

What Next for the Start-Up Nation?

Adversity, like necessity, is often the mother of invention.

BY DAN SENOR AND SAUL SINGER

A GLANCE AT THE HEADLINES GIVES LITTLE cause for optimism about Israel's future. Growing tensions between Washington and Jerusalem, a rising nuclear threat from Iran, and an intensifying campaign to isolate Israel internationally seem to bode ill for the Jewish state. Some warn that Israel is facing its toughest constellation of threats ever. Yet we believe that Israel is poised to play a central role in world affairs, not as a flashpoint for conflict but as a global innovation leader.

Geopolitical analysts and economists are used to taking snapshots of a world moving at a certain pace, but that pace is changing. Radio took 38 years to acquire 50 million users. Television took only 13 years to reach the same milestone, the Internet four years, and the iPod three years. But even these rapid rates of adoption have been dwarfed by Facebook and the iPhone. Within a stretch of nine months, Facebook added 200 million users; it now has a larger "population" than any country except India and China. In the same amount of time, one billion iPhone applications were downloaded.

We have no clue what the world will be like when cell phones are not only ubiquitous but can translate human

speech from one language to another in real time, during a conversation. Or when doctors perform surgery noninvasively using focused ultrasound (a technique being developed by an Israeli company called InSightec). Just as those who invented the Internet did not anticipate how it would come to be used, we cannot know how a generation born into a society shaped by social networking technologies will use them and change their world.

What we do know is that the decades ahead will put a premium on the ability of nations to shape and cope with rapid technological change. The United States is at the forefront of this wave of change, since it not only has the world's largest economy but is also home to industry leaders such as Google, Apple, and Intel. Every technology center compares itself to Silicon Valley, and every tech-oriented university takes its own measure alongside the Massachusetts Institute of Technology. At the same time, however, America's sheer size and complexity pose the dilemma facing almost every large successful company: how to remain as lean, flexible, and innovative as a start-up.

Small countries, like small companies, have an edge on this front, and Israel has made the most of its advantages. Consider the case of an Israeli company called Bet-

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No marching in lockstep for these Israeli soldiers, patrolling the Negev in 1959. Adversity has bred a national emphasis on improvisation and teamwork.

ter Place. Company founder Shai Agassi, born and raised in Israel, is a graduate of Israel's MIT, the Technion. In 2001, he sold his company, TopTier Software, to German business software giant SAP, and, even though he was the only non-German among SAP's top executives, he was soon in the running to become CEO. A few years ago, he was one of a handful of "young global leaders" tapped by the Davos World Economic Forum to present ideas for how to make the world a better place by 2020.

Agassi decided to meet the Davos challenge by devising a way for a single country to dramatically reduce its dependence on oil, on the theory that if one country could do it, the whole world could. After looking into various exotic technologies, he realized that the answer

was much more obvious. Even without any breakthroughs, electric cars had already become cheaper than gasoline-powered ones, but this development had been obscured by the fact that buyers are forced to purchase the "fuel" (in the form of a battery that costs roughly \$10,000) at the same time they buy an electric car. Agassi's key innovation was to design a system based on fully electric cars with swappable batteries. If electric cars had batteries that could be easily separated from the vehicles, then the battery could be treated like fuel and paid for over the life of the car. Better Place would continue to own the batteries and would sell its customers mileage plans, much as cell phone providers charge customers for a certain number of minutes per month.

Build cars with swappable batteries and a network of swap stations, and suddenly the vehicles would be cheaper to buy and run than conventional cars, while the swap stations would give them the unlimited range they currently lack.

In 2007, Agassi left SAP and founded the company now known as Better Place to pursue this idea. The scheme has been met with much skepticism, but at the same time major corporate players are making large bets on it, including Renault-Nissan, which is building cars with the requisite technology. It is projected that by late 2011 the infrastructure will be in place, and the Israeli public will start buying electric Renaults and driving them throughout the country.

ISRAEL HAS DEVELOPED a knack for one of the most challenging elements of the global technology ecosystem: start-ups.

