

KEN FIREMAN: I'm Ken Fireman, the managing editor for SAGE Business Researcher, and I'm speaking with Sara Toth Stub, who has written our report on the latest developments in Israel's vibrant high tech sector. Hello, Sara.

SARA TOTH Hi, Ken, how are you?

STUBB:

KEN FIREMAN: Good, thank you. Israel has been called the startup nation. How did it get this reputation and why exactly?

SARA TOTH Well, I think it really cemented and got that reputation in the late '90s, early 2000s, and a lot of
STUBB: people still use that terminology today. I think it came from Israel producing a large number of internet and other high tech startups, beginning in the '90s, really, and going up until today. But a lot of these developments came from governments and other policies that were put in place years earlier.

For many years, since before the founding of the state of Israel in 1948, and at the beginning of the state, there's been a big emphasis on research and development, and government spending on research and development. And then as the internet developed and a high tech industry developed globally, the governments of Israel decided to focus on this more, and they did things like create an office of the chief scientist to oversee giving grants to the private sector for research and development. And in the early '90s, the Israeli government also contributed money to start founding some of the first venture capital funds in Israel.

And also in Israel, where there is compulsory military service for much of the population, the military has had a strong emphasis on innovation. And many of the young people that serve in the military gain skills there and an interest in technology and innovation. And it's been a lot of those veterans that go on and found or work in some of the best known startups and tech companies. So it gained a reputation of a startup nation, but it was a reputation that was in the making for quite a while.

KEN FIREMAN: You write that this reputation for innovation has dimmed a bit recently. What's happened?

SARA TOTH Well, there are people that say that. I think the main challenge that people cite is a shortage of
STUBB: programmers and engineers. I believe that most experts report that now there's a shortage of

about 10,000 programmers and engineers in Israel. And these people and this type of workforce is obviously very important to a continuing robust technology industry, so that's a challenge.

And people also cite the fact that there's been increased competition from abroad. You can look on a global scale, and you look at Asia, and you see that a lot of governments in Asia are now investing in R&D. I think South Korea, over the last decade, has doubled what the government invests in private sector research and development.

But it's not just there. It's everywhere. You see mid-sized cities in the U.S., places like Minneapolis and St. Louis, that have tech hubs for health care and for agriculture. So it's no longer such a unique thing for municipalities and national governments and others to focus on high tech as a sort of growth engine. So there's been this competition.

And then sort of the last thing people talk about is, for the last decade, really between 8% and 12% of the Israeli workforce is involved in high tech, which is not such a large number of people, given the fact that this makes up about half the country's exports. And so there's been a lot of criticism of that, that there's been little spillover to other parts of the economy. And other parts of the economy-- manufacturing and other branches like this-- remain quite low tech.

KEN FIREMAN: The Israeli government is committing a great deal of money and effort to develop a digital health initiative, which it clearly hopes will restore the country's high tech edge. Tell us about what's involved with this initiative.

SARA TOTH STUBB: This is an initiative that was announced this spring of 2018. And it involves about \$275 million of investment, initially by the government. And one of the main parts of it is to develop and build up the databases of medical records of Israeli citizens. Since the 1990s, the government's nationalized health care system has kept digital records of all patients. So they have digital medical records of eight, nine million people, going back almost three decades, which is quite unique.

And so they're hoping that if they develop this database, it can be a valuable resource for researchers in Israel and elsewhere to use this data, to look at patterns in health care and help develop new things. Aside from that database for research, there's money for joint projects between the Israeli health system and health systems abroad, as well as for marketing of exports in the digital health sector, as well as for training and education of people

to work in the digital health sphere, and also plans for more incubators and pilot projects and grants for research and development in the field of digital health. So it's pretty comprehensive.

KEN FIREMAN: Is this attracting significant foreign investment? Are there large multinationals who are showing interest?

SARA TOTH STUBB: Yes, there are some large multinational companies that have had R&D centers in Israel for a while and are starting to focus more on digital health. And then some have come just for digital health. IBM is included among those. They have a large focus on digital health through their Watson project. And yes, there is money from Israel, but a lot of the money is foreign. That's been a trend in the Israeli high tech economy for decades now. A lot of the venture capital money is, yes, coming from abroad.

KEN FIREMAN: This digital health initiative sounds like it could carry with it some privacy concerns, is that right?

SARA TOTH STUBB: Yes, some people have voiced concern about that. But I spoke with the director general of the prime minister's office, who's sort of overseeing the implementation of this initiative. And he said that, obviously, they are aware of that. But the way that this database would function, the one open for researchers, it would only include the information of people that consent to it, that volunteer to be included in it. You may know that it's a 36-year-old man with certain health conditions, but the name would not be there. So obviously, especially with all the talk nowadays about the new privacy regulations in Europe, it's a top concern. And from the beginning, that's been worked into the plan.

KEN FIREMAN: Have these protections satisfied privacy advocates?

SARA TOTH STUBB: I'm not sure. It hasn't been a huge public outcry, and it's also something that has not quite yet gone online. These databases do exist now for the private use of the health care system. And they have been tapped into a little bit on a small extent by some companies and some health care systems that are working on innovative projects.

But as far as really selling this information or selling access to it to scientists and companies that want to do research, that hasn't happened yet. And they hope to improve the databases, the arrangement of it, the information included in it, before that happens. So I think we'll have to wait and see what develops, see if people are even interested in it in the first place, how many Israelis volunteer to allow their information to be included, and just see what happens

from there.

KEN FIREMAN: We've been speaking with Sara Toth Stub, who has written the SAGE Business Researcher report on the Israeli high tech industry. Thank you, Sara.

SARA TOTH Thank you.

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