



Innovation Lessons From Israel

By Prof Dato' Dr Noor Azizi Ismail on 23 May 2023

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During my trip to India in 2012, I found an interesting book used by MBA students at one of the universities I visited. The book is entitled Start-Up Nation: The Story of Israel's Economic Miracle. It has led me to learn more about Israel's high-tech industry and her success stories. In 2019, my good friend from the United States visited Kelantan. He had experience working in Israel and recommended that I read *Chutzpah*: Why Israel is a Hub of Innovation and Entrepreneurship.

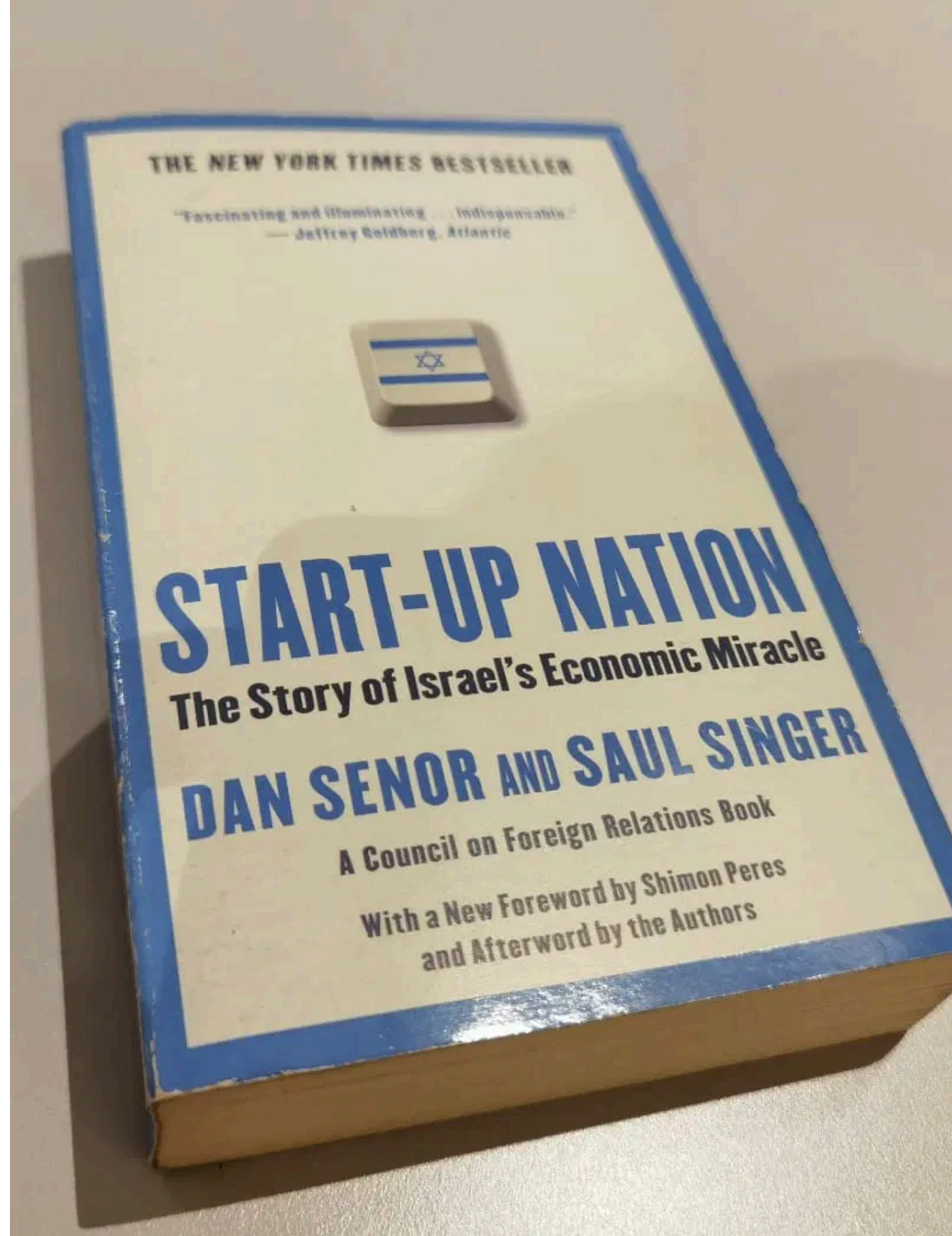


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Chutzpah can be translated as nerve, audacity, or boldness, and is usually referred to as someone who is confident, assertive, and unafraid to take risks or speak their mind. It is a powerful tool (mindset) for fostering innovation because it encourages people to take risks, challenge the status quo, and think outside the box. It allows people to be bold and audacious in their ideas and actions, which can often lead to breakthrough innovations.

Global Innovation Index (GII)

GII is an annual ranking of countries' innovation capabilities and performance, published by the World Intellectual Property Organisation (WIPO). The GII provides a comprehensive assessment of innovation dynamics and capabilities based on a set of indicators (inputs and outputs) and sub-indicators that cover different aspects of innovation.

Israel is typically ranked among the top innovative countries in the world. In the 2021 GII, it was ranked 10th out of 132 countries. For comparison, Malaysia was ranked 33rd. Looking into the details, Israel scored very highly on human capital and research (#3), which indicates the quality of her education, skills, and R&D.

Secrets to Israel's High-Tech Success

Israel is an innovative high-tech economy. The tech sector contributes 12.5% to the gross domestic product (GDP) and makes up almost half of all exports. There are more than 4,000 technology companies, and 60 of the world's top 500 tech giants with research and new technology centres are located in Israel. Several factors contribute to Israel's success in the high-tech industry.

First, the Israeli government has been a strong supporter of the high-tech industry, providing funding and incentives for start-ups and encouraging investment in R&D. In 2020, Israel spent 4.8% (USD16.3 billion) of its GDP on R&D, one of the highest in the world. A significant portion comes from the private sector, which accounts for about 80% of the total (National Bureau of Statistics). For comparison, Malaysia spent around 1.27% (World Bank).