Almost simultaneously with Israel, Denmark will build and adopt the same system, and Better Place has already established an Australian presence, with plans to begin putting infrastructure in place next year. If the model works, Israel will be the first country to begin the mass replacement of cars powered by internal combustion. Paving the way for bigger countries, it will be the innovator and the pilot program at the same time.

The same nimbleness and adaptability extend into other realms of Israeli existence. On the governmental and economic levels, Israel has shown an ability to pivot quickly and dramatically. The Six-Day War of 1967, the 1976 hostage rescue at Entebbe, the 1981 attack on Iraq's Osirak reactor, the 1993 Oslo Peace Accords, and the 2005 unilateral withdrawal from Gaza may be viewed with varying degrees of approval in hindsight, but all demonstrate a capacity for bold decision making. On the economic front, faced in 1985 with the near collapse of the economy under the burden of hyperinflation, Israel introduced a dramatic stabilization plan that paved the transition from a quasi-socialist to a market economy.

Likewise, on the company level, Israeli start-ups, like their counterparts in Silicon Valley, often overhaul their business models unceremoniously and in full stride.

Israel has developed an unusual specialty: an ability not only to cope with but to leverage all sorts of adversity—a lack of local and regional markets, a scarcity of physical resources, and a barrage of boycotts and attacks. Israel's success can be seen not only in the fact that it has the highest number of start-ups per capita in the world. Even more significantly, in 2008 Israel attracted 2.5 times more venture capital per capita than the United States and 30 times more than Europe.

Israelis, ironically, often show little appreciation of their adaptive capacity. Many ask wistfully, "Where's

our Nokia?"—a shorthand critique of the national propensity to start and sell companies at a frenetic pace rather than build large, long-lived ones. What they do not fully realize is that people from countries as varied as Brazil, Finland, China,

South Korea, and Singapore have been coming to Israel to look for answers to a question of their own: "Where are *our* start-ups?"

It turns out that Israel, in becoming a start-up specialist, has somewhat inadvertently developed a particular knack for one of the most challenging and essential elements of the global technology ecosystem. Technology start-ups do not have much in the way of revenue, employees, or customers; what they represent is concentrated innovation. This formative stage is harder than it looks, partly because it is romanticized as a few people tinkering in a garage, but also because the essence of innovation is often misconceived.

A search for "innovation" on Google Images produces a deluge of light bulbs. This is because we tend to think that innovation is about brilliant ideas. Our study of the Israeli model, however, indicates that ideas are only the beginning of innovation, and perhaps not the most essential part. Judging by the number of patents per capita, Israel leads the world in the design of medical devices, but countries such as South Korea and Finland are ahead in other patent categories. If other coun-

tries have achieved greater patent density, why does Israel, for its size, have more start-ups?

Evidently, patents—a fair quantification of the “light bulb” part of innovation—are not the whole story. We found that Israel has two other essential characteristics: mission orientation and an entrepreneurial culture.

A sober analysis of success rates would lead almost no rational person to launch a start-up. It takes a tremendous amount of determination and willingness to risk failure to transform a great idea into a viable company. In Israel, such characteristics originate from many sources. It is significant that Israel is not just a country with many start-ups but is itself a start-up. The Zionist idea was at least as improbable as many of the business plans that today’s entrepreneurs are seeking to launch. Many of those entrepreneurs say they see themselves as doing the 21st-century equivalent of what their grandparents did—if not draining the swamps and greening the desert, they are building companies that lead the economy and help shape a global wave of technological change.

In more direct terms, determination comes from an experience that is unusually long, intensive, and widely shared in Israel: military service. Service in the Israel Defense Forces (IDF) is mandatory for virtually all non-Arab Israeli citizens. The military tries to teach a lot of different skills and values, but above all is the mission. There always is one, and it must always be accomplished, regardless of the resources available. Indeed, military training, whether in the U.S. Marines or the IDF, often attempts to simulate the challenges of the battlefield by throwing missions with varying constraints at soldiers, forcing them to improvise and innovate.

