ISRAEL HIGH-TECH & INVESTMENT REPORT

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Desalination is big business

It is more than 30 years ago when we visited Eilat, Israel's southernmost seaport and discovered that part of the city's water needs were supplied by a desalination plant. In looking somewhat further we discovered that an Israeli engineer pioneered the Zarchin process for desalination. More than 40 plants were sold worldwide but, at that time, not a single one was sold for use in Israel.

For most of its existence Israeli agriculture has been known primarily for its drip water irrigation. Drip irrigation, is also known as trickle irrigation or micro irrigation an irrigation method that minimizes the use of water and fertilizer, by allowing water to seep slowly to the roots of plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing, and emitters.

The concept of drip irrigation has been well known for decades. After WWII plastics technology took off rapidly and drip irrigation became economically practical. The first such work was with micro-tubes and took place in England and France in greenhouses. In the 1960s, a Mr.Symcha Blass an employee of a British Water Agency, immigrated to Israel. There is a "fable" (which could be true, because it came from his own mouth) about Symcha Blass sitting next to a tree, which was near a leaking faucet and Eureka! But there is also no doubt that he knew about the British greenhouse application of micro-tubes. With the desperate water shortage in Israel, he decided that this technology would be useful for growing crops in the field as well as in greenhouses. The microtube was first wrapped around the feeding tube to keep it out of the way to prevent damage. This was followed by a molded coupling, with

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the spiral molded in. In turn this developed into the ubiquitous two piece in-line dripper described in Blass' patent. Blass did his work at Kibbutz Hatzerim and formed the basis of the Netafim, irrigation enterprise, whose annual exports today exceed $350m.
However, the situation has changed drastically in the past few years.

The world's largest desalination plant, located along Israel's southern Mediterranean coast, became operational in 2005. The water treatment plant will provide 100 million cubic meters (mcm) of desalinated water per year.
The plant provides about 15 percent of the total household water in Israel when it's fully operational. The consortium comprises Israel's IDE Technologies, Elran Infrastructures, and France's Veolia Water. The total cost of the project is $250 million.

"The plant in Ashkelon is the largest of its type in the world and will boost Israel's position as world leader in the field of desalination," said Gustavo Kronenberg, chief executive of VID Desalination.

IDE Technologies Ltd. has signed a $119 million contract to build a seawater desalination facility in China for the Beijing power station, 200 kilometers northeast of Beijing. The power station is owned by Tianjin Ambest International Logistics Co. Ltd.

It is estimated that Israel's water industry was valued at $1.4 billion in 2008.

Israel has long sought solutions to its water shortages exacerbated by recent low rainfall and negotiations with Palestine and Syria. The country has two desalination plants operating in central and southern Israel that jointly produce 130 million cubic meters of water a year. A third desalination plant with the capacity to produce 100 million cubic-meters of water is scheduled to be commissioned in the city of Hadera later this year.

More desalination plants are on the horizon. Receently, Israel issued a tender for its largest-ever seawater desalination plant capable of producing 150 million cubic meters (39.6 billion U.S. gallons) of water a year (see Israel plans largest desal plant in $513M deal). Israeli national water company Mekorot has plans to build a 100 million cubic meter desalination plant in the southern town of Ashkelon. Mekorot supplies 80 percent of Israel's drinking water and 70 percent of its entire water supply (see Israel's

Israel to export $2.5b. in water technologies by 2011
National group says Israel continues to push advanced water projects while governments elsewhere have ceased investing in the sector.

Israel is set to dominate the advanced water technology sector by 2011, according to a national group that's predicting $2.5 billion in exports of water technologies that year.

The Pink Gene

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Weizmann Institute scientists unravel the genetic secrets of a pink tomato

Far Eastern diners are partial to a variety of sweet, pink-skinned tomato. Dr. Asaph Aharoni of the Weizmann Institute's Plant Sciences Department has now identified the gene that's responsible for producing these pink tomatoes. Aharoni's research focuses on plants' thin, protective outer layers, called cuticles, which are mainly composed of fatty, wax-like substances. In the familiar red tomato, this layer also contains large amounts of antioxidants called flavonoids that are the tomatoes' first line of defense. Some of these flavonoids also give the tomato cuticles a bright yellow cast – the color component that is missing in the translucent pink skins of the mutants.