Secondly, Israel has a highly educated workforce with a strong emphasis on science, technology, engineering, and mathematics (STEM) education. This has helped create a pool of highly skilled workers who are well-equipped to work in the high-tech industry.

Israelis also have a culture of innovation that encourages risk-taking and entrepreneurship. Their creativity and problem-solving skills have helped them develop new technologies and products. Finally, many Israelis have military experience, which has also helped them develop skills in areas like cybersecurity and data analysis that are in high demand in the high-tech industry.

The Backbone of a High-Quality Workforce and Research

Israel's high-quality workforce and research rely on its research-intensive universities and institutes. Here are some notable examples.

Technion: Israel Institute of Technology

Technion is one of Israel's leading universities for science and technology education with a long history of producing successful technopreneurs, such as the founders of Waze, Mobileye, and Viber.

It is home to research centres and institutes, such as the Russell Berrie Nanotechnology Institute and the Lorry I. Lokey Interdisciplinary Centre for Life Sciences and Engineering. Technion's innovation and entrepreneurship ecosystem includes the Technion Entrepreneurial Centre, the Bronica Entrepreneurship Centre, and the Technion Drive Accelerator.

Israel Innovation Authority (IIA)

IIA is a government agency that promotes innovation and entrepreneurship. It provides funding for companies engaged in R&D activities, such as grants for feasibility studies, applied research, and pre-seed investments. Second, it also operates a network of incubators throughout Israel that provide support services and funding to early-stage start-ups.

Third is innovation labs – collaborative R&D centres that bring together companies, academic institutions, and other organisations to work on joint projects. The IIA also promotes collaboration between Israeli companies and their counterparts in other countries by providing funding and support for joint research and development projects.

Tel Aviv University Entrepreneurship Centre (TAU-EC)

TAU-EC provides training, mentorship, and resources to students and faculty members to start their own tech companies. Some of the programmes offered include Start-up Accelerator, a four-month programme designed to help early-stage start-ups refine their business models, develop their products, and prepare for fundraising.

