Israel's Economy and High-Tech Industry: A Jewish Success Story

By Emmanuel Navon

The Jewish Federation of Portland, Oregon

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The Israeli economy was barely affected by last year's financial crisis, despite the fact that Israel's economy is highly exposed to international markets. Our growth is export-driven, our companies are traded on the world's leading stock markets, and many American technology companies have their main R&D centers in Israel. And yet, Israel did not face a single bank failure. One obvious reason for Israel's strong standing during the financial crisis is that Israeli banks have very conservative lending policies and that Israel's financial market is tightly regulated since the hyperinflation and banking crisis of the early 1980s.

But the fact that the Israeli economy has been doing very well despite the global financial turmoil is not only due to domestic financial regulation and to conservative lending policies. The resilience of our economy is mostly due to the fact that Israel's high-tech industry has become the main engine of Israel's growth, and that this engine is the world leader in technological innovation.

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.

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.

How did this happen and why? Israel's economic growth was always driven by innovation, creativity, and defiance. When Jewish pioneers started developing the land of Israel in the second half of the 19th century, they came up with this idea called "kibbutz." Kibbutzim were created as agricultural settlements dedicated to abolishing private property and to achieving total equality.

The kibbutz was not only the world's most successful commune movement. It was also responsible for major agricultural and technological breakthroughs. Take the "Hatzerim" kibbutz for example. It was established in 1946 in the Negev desert, on a barren hilltop surrounded by wilderness. It took a year before the kibbutz's founders managed to lay a pipe for water supply. During the War of Independence in 1948, the Hatzerim kibbutz was attacked and its water supply was cut off. After the war, the kibbutz's members considered closing the kibbutz altogether, because the soil was too salty and too difficult to cultivate.

But, instead, they decided to stay. Rather than leaving the inhospitable desert, they made the desert more hospitable. They flushed the soil until it was able to produce crops. And then, in 1965, a water engineer named Simcha Blass approached the Hatzerim kibbutz with his invention. It was called the drip irrigation system. The Hatzerim kibbutz and Simcha Blass started what we would call today a joint venture. And this joint venture gave birth to a company called Netafim. Today, Netafim is the world leader in drip irrigation.

I am telling you this story because it goes to show that what made Israel a success was always this attitude of never giving up, but also (and mostly) of turning problems into assets. Instead of giving up and leaving the hostile Negev desert, the founders of Kibbutz Hatzerim, together with a creative Israeli engineer, turned Israel into a world leader in the field of water irrigation technologies.

Turing 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.

But Nasser was also supporting Algerian militants fighting for the end of French colonial rule in North Africa. He also 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.

But this didn't happen instantly, of course. In fact, even though the Israeli economy is a success story, and even though the economy grew at an

impressive rate during the first decades of Israel's independence, we made many mistakes on the way.

The Israeli economy increased its per capita income relative to the US per capita income from 25% in 1950 to 60% in 1970. This means that Israel more than doubled its living standard relative to that of the United States within twenty years.

During the first two decades of Israel's independence, growth was mostly driven by large-scale infrastructure projects initiated and managed by the Government. But by the mid-1960s, most of the large-scale infrastructure investments had been made. If the government had let entrepreneurs and private investors take over at that critical juncture, the economy would have continued to grow. But that didn't happen, mostly because the Israeli leadership at the time was still stuck in its socialist mindset. As a result, Israel experienced for the first time nearly zero economic growth in 1966.

This poor economic performance might have convinced the Israeli leadership to adapt its ideology to reality. But then a major war erupted in June 1967 (the Six Day War), and the Israeli government was once again busy with infrastructure projects in the large and mostly barren territories captured by the IDF during the war.

Those infrastructure projects gave the impression for a while that the Israeli economy could continue to grow without a strong private sector. And then another war broke out (the Yom Kippur War) in 1973. This war caused serious economic damage.

First, there was the damage to the country's infrastructure. But, mostly, the IDF had to mobilize large number of reserves, pulling out most of the labor force out of the economy for up to six months. This paralyzed entire industries, and business activity nearly came to a halt.

If the Israeli economy had been market-oriented at the time, private incomes among domestic workers would have declined as a result of the long military reserve duties and lower national production. Instead, the government artificially propped up salaries, which of course generated high levels of public debt. And in order to offset the debt, the government raised taxes –including on capital investment.

On top of that, immigration to Israel declined because of the dismal economic situation. The lack of immigration made Israel's economic situation even worse, because immigration has always been a key source of Israel's economic vitality.

