

ISRAEL HIGH-TECH & INVESTMENT REPORT

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Water, Water Everywhere...

Many years ago, when we came to live in this country, the Ben Gurions befriended us. We used to visit their home on what is now called Ben-Gurion Boulevard, a few minutes walking distance from our home.

So it came to us as small surprise that we received a call late one Friday afternoon inviting us to come down to Sde Boker to celebrate Paula Ben-Gurion's birthday. We later discovered that all visitors were told that it was Paula's birthday.



Sde Boker is located in the southern part of Israel, in the wilderness. We were surprised to notice at the

entrance of the kibbutz a peach orchard. When I mentioned this to Mr. Ben-Gurion he harrumphed and said "but we have to bring in our potatoes from up north".

The problem of scarcity of water is as old as the State.

First efforts to alleviate the situation was the National Water Carrier. It was

an open ditch canal, which carried water from the Sea of Galilee to the rest of the country.

The greatest step forward was the devel-



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opment of the Israel Desalination company. Relying on osmosis technology it build there largest desalination plant in the world. It supplies 13% of Israel's total water consumption.

Saving water was another approach. An engineer's invention resulted in drip irrigation. This provided water directly to the roots of plants, without any waste.

Netafim, the kibbutz industry that specializes in drip irrigation was sold recently for \$850. million. to Private equity firm Permira.

..
Last year, revenues from the desalination and water related industries exceeded \$2.0 billion, weith expectations fo further rapid growth.

Israel's dire need for water will undoubtedly spur the further rapid growth of the desalination industry. We recently spoke to the spokesman for the government who assured me that in three years Israel will become completely independent for water supplies.

Yissum presents a virtual cane



for the visually impaired

Yissum Research Development Company Ltd., the technology transfer company of the Hebrew

University of Jerusalem, presented at the Israeli Presidential Conference, a virtual cane that will significantly improve the orientation and mobility of sight-impaired people. This new device can assist blind people in estimating the distance and height of various obstacles. The invention was registered as a patent by Yissum, which is

now seeking strategic partners for further development.

Currently there are almost 200 million visually impaired people globally, 40 million of which are legally blind, and most face multiple difficulties in orientation and navigation. One of the main challenges facing blind people is the ability to assess the height of various obstacles as well as to identify far away objects in their surroundings. The white cane, the current solution, offers only a very partial solution to these challenges.

Dr. Amir Amedi from the Institute for Medical Research Israel-Canada and at Edmond and Lily Safra Center for Brain Sciences at The Hebrew University of Jerusalem and his team recently developed a device to help in spatial navigation for the blind. The invention, which functions as a virtual flashlight, can replace or augment the classic white cane. The virtual cane emits a focused

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beam towards surrounding objects, and transmits the information to the user via a gentle vibration, similar to a cell phone vibration. The cane incorporates several sensors that estimate the distance between the user and the object it is pointed at. This allows the blind person to assess the height and distance of various objects, reconstruct an accurate image of the surroundings and navigate safely. The virtual cane is extremely small, easy to carry, accurate, can function for up to 12 hours and is easy to charge. Using the device is highly intuitive and can be learned within a few minutes.

Researchers in Dr. Amedi's lab employ the virtual cane in various environments in order to study the brain, its flexibility and reorganization in blind people. For example, the researchers constructed a real maze that enables subjects to practice walking in changing environments and paths. To date, more than 10 subjects have already successfully navigated the maze, and after a very short practice period managed to completely avoid walls and obstacles.

Israeli dairy cows outperform cows in EU, US



Data released by the Central Bureau of Statistics show that Israeli dairy cows produce more milk than their counterparts in other countries.

The study said local cows produced an average of 10,208 kilograms (nearly 2,642 gallons, around 10,000 liters) of dairy in 2009, outperforming cows in the US (9,331 kg. per cow, 2,465 gallons),

Japan (7,497), the European Union (6,139 , 1,622 gallons) and Australia (5,601).

