

# ISRAEL HIGH-TECH & INVESTMENT REPORT

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## The Iron Dome Soars High



The sirens sounded in Tel-Aviv. We were told that we had approximately 90 seconds to seek shelter. Our apartment house has no shelter so we went into the hall. Inevitably we heard booms and moved to the TV to see where they landed. As it was not a single missile landed on Tel-Aviv. Some fell into the Mediterranean but more impressibly we learned that they had been shot down by the Iron Dome missile interception system. Expensive at \$50,000 we felt it was a bargain.

IronDome's value is in that it has been found to be 88 per cent accurate.

A number of countries, including Turkey, have shown interest in acquiring Iron Dome. Israel has two missile defense systems, the Arrow for use against incoming intercontinental ballistic missiles at high altitude and the Iron Dome against rockets fired from as close as 2.5 miles out to about 43.5 miles. The Arrow was developed in cooperation with the United States; U.S. funds were used in development of the Iron Dome.

Iron Dome has intercepted hundreds of the new, longer-range Iranian rockets fired by Hamas, a success rate of 80 percent to 90 percent — and Iron Dome does not launch if its automated calculations show that the incoming rocket will miss populated areas. So many failed attacks could explain what appears to be the revival of

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### Iron Dome Soars High

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Amphenol buys Tel-Ad Electronics assets for \$

a closer-to-home bus bombing in heavily populated Tel Aviv.

Critics of Iron Dome have noted that it uses a \$50,000 missile against an \$800 rocket. Considering the lives saved, that's a bargain.

A further criticism is that Iron Dome could lead Israel's leaders to neglect the task of persuading Hamas to make peace — an impossible task with an enemy who targets Israeli cities indiscriminately and whose airwaves are still flooded with exhortations to kill Jews.

**Israel successfully tests Magic Wand system**

Israel's Defense Ministry and the US's Missile Defense Agency have completed the first round of tests on the Magic Wand system. The test was reportedly successful raising the chances of future investment.

The interceptor missile system is being developed for the Defense Ministry by Israel's Rafael Advanced Defense Systems and the US's Raytheon Co.

Israel is counting on the system to become the centerpiece of its air defense layout and provide a solution for a variety of short-range ballistic missiles, large caliber rockets and cruise missiles.

Batteries are meant to be deployed in a small number of locations. If development goes ahead as planned, the system will be able to intercept any object launched from a distance of at least 70 kilometers.

The system was designed to intercept ballistic missile warheads as well as long-range rockets. The interceptor missile, which is based on the most cutting edge technology in air defense, is estimated to cost \$1 million.

In May 2011, defense officials estimated that the Magic Wand would become operational in 2014. Meanwhile, Israel is already working on a more sophisticated system with Boeing.

**Volcano acquires medical imaging company Sync-Rx**

Sync-Rx develops automated online image processing for trans-catheter cardiovascular interventions.

Medical imaging solutions developer Sync-Rx Ltd. has been acquired by US medical devices company Volcano Corporation (Nasdaq: VOLC) for \$17.3 million. Sync-Rx, jointly owned by Rafael Advanced Defense Systems Ltd. and Elron Electronic Industries Ltd. (TASE: ELRN) through their joint venture Rafael Development Corporation (RDC), develops automated online image processing to optimize and facilitate trans-catheter cardiovascular interventions. Netanya-based Sync-Rx was founded in 2007. It will become a wholly-owned subsidiary of San Diego-based Volcano. Sync-Rx currently focus-

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es on coronary catheterizations, and it plans to develop applications for structural heart disease. Volcano said that it plans to expand Sync-Rx's technology to work with real-time intra-body physiology measurements and intravascular ultrasound, intra-cardiac echocardiography, and optical coherence tomography imaging.

### **Another Israeli hero**

Eli Hurvitz a kibbutznik who joined the company in a junior management position after graduating in economics and business administration from Hebrew University in 1957 was destined to transform Teva into a global pharmaceutical house. He perceived an opportunity to penetrate the US market when the federal Waxman-Hatch Act passed Congress in 1984. This legislation concerned generic drugs, treatments that have lost their patent protection. Also known as multisource or off-patent medicines generics are chemically identical to branded prescription drugs but they are priced 30% to 70% less than patented versions. Hurvitz used the generic segment as Teva's entry into the US pharmaceutical market. In 1985 the company forged an agreement with chemical conglomerate WR Grace to create TAG Pharmaceuticals, a 50%-50% joint venture. In 1985 TAG acquired the Lemmon a Pennsylvania based company. Lemmon became the sales and distribution arm, for generics manufactured by Teva in Israel. Also CEO Hurvitz latter said " an Israeli is coming to the States as a David and Goliath syndrome. He reminded himself that little David prevailed in that biblical battle. The potential Teva saw in Lemmon soon turned into profits. The US ventures' sales nearly doubled from \$17m. at the time of its acquisition to \$40m in 1987. By which time it was marketing seven generic ventures of branded drugs.