The second is the Social Entrepreneurship Accelerator, which provides mentorship and funding to social entrepreneurs working on innovative solutions to social and environmental challenges. The third is the Women Entrepreneurship Programme, designed to empower women entrepreneurs and help them overcome the unique challenges they face in the start-up world.

TAU-EC also offers a variety of courses on entrepreneurship, such as venture capital, start-up finance, and business planning. It hosts events and competitions throughout the year, including hackathons, pitch nights, and a start-up competition, which has helped launch hundreds of start-ups in the fields of cybersecurity, biotech, and fintech.

Weizmann Institute of Science (WIS)

WIS is a leading research institution that has been involved in several successful tech start-ups, such as Mobileye. Home to many ground-breaking research projects and discoveries, with a strong focus on technology transfer and commercialisation, it is considered one of the world's top research institutions, particularly in the fields of natural sciences and mathematics.

The institute has a unique multidisciplinary approach to research, with five faculties: mathematics and computer science, physics, chemistry, biochemistry, and biology. It also has more than 50 research centres and institutes, including the Institute of Advanced Materials, Nancy and Stephen Grand Israel National Centre for Personalised Medicine, and Feinberg Graduate School.

Start-up Nation Central (SNC)

SNC is a non-profit organisation that promotes Israel's tech ecosystem to the global community. It provides resources and connections to Israeli start-ups and helps facilitate their partnerships with international businesses. The SNC's main activities include mapping and analysing the Israeli innovation ecosystem, creating platforms for collaboration and networking, and providing insights and intelligence to stakeholders seeking to engage with the Israeli start-up ecosystem.

The SNC's flagship platform, the Start-Up Nation Finder, is a comprehensive online database that provides information on thousands of Israeli start-ups, investors, and technologies. The Finder helps international partners identify potential opportunities for collaboration with Israeli companies and allows Israeli start-ups to showcase their technologies and connect with potential investors and customers.

Challenges and Solutions

Despite its booming tech sector, Israel is facing a skills shortage. According to the High-Tech Human Capital Report, as of December 2020, there are at least 13,000 unfilled positions from software engineering to machine learning and artificial intelligence (AI).

One interesting initiative to overcome the shortage is called Project Adva, a two-year training programme initiated by Scale-Up Velocity, a non-profit organisation affiliated with SNC. The programme is aimed at helping outstanding young religious ultra-Orthodox Jews, develop skills in software engineering, thus providing a new pool of talent for the high-tech industry.

Project Adva is an example of a quintuple helix collaboration between the government, NGOs, private companies, universities, and religious authorities. It combines academic-level computer science studies with practical project-based experience, in cooperation with tech giants. The curriculum focuses on coding, software development, and data analytics.

The programme includes mentoring and support from experienced professionals and a job placement service to help participants find employment in the high-tech sector after completing the training programme. Since its launch in 2017, Project Adva has trained over 1,000 young Haredim, and many of them have gone on to secure jobs in the high-tech sector.

Conclusion

Last year, I published an [article on the lessons we can learn from China's high-tech industry](#). In this article, I share the lessons we can learn from the booming high-tech industry in Israel.

First, we need big investments in R&D with a strong focus on disruptive and upstream research that can lead to breakthrough innovations. Funding commitments cannot just be short-term but with the medium- and long-term in mind.

Second is high-quality education, with a strong emphasis on relevant curriculum and innovative pedagogy with hands-on projects guided by the industry. It is important to note the importance of high-quality input (students) alongside high-quality lecturers, which will ensure high-quality output (graduates). In this regard, a very stringent process to select the right talent is essential for success. This creates competition and impetus to thrive – a culture that rewards merit and hard work, and not otherwise.

Malaysia can also tap into the hidden pool of talent among Tahfiz students. They come to mind as I have met outstanding *Huffaz* (boys and girls who memorise the Quran) who are well-versed in science and technology. Like Project Adva, perhaps this is where we can source new talents for our high-tech industry. The link we must bridge is that of exposure and access.