A total of 1,304 million liters of milk (344,480 gallons of milk) was produced by Israeli cows in 2010, a slight increase on the previous year. A cow from Kibbutz Karmia near Gaza was named the best milk producer for the second year in a row, giving more than 20,000 liters of milk, or about 5,283 gallons, in one year. There are some 125,000 dairy cows in Israel, and the average Israeli consumes about the equivalent of 45 gallons of dairy products a year.

Computer model of cancer growth

A computer model that predicts genes essential for cancer cell growth could provide an important step toward better cancer treatments, Israeli researchers say.

Rapid, uncontrolled growth is the hallmark of the disease, but to maintain their abnormal growth, cancer cells must modify and shut off certain metabolic genes, an article in the journal *Molecular Systems Biology* reported Tuesday.

Tomer Shlomi, Eytan Ruppin and colleagues have developed a computer simulation of cancer metabolism to predict which genes are essential for cancer cell growth.

By understanding cancer metabolism, researchers say, they hope to identify drugs and therapies that specifically target and disrupt the growth of cancer cells.

When specific metabolic genes are known to be turned off within a particular cancer, the researchers say they can predict treatments that selectively

target that cancer without disrupting the metabolism of healthy tissues, leading to the possibility of new cancer therapies with lesser side effects

Airbus, IAI to develop early warning system for C295

Airbus Military and Israel Aerospace Industries (IAI) will jointly develop a new version of an early warning system for the Airbus Military C295 aircraft.

The two companies signed a memorandum of understanding at the recently held Paris Air Show.

With this agreement, Airbus Military will expand its mission capability to the airborne early warning and command sector, while IAI's Elta will expand its AEW&C fleet to include a turboprop platform.

"We see a growing demand emerging for medium-size early warning systems and platforms at an affordable price for both air defense and homeland security," Airbus Military CEO Domingo Urena said.

The C295 is part of Airbus Military's family of light and medium airlifters.

Airbus Military, a subsidiary of Airbus, has sold more than 1,000 aircraft to military, civilian and governmental customers

Mazor's new Renaissance robotic spinal surgery system

Israeli Mazor Robotics has unveiled its new Renaissance spinal robotic surgical guidance system. The device takes advantage of the same technology inside Mazor's SpineAssist , but improves on usability through new hardware and software. The Renaissance system

has already received both FDA clearance and EU's CE Mark of approval

Renaissance features an entirely new design and human interface, as well as next-generation hardware and software technologies. These are designed to increase surgical safety as well as extend the range of clinical applications, enabling osteotomies, transfacet and translaminar-facet implant placements, in addition to procedures such as spinal fusions and scoliosis corrections currently performed with Mazor Robotics' technology. Renaissance also serves as a platform that will support future clinical applications, such as robotic-guided cranial surgeries.

Continuing Mazor Robotics' commitment to safety, Renaissance reduces radiation protocols for



preoperative CTs by up to 50%, which means patients will be

exposed to significantly less radiation. The company also collaborated with surgeons on developing surgical tools and technological enhancements for Renaissance that further reduce the potential for human error.

Medical cyberbots may be crawling around inside you

It may sound like something straight out of "The Matrix," but advances in robotic miniaturization have made it a reality. It isn't

a future concept anymore.

“They’re Here!”

Example: Israeli researchers from Technion Medical Robotics Laboratory at the Israel Institute of Technology created “ViRob”, with a diameter of just 1 millimeter wide, 14mm long, it was designed to crawl through vessels and cavities. It can deliver a dosage of medication to a precise location in the body, or pull a microcatheter deep inside where it would normally not have been able to reach previously.

Researchers can also use ViRob to deliver drugs in lung cancer patients, as well as take tissue samples from different areas inside the body.

As development progresses, it will be possible to add miniature tongs, video camera, and other extra functions as needed. ViRob is just one of many different types of medical microbots being developed.