It is often assumed that the most important connection between the military and high-tech industry occurs when military innovations are given civilian applications. But the connection is broader and deeper than that. The military contribution to the tech scene is cultural as much as or more than it is technological. Young Israelis who achieve junior officer rank or higher are taught leadership and teamwork skills in an intensive way, regardless of their



Shai Agassi is the high-profile founder and CEO of Better Place, an Israeli company with ambitious plans to make wide use of electric cars feasible.

direct exposure to technology. They learn that completing missions often requires improvisation, innovation, and sacrifice. This happens in the armed forces of some other countries, notably the United States, but in those cases a much smaller portion of society goes through the military, so the cultural impact on those societies is much slighter.

It is hard to exaggerate the importance of such skills and values in a business environment, particularly in one as demanding as a start-up. In the United States, *Fortune* reports, major companies such as Home Depot and Merck have begun to recruit former junior officers with combat experience in Iraq and Afghanistan as managers. As Jennifer Seidner, a senior recruiting manager at Wal-Mart, put it, “The thinking was that we could bring in world-class leadership talent that was already trained and ready to go.” While corporate America is slowly coming around to an appreciation of the connection between military and business leadership, in Israel it is a truism.

Another reason Israel has more start-ups is that it is a country of immigrants, and newcomers tend to be enterprising people. More than half the companies in Silicon Valley were started by immigrants, as Richard T. Herman and Robert L. Smith note in *Immigrant, Inc.* (2009). In Israel, almost everyone is an immigrant, or their parents or grandparents were. The country remains a melting pot of languages and cultures.

The intermingling of cultures spurs creativity, and the immigrant mindset accepts and appreciates risk taking. In a *Time* essay, “In Defense of Failure,” published earlier this year, economics writer Megan McArdle pointed out that more than two-thirds of Americans report that they have considered starting their own business, while in Europe only 40 percent do so. “America allows its citizens room to fail—and if they don’t succeed, to try, try again,” she wrote. Israel has a similar appreciation of failure, and the start-up culture to show for it. Like other countries, Israel is rich in human capital. But it is these added elements—determination and willingness to take risks—that have led many of Israel’s talented people to found start-ups than to seek careers in established companies.

Why, though, does this penchant for start-ups

position Israel particularly well to thrive in the decades ahead? As the pace of change accelerates, the premium on nimbleness and innovation rises.

It is an open question how long it will take before India, China, and other countries are able to produce clusters of start-ups as Silicon Valley and Israel do. The Asian emphasis on producing sheer quantities of engineers in order to pursue incremental improvements to existing technologies, rather than on entrepreneurship and creating new industries, may mean that the U.S.-Israeli comparative advantage will remain for some time. Even if new countries join the innovation club, there should be plenty of room at the top.

The silver lining in the array of threats facing Israel right now is that coping with adversity is a big part of what has forced Israelis to be innovative. The connection between creative energy and adversity has been so strong that when we write or speak about the Israeli start-up phenomenon, we are often asked the perverse question, “What happens if there is peace?”

The answer is that peace, which could advance significantly once the rickety jihadist regime in Tehran implodes, would be a boon to Israel. Mountains of defense spending could be shifted to more productive purposes, and Israel would have access to a regional market for the first time. The toughest challenge for Israel’s start-up culture would be finding a way to infuse young people with a sense of mission-orientation and improvisatory skills in a civilian framework. We do not know how that challenge would be met, but we suspect that the key would lie in the second half of the term “military service.” Other forms of service could provide the crucial third experience—between studying and working—that forges the spirit and maturity that distinguish start-up culture.

A start-up culture is not easy to develop or maintain. There are no guarantees that Israel—or Silicon Valley—will maintain its edge. But the evidence from the two major economic downturns of the past decade, during which Israel increased or maintained its share of global venture-capital flows, bodes well for the Jewish state. Whether operating in a climate of greater adversity or less, Israel could well become an even more influential global technology player in the years to come. ■