Copaxone which was formulated in Israel was destined to become a blockbuster drug. For Eli Hurvitz the approval of Copaxone by the FDA was one of the great moments in his life and

ranks in parallel with his being awarded the Israel Prize.

Under Hurvitz's leadership Teva has become a global pharmaceutical specializing in the development, production and marketing of generic and proprietary branded pharmaceuticals, as well as active pharmaceutical ingredients.

### **XTL acquires 31% stake in Proteologics from Teva**

The shares of Proteologics, a drug development company, were bought at a 20% premium. Biopharmaceutical company Proteologics Ltd.'s (TASE: PRTL) share price has risen sharply in heavy trading on the Tel Aviv Stock Exchange (TASE) after reporting that XTL Biopharmaceuticals Ltd. (Pink Sheets:XTLBY); TASE:XTL) acquired 4,620,356 of its shares from Teva Pharmaceutical Industries Ltd. (NYSE: TEVA; TASE: TEVA). This represents a 31.3% stake in Proteologics at a 20% premium on today's opening price.

Before the deal Teva was the controlling shareholder in Proteologics.

XTL probably conceived the idea of acquiring the stake in Proteologics after the company's chairman Dr. Aharon Schwartz recently proposed a merger with Biocancell Therapeutics Ltd. (TASE:BICL). This proposal possibly brought Proteologics to XTL's attention.

Proteologics is a drug development company focuses primarily on discovering inhibitors for specific E3 ubiquitin ligases.

### **Qualcomm buys assets of ultrasound technology firm**

Chip vendor Qualcomm Inc. said Friday (Nov. 16) it acquired certain assets of EPOS Development Ltd., a developer of ultrasound technologies for input solutions, including pen, stylus and gesture recognition. Terms of the acquisi-

tion were not disclosed.

EPOS (Hod Hasharon, Israel) has developed digital positioning technology that enables device manufacturers to integrate advanced user input capabilities into a wide range of consumer devices, according to Qualcomm (San Diego).

The EPOS technology is based on the digital transmission of ultrasonic waves, enabling precise tracking by a receiver to enable multiple applications, according to Qualcomm. The firm said it intends to provide digital pen/stylus reference designs to help accelerate adoption of this technology in the consumer, enterprise and education markets.

“As computing evolves beyond the PC, consumers are looking for intuitive new ways to interact with their mobile devices,” said Raj Talluri, senior vice president for product management at Qualcomm Technologies Inc., the Qualcomm subsidiary responsible for the company’s R&D activities.

Talluri said EPOS’ technology goes beyond the PC-era mouse and keyboard to enable touch-free gesture and pen interactions as user input mechanisms. “Enabling this technology on Qualcomm’s Snapdragon processor will allow devices that accommodate a more mobile and multimedia-centric lifestyle,” Talluri said.

EPOS employees who are joining Qualcomm will be integrated into Qualcomm Israel’s R&D team and will be focused on delivering new mobile device and service capabilities, Qualcomm said. The firm did not say how many of EPOS’ employees would be joining Qualcomm.

EPOS’ ultrasound technology works on screen and off screen, as well as in three dimensions, Qualcomm said.

Solving problems unconsciously

Not what you consciously thought: Hebrew University researchers show how we can do math problems and read phrases unconsciously

Can we actually read words and phrases and solve multi-step mathematical problems without our having consciously been aware of them? A team in the Psychology Department at the Hebrew University has conducted a series of experiments that give a positive answer: people can read and do math non-consciously.

### **A brain reading under the water surface -- a metaphor for unconscious recognition**

The results constitute a challenge to existing theories of unconscious processes that maintain that reading and solving math problems --two prime examples of complex, rule-based operations – require consciousness.

The conclusions of the Hebrew University team were published this week in PNAS (Proceedings of the National Academy of Sciences) in the US. The research team, headed by Dr. Ran Hassin, included graduate students Asael Sklar, Ariel Goldstein, Nir Levy and Roi Mandel, as well as Dr. Anat Maril.

To present sentences and equations unconsciously, the researchers used a cutting-edge technique called Continuous Flash Suppression (CFS). In CFS, one eye is exposed to a series of rapidly changing images, while the other is simultaneously exposed to a constant image. The rapid changes in the one eye dominate consciousness, so that the image presented to the other eye is not experienced consciously. Using this technique, more than 270 students at the Hebrew University were exposed to sentences and arithmetic problems.