Research is under way to make nanobots even smaller, much smaller... down to a molecular level. The NANOBOT. When this happens, we will have hundreds of medical cyberbots patrolling our bodies, carrying out routine tasks such as scouring the insides of our arteries to remove plaque, all but eliminating heart attacks, atherosclerosis, and much more.

Molecular bots could assemble other bots while inside the body as needed for specific tasks.

A first wave of molecular bots could detect cancer cells, target them, and remove them before cancer can get started, while a second wave delivers anti-cancer medication to the exact spot

where the cancer cells were just targeted and removed.

While this is truly an amazing thing, a benefit to mankind, it also brings with it some very ugly and serious ethical questions...

Who will be able to afford this? Only wealthy individuals, or will the common peasant in a third world country be able to have it as well?

Some doomsayers may go so far to say thing such as: If mankind eliminates cancer and heart attacks, people start living much longer, world population increases beyond any normal conditions, famine and world starvation kick in because we can’t produce the quantity and volume of food to feed everyone.

Stop the leaks

Israel is pioneering innovative water technologies that will make it possible for the country to survive and thrive without rainfall

A wooden staff and a little help from God were all Moses needed to draw water from a rock, but as the executive of an Israeli water company pointed out, he didn’t share the technology. In a country where water scarcity is a hard fact of life, farmers, scientists and technologists have had to rely on innovative ideas rather than miracles.

Today, the global water industry is worth \$500 billion (€354 billion) a year, with water technologies valued at \$100 billion alone. But despite the big numbers, it’s a conservative sector dominated by utility companies that shy away from innovation. Not so in Israel, however. A world leader, the Israeli water tech sector is valued at \$2 billion, a figure that the gov-

ernment wants to increase to \$10 billion over the next five years.

Proving that necessity really is the mother of invention, we wandered between rows of jojoba trees on a patch of land south west of the Negev desert. About 95 per cent of Israel is classed as arid or semi-arid, but companies such as Netafim are clawing back the land and making it fit for agriculture. Its drip irrigation techniques increase crop yields by 50 per cent while using 40 per cent less water than alternative methods.

Igal Aisenberg, chief executive of Netafim, pointed to a hole in the earth and a small underground pipe that runs the length of the field. This is the company's product at work. Intermittently spaced drippers release water into the ground beneath the trees, a patented piece of technology that made the company a global success story and drip irrigation viable.

While it remains more expensive than sprinklers and flood irrigation, drip technology is a lot more efficient, releasing water with pinpoint accuracy, an important consideration with such a scarce commodity. "It's not just a hole in a pipe," says Aisenberg. "It is pressure compensated so every dripper gives out exactly the same amount of water regardless of location."

Just south of Tel Aviv we see the source of the water and more cutting-edge technology. Vast man-made basins dominate the landscape, part of an industrial recharge-recovery system that reclaims waste water for use in irrigation. Run by Mekorot, Israel's national water company, the Shafdan plant is the most advanced in the Middle East – 75 per cent of household wastewater is recycled in Israel and reused for irrigation.

According to Amiad, another Israeli firm and one of the world's leading water-filtration companies, the only obstacle to drinking recycled wastewater is psychological. Filtration techniques have become so sophisticated that quality is not an issue.

People are already drinking seawater. On the Mediterranean coast, Israel has the two largest reverse osmosis desalination plants in the world, run by a joint venture between indigenous firm IDE Technologies and French company Veolia Water.

Pressurized seawater is pumped through thousands of polymer membranes that extract the brine and discharge it back to the ocean. Two cubic meters of seawater make one cubic meter of drinking water in industrial facilities that already supply 50 per cent of the country's household water, a figure that will increase to 70 per cent with the completion of a third plant.

Part of Israel's agenda is to export its expertise and even wet countries such as Ireland are in its cross hairs. "You had a drought last winter because you couldn't find the leaks in your infrastructure," says Benjamin Levy, director of marketing at Miltel, a company that specializes in automatic metering and water management systems.