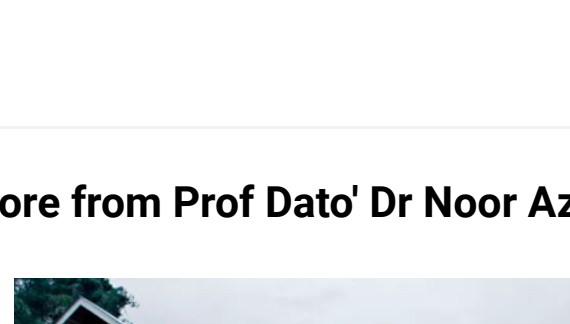
Third, we need to create a comprehensive ecosystem that not only focuses on physical structure and funding but also inculcates innovative mindsets and embraces failures. This ecosystem must forge strong collaboration between universities and research institutes, industry players, and relevant government agencies. It must also exist together with robust laws that enable companies to access critical support (such as funding and creation labs) during good times and bounce back (such as bankruptcy and creditor protection) during tough times.

In my conversations with several local tech company CEOs, they suggested that support for start-up companies is essential for growth. They observe that while their clients, such as GLCs, make billions in profit, many SMEs are struggling due to low margins and are unable to take growth risks due to a lack of ecosystem support.

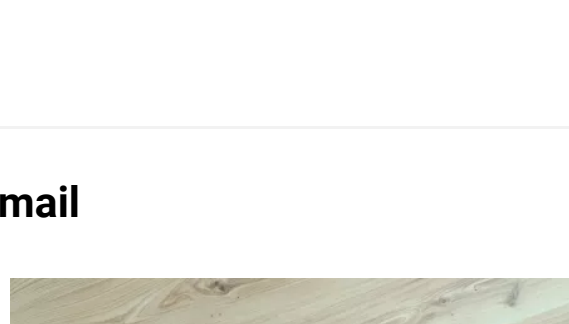
The fourth is coordination between different agencies. Last year, Apurva Sanghi, World Bank Lead Economist for Malaysia, said in an interview with Bernama that Malaysia has many well-crafted policies in place but must improve on coordination and implementation. In his recent comment, Mr Sanghi touched on the issue of fragmentation of government programmes, and I can probably add leakages that must be addressed. He said there are over 70 agencies for skills training and 35 agencies for SME digitalisation, which require coordination.

Lastly, we need our mindset to change. I know by doing something in praise of Israel, it will raise the eyebrows of many Malaysian readers. But this is where we need to look beyond, and harness the good, and leave behind what is not. We must remember that these efforts are not zero-sum. Every part of the journey has a lesson to be learned, a takeaway to be taught, and progress to be perfected.

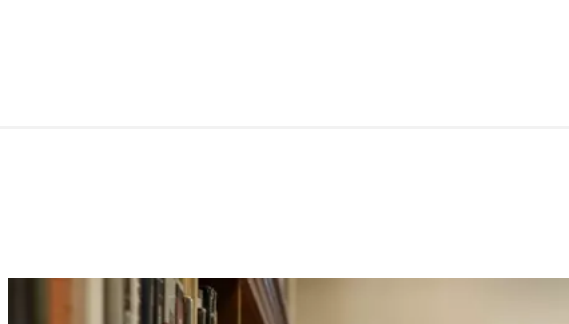
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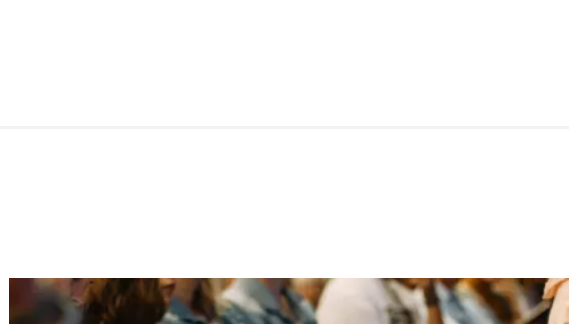
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