In one set of experiments using this technique, participants were asked to pronounce numbers that appeared on a computer’s screen.

These numbers were preceded with unconscious arithmetic equations. The results of the experiments showed that participants could more quickly pronounce the conscious number if it had been the result of the unconscious equation. For example, when 9-5-1 was shown non-consciously, the participants were faster in pronouncing 3 than 4, even though they did not consciously see the equation.

In another set of experiments reported in the PNAS paper, participants were non-consciously exposed to a number of short verbal expressions that remained on screen until participants could say that they saw them. (In the meantime, the other eye was exposed to the rapidly flashing images). The results showed that negative verbal expressions (e.g., human trafficking) or unusual phrases (e.g., the bench ate a zebra) became conscious to the viewers before more positive expressions (e.g., ironed shirt and more usual phrases (e.g., the lion ate a zebra), indicating a definite “pickup” by the unconscious of something negative and out of the ordinary.

“These results show that the humans can perform complex, rule-based operations unconsciously, contrary to existing models of consciousness and the unconscious,” say the researchers.

“Therefore,” said Dr. Hassin, “current theories of the unconscious processes and human consciousness need to be revised. These revisions would bring us closer to solving one of the biggest scientific mysteries of the 21st century: What are the functions of human consciousness.”

### **Israel prepares new missile defense system**

Israel’s newest missile defense system, designed to provide another layer of protection against enemy fire, is on schedule for deployment in 2014, defense officials said.

Israel’s newest missile defense system, designed to provide another layer of protection against enemy fire, is on schedule for deployment in 2014, defense officials said Tuesday.

The “David’s Sling” system, named after the famous weapon in the biblical David and Goliath story, is part of a multi-layered defense against incoming rockets and missiles. Two of the elements are operational.

Last year, Israel activated a system that intercepts rockets fired from short distances of up to 70 kilometers (50 miles). Israel says “Iron Dome” has shot down dozens of rockets launched from the Gaza Strip, including several fired over the past week, with 80 percent effectiveness.

Israel has also deployed the “Arrow,” a joint Israel-U.S. system meant to shoot down longer-range missiles fired from Iran. The next generation of the Arrow, now in the development stage, is set to be deployed in 2016.

The next generation, called the Arrow 3, will strike its target outside atmosphere, intercepting missiles closer to their launch. Together, the two Arrow systems will provide two chances to strike down incoming missiles.

### **IVC-KPMG Quarterly Survey for Q2 2012**

H1/2012 venture capital investments down 11 percent

Q2/2012 Israeli VC fund first investments lowest in a decade

Israeli venture capital investments in the first half of 2012 reached \$936 million, a decrease of 11 percent from \$1.05 billion invested in the first half of 2011, but 62 percent above the \$577 million invested in the corresponding 2010 period.

### **Israeli Private Equity Deals - Q1 2012**

Just \$115 million in private equity deals in Q1

2012

Q1 2012 was the weakest quarterly period for Israeli private equity deals in two years with only eight private equity deals, compared to a quarterly average of 16 deals in 2011. Total deal value was only \$115 million, 91 percent below the \$1.21 billion (16 deals) of Q4 2011 and 83 percent below the \$670 million (17 deals) of Q1 2011

Explosive detecting mice showcased By Israeli company

Israeli Tamar Group has developed an explosives and drugs detection system, named Bio Explorer, using mice. An airport scanner style unit houses three concealed chambers, each contain eight mice. The animals are trained to run into an alarmed chamber upon substance detection.

### High tech salaries rose 1.5% in third quarter

Ethosia CEO Eyal Solomon believes demand for high tech employees will be strong in 2013 and salaries will rise by 2-3%

High tech and biotech salaries rose by 1.5% in the third quarter of 2012, job placement agency Ethosia Human Resources reports.

According to the figures a high tech employee in the web development sector with one year of experience can earn NIS 11-14,000 per month and an employee with nine years of experience is likely to earn NIS 25-27,000 per month. A developer in the dot.net sector with four years of experience will typically earn NIS 17-21,000 per month while a team head with four years of experience can earn NIS 29,000 per month. Hardware employees in the ASIC/VLSI sector with a year of experience earn NIS 17-19,000 per month and with four years of experience NIS 24,000 per month.

There was a sharp rise in the third quarter in the amount of time that it takes to fill a high tech

position. It took nine weeks in the third quarter, up from five weeks in the preceding quarter. In biotech it takes 7.5 weeks to fill a position compared with 4.5 weeks in the previous quarter.