He said 17,000 liters of water can be lost in month through a 3mm leak. Again, Israel is leading the world in tackling the problem. Only 12 per cent of water leaks out in the country's infrastructure compared to 25 per cent in Europe, and 35 per cent to 40 per cent in underdeveloped countries.

Mittels has a partnership with IBM, highlighting how water tech is becoming a credible sector in the wider world. Its monitoring systems are integrated with IBM middleware to deliver smart water management and metering solutions. Mittels claims that houses with automatic reading systems encourage people to use water carefully and lead to a 15 per cent drop in consumption.

Whitewater Security is another export success, selling sensors and systems for tracing water contaminants to more than 30 countries. Sales manager Rani Weinberg plays down the terrorist threat as a principal reason for deploying its technology but admits that interest in its products spiked in the United States after 9/11. Whatever the drivers, the company's technology solves a problem. "Traditionally, laboratories are used to test water and it can take 24 to 48 hours to get the results," said Weinberg. "With our sensors in the pipes, it's a matter of minutes."

Booky Oren, a former chairman of Meko-rot, spells out the sum total of all this innovation.

"By 2015, the target for Israel is to be independent of natural water resources. We won't care if it rains or not," he said. As chairman of Watec, an international water technology exhibition that shows off indigenous expertise to the world, he was quick to point out that water scarcity is not just Israel's problem. There will be a 50 per cent increase in global water demand in the next 20 years, and he is concerned that an inherently conservative industry will struggle to keep up. "Countries can't rely on natural resources; they need to implement new technology," he warns.

Jive Software buys OffiSync, its biggest acquisition yet

Jive Software announced its third acquisition in 18 months Monday -- and its biggest to date -- buying an interactive technology company called OffiSync Corp.

It's the latest social media deal in technology's hottest sector.

OffiSync integrates Microsoft products -- including Office, Outlook and SharePoint -- with other online tools, including Jive's business collaboration software.

Formally headquartered in Seattle, most of OffiSync's employees are in Israel. It's already got a robust presence in the Google Apps store, where users connect their Gmail account and Google Docs files with their Microsoft equivalents.

Jive is a California-based company that moved its headquarters from downtown Portland to Palo Alto last year. About 170 of Jive's 370 employees still work in Oregon, including some members of its executive team.

"We think it's a way to reach a whole set of people who haven't had the chance to get social on their desktop," LeBlanc said.

OffiSync's tools enable Jive's customers to move Outlook e-mails into a discussion inside Jive's software, for example, or to collaboratively edit a Microsoft Word document.

Israeli media reported OffiSync's sale price was around \$30 million. LeBlanc declined to comment on those reports, but confirmed that this is Jive's largest purchase.

Social media is this moment's It Technology. Last week, online resume hub LinkedIn turned heads across Wall Street with an unexpectedly lucrative initial public offering. Its share price doubled within hours of its IPO, fanning enthusiasm for social networking just as an economic revival loosens corporate and investor purse strings.

Jive hopes to make its software a portal for all manner of intra-business communication, using tools similar to Facebook and Twitter to keep employees current and help them work together.

Jive will retain OffiSync's dozen employees, most of who work in Tel Aviv. But LeBlanc said OffiSync chief executive Oudi Antebi lives in Seattle, and will now work primarily out of Jive's Palo Alto office. Antebi spent eight years at Microsoft, where he worked in its Office and SharePoint divisions.

Jive is among the best-funded startups to emerge from Portland in many years. It's raised \$57 million in venture capital from top-shelf Silicon Valley firms Sequoia Capital and Kleiner Perkins Caufield & Byers.

Jive has been using that capital to expand its technology. It bought a Colorado social media monitoring company called Filterbox early last year, and acquired a California data analysis startup called Proximal Labs last month.

Although OffiSync has an established customer base, LeBlanc said Jive was primarily interested in hiring OffiSync's engineering team and integrating Microsoft's pervasive software into Jive's social products.

"It's a shift from personal productivity to group collaboration," he said.