Then of course there was the government monopoly on the capital market. In those times, the government used to set the terms and interest rate for every loan and debt instrument for consumer and business credit. Commercial banks and pensions were forced to use most of their deposits to purchase nonnegotiable government bonds or to finance private sector loans for projects that had been earmarked by the government.

For about ten years (between 1975 and 1985), Israel looked and functioned like a third world economy. Almost everything has the retarded touch of a Socialist country: poor infrastructures; parasitic, obnoxious, and ubiquitous government workers; a single, government-owned TV channel; impossible-to-get telephone lines jealously rationed

by the government; no international retail chains; protectionist custom duties meant to coddle local producers; cheap Japanese and French cars; and even rough toilet paper. If you wanted to buy anything decent, from clothing to electric appliances, you had to get it overseas. But then again, holding an overseas bank account was illegal.

In the late 1970s, the Israeli economy also started suffering from hyperinflation: it was 111% in 1979, 445% in 1984, and it appeared to be on its way to a four-digit figure within a year or two.

How did Israel pull itself out of this Soviet-style failed economy to become the Silicon Valley of the Middle-East?

Those of you who've been to Israel recently know what the country looks like. You land in one of the world's most modern airports with a complete wireless Internet access. Israelis have more cell phones per capita than anywhere else in the world. The streets are full of late-model cars. There are more high-tech companies in Herzliyah Pituah than in Silicon Valley. All major world companies and brand names have set shop in the country –from Microsoft to IBM, Mc Donald's and IKEA.

How did this happen? There were three main factors: 1. The economic reforms implemented by the Israeli government; 2. The massive immigration from the former Soviet Union; 3. A new entrepreneurial spirit together with the development of a venture capital industry.

There are two Israeli leaders who made the tough and necessary decisions to save Israel's economy: Shimon Peres and Benjamin Netanyahu. In 1985, Prime Minister Shimon Peres oversaw an economic stabilization

plan together with leading world economists such as Stanley Fischer and Jacques Attali. In a nutshell, the plan dramatically cut public debt and government spending, reduced the government's excessive meddling in the economy, and initiated the process that led to the privatization of government-owned companies.

But it took another ten years for the government to actually sell some of its assets to the private sector and to inject a real dose of competition between market players. Those reforms were undertaken by Benjamin Netanyahu, first when he was Prime Minister between 1996 and 1999, and then when he was Finance Minister between 2003 and 2005.

It is thanks to these reforms undertaken by Peres and Netanyahu that we Israelis are able to start new businesses freely, to invest our money the way we want, to be able to buy and afford what we need, to choose between competing companies that have to deserve our business, instead of having to be mistreated by inefficient, overpriced and obnoxious government-owned or government-protected monopolies.

But those reforms, for important as they are, would not alone have given birth to Israel's economic miracle if it hadn't been for immigration as well as a unique entrepreneurial spirit.

When Israel declared its independence in 1948, it had a population of about 800,000. Today, the population count is 7.1 million. Which means that the population has grown nine fold in sixty years. Between 1990 and 2000, 800,000 citizens of the former Soviet Union immigrated to Israel. Proportionally, it is as if the US had accepted 62 million immigrants over a period of ten years.

Not only are those immigrants highly qualified, with degrees in engineering, medicine, law and what not. Like many immigrants who came to Israel, they are generally not afraid of starting a new business, because they had to start a new life.

Here in America, or in France where I grew up, if you have a secure job with a good salary, you are unlikely to abandon everything to create something new. But if you're an immigrant in a new place and you're poor, or if you lost everything, then you have the drive to start again. You've got nothing to lose. That's the attitude many new immigrants have in Israel. A nation of immigrants is, by nature, a nation of entrepreneurs.

The entrepreneurial spirit and innovation also come from native Israelis, including Israelis who worked in America for many years and then decided to come back and make a big difference. One famous example is Michael Laor, who worked for Cisco in California for eleven years after graduating from Ben-Gurion University in Beersheba. In 1997, he decided to come back to Israel. Because Cisco didn't want to lose him, it agreed to open an R&D center in Israel –its first outside the United States. And it is in that R&D center, under Laor's leadership, that Cisco developed the fastest router in the world. Meanwhile, Cisco has invested $1.2 billion in Israeli high-tech companies.

What is amazing is that Cisco made those investments while Israel was suffering from constant terrorist attacks. This points to an interesting paradox about the Israeli economy: it attracts foreign investments and produces growth even during the most troubled and instable times.

