

Little Country, Big Ideas: How Israel is changing the Face of High-Tech

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In 1952, when the State of Israel was barely four years old and relied on German reparation money to survive, a twenty-six year-old Israeli who had fled Nazi Germany as a child started in the backyard of his home in Nahariyah a small metal tool cutting factory. The man had no money, but he had a dream: to turn Israel into an industrial powerhouse. His friends and relatives made fun of him: the country can barely feed itself and you want it to become an exporter of industrial products? And all this from a shack in your backyard?

Sixty years later, the shack in the backyard is one of the world's largest manufacturers of metal cutting tools, which are used by car makers like General Motors and Ford. The company employs 6,000 people and has 50 branches around the world. In 2006, Warren Buffet bought 80% of that company for \$5 billion.

The name of the company is ISSCAR and the name of its founder is Stef Wertheimer.

In the mid 1970s, the son of Polish immigrants who owned a shoe store in Tel-Aviv founded a small private company to market data communications products that were manufactured abroad. At the time, Israel's exports were mostly agricultural. The country had no home-grown, export-oriented hi-tech telecommunications industry, and no venture capital was then available in the country.

The company's founder, Yehuda Zisapel, decided together with his brother Zohar to establish an export-oriented company in Israel to manufacture the types of devices that Yehuda's company (called Bynet) had been distributing. The name of the new company established by the two brothers in 1981 was RAD Data Communications. RAD's first product was a miniature modem that would revolutionize the industry.

The modems that were then on the market were the size of pizza boxes. RAD's modem, however, could fit into one's hand, and, remarkably, it did not require an independent power source, having been designed to operate instead by utilizing power flowing over the telephone line. One version of this modem, the SRM-3, would be recognized by the Guinness Book of Records as the smallest ever manufactured. Within two years of its founding, RAD had become a profitable international manufacturer of access solutions for data communications and telecommunications applications.

In 1987 the company had reached \$10 million in annual sales. RAD won the Israel Export Prize in 1993, the year in which its sales first exceeded \$50 million. It surpassed the \$100 million mark in global sales in 1996.

The RAD Group of companies employs 3,500 people and closed 2008 with a total of \$850 million in global sales. Five RAD Group companies are currently traded on the NASDAQ stock exchange. The Group has been called "the world's most successful incubator" of telecom-related start-ups by Business 2.0 magazine.

It is thanks to remarkable people like Stef Wertheimer and the Zisapel brothers that Israel has turned, within six decades, from a desert to one of the most productive and technologically advanced economies in the world.

Stef Wertheimer and the Zisapel brothers have many things in common. They are incredibly hard workers. They are men of vision and courage. But, mostly, they have a sense of purpose. They are not only motivated by money. They are motivated by Israel's well-being, success, and future. They are Zionists.

It is thanks to entrepreneurs who not only thought of their own interest but also of the interest of Israel that our country is a success story.

Most of the world's technological breakthroughs in the past twenty years have been conceived and developed in Israel: the computer chip, the modem, the USB key, the Internet firewall, instant messaging, voicemail, the miniature ingestible camera, etc.

What Israel's economy and high-tech industry have accomplished in the past thirty years is simply miraculous. Israel doubled the size of its economy while multiplying its population fivefold and fighting six wars. This is totally unmatched in the economic history of the world.

One of the reasons for this success is that Israel turns problems into assets.

Turning problems into assets is also what made Israel a leading manufacturer of military equipment. In the mid-1950s, Israel started developing a strategic military relationship with France –the only country at the time that was willing to sell us weapons and aircraft. Like always in international relations, the reason for this partnership between France and Israel was a community of interests. France and Israel had a common enemy at the time: Egyptian President Gamal Abdel Nasser. Nasser was leading the Arab struggle against Israel, having struck a

military deal with the Soviet Union in 1955, and being the mastermind of the Palestinian terrorist attacks launched at Israel from the Gaza Strip.

Nasser was also supporting Algerian militants fighting for the end of French colonial rule in North Africa. In addition, he dealt a blow to French interests in the Middle East by nationalizing the partly French-owned Suez Canal in 1956.

When the Algerian war ended in 1962, so did the community of interests between France and Israel. By the time the war was over, France was eager to restore its interests and image in the Arab world. Of course, that meant downgrading the military relationship with Israel. And so when war erupted between Israel and its Arab enemies in June 1967, France sided with the Arabs. The French Government stopped all its military sales to Israel. While the Middle East arms race was accelerating, Israel had just lost its main arms and aircraft supplier.

Again, Israel turned this disadvantage into an advantage. The French betrayal convinced Israel to become militarily self-sufficient, by manufacturing tanks and fighter jets, even though no other small country had ever successfully done so. This is what gave birth to the Merkava tank, as well as to the Nesher and Kfir aircraft.

The major increase in military R&D triggered by the French boycott did not only produce tanks and aircraft, however. It also gave birth to a new generation of Israeli engineers who used the knowledge they acquired in the military to create new civilian technologies that eventually turned Israel into the Silicon Valley of the Middle East. In a way, the Arab boycott and the French *volte face* in 1967 have compelled us to be creative and successful. Ironically, we owe a big thanks to our enemies.