Israeli arms industry a major economic engine

Israeli defense sales in 2010 totaled 7.2 billion U.S. dollars, making the small nation the world's fourth largest defense exporter.

Defense officials released the figure in an official report at the Paris Air Show. A bevy of Israeli firms hope to garner even more sales at the show, after a string of recent successes.

Most of the sales are from four leading companies: Elbit Systems, Israeli Aerospace Industries (IAI), Rafael, and Israel Military Industries, a Defense Ministry statement said.



Strong points of Israel's arms industry include unmanned aerial vehicles, armored vehicles, smart munitions, mil-

itary and civilian aircraft avionics, weapons platforms and structural upgrades for foreign governments and private clients.

The Iron Dome anti-missile system, developed by Rafael, is expected to be one of the highlights of the Israeli pavilion. The system, which was deployed in southern Israel earlier this year, immediately proved its mettle on its first try, successfully intercepting several salvos of rockets fired by Palestinian militants in Gaza at Israeli towns and communities.

Local analysts, however, said that the true value of the defense export isn't the sector's direct contribution to Israel's

economy. The main benefit is the role defense contractor's play in developing technology and producing skilled personnel that will join the country's high tech industry after finishing their military services.

FOUR FACTORS

Maj.-Gen. (retired) Giora Eiland of the Israel Defense Forces (IDF) told Xinhua that the defense industry is essential to Israel not only because of the huge export revenue, but also for its contribution to the Jewish state's armed forces.

Eiland listed four underlying reasons for Israeli defense industry's success.

"It begins with the importance of domestic development and production," he said.

Eiland added that since the need to develop advanced weapons is essential to Israel, "at the end of the day we can use and sell it to others."

"The second reason is that Israel manages to create a clear distinction between a political and defense relationship regarding many countries," Eiland said. "There are many countries that are quite hostile to us in many international forums but they do appreciate the quantity of our products."

For instance, while Israeli-Turkish political relationship began to deteriorate in the last few years, Ankara still bought 10 Israeli UAVs (Unmanned aerial vehicle) in 2010.

Eiland argued that Israel has found the right combination of government and private cooperation, so that the country can enjoy all the benefits of government

support and guarantees to the industry, but at the same time leave enough room for private creativity and incentives.

He also pointed out the very strong relationship between the armed forces and the defense industry, along with the fact that a large number of retired Israeli army officers seek employment in the defense industry. This revolving door leads to a lot of combat experience and knowledge being directly transferred into industrial fields.

This cross-fertilization leads to close cooperation, so that new lessons from the field can quickly be incorporated into the development of new defense systems, Eiland said.

Dr. Yaacov Lifshitz of Bar-Ilan University said that on a macro level, the defense industry isn't a key part of the Israeli economy. However, the ripple effect of the technologies and personnel that starts out in the arms industry before moving on to civilian companies is very important.

"From the point of the national economy it's not so important - it only accounts for three percent of Israel's GDP. But it is important as a source of technologies that are later implemented in the civilian high-tech industry," Lifshitz said.

"Israel is good because of the close relations between the end-user and the developers and producers, which is absent in some other countries. This close relationship makes for a relative short development process," Lifshitz added.

He pointed out that over the years, a lot of experience has been accumulated in the defense industry, which in some

cases was set up even before Israel was established in 1948.

In addition to this experience, Lifshitz argued, Israel has a relatively high supply of qualified manpower compared to its size, which may start out in the defense industry before moving on the high tech sector.

Israeli start-up offers minty solution for bad breath

A Jerusalem-based start-up says they have developed a mint candy that may be a breath of fresh air to millions of people around the world suffering from halitosis, more commonly known as bad breath.

“It showed around 60 percent success in all the individuals tested,” Breezy chief executive officer Hillel Lerman told Xinhua on Sunday, “and it is guaranteed to last for hours, unlike mouthwash and similar products.”

The lollipop-shaped candy scrapes the bacteria that causes bad breath off the tongue. It was tested on 75 individuals, who showed no signs of halitosis up to four hours later.