Ethosia found that in the life science, pharmaceuticals and semiconductors sectors there was no change in demand for employees. In other sectors such as Internet, communications, medical devices and software, there was a slight rise in demand. Since the beginning of 2012, there has been a rise of 5-10% in demand for employees in most areas with an 11% rise for software employees, 12% for Internet, and 19% for mobile developers. The only area, which has seen a fall in demand for employees, was semiconductors, which has fallen 10% since the start of the year.

Ethosia CEO Eyal Solomon said, "In the first half of 2012, Israel's high tech market enjoyed an average rise of 5% in demand for employees compared with the first half of 2011. This percentage growth may be relatively low but it represents a huge achievement. Israeli companies are showing an impressive ability to cope with the falls in the European and US markets."

Although the third quarter was one of minimal growth, a closer look at the figures shows that some areas of the life sciences grew strongly. For example, demand for management grew 18% and demand for quality control employees grew 10%, while demand for senior employees in the clinical and regulatory sectors rose by over 15%.

In the high tech sector the Internet and mobile development sectors continue to lead in terms of the number of hiring since the start of the year. Software developers continue to enjoy unprecedented demand with an average rise of 12% since the start of the year in the Internet sector and 19% in the mobile sector. Demand for hardware engineers and project managers

have fallen by 10% since the start of 2012.

In some areas of high tech there has been a fall in hiring. In the first quarter of the year the number of new managers hired rose but in the second and third quarters there was an accumulative fall of 17%. Since the start of the year that has been a 42% fall in hiring in human resources.

However, Solomon believes demand will be strong in 2013 and salaries will rise by 2-3% next year.

### **Orbit wins \$150m satellite-gear contract**

Orbit will also provide support services for the project, which is expected to involve the launch of 12 satellites in 2013 and 2014.

Orbit Technologies, a developer of satellite communications and tracking systems, said Monday it signed a \$150 million agreement with one of the world's largest satellite companies to supply hundreds of communications systems, including 2,500 antennae.

Orbit will also provide support services for the project, which is expected to involve the launch of 12 satellites in 2013 and 2014. Orbit's stock soared 39.9% in heavy trading on the Tel Aviv Stock Exchange on Sunday on the announcement.

The contract has a lifespan of five years and will increase Orbit's average turnover by 70%, compared with the 12-month period that ended last June, the company said.

Orbit prevailed in a competitive tender and received an immediate NIS 4 million order to kick off the project. The company is also expected to serve as the equipment and communications supplier for the large integrators in the field working with the communications venture.

The global communications company with which Orbit signed the contract set a goal of supplying broadband communications to a large part of the world and full communications systems for oil and gas drillings, for governmental and military projects, and for cruise ships and yachts.

The satellites are to orbit the earth at a medium altitude of 8,063 kilometers and provide coverage between the latitudes of 45 degrees north and 45 degrees south.

Orbit suffered a \$1.1 million loss in the first half of the year on \$20.4 million in revenues, compared with a \$1.1 million profit on \$29 million in revenues for the same period of the previous year. The company, under the 44.5% controlling ownership of Zeev Stein, is now trading at a market value of NIS 78.7 million.

### **NCR to acquire Israeli company Retalix for \$650 million**

The Duluth technology company NCR said that it will acquire an Israeli software company for \$650 million, its second large acquisition as it transitions to selling more software and services to customers.

One of metro Atlanta's largest companies, NCR, which traditionally sells cash registers and ATMs, is expanding its business to follow changing shopping trends and allow for greater profits.

With the acquisition of Retalix, which has its North American headquarters in Plano, Texas, NCR is able to sell software to retailers that it already sells hardware to. The company was already able to do that for its financial services and hospitality customers, but not for retail.

As with the July 2011 purchase of Alpharetta-based Radiant Systems for \$1.2 billion, NCR is expanding its ability to sell technologies that often require a subscription or customization.

They allow retailers to better integrate information they get from customers in stores and online.

Retalix's customers are high-volume, complex retailers like Target and Publix, NCR said in a news release. Radiant Systems' were primarily restaurants.

### **3M invests in voice technology company VocalZoom**

VocalZoom is developing an optoelectronic microphone that significantly improves the speaker's understanding in any noisy environment.

3M Co. (NYSE: MMM) has announced an equity investment and collaboration in VocalZoom Ltd.. Based in Yokne'am, VocalZoom develops speech enhancement technology and voice-enabled user interfaces that allow voice communication and recognition in any environment. The terms of the investment through its corporate venture capital fund 3M New Ventures were not disclosed although reports in the Israeli media have indicated that it was several million dollars.