Think about it. Between 2000 and 2006, Israel fought the five-year Palestinian terrorist war and the second Lebanon War. And yet, during that same period, foreign direct investments (FDI) to Israel tripled, and Israel's share in the global venture capital market doubled from 15% to 31%. In the summer of 2006, just as the second Lebanon war broke out, Warren Buffet bought the Israeli company Iscar for $4.5 billion. This was the first time that Warren Buffet bought a company outside the United States. And right after the war, Bill Gates came to Israel saying that the *"innovation going on in Israel is critical to the future of the technology business."*

Israel's technology engine was barely slowed by the multiple hits it took between 2000 and 2004. It managed not only to recover, but even to exceed the 2000 boom level of exports by almost 40% in 2008. The same goes for venture capital. When the VC bubble burst in 2000, investments in Israel dropped dramatically. But Israel's market share of the global VC flow doubled over the next three years, even as the Israeli economy came under increasing stress.

During the second Lebanon war in 2006, just two months after Buffet had acquired Iscar, 4,228 missiles landed in the north of Israel, where Iscar is located. But that did not stop Iscar from delivering all its international orders on time.

The same thing happed with Intel during the Gulf war in 1991. At the time, Israelis were instructed by their government to stay home in sealed rooms with their gas masks. Intel feared that its Israel factory would be paralyzed. But this didn't happen. Intel's Israel engineers braved

Saddam's missiles and ignored their government's instruction, and they came to work. It is Intel Israel that designed the chip in the first IBM personal computers, the first Pentium chips, as well as new products that saved Intel from decline. War did not prevent Intel's Israel plant to become the company's critical manufacturing center.

As a matter of fact, Israel has even turned its permanent involvement in warfare to its advantage.

Among first-world economies, only three (Israel, South Korea, and Singapore) face existential threats, have fought wars for survival, and have a lengthy compulsory military service. And all three countries are economic success stories. In the case of Israel, the army has produced a wealth of military research applied to civilian applications, as well as technology-savvy youngsters who know one or two things about taking risks and making tough decisions. It is no coincidence if many of Israel's most successful start-ups were founded by young Israelis who acquired their technological knowledge, courage, and social networks in the army.

There are many examples of successful Israeli high-tech companies that were started by former IDF soldiers and officers. Checkpoint, the world leader in Internet firewall, was started by an Israeli who worked on computer security when he was in the army. Today, the company is worth $5 billion, is publicly traded on the NASDAQ, and includes among its customers the majority of Fortune 100 companies and most national governments around the world. Another famous example is Fraud Sciences, an Israeli start-up founded by an Israeli army officer whose job in the army was to prevent terrorist attacks. He used his knowledge to

develop a successful model to secure online payments. PayPal bought his start-up company for $169 million.

And there is also Given Imaging. It was started by Gavriel Iddan, a rocket scientist for the IDF. He specialized in the sophisticated electro-optical devices that allow missiles to "see" their target. Iddan thought of adapting the newest miniaturization technology used in missiles to develop a camera within a pill that could transmit pictures from inside the human body. His company went public on Wall Street in 2001. It was the first company in the world to go public on Wall Street after the 9/11 attacks. And he has sold over a million of those pill cameras. The pill cameras painlessly transmit eighteen photographs per second, for hours, from deep within the intestines of the patient. The video produced can be viewed by a doctor in real time, in the same room or across the globe.

So the IDF has played and continues to play a central role in Israel's high-tech boom. And the IDF is almost an accidental incubator for some of Israel's most successful high-tech companies. But the army in Israel is also an amazing networking system. As you know, the IDF is a reserve army. We are all called up every year for a reserve duty that can be up to a month long. As a matter of fact, I myself will wear my uniform and join my unit a few days after I land in Israel. I'm always fascinated by those reserve duties. For a few days, people leave their civilian lives and things can be completely upside down because very often you have twenty-year old officers giving orders to forty-year old reserve soldiers. So you have students telling university professors to go do the dishes, bus drivers waking-up CEOs at four in the morning to go to their guarding shift, and people from completely different social backgrounds sharing a meal and a tent and chatting about life.

It's an amazing experience, and it's one of the things I love the most about Israel: This complete informality and simplicity. But those reserve duties are also an amazing networking system for business contacts, because it brings together entrepreneurs and executive who patrol the border in jeeps for hours and have a lot to talk about. You wouldn't believe how many business projects and deals come out of those army jeeps patrolling the Egyptian border.

So, as I said, there are many factors that turned Israel into an economic success story: the resilience and creativity of the pioneers; the economic reforms since the mid-1980s; the mass influx of immigrants with skills and drive; the role of the army in forming technologically-savvy youngsters, in teaching quick-thinking, innovation and courage in the face of danger, and in creating a powerful social network. There is also the Jewish tradition of valuing education and excellence, and of always questioning and challenging. And, of course, the fact that Israel has gone through all these life-threatening situations has compelled us to come up with daring ideas. In a way, the Arab boycott and the French betrayal in 1967 have compelled us to be creative and successful. Ironically, we owe a big thanks to our enemies.