Using a lab system that's unique in Israel, and one of only a few in the world, Aharoni and his team are able to rapidly and efficiently identify hundreds of active plant substances called metabolites. A multidisciplinary approach developed over the past decade, known as metabolomics, enables them to create a comprehensive profile of all these substances in mutant plants and compare it with that of normal ones.

The research, carried out in Aharoni's lab by Dr. Avital Adato, Dr. Ilana Rogachev and research student Tali Mendel, showed that the differences between pink and red tomatoes go much deeper than skin color: The scientists identified about 400 genes whose activity levels are quite a bit higher or lower in the mutant tomatoes. The largest changes, appearing in both the plant cuticle and the fruit covering, were in the production of substances in the flavonoid family. The pink tomato also has less lycopene, a red pigment known to be a strong antioxidant that's been shown to be associated with reduced risk of cancer, heart disease and diabetes. In addition, alterations in the fatty composition of the pink tomato's outer layer caused its cuticle to be both thinner and less flexible that a regular tomato skin.

The researchers found that all of these changes can be traced to a mutation on a single gene known as SIMYB12. This gene acts as a "master switch" that regulates the activities of a whole network of other genes, controlling the amounts of yellow pigments as well as a host of other substances in the tomato. Aharoni: "Since identifying the gene, we found we could use it as a marker to predict the future color of the fruit in the very early stages of development, even before the plant has flowered. This ability could accelerate efforts to develop new, exotic tomato varieties, a process that can generally take over 10 years."

They discovered, to their surprise, that rather than being shaped by processes within the skeleton, bone-ridge formation was directly regulated by tendons and muscles in a two-phase procedure. First, the embryonic tendons initiated bone-ridge formation by attaching to the skeleton. This interaction induced the tendon cells to express a specific protein called scleraxis, which in turn, led to the production of another protein, BMP4 – a molecule involved in the onset of bone formation. Blocking BMP4 production in tendon cells prevented deltoid tuberosity bone ridge formation. In the second phase, the subsequent growth and ultimate size of the deltoid tuberosity was directly regulated by muscle activity.

The results demonstrate that tendons play an active role in initiating bone ridge patterning. Zelzer: "These findings provide a new perspective on the regulation of skeletogenesis in the context of the musculoskeletal system, and they shed light on an important mechanism that underlies the assembly of this system."

DVTel Inc. buys ioimage for $80m.

Herzliya-based intelligent video developer ioimage Ltd. has been acquired by iSOC (Intelligent Security Operations Center) developer DVTel Inc. for $80 million in shares. ioimage was founded in 2000 by its president Roni Kass, he has invested $20 million in ioimage together with his father Israel Kass, co-owner of Mayer Cars and Trucks Ltd..

ioimage develops algorithms that analyze pictures. Roni Kass said, "It's a great offer and

the timing is right."

DVTel is a US company with major Israeli involvement. The company acquired Israeli start-up Omnivee for $6 million in 2005 and another small start-up details of which were not published. DVTel has 60 employees in its Herzliya offices, developing software and components for pictures that are supplied to the parent company. It is now likely that ioimage's activities will be merged with DVTel's Israeli activities.

Kass intends remaining active with ioimage and said, "I believe in DVTel's strategy. We need to move to a new level. Up until today our products were just one small element in the solution for securing cameras. Now we can become a more central element in the overall solution.

Kass added that the merging of DVTel and ioimage also makes geographic sense with ioimage strong in China and DVTel strong in the rest of the world.

Israel Corp. completes $100m Better Place funding

Israel Corporation (TASE: ILCO) today completed its $100 million investment in Shai Agassi's electric car venture Better Place LLC. Israel Corp. today notified the Tel Aviv Stock Exchange (TASE) that it injected an additional $15.38 million into the company.