Today, Israel has the highest density of start-ups in the world, and there are more Israeli companies listed on the NASDAQ than European companies. After the United States, Israel has more companies listed on the NASDAQ than any other country in the world, including China and India. In 2008, per capita venture capital investments in Israel were 2.5 times greater than in the United States, more than 30 times greater than in Europe, and 80 times greater than in China.

So Israel is indeed a small country with big ideas. And I believe that Israel's next bid idea should to help the world wean itself from oil. Doing so would not only help fight global warming and improve the stability of the world economy. It might also contribute to achieving peace in the Middle East.

In many countries, oil deepens poverty, encourages conflicts and corruption, and stalls democracy. Oil revenues, for instance, enable the Islamic regime of Iran to remain in power despite the economy's poor performance and despite the lack of

political freedom. It is because of its dependency on Saudi oil that the United States does not pressure Saudi Arabia to meet basic human rights standards.

Thomas Friedman has pointed out to the fact that the price of oil and the pace of freedom always move in opposite directions in oil-rich countries. Indeed, the only Arab oil-rich country that has held free elections and liberalized its political system is, incidentally, the first Arab state that is expected to run out of oil: Bahrain. Oil creates unproductive economies where the government buys political support with oil revenues instead of earning it through elections.

Nigeria is a good, and sad, example. Nigeria is Africa's most populous country (160 million people) and the world's eighth-largest oil exporter. It has earned about \$223 billion in revenues between 1999 and 2007, yet most Nigerians continue to be poor and Nigeria ranks 159th out of 177 on the UN's human-development index. Oil accounts for 90% of Nigeria's exports and 80% of the government's revenues.

Nigeria has failed to promote education, the rule of law, innovation and entrepreneurship. The economy is not diversified. In the public's psyche, wealth is not the product of innovation and hard work, but only a matter of getting closer to the oil tap. Despite billions of petrodollars flowing in since the 1970s, Nigerians are considerably worse off today than they were in 1980. About 70% of

Nigerians live on the equivalent of less than \$1 a day, and a US intelligence report from 2005 speculated that Nigeria might be on its way of becoming a failed state.

Same thing in Venezuela. Despite the hundreds of billions of dollars earned by Venezuela from oil, ordinary Venezuelans are poorer than they were 30 years ago. As Jeffrey Sachs and Andrew Warner have shown in their empirical study of 97 countries over a twenty-year period (1971-1989), countries that are rich in natural resources grow at a slower pace than countries that have no or little natural resources.

China's dependency on Iranian and Sudanese oil shelters those regimes from strong UN sanctions. Hence is Teheran able to develop nuclear weapons and Khartoum to perpetuate its genocidal policies in Darfur and in Southern Sudan. Oil revenues enabled Putin to turn Russia into an authoritarian state and Chavez to make Venezuela an autocracy. Every major economic downturn in the past forty years was preceded by a rise in oil prices.

The United States is especially sensitive to the question of oil dependency. President Obama has declared that "America's dependence on oil is one of the most serious threats that our nation has faced. It bankrolls dictators, pays for nuclear proliferation, and funds both sides of our struggle against terrorism. It puts the American people at the mercy of shifting gas prices, stifles innovation and sets back our ability to compete."

But the United States will not be able to achieve energy independence without weaning itself from oil, for a simple reason: It consumes a quarter of the world's oil but owns less than 3% of the world's proven reserves. The United States is more dependent on oil imports today than it was forty years ago because of a declining domestic production. In 1973, the US imported 35% of its oil consumption, as opposed to 60% in 2007. Among the United States' main oil providers are Saudi Arabia and Venezuela.

The United States' dependence on oil is not related to power generation. Indeed, between 1 and 2% of the electricity used in the United States is produced from oil.

Oil dependency is related to transportation because oil enjoys a worldwide monopoly over fuel for transportation. The United States (like most developed economies) depends on oil for transportation (by land, sea, and air). While oil was an all-purpose fuel in the US economy until the energy crisis of the 1970s, today it is mostly a transportation fuel. About 70% of the oil consumed in the United States is used to produce fuel for cars, trucks, ships and airplanes.

So the only way to really reduce oil dependency in a country like the United States is to change the energy consumption of engines. In other words, the world will be able to wean itself from oil only by breaking the monopoly of oil in transportation.

There are precedents to the world's overdependence on strategic commodities. Salt was once such a strategic commodity. Because salt used to have a monopoly over food preservation, it was a strategic commodity over which wars were fought. Salt, however, lost its monopolistic status with the advent of canning, of electricity, and of refrigeration.

The monopoly of oil in transportation can be broken with biofuels and with electric cars. And it is an Israeli entrepreneur, Shai Agassi, who is revolutionizing the use of electric cars with his company Better Place.

Better Place's model provides a solution to the time required to charge a battery and to the shorter driving range of electric cars compared to gasoline cars. Better Place's electric recharge grid will enable its customers to recharge their cars wherever they park. More significantly, battery switching stations will enable to switch the car's battery in less time than what it takes to fill a tank with gasoline. Those switching stations will be spread-out just like gas stations, and switching batteries will not involve any extra cost for the customer since the battery is owned by the company and since the customer is only charged per kilometer.