There is another factor, which I only briefly mentioned before, and that is the birth of a venture capital industry in the 1990s. Before the introduction of venture capital in Israel, there were only two sources of funding for new technological companies: the Chief Scientist's Office at the Ministry of Industry and Trade, and the BIRD Foundation, an endowment to support joint US-Israeli business ventures. In the early 1990s, the Israeli government crated a fund called Yozma, which means

"initiative" in Hebrew. The idea was for the government to invest $100 million to create ten new venture capital firms. Each fund had to be represented by three parties: Israeli venture capitalists in training, a foreign venture capital firm, and an Israeli investment company or bank. There was also one Yozma fund of $20 million that would invest directly in technology companies.

At the time, most business-savvy Diaspora Jews were not investing in Israel. While they would make donations to non-profit organizations that benefited Israel, for the most part they were reluctant to invest in Israel.

The ten Yozma funds created between 1992 and 1997 raised just over $200 million with the help of government funding. Those funds were bought out or privatized within five years, and today they manage nearly $3 billion of capital and support hundreds of new Israeli companies. Today, there are forty-five Israeli venture capital funds. Between 1992 and 2009, 240 venture capital funds from Israel and abroad have invested in Israeli start-ups.

Israel's economic successes might become an important factor in improving relations even with our most hostile neighbors. My company does business with Muslim countries in Africa and with Arab countries in the Gulf. We get along just great. And we realize that we are all human beings trying to make a living and to improve our lives and the lives of others. Or take Netafim, which I've mentioned before. It operates in 110 countries over five continents. It has offices all over the world, including in Muslim countries. And because Netafim's technology has become so indispensable, many governments that didn't want to have anything to do with Israel had to open up. It is because the Muslim states of the former

Soviet Union in Central Asia needed Netafim's technology that they developed diplomatic relations with Israel. My company is working on an energy deal in Mali, a Muslim country in Western Africa that cut its ties with Israeli eight years ago. We are actually competing with an Iranian company there. It's very likely that if the deal works out, Mali will renew its relations with Israel.

I believe that in the coming years, Israel should lead the way in the energy revolution by weaning the world from oil. This would not only help Israel and the West being less dependent on oil. For surprising as this may sound, it might also help the Arab world itself.

Think about it. The non-oil exports of the entire Arab world (with a population of nearly 300 million people) are less than the exports of Finland (with a population of 5 million). The Arab world produces almost one third of the world's oil and has benefited from a surge in demand from China and India in the past decade, but this is a mixed blessing. Indeed, it is even a curse –what economists call the "natural resources curse." Because they have oil, Arab economies don't feel the need to innovate, create, and produce. And so they don't.

The number of world patents registered between 1980 and 2000 was 77 for Egypt, 20 for Syria, and 15 for Jordan. It was 7,652 for Israel. China, which is a main consumer of Arab oil, published in 2003 a list of the five hundred best universities in the world. The list did not include any of the two-hundred universities in the Arab world. By contrast, four out of Israel's eight universities are in the top 150 worldwide universities and seven are in the top 100 Asia Pacific universities. Israeli research

institutions were also the first in the world to commercialize academic discoveries.

So oil does indeed seem to be a curse, first and foremost for the Arabs themselves. We need to wean the world from oil not only to reduce pollution and in order to make America and Israel energy-safe, but also to help the Arab world be more creative and more productive. And this might help bring peace between Israel and its neighbors, through economic cooperation.

Israel is leading the way in the energy revolution. Israeli entrepreneur Shai Agassi recently founded Better Place, the fifth largest start-up in history. Better Place is developing a revolutionary model to spread the use of electric cars in Israel and throughout the world. If Agassi succeeds, as I believe he will, the world's dependency on oil will be dealt a fatal blow.

My suggestion to Jews around the world, especially here in America, is to come and join the Israeli economic miracle. Not only to make money – although that is also important. But also, and mostly, to take part in an exciting adventure. Israeli technology is helping to make the world a better place, whether by saving millions of lives thanks to biotech breakthroughs, or by making our daily lives easier and safer. And, as I said, Israel and Diaspora Jews should partner in the coming years to focus on renewable energies. Promoting renewable energies will not only make growth more sustainable and help preserve our environment for future generations. It might also turn out to be a key element for achieving peace in the Middle East.