Israel Corp. owns more than 35% of Better Place, after first investing in the company in 2007. In addition, Israel Corp.'s parent company, Ofer Holdings Group, has invested $30 million. Israel Corp. chairman Idan Ofer's daughter persuaded him about Better Place's virtues, and he is now also chairman of the company.

Better Place has also obtained tens of millions of dollars from Morgan Stanley (NYSE: MS), the Bronfman family, and other investors.

Better Place is currently procuring the batteries for its electric cars and setting up the battery recharging and replacement infrastructure in several countries, including Israel, Australia, Denmark, and the states of California and Hawaii in the US. The company will launch first its venture in Israel. An estimated $150 million will be needed to build the nationwide battery recharging network in Israel.

UAVs do the job

After Syrian missile batteries in Lebanon took a heavy toll on Israeli fighter jets in the 1973 war, Israel developed the first modern unmanned aerial vehicle, or UAV.

When Israel next invaded Lebanon in 1981, the real-time images provided by those unmanned aircraft helped Israel wipe out Syrian air defenses, without a single downed pilot. The world, including the U.S., took notice.

The Pentagon set aside its long-held skepticism about the advantages of unmanned aircraft and, in the early 1980s, bought a prototype designed by former Israeli Air Force engineer Abraham Karem. That prototype morphed into the modern-day Predator, which is made by General Dynamics Corp.

Unlike the U.S. and other militaries, where UAVs are flown by certified, costly-to-train fighter pilots, Israeli defense companies have recently built their UAVs to allow an average 18-year-old recruit with just a few months' training to pilot them.

Military analysts say unmanned fighting vehicles could have a far-reaching strategic impact on the sort of asymmetrical conflicts the U.S. is fighting in Iraq and Afghanistan and that Israel faces against enemies such as Hezbollah and Hamas.

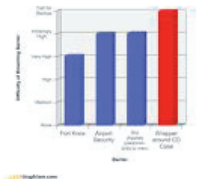
In such conflicts, robotic vehicles will allow modern conventional armies to minimize the advantages guerrilla opponents gain by their increased willingness to sacrifice their lives in order to inflict casualties on the enemy.

However, there are also fears that when countries no longer fear losing soldiers' lives in combat thanks to the ability to wage war with unmanned vehicles, they may prove more willing to initiate conflict.

In coming years, engineers say unmanned air, sea and ground vehicles will increasingly work together without any human involvement. Israel and the U.S. have already faced backlash over civilian deaths caused by drone-fired missiles in Gaza, Pakistan and Afghanistan. Those ethical dilemmas could increase as robots become more independent of their human masters.

Bank of Israel raises economic growth forecast

The Bank of Israel has raised its 2010 GDP growth forecast to 3.5% from 2.5%. The revision is based on "positive information about economic activity in the second half of 2009 in Israel and globally and following the improvement in global trade growth forecasts for 2010."



Prof. Stanley Fischer, Governor of the Bank of Israel, predicts that the unemployment rate will fall to an average of 7.1% for all of 2010, which implies a dropbelow 7% by the end of the year.

Deloitte: Israeli high-tech M&A back on track

More VC managers now say values of company exits will grow in the next six months.

The recent period has changed the perspectives of many Israeli venture capitalists. The Deloitte Brightman Almagor Zohar VC Indicator Survey for the fourth quarter of 2009 reports that 91% of Israeli venture capitalists believe that M&A deals "are back on track".

It is possible to argue what "back on track" actually means, but this is unquestionably a much more positive outlook than the venture capitalists had in the survey for the third quarter. In that survey, just 8% of respondents predicted that the M&A market would recover in the next quarter, and 69% said that it would not happen before the end of 2010.

In the fourth quarter survey, respondents were also more optimistic about company values. 42% of respondents said that the value of company exits would rise in the next six months, compared with 26% of respondents in the previous survey.

During the fourth quarter, there were few impressive exits by Israeli start-ups. The biggest sales were of CopperGate Communications Ltd., Guardium Inc., and Optonol Ltd.