Better Place's electric networks use renewable energy (from solar arrays and wind farms). The first networks were built in Israel, in Denmark, and in Hawaii, and additional networks are planned in the United States, in Canada, and in Australia. Even before Better Place succeeded in raising a record amount of money from leading financial institutions, and even before it started implementing its model in pilot countries, it was praised by Deutsche Bank as a project that would cause massive disruption to the car industry and that has the potential to eliminate the gasoline engine altogether.

So little Israel is once again leading the world's next big idea. And like Stef Wertheimer and the Zisapel brothers, Shai Agassi will succeed because he has a vision and a sense of purpose.

Israel will continue to be a success story if it keeps this sense of purpose alive and well. The question is: is this sense of purpose still alive among younger Israelis? Has someone like Shai Agassi (who is only 43 years old) become an exception that confirms the rule among a generation that has become more materialistic and less Zionist?

People like Wertheimer and the Zisapel brothers are children of Jewish immigrants who fled Europe. They belong to a generation that witnessed the

Holocaust and that fought for Israel's independence. They know why Israel is so important for the Jewish people.

But for younger Israelis, things are not as obvious. With a looming threat of a nuclear Iran and of a regime change in Egypt that will likely bring Islamists to power, the prospects of a peaceful Middle East are as remote as ever. Shimon Peres spoke about a "New Middle East" two decades ago. Unfortunately, the only palpable novelty at this point is ideological radicalization and nuclear proliferation.

While this can sound depressing, there is actually nothing new about it. Israel has always been surrounded by relentless enemies and it has always overcome the greatest challenges and threats to its existence. And this ability to survive and succeed was always driven by a strong sense of historical mission.

This strong sense of historical mission is at risk because of the spread of post-Zionist ideas among Israel's elites. How will younger Israelis continue to be resolute when they are told by their professors that Zionism is out-of-date and that fighting for a Jewish state is simply not worth it? Why continue to live in a hopelessly hostile and dangerous region rather than raise your family in California? Why care for Israel rather than just for your own personal and material comfort?

Why? Because we carry on our shoulders four thousand years of Jewish history. Because Jewish powerlessness led to the Holocaust. Because Israel both inherited and revived a three-thousand old culture that is the pillar of Western civilization. That's why. Now, you and I know that. But when Israeli students are told by their professors that we're all better off giving up, they start wondering what's the point risking their lives and the lives of their children.

And I'm not only talking about radical professors such as Shlomo Sand from Tel-Aviv University who says that there is no Jewish people and therefore no need for a Jewish state, or such as Neve Gordon from Ben-Gurion University who calls for the international boycott of Israel.

I'm also talking about Avraham Burg, a former President of the Knesset and of the Jewish Agency, who now says that Israel should cease to be a Jewish state and that it is turning into pre-war Nazi Germany. I'm talking about Meir Sheerit, a former Minister of Education, who said that we don't want our children to think that it's a good thing to die for your country. And I'm talking about Meirav Michaeli, the radio broadcaster for *Galei Tsahal* (the army radio) who said in a live program a few months ago that young Israelis should try and avoid the army draft.

Which is why the future of our people depends on education. We must make Jewish education more affordable in America and we have to reintroduce Jewish and Zionist values in Israel's educational system. The next generation of Israelis will be able and willing to produce big ideas only if they have a strong sense of purpose, and only if the well-being and success of Israel are important to them.

So, as surprisingly as it may sound, the future of Israel's high-tech industry depends also, if not mostly, on the promotion of Jewish education and of Zionist values in Israel. And this is where the Jewish communities of North America can and should help.

Young Israelis go to the army when they're 18. By the time they finish their army service, they're 21. Then they generally take a year off and start university at age 22. At that point, they need a practical degree to get a job. There is no college or liberal arts education in Israel. And so you can get a BA in, let's say law or accounting, with virtually no knowledge of general and Jewish history and culture. In addition, there is this increasingly post-Zionist discourse in academia which certainly doesn't help.

Thankfully, a couple of initiatives in the past few years are trying to address the lack of Jewish education and the decline of Zionist ideals. A liberal arts college is about to open its doors, the first of its kind in Israel. This college will altogether

deliver a practical degree and provide a comprehensive general and Jewish education. And recently, a grassroots movement that was originally started by students, is trying to provide an alternative to the post-Zionist discourse in Academia and in the media.

Those are welcome and encouraging initiatives that deserve the full support of those who care about the future of Israel.

It is precisely because I believe that the future of Israel depends not only on the strength of our army and on the productivity of our economy but also on the commitment of our youth to our past and to our future that I have decided to become more involved in teaching, in social and political activism, and in public speaking.

This is why I came here all the way from Israel, and this is why I am so thankful to you for inviting me.

“If you will it, it is no dream” said Theodor Herzl. With Israel being attacked, challenged and vilified from all sides, we must strengthen our collective will. And for that, we need each and every Jew to make his individual and invaluable contribution to the future of Israel.