The candy, named Like, is sugarless and works using micro-capsules that scrub the bacteria off and release active agents that eliminate the remaining bacteria.

“It’s shaped like a lollipop,” Lerman said, “and scrapes the tongue to release zinc. You don’t even have to walk around sucking it, just use it for half a minute and you’ll have fresh breath for hours.”

Bad breath is only the beginning of

Breezy’s oral hygiene quest.

The firm is also developing a line of products to ward off oral bacteria, including stopping smoker’s breath, mouth sores, and oral fungus.

“We are working on a product to prevent cavities, that also releases an antibacterial in the mouth,” Lerman said, “and that may see the light in a few months.”

Breezy officials said they would begin commercializing Like candy in Europe and the United States in coming weeks.

DG to acquire MediaMind for \$517m in cash

The Israeli digital advertising company raised \$57 million in an IPO on Nasdaq last August at a valuation of \$206 million.

Digital advertising company MediaMind Technologies Inc. (Nasdaq: MDMD) will be acquired by digital media services DG FastChannel Inc. (Nasdaq: DGIT) for \$517 million in cash.

DG said that the acquisition creates one of the premier global online and



television advertising technology companies. The boards of directors of both com-

panies have approved the acquisition. DG will commence a tender offer to purchase all of MediaMind’s outstanding shares for \$22 per share in cash, at an equity value of \$517 million, including the company’s \$100 million in cash. The share price closed at \$15.94 yesterday, giving a market cap of \$303 million.

The company’s largest shareholder is the Sycamore Fund owned by Eli Bar-

kat, brother of Jerusalem Mayor Eli Barkat, which has a 20% stake in MediaMind and will receive \$82 million. Insight Ventures holds a 16.5% stake and will receive \$68 million. Former Koor CEO Jonathan Kolver holds a 5.7% stake and will receive \$24 million. MediaMind held its IPO on Wall Street less than a year ago when it raised \$57 million at a company value of \$206 million.

After the acquisition is completed, MediaMind president and CEO Gal Trifon will become DG chief digital officer, and MediaMind chief solutions officer Ofer Zadikario will assume the same position at DG.

Trifon said, “We believe this transaction is the next step for MediaMind. DG will provide us with the added scale and resources to continue to grow our platform and enhance the services we provide our customers. Working together with DG, we will provide a single solution for advertising creation, distribution, and monitoring for cross-platform campaigns. We are excited to partner with DG to continue to increase our base of large advertisers and expand our global operations, and we are confident that our employees will benefit from the greater opportunities at the combined company.”

DG president and COO Neil Nguyen said, “With this acquisition, we will build on MediaMind’s global operational footprint and world class technology platform to expand our reach beyond North America. The combined companies will serve a global customer base and enable DG to penetrate such markets as Latin America, Asia and EMEA.”

The two companies had over \$100 million in digital advertising revenue on a

pro forma basis in the year through the first quarter of 2011.

MediaMind operates in the fast-growing \$71 billion global online advertising market. Headquartered in New York, MediaMind has 37 sales and representation offices covering 64 countries. In 2010, the company delivered campaigns for 9,000 brand owners using 3,800 media and creative agencies across 8,200 global web publishers in 64 countries.

Paris Air Show features top Israeli technology

La Bourget – the Paris Air Show, is one of the most important showcases for military, defense, and aviation products and developments. This year marks the 49th anniversary of the show, and Israel will, once again, put on display some of the groundbreaking defensive and weapons systems developed here.

Two of the most exciting products coming out of Israel this year – and, observers said, two of the most exciting products to be on display at the show altogether – are the Iron Dome short-range rocket defense system, and the Trophy “Wind-jacket” active protection system for light and heavy armored fighting vehicles.