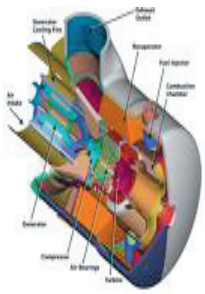
These exits were apparently enough to lift the mood of Israeli venture capitalists, who are also optimistic about IPOs. In the fourth quarter survey, 62% of respondents believe that there will be IPOs by venture capital-backed start-ups in the next six months, compared with 70% of respondents in the third quarter survey who predicted no IPOs before the second quarter of 2010.

Despite the rising optimism, in both the surveys for the third and fourth quarters, only a minority of Israeli venture capitalists said that they would make new investments in the next six months. 65% of respondents said that they would concentrate on their portfolio companies, and only 19% said that they would lead new investments.

HelioFocus Gets investment from China

Israel's solar tech company HelioFocus, based on research from the Weizmann Institute, will be invested in by China's Zhejiang Sanhua 002050 in a $10.5 million agreement, reports HelioFocus in a press announcement. The solar thermal systems developed HelioFocus will be the first direct investment made by a Chinese company in an Israeli one, reports

The Chinese company will not only be a developer but a strategic partner, and is expected to produce components and control parts to enable the technology.



"We will be able to reduce costs and move relatively quickly to manufacturing," Zik told Reuters. "Components that can be made at lower cost in China will be produced there."

Terms of the investment means that the Chinese Sanhua will hold 30% of HelioFocus, next to IC Green Energy, an investment arm of Israel Corp (ILCO.TA: Quote, Profile, Research), a holding company. IC Green Energy holds a 40% stake in HelioFocus, and is expected to invest $2.3 million beside the Chinese firm.

Founded in 2007, HelioFocus has raised over $20 million and the remaining shares of the company are held by staff and management. The technology works by converting the sun's rays into hot air that generates electricity, and it's expected to release its first product in 2012.

"We believe that the thermo-solar market will grow significantly, together with the rapid global development and ongoing legislation in the clean energy market," Yom Tov Samia, chairman of HelioFocus and president and CEO of IC Green Energy, said in a press release

Jacky Eldan, Israeli consul general in China, said the door opened by Sanhua will pave the way for more cooperation and investments of Chinese companies in Israel.

Absurd mind reading technology at airport

Not only does the government want to see your naked body in full, living color, they also want to read your mind. "A would-be terrorist tries to board a plane, bent on mass murder. As he walks through a security checkpoint, fidgeting and glancing around, a network of high-tech machines analyzes his body language and reads his mind," reports the Associated Press.

An Israeli company is developing a system that matches high technology up with and behavioral psychology. It's called WeCU, short for "We See You" (the same way Big Brother sees you). It projects images on a wall and monitors reactions of people. "If you strolled through an airport and saw a picture of your mother, Givon explained, you couldn't help but respond." Or if you were a terrorist, the logic goes, you'd respond to a terror group logo or other familiar imagery. The reaction to these images could be a darting of the eyes, an increased heartbeat, a nervous twitch or faster breathing, said company CEO Ehud Givon.

If the system observes suspicious behavior, a person is detained and interrogated. "One by one, you can screen out from the flow of people those with specific malicious intent," Givon said.

Okay, now the problems begin to arise. We are told the underwear bomber and the shoe bomber and a number of other would-be bombers (all of them in fact false flag patsies) are from al-Qaeda, an organization without formal structure and no branding or logo (unlike Hezbollah or Hamas). The only readily identifiable image associated with al-Qaeda is the face of the Osama bin Laden.

If a large photo of Osama was plastered on the wall at the airport, what would your reaction be? You'd certainly dart your eyes. You may even stand there with your mouth open.

How about a lie detector test? The Ministry of Homeland Security has actually proposed this. "One system being studied by Homeland Security is called the Future Attribute Screening Technology, or FAST, and works like a souped-up polygraph," reports the Associated Press. "It would subject people pulled aside for additional screening to a battery of tests, including scans of facial movements and pupil dilation, for signs of deception. Small platforms similar to the balancing boards used in the Nintendo Wii would help detect fidget-

ing."