VocalZoom chairman Yechiel Kurtz said, "While touch capability has become the de-facto standard for user interfaces, voice activation is also gaining more and more momentum to enable hands-free operation of state-of-the-art devices. VocalZoom's technology will accelerate this trend by enabling the use of voice in even the most demanding environments. 3M's investment and collaboration provides us with new and exciting opportunities, such as integration of our sub-system into 3M's display and touch technology as well as a broad range of additional applications."

VocalZoom was founded in 2010 by CEO Tal Bakish to strive to enable use of speech for communication and voice activation purposes in any natural environment, by developing

an optoelectronic microphone that significantly improves the speaker's understanding in any noisy environment. While conventional approaches focus on filtering and signal processing to isolate the voice from ambient noise, VocalZoom is applying its patented technology that integrates a standard acoustic microphone and a special optical sensor to solely detect the speaker's voice. VocalZoom says that the benefits are essential for next generation user interfaces, providing high directivity, speaker isolation, improved signal quality, and precise voice activity detection.

3M New Ventures president Stefan Gabriel said, "For voice activation to become ubiquitous it must seamlessly work in any environment regardless of the level of background noise. VocalZoom is a critical enabler for a new generation of user interfaces that do not just rely on touch or gestures but also on our voice to input data. The investment in VocalZoom will help us to complement our existing technology in this field, and to collaboratively develop new products for our OEM customers."

3M energy and electronics business group VP R&D Robert Visser said, "We see a great variety of applications in which people may prefer voice as a means to interact with their personal device environment, including their industrial work places, hospitals, or commercial kiosks, and even consumer electronics. VocalZoom's signal capturing system adds a critical component to 3M's technology portfolio in user interfaces and acoustics to enable novel solutions for those spaces."

3M Israel managing director Nir Leshem said, "Israel is one of the most vibrant technical and entrepreneurial regions in the world and there are plenty of opportunities for 3M. VocalZoom is our very first investment and we look forward to other investments in Israeli high tech startups."

Tel Aviv capital market veterans will do well to remember an Israeli high-tech firm with as high expectations as Mellanox. The company, which offers a choice of fast interconnect products: adapters, switches, software and silicon that accelerate application runtime, has seen its value soar over the past two years. In 2010, US computer hardware giant Oracle reportedly offered \$1 billion to buy Mellanox, after purchasing 10 per cent of the company's shares. This summer, rumours were rife that Oracle had come back with a \$6 billion offer, a premium of 30 per cent on the company's share price.

Asked whether the rumours were true, Mellanox founder and chief executive Eyal Waldman says: "We do not comment on specific rumours but I can say that there has been interest in the company. However, we feel that it is in the best interests of our shareholders to grow Mellanox as an independent company."

Such a response is likely to be welcomed by many Israelis, who believe that Israeli start-ups have a tendency to sell-out too soon, with high-tech entrepreneurs eager to accept the first offer that comes along.

This is not the first time that Mr Waldman has faced the dilemma of whether to sell a company or maintain its independence. Born in Jerusalem, and a graduate of the Technion, he worked for Intel for four years before co-founding Galileo Technology in 1994, which produced computer switches and hubs.

But in 1999, he had a high-profile falling out with its fellow founders. He says: "I think the media have exaggerated what happened for there was no real bad blood. But there was a difference of opinion and I had wanted to grow the company while my colleagues wanted to sell."

Mr Waldman left Galileo and set up Mellanox the same year. Galileo was sold the following year to Marvell for \$2.8 billion.

Yet Mr Waldman has never looked back. After raising \$89 million from venture capital funds,

the company went public on Nasdaq and the Tel Aviv Stock Exchange in 2007, raising \$102 million at a company value of \$500 million.

Investors purchasing Mellanox shares at the IPO saw their money increase nearly tenfold in just five years. Mellanox's share price had risen nearly 600 per cent over the past two years and more than doubled during 2012. However, the share slipped back nearly 50 per cent last month after the company lowered the sales forecast for the fourth quarter of 2011, but Mellanox has clawed back much of these losses and Mr Waldman describes the fall in the share as a "market overreaction" and predicts a return to sales growth next quarter.

Most analysts still feel the share price can only move upwards. Sales of the company, based in Yokneam near Haifa, are expected to reach \$525 million this year, up from \$259 million last year, and \$155 million in 2010.

Unsurprising then that Mr Waldman oozes confidence. He says: "I've always said we can reach \$1 billion in annual sales and we will get there. We operate in an annual market of \$5 billion going up to \$7 billion in the coming years, so we can grow organically. We should be able to grow sales rapidly until \$2.5 billion annually, after that it might be more difficult."

