporates a ratchet mechanism that is inserted through a small incision in the patient's back and corrects the deformity over several months.

"As with many new technologies, people can be resistant to change so we are rolling out this product very gradually because the market is very conservative," explains Rhodes "Of course when you're implanting something into the spine of a young girl, it's wise to be cautious but this is one company that we believe is destined for great success."

The ApiFix device has been used on more than 110 patients in Israel and in eight European countries and is edging closer to approval by the US FDA. Trendlines believes the market for the ApiFix system could be worth around \$1bn. "Even during economic downturns when M&A is usually affected we haven't been impacted as we sell niche products that address specific needs," says Rhodes.

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Other Trendlines companies holding particular promise include Gordian Surgical, developers of a trocar with integrated closure system and Leviticus Cardio, a wireless system for VAD implants.

NGT³: Strengthening Jewish-Arab Ties

But innovation is not the only name of the game for Israeli incubators. Nazareth-based incubator NGT³ is using its incubator program as a way to forge relationships between the Jewish and Arab communities. An early-stage investment entity structured as a venture capital fund, NGT³ is focused on medical device and life science technologies. "As a technological incubator, we are unique in many ways," says Zohar Gendler, CEO of NGT³. "We have 21 partners from around the world including the US, Spain, Israel and one from India. All the partners in NGT³ support the capabilities and knowhow of our portfolio companies."

"Another one is our social agenda - our location is not a coincidence. Nazareth is the largest Arab city in Israel's Galilee and

Key Themes at MIXiii-BIOMED

- The impact of aging on population health and world economy
- Longevity: genetics and epigenetics
- Precision diagnostics and medicine
- Regenerative and cell therapy
- Robotics and aging
- Age-related diseases: cancer, neurodegenerative diseases, diabetes, congestive heart failure, hypertension and more
- Health IT, digital health and cybersecurity
- Continuum of care for the elderly patient

we try to support inventors and investors from the Israeli-Arab- community. The best way for Israeli-Arabs and Jews to live together as equals is to work together. At NGT³, we are trying to bridge between these communities. This is one of the main reasons I joined NGT³."

NGT³ currently has ten companies in total, with three medical device companies in its portfolio – Aqueduct, a cervix dilator, Guide In Medical, developing a guided intubation system and Eio Bio, a medical device for the prevention of post-surgical adhesions.

- From academia to Industry as related to aging and age related issue

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MIXiii-BIOMED, May 23-25, 2017

Tel Aviv, Israel

Gendler says: "In medical devices now, the large companies are looking first and foremost to see market acceptance. In fact, they want to see significant market acceptance before purchasing companies. But despite this, there is still money out there for innovative technologies."