FAST project manager Robert Burns said the system could be made to work passively, scanning people as they walk through a security line.

How many false positives such a harebrained idea would produce is not addressed.

U.S. officials are considering the Israeli model for airport security. Israel practices profiling. "At Ben-Gurion Airport, Jewish Israelis typically pass through smoothly, while others may be taken aside for closer interrogation or even strip searches." In other words, if you are an Arab or a Palestinian, you will be strip searched and be subjected to body cavity searches.

Imagine the predictable result of this: thousands of people who look like Arabs pulled aside with the ultimate result of producing chaos in airport operation. Don't count on the dim bulbs hired by the TSA to be capable of telling the difference between Arabs and Mexicans.

This idea, however, thrills the neocons. Blogger and concentration camp apologist Michelle Malkin went on Fox News the other day and said Arabs should be profiled and get the same sort of treatment Arabs endure in Israel.

Teva forecasts $31b sales by 2015

Teva Pharmaceutical Industries Ltd. (Nasdaq: TEVA; TASE: TEVA) senior managers have published its strategic plan for the next five years.

The company expects that By 2015, its sales will reach $31 billion with a profit of $6.8b. billion.

In the previous plan, presented in 2008, the goal was 20/20 sales of $20 billion and a net profit margin of over 20% of sales in 2012.

Israel is considered the Silicon Valley of water technology, and exporting high-tech innovations in this area played a role in helping the country rebound before most other nations from the world's worst recession in decades. Drip irrigation, desalination, conservation, wastewater management and recycling are all technologies where Israel is well ahead of the game.

Iron Dome tests are successful

The Iron Dome short-range missile defense system successfully passed a series of tests. It shot down Qassam rockets, Grad rockets and mortar shells one after the other.

Additionally it even succeeded in determining which missiles to shoot down - those whose trajectory made them likely to land in a populated area - and which to ignore.

This was the first test of the system as whole rather than individual components.

The Iron Dome was developed by Rafael Advanced Defense Systems, which succeeded in transforming the highly complex system from an idea into an almost fully operational product in just two and a half years. The first operational battery is expected to be deployed in May.

It is hard to exaggerate the importance of the successful tests. Iron Dome is sengineered to provide protection against missiles with a range of between four and 70 kilometers. That covers everything from mortar shells through Hamas' Qassams, Hezbollah's Katyusha rockets and even Iranian Fajr rockets, which have apparently made their way to the Gaza Strip. As such, it radically improves Israel's strategic position.

Nevertheless, protection of Israel's home front remains far from complete. First, Iron Dome has yet to be tested in a genuine attack. Second, Israel still lacks any additional missile batteries beyond the prototype just tested. Third, the intermediate layer of Israel's missile defense system - Magic Wand, which is sup-

posed to handle missiles with longer ranges than those covered by Iron Dome but shorter than the long-range ballistic missiles covered by the Arrow - has yet to reach a similarly advanced stage of development, and is not expected to do so until 2012.

The first Iron Dome battery will be delivered to the air force in about six weeks and is slated, if all goes well, to become operational in May. A single missile battery is enough to protect a medium-sized city like Sderot.

The question is how many batteries the Israel Defense Forces will ultimately acquire, and when. It would take about 20 batteries, each costing some NIS 50m. (near;y $25m), to defend the entire northern and southern border regions. That will require either diverting substantial funds from other defense projects or significantly increasing the defense budget.

Rafael is expected to profit handsomely, both from sales to the IDF and, later, overseas. The United States, for instance, might want to purchase the missile protection system to defend its army bases in the Middle East against terror attacks.

But for all the praise this achievement deserves, one criticism must be leveled: It should have happened much sooner. For years, the IDF refused to invest the necessary funds in developing Iron Dome, until former defense minister Amir Peretz finally forced it to do so. Had this been done sooner, not only would Israeli lives have been saved, but it might have been possible to avoid last winter's war in Gaza altogether and significantly reduce the damage from the Second Lebanon War in 2006.