The Iron Dome system, already being successfully deployed in southern Israel, was developed by Rafael Advanced Defense Systems, and was designed to intercept short-range missiles fired by Hamas terrorists at Israeli towns and villages. The version to be unveiled at the Paris show can be mounted on trucks, allowing it to redeploy at different positions quickly. The Trophy system intercepts and destroys missiles and rockets fired at tanks and armored vehicles with a shotgun-like blast. This system, too

was developed by Rafael, in coordination with IAI's Elta Group, and was successfully deployed for the IDF earlier this year.

Other products and technologies on display will include Israel Aircraft Industry's MLGB (Medium-weight Laser Guided Bomb), an advanced laser/GPS-guided long-range projectile with a 115 kg warhead, said to be highly accurate and providing rapid point-and-shoot capabilities from fighter jets and light planes. IAI will also be showing its AD-STAR (Air Defense and Air Traffic Control Radar) 3D portable radar system used for air defense, early warning, and air traffic-control purposes.

Also on display will be the latest developments for Rafael's popular Spike Anti-Tank Guided Missile series, in use by 20 countries around the world and considered among the most accurate missiles in the world, as well as new versions of the SPYDER anti-aircraft missile system.

Representing Rafael at the show will be Rafael Board Chairman Ilan Biran, and CEO Yediya Ya'ari.

Image sensor Advasense acquired by Pixim

Advasense raised \$31 million in 2005-07, but has reportedly been sold for only a few million dollars.



Pixim Inc. of the US has acquired Advasense Technologies Ltd., a developer of next-generation CMOS image sensor technology. The companies did not disclose the value of the deal, which

was mostly in shares, warrants, and the assumption of Advasense's debt, but it was reportedly for a few million dollars.

Advasense was founded in 2005, and a review of the company's founders and management indicates its potential. The company chairman is backed by Gideon Barak, one of Israel's top high-tech entrepreneurs, whose achievements was the sale of DSP Communications to Intel Corporation (Nasdaq: INTC) for \$1.6 billion, and by Vladimir Koifman, a former executive at Applied Micro Circuits Corporation (Nasdaq: AMCC). Advasense CEO Naftaly Sharir was formerly CEO of Emblaze Research Ltd., which was sold to Zoran Corp. (Nasdaq: ZRAN), and of Electronics Line 3000 Ltd. (FSE:ELN).

According to Israel Venture Capital (IVC), Ra'anana-based Advasense raised \$31 million in 2005-07 from Giza Venture Capital, BlueRun Ventures, VentureTech Alliance, and Taiwan's CIDC.

General Electric to set up new Israeli R&D center



The Haifa R&D center will do basic research in medical devices, clean energy, and water technologies.

General Electric (NYSE: GE), one of the world's largest companies, will open its a multidisciplinary R&D center in Israel, its eighth R&D center in the country, at an investment of \$3-5 million. The R&D center will engage in research in medical devices, water, and clean energy.

The

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The R&D center will be set up in Haifa, near the center of GE subsidiary GE Healthcare, which has hundreds of employees who work on medical imaging systems.

GE currently has 450 employees at seven centers in Israel, out of the company's total global workforce of 30,000. GE has a market cap of \$194 billion. The other Israeli centers focus on specific products, while the new R&D center in Haifa will conduct more basic and general research.

GE will hire 12 researchers when the new R&D center is opened. Oded Meirav, who has been VP business development at GE Global Research Center for the past four years, will head it. He was responsible for establishing GE's collaborations with Israeli companies, such as medical devices companies InSightec Image Guided Treatment Ltd., WideMed Ltd. (TASE:WDMD), DeepBreeze Ltd., and Arineta Ltd.; with Shai Agassi's electric car venture Better Place LLC; and with cleantech companies Desalitech Ltd., Emefcy Ltd., Solaredge Ltd., GridON Ltd., and Winflex Ltd.; and with water companies incubator Kinrot Technology Ventures.

One of GE's goals in setting up the new center is to establish partnerships with Israeli high-tech companies and academe. "Israel has a rich history of innovation and scientific discovery, says GE Global Research VP advanced technologies Michael Idelchik. "With the establishment of the new R&D center, we will be in a better position to build a close relationship with the Israeli technology community and identify new technologies that could become part of our portfolio."