Mr Waldman's belief comes from the fact that in the age of cloud computing and increasing storage requirements, as well as ever larger super computers and larger data, there is a huge appetite for connectivity products that enable more data to be transferred more quickly. Mellanox's InfiniBand chips, adapters and switches are considered to be way ahead of their rivals, particularly in terms of speed.

Intel has positioned itself as Mellanox's closest competitor after buying Infiniband developer, QLogic earlier this year. Mr Waldman says: "Of course I'm scared. But I don't think QLogic was very successful with their InfiniBand business,

and it's going to take Intel three

or four years to catch us up.”  
By then Mellanox would hope to have a new generation of products, leaving Intel to play catch-up again.

“It doesn't bother me that people recognise me and come up to say hi,” he says in his phlegmatic tone.

Mr Waldman, a generous Technion donor, believes that there are the ideas in Israel to produce a future giant like Google or Facebook.

“Those companies began in the universities and Israel's universities can produce a new giant.”

But does Mellanox have the potential to become a giant, or at least equal the achievements of Teva Pharmaceuticals, Israel's biggest company with annual sales of \$20 billion?

“\$20 billion annual revenue is a long way to go. We certainly aren't going to get there in just three or four years and I'm not looking ahead further than that.”

### **Tel Aviv creeps up on Silicon Valley as top start-up center**

The Startup Genome project crunches the numbers — lots of them — and concludes that the TA metro area is a great place to found a new venture

While missiles pounded southern Israel and the IDF prepared to rout Hamas terror in a ground campaign, Israeli technology was once again proving its versatility. The world was stunned last week at the effectiveness of the Israeli-developed Iron Dome anti-missile system as it began shooting down Hamas rockets — and it was stunned again a few days later, when an international study declared Tel Aviv to be the second best place in the world for start-ups.

Tel Aviv was just behind Silicon Valley as the best place in the world to establish a tech start-up, according to Startup Genome, which cre-

ated a tool called Startup Compass to, for the first time, scientifically measure the factors that go into start-up success. The US-based company was established in 2010 after a landmark study came out that nearly all US job growth these days is being driven by start-ups. For the past year, the company has been polling start-ups — some 50,000 from around the world are in Startup Genome's database asking them in-depth questions on what makes them tick, what works and what doesn't.

The system then crunched that data based on criteria developed by top entrepreneurs, tech companies, and researchers from University of California Berkeley, Oxford, and Stanford — in short, the people who know what start-up success should look like. The study was prepared with support from Spain's Telefonica Digital, which itself is a major funder and supporter of start-ups in Europe. Tel Aviv, second on the list, was bested only by Silicon Valley, but beat out other top start-up cities, like Los Angeles, third on the list, and Seattle, New York, Boston, and London.

So what goes into making for start-up success? Of course, there are the usual factors, like talent and funding. But those are only two factors of what the project calls the “start-up ecosystem,” which includes factors like how much a region's laws and culture encourage entrepreneurship, infrastructure, the “vision” of entrepreneurs in a given location, the age, education, and expertise of talent a start-up can draw on, the kinds of funding options available, and more. Startup Genome questioned companies on these and other factors with the StartupCompass tool, analyzed the results, and came up with recommendations for start-ups about what to do and what to avoid during each stage of their existence.

When it comes to a successful start-up ecosystem, Tel Aviv beats just about every other

place, except for Silicon Valley. As the world's top start-up ecosystem, "the Valley" sets the benchmark for start-up success, and Tel Aviv (referring to the entire metropolitan area and taking into account start-ups in Herzliya, Ra'anana, etc.) comes as close as anyone to that benchmark. For example, 40 percent of Tel Aviv entrepreneurs have a Master's degree or a PhD, compared to 42% of entrepreneurs in Silicon Valley; employees in Tel Aviv and Silicon Valley work a similar number of hours; and start-ups in both locations generate similar numbers of jobs.

And in some cases, the Tel Aviv "student" outdoes the Valley "master": Twenty-seven percent of Israeli start-ups, for example, get income from paying customers, significantly more than similar companies in Silicon Valley.

With that, there are reasons why Israel is still behind Silicon Valley, said the report. On the negative side of things, Startup Genome said, "Tel Aviv start-ups are much less ambitious. They tackle 46% smaller markets than their peers in Silicon Valley. They are 5% less likely to tackle \$1 billion-\$10 billion, and 33% less likely to tackle \$10 billion and higher markets. They are 9% less committed to work full time before product market fit, and pursue building a great product over creating impact."