Cleantech surges ahead

Earlier this year, the Israeli government went a step beyond direct investment in new cleantech technologies. It set a target of having 10 percent of the country's electricity come from renewable energy sources by 2020. To meet the target, Israel would have to add thousands of megawatts in renewable energy capacity, creating a domestic market and opportunity for Israel's cleantech startups.

National pipeline carries desalinated water

For the first time, it was announced that Israel's primary national water supply system is carrying desalinated water to the general populace.

The CEO of Mekorot, Israel's government water company, Ido Rozolio, said, "Today, for the first time, the National Water Carrier is receiving desalinated water from the desalination facility in Hadera and distributing it through the national water system."

Mekorot sources further stated that the Hadera desalination plant would be supplying 150,000 cubic meters of water per day starting next month. According to Rozolio, the significance of the latest input of desalinated water into the national water system is not only the additional water, but also the fact that it is the first stage of a flagship project of the national water company -- construction of a new National Water Carrier. As a result of the connection to the Hadera desalination plant, fresh water can now be pumped not only from north to south, as had been the case until today, but from and to various directions throughout Israel.

The supply of desalinated water by way of the National Water Carrier, Mekorot sources said, is a historical change that will allow efficient, energy-saving and integrated water management. The new system will be operated using state-of-the-art control room technology, Rozolio said. The new system of water supply management will be similar to that currently in use by the electric company in its power supply grid.

Mekorot intends to invest a total of NIS 5.b ($1.3b.) over the next five years in construction of the new National Water Carrier.

Israel tests new technology that could reduce airport security checks and make flights safer

New airport technology that reduces intrusive

security checks
Airports Authority spokeswoman Maayan Malchin said the biometrics system is being tested at Ben Gurion airport near Tel Aviv.

Instead of waiting in long lines to be checked by inspectors, travelers will swipe smart cards containing their photo, fingerprints and personal details.

The biometrics scanners are similar in size and appearance to cash machines. They are fitted with cameras that snap a picture of the traveler and compare it to the card. Travelers then answer basic security questions on the screen, Malchin said.

Security checkers will stand by to assist with questions. They are also there to observe body language like excessive sweating and nervousness. Foreign travelers will be allowed to register with the system, Malchin said.

The authority said the homegrown technology is the first of its kind, and if the test is successful, it could be used at all Israeli border crossings next year. Israel has long been a world leader in airport security - the result of hijackings and other attacks in past decades.

Compugen and Pfizer collaborate

Compugen Ltd. (Nasdaq: CGEN; TASE: CGEN) has signed a collaboration agreement with Pfizer Inc. (NYSE: PFE; LSE: PFZ) for the predictive discovery by Compugen of therapeutic peptide product candidates for three drug targets of interest to Pfizer. Pfizer will fund the discovery process.

The discovery process will take a few months, after which Compugen will synthesize the predicted molecules and deliver them to Pfizer. Following an evaluation period, Pfizer will have the right to exercise options for worldwide exclusive milestone and royalty bearing licenses to develop and commercialize the selected product candidates.

In October, Compugen signed a collaboration agreement with Bayer Schering Pharma AG, which covered the further evaluation of a Compugen discovered tumor target. Bayer received an option for an exclusive worldwide royalty-bearing license for the development of monoclonal antibodies and other therapeutic agents addressing the molecules.

Compugen president and co-CEO Dr. Anat Cohen-Dayag said, “Although use of our various discovery platforms is now providing us with a growing inventory of novel drug and target candidates for further development and licensing, the most unique aspect of our capabilities is the ability to systematically and within a short timeframe provide, what we call ‘discovery on demand’ product candidates for selected areas of interest to our partners.”

Cohen-Dayag added that, following the cooperation agreement with Pfizer, company hopes to reach similar deals with other pharmaceutical and biopharmaceutical companies.