The research team will focus on renew-

able energy, energy storage, smart grid, and energy efficiency technologies. It will also work on water monitoring, purification, wastewater treatment, brackish water and seawater desalination technology; and in healthcare, on non-invasive medical devices, advanced diagnostic tools, and medical navigation and guidance systems.

The R&D center's researchers will collaborate with GE Capital's life sciences and energy funds, which invest in innovative technologies.

VMware buys SaaS Digital Fuel for \$85m.

VMware has announced its second Israeli acquisition.

VMware Inc. (NYSE: VMW) has announced that it has acquired Israeli SaaS company Digital Fuel Ltd.. No price for the acquisition was disclosed but it is believed to be for about \$85 million.

Digital Fuel is a veteran developer of SaaS IT financial management solutions. CEO Israel Dancziger, CTO Gilad Raz, VP engineering Yakov Kogan, and Benny Lehman who died in 2004, founded the company in 2000. The company has a large number of investors, including Benchmark Capital, Israel Seed Partners, Apax Partners, Sigma Capital, and Check Point Software Technologies Ltd. (Nasdaq: CHKP) founder Shlomo Kramer. \$45 million has been invested in Digital Fuel to date.

The acquisition will be VMware's second in Israel, having bought B-Hive Ltd. three years ago for \$60 million and built operations of its Israel development cen-

ter in Herzliyah Pituach around it.

The acquisition of Digital Fuel will add 150 employees to VMware's workforce, a third of them at Digital Fuel's Israeli development center. The acquisition could therefore increase the workforce at VMware's Israeli development center by over 50%.

How adversity dulls our perceptions

Adversity, we are told, heightens our senses, imprinting sights and sounds precisely in our memories. But new Weitzman Institute research, which appeared in *Nature Neuroscience*, suggests the exact opposite may be the case. Perceptions learned in an aversive context are not as sharp as those learned in other circumstances. The findings, which hint that this tendency is rooted in our species' evolution, may help to explain how post-traumatic stress syndrome and other anxiety disorders develop in some people.

To investigate learning in unfavorable situations, Dr. Rony Paz of the Institute's Neurobiology Department, together with his student Jennifer Resnik, had volunteers learn that some tones lead to an offensive outcome (e.g. a very bad odor), whereas other tones are followed by pleasant a outcome, or else by nothing. The volunteers were later tested for their perceptual thresholds – that is, how well they were able to distinguish either the “bad” or “good” tones from other similar tones.

As expected from previous studies, in the neutral or positive conditions, the volunteers became better with practice at discriminating between tones. But surprisingly, when they found themselves exposed to a negative, possibly disturbing stimulus, their performance worsened.

The differences in learning were really

very basic differences in perception. After learning that a stimulus is associated with highly unpleasant experience, the subjects could not distinguish it from other similar stimuli, even though they could do so beforehand, or in normal conditions. In other words, no matter how well they normally learned new things, the subjects receiving the “aversive reinforcement” experienced the two tones as the same.

Paz: “This likely made sense in our evolutionary past: If you've previously heard the sound of a lion attacking, your survival might depend on a similar noise sounding the same to you – and pushing the same emotional buttons. Your instincts, then, will tell you to run, rather than to consider whether that sound was indeed identical to the growl of the lion from the other day.”

Paz believes that this tendency might be stronger in people suffering from post-traumatic stress syndrome. As an example, he points to the 9-11 terror attacks in New York. Many of those who witnessed the strikes on the towers developed post-traumatic stress syndrome, which, for many of them, can be triggered by tall buildings. Intellectually, they may know the building before them bears little similarity to the destroyed towers, but on a more fundamental, instinctive level, they might perceive all tall buildings to be the same and thus associate them with terrifying destruction.

The scientific team is now investigating this idea in continuing research, in which they hope, among other things, to identify the