Tel Aviv is part of the Israel success story, said the report. Israel "has the highest density of tech start-ups in the world. In 2009, 63 Israeli companies were listed on the tech-orientated NASDAQ — which is more than Europe, Japan, Korea, India, and China combined. Almost every major tech company today has some kind of subsidiary in Israel, including Intel, Microsoft, Google and Cisco to name just a few. Consequently, 39% of Israeli high-tech employees work in the R&D departments of multinational companies."

Tel Aviv itself, as an ecosystem, ranks second globally "because it has the second highest output index of start-ups with a healthy funnel of start-ups across the developmental life cycle, a highly developed funding ecosystem, a strong entrepreneurial culture, a vibrant support ecosystem and a plentiful supply of talent." That talent, said the report, is key; with the highest percentage of scientists and engineers of any country in the world, start-ups have all the brainpower they need to succeed.

The report also quotes a slew of investors, entrepreneurs, venture capitalists, and government officials who positively kvell in the description of Tel Aviv's success. But can the city, and Israel, keep it up? With all the challenges to doing business in Israel — not the least of which is putting up with the occasional war — officials realize they have their work cut out for them. "As policy makers we are formulating a plan for the coming years that will maintain Tel Aviv's position as a leading hub," said Avner Warner, director of Economic Development for the Tel Aviv Municipality. "The plan is based on the internationalization of the local ecosystem by attracting talents, start-ups and investment from abroad, thus bringing diversity and a range of know-how to the local community."

And while it's unlikely that Israel could overtake Silicon Valley itself, most experts say, you never know. "They say in America that 'No. 2 always tries harder,'" said one entrepreneur. "Everyone I know certainly tries very hard to succeed. Despite the wars and missiles, no one I know in the tech community is giving up. Just the opposite, these experiences only make us stronger and more determined to succeed."

### **Israel to export gas this decade**

Israel, once energy poor, is expected to become a gas exporter by the end of the decade and the companies developing its huge offshore Levia-

than find are about to pick a fourth partner to gain the crucial know-how.

A number of foreign firms have been in a bidding war for the fourth stake in the Leviathan field, where an estimated 17 trillion cubic feet (tcf) of gas made it the world's largest offshore discovery of the past decade when it was found in 2010.

"More important is the knowledge and expertise the company brings, especially to the 'mid-stream'," Landau told Reuters, referring to the construction of an underwater pipeline and a liquefied natural gas (LNG) terminal.

"Long term, that will pay off more than if some other candidate comes and says they are willing to value Leviathan at an additional billion dollars in the short term," he said.

Until now the consortium has revealed little about the decision making process.

In a statement to the Tel Aviv Stock Exchange last month, the Leviathan partners said Australia's Woodside Petroleum had submitted a bid to purchase a stake of up to 30%.

Experts have valued Leviathan at between \$5 and \$7.5 billion at this stage. Texas-based Noble Energy has a 39.66% share of the field. Israel's Delek Group, through two subsidiaries, holds 45.34% and Ratio has the remaining 15%.

Leviathan, where production is expected to begin for the domestic market in 2016 and around 2018 for export, will be connected both to Israel and Cyprus, Ratio's Landau said.

Nearby Cyprus in the eastern Mediterranean, with its own newly found gas, is likely to provide the liquefaction facilities Israel could use

to reach export markets by ship.

Some analysts say future possibilities also include a Red Sea terminal so it can target Asian markets.

An exploration frenzy in the Levant Basin - shared between Israel, Cyprus and Lebanon - began in 2009 when Noble and Delek announced the discovery of the Tamar field some 90 km off Israel's coast.

With reserves estimated at 9.7 tcf, Tamar alone can meet Israel's gas needs for decades.

Leviathan was found the next year, opening the potential for exports and spurring Israel to set up a natural gas wealth fund.

Government officials have said total revenues from gas sales could reach \$130 billion by 2040.

The US Geological Survey at the time said the Levant could hold 122 tcf of recoverable gas, making it one of the world's richest deposits. The first big find by Cyprus followed in 2011 in its block 12, with an estimate of 7 tcf.

Meanwhile, 19 new wells are expected to be drilled in the next two years in Israeli waters at a cost of about \$2 billion, and many of these will go on to seek oil in the layers beneath the gas deposits.

Export is key

Since the countries involved in the exploration have such small domestic markets, foreign companies are unlikely to invest unless there is a certainty of selling the gas abroad.

In Israel, where domestic energy security is a priority and there is an argument for conserving gas for the country's own needs, setting export quotas has been a long process.