In recent years, Compugen has designed, developed, validated and disclosed ten product candidate discovery platforms directed at various areas of drug and diagnostic discovery

Pageonce reaches one million U.S. Smartphone users

Pageonce, a specialist in mobile personal funance, celebrated its one millionth U.S. registered Smartphone user and announced it closed a $6.5M new round of venture funding. The round was led by the leading Israeli Venture firm Pitango Venture Capital and brings the total raised to date to $10M. Pageonce’s award-winning flagship product, Personal Assistant, is the leading personal finance and travel application on the iPhone, BlackBerry, Android and Windows platforms, with more than one million registered users through its cross platform applications. Pageonce has developed a service that gives consumers one-touch access to their essential personal information, from bank accounts to travel itineraries.

With only a customer’s username and password, Pageonce “automagically” presents essential personal information in a simple to

read format on a smartphone. Its key differentiator is a proprietary technology platform, which enables the company to securely access and aggregate data from various password protected sources. Pageonce members enter their information only once and never need to manually enter account numbers, due dates or other personal information. Pageonce members are increasingly becoming reliant on their Pageonce alerts to tell them about any potential fraudulent spending on their credit cards, upcoming bills, or any changes in their flight arrival or departure times.

"I'm excited about the incredible growth of Pageonce and the potential of the smartphone market which is the future of computing," said Scheinman. "It reminds me of the early days of the Internet where great companies like Yahoo, eBay and Google were forming. There will be similar growth opportunities in this nascent industry and Pageonce is well positioned to remain one of the leaders as the industry matures."

SunPower and SolarPower Ltd. dedicate 50-Kilowatt solar power system for HP

SunPower Corp. (Nasdaq: SPWRA, SPWRB), a US-based manufacturer of high-efficiency solar cells, solar panels and solar systems, and SolarPower Ltd., an Israeli solar power system integrator and project developer, today dedicated a 50-kilowatt rooftop solar power system at HP's Indigo division facility in Kiryat-Gat, Israel.

SolarPower designed and built the system with high-efficiency SunPower solar panels. Construction on the project began in October.
"By combining SolarPower's design and construction expertise with SunPower panels, the most efficient solar panels commercially available, HP will maximize the amount of clean solar power generated on the roof," said SolarPower co-CEO Alon Tamari. "We are very pleased to have completed the first solar power installation for the high-technology industry in Israel."

SunPower has completed more than 550 large solar power systems worldwide, including the recently completed 24-megawatt Montalto solar power plant in Italy.

Israel's military avatar: robots on the battlefield
With self-detonating grenades, thinking bullets and robot warriors, humans on the frontline could soon be a thing of the past.

When armies clash in the not-too-distant future, remotely-operated robotic weapons will fight the enemy on land, in the air and at sea, without a human soldier anywhere on the battlefield.

The first robotic systems are already being used by the Israel Defense Forces and other armies across the world, and only budgetary constraints seem to be keeping science fiction from becoming reality.

In places where there is no choice but to send in troops, constantly improving broadband technologies, developed from the civilian communications industry, will serve as an essential part of the infrastructure for all modern military forces.

A helicopter that spots suspicious movement on the ground will, for instance, is able to relay a command to a drone aircraft to photograph the site and transmit the picture in real time to troops on the ground and to the command posts in the rear.

Soldiers will be able to mark their target by its coordinates and with lasers, allowing missiles launched from dozens of kilometers away to be guided by global positioning systems, ensuring accuracy and destruction of the target.

The systems will be coded to prevent enemy interception of the operation. Spy satellites that today weigh several tons will be shrunk down to anything between one and 100 kilograms or less, with engines the size of post-

age stamps. Infantry rifles will be computerized and fire "smart" rounds telling them when and where to explode. New rockets will also be able to think for themselves to enhance their accuracy.

Israel's military industries, already world leaders in arms technology, are hard at work developing weaponry for the 2020s. Development of new weapons for the IDF is generally carried out with assistance and in coordination with the Defense Ministry's research and development arm.