Only recently a government committee determined that up to 50% of output from the biggest wells can be exported.

That can jump to 75% through trades with other firms. A planning controversy in Israel has delayed a decision about where an LNG terminal, needed to cool the gas into liquid form for export by ship, can be built. Some experts have even proposed building an artificial island at sea for the plant.

The solution, for now, may be with Cyprus. Hoping that gas riches can offset one of the worst recessions in its history, the island state has quickly pushed ahead with plans to build an LNG plant at Vassilikos on its southern shore.

The plan is for the plant to have three 'trains', or facilities, each producing 5 million tons a year, and to be completed by early 2019, said Solon Kassinis, director of the Cyprus energy service.

#### Floating LNG

While many Israelis want the country to have its own LNG terminal, it is not clear the region has enough gas for two.

Steven Wardlaw, an energy specialist in London with law firm Baker Botts, said it will be difficult to secure funding from lenders for more than one terminal.

"There is a strong argument that there will only be one. And Israel is a long way behind Cyprus in developing an LNG facility," he said.

Of course, if Israel decides it needs one, as the government has implied, it will build one as well, he said. And the plant need not be on the Mediterranean coast.

"There is a great logic in having an LNG facility on the Red Sea. Large tankers can't get through the Suez Canal, so from there they can reach Asia more easily," Wardlaw said.

Also being considered is a technology, still in development, known as a floating LNG (FLNG) terminal. It is a \$3 billion vessel that anchors near the fields and liquefies the gas.

South Korea's Daewoo Shipbuilding & Marine Engineering Co agreed to build one for Tamar and Gazprom has signed a letter of intent to buy the gas.

#### **Amphenol buys Tel-Ad Electronics assets for \$70m.**

The US electronics company is acquiring part of the Kfar-Saba based communications equipment components distributor and manufacturer.

US electronics equipment manufacturer Amphenol Corp. (NYSE: APH) has acquired some of the activities of Kfar Sava-based a target=[new href=http://www.tel-ad.co.il/](http://www.tel-ad.co.il/)Tel-Ad Electronics Ltd., one of Israel's biggest distributors and manufacturers of communications equipment components.

Amphenol did not officially report the acquisition even though it is publicly traded on the New York Stock Exchange (NYSE) with a market cap of \$10 billion. Market sources believe the acqui-

sition is being made for \$60-70 million cash. Tel-Ad, which was founded by CEO Schlomi Schultz in 1986, is the Israeli distributor for Amphenol's products and provides distribution, production and logistics services for electronic components mainly for communications equipment. Among Tel-ad's main activities is the distribution of cable connectors for optics communications, electronics products and computer technologies. Schultz owns 70% of Tel-Ad and 30% is held by Aliza Inbar.

This is not Schultz's first exit in the field of components distributors. Two and a half years ago, Schultz and his partner Avi Inbar sold Net-Aye Technologies to TTI Inc, a unit of Warren Buffett's Berkshire Hathaway.

Australia's Woodside buying 30% of Leviathan for \$2.5b

The deal values the Leviathan natural gas reserve at \$8.3 billion

Australian company Woodside Petroleum (ASX: WPL) is buying 30% of the rights in the Leviathan reserve for \$2.5 billion, and it will be a strategic partner in the drilling. The details of the buyer and the expected price were first revealed in "Globes".

News of the deal has boosted prices of the participation units of the Leviathan partners on the Tel Aviv Stock Exchange. Ratio Oil Exploration (1992) LP (TASE:RATI.L) is up 13%.

Under the terms of the deal, which has been agreed in principle, Delek Group Ltd. (TASE: DLEKG), controlled by Ytitzhak Tshuva, will sell 15% of the rights in the licenses for \$1.281 billion. Noble Energy will sell 9.66% of the rights in the license for \$802 million, and Ratio will sell 5% of the rights for \$417 million. The consideration will be paid in stages. On the signing of the deal, Woodside will make an advance pay-

ment of \$696 million.

The deal values the Leviathan natural gas reserve at \$8.3 billion.

Woodside is the largest operator of oil and gas production in Australia. It will be the operator of any LNG development of the Leviathan field, while Noble Energy will remain upstream operator. Noble Energy targets initial production to the domestic gas market in 2016. A pre-FEED (front-end engineering and design) assessment for an LNG project is underway.

Woodside CEO Peter Coleman said the agreement was a significant step towards realizing Woodside's ambition to secure world-class growth opportunities.

"We have a proven track record of safe and reliable operations in Australia and being selected as the Leviathan Joint Venture's preferred partner in a competitive bidding process demonstrates the value of our LNG development



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