"The Protector, which we are already marketing, is a vessel that sails all over in all kinds of places without a living soul on board," says Roni Postman, vice president for R&D at Rafael Advanced Defense Systems. "It can get close up to a terrorists' boat, address it through a loudspeaker, and open fire at it. In the past, a thing like this required a boat with seven or eight crewmen who were in constant danger. This type of remote control is one of the clearest characteristics of the future battlefield. It will be a battlefield devoid of troops, with vehicles doing what soldiers have done until now."

Unmanned boats, land vehicles and aircraft will be either controlled remotely or will function autonomously, pre-programmed to carry out a mission from start to finish, such as reaching an enemy bunker, transmitting a photograph back to a command post, launching a projectile at it, and returning, or blowing itself up to destroy the target and the people inside it.

Forces will be equipped with what they need to deal with certain objectives and not simply with "the lowest common denominator," says Postman.

Israel Aerospace Industries, for example, has developed the Mosquito, a UAV with a 40-centimeter wingspan and a silent engine, that can be launched from the shoulder of a single soldier. Even this device may be shrunken down, if the military so requires.

Micro-satellites and nanotechnology

The future battlefield will also include outer space. GPS-based technology fed by satellites are already becoming a fundamental element in future military systems. Moreover, the ability to equip satellites with IAI-produced radar that sees through clouds will enable every field commander to obtain, in daylight and at night and in bad weather conditions, a picture of his target.

Israel is one of seven members of the club of countries that have proved their independent ability to put satellites into orbit, alongside the United States, Russia, India, China, Japan and Western Europe - which has a unified space program based on French capabilities.

Israel's satellites are all manufactured by IAI, and include optical observation and radar platforms as well as communications satellites. IAI engineers are working on technologies for future satellites, ranging from construction materials to advanced designs that will enable, for example, the deployment of antennae with a radius of dozens of meters in space.

The next generation of satellites, now being developed, will weigh ten kilograms (micro-satellites) or one kilogram (nano-satellites) and some speak of even lighter ones. They will orbit at an altitude of 500 kilometers above the surface of the earth. Ben-Israel says one way of sending up a 100-kilogram orbiter without losing any of its operational capability is to break it into 10 units each weighing 10 kilograms.

But technology must be developed that will be enable each part to migrate to the correct place after launch, after which they will continue to orbit together as a cluster.

"That's the direction being taken," says Ben-Israel. "That way, each part can be shot from a plane separately and even at different times, and in this manner build the satellite in space over a week."

Rafael's Postman believes that a satellite weighing less than 100 kilograms will cost eight to 10 times less than a large orbiter.

"Because it will cost less, it will be possible to put a formation of 10 satellites into space, and to time their orbits in such a way that it will be possible to maintain an unbroken 24-hour watch over the enemy," he says.

Even without any miniaturization, Israel possesses unique technologies that can upgrade future satellites. Elbit Systems is working on an advanced optical system that will be able to transmit multicolored pictures and that will be able to function at night. In addition, IAI radar will improve the resolution of the pictures. Today, satellite pictures can be found on the open market with a resolution of 70 centimeters.
Israel already has technologies for satellite photography at higher resolutions, and they are expected to yet improve. The achievements of Israeli space technologies are reflected in both the MSAR (mini-synthetic aperture radar) project of the U.S. space agency NASA and the French Venus project.

"MSAR is a mission undertaken by NASA in order to map the surface of the planet Venus, to see if it will be possible to land there in the future," explains Ben-Israel.

Venus is surrounded by clouds of toxic gases and the project requires synthetic aperture radar which can take photographs through fog, dust and darkness. There are seven countries capable of developing synthetic aperture radar systems and one of them is Israel, through ELTA, a subsidiary of IAI. Israel's miniaturization capabilities were also helpful in this project.
American satellite radar weighs four tons, and the Venus satellite has to be relatively light, so NASA put out a tender for bids that was won by IAI over aeronautical giants like Lockheed Martin and Northrop Grumman."

C-TRUE provides face recognition security solutions to Brinks

Following a comprehensive trial in Brink's Israel Headquarters, C-TRUE Face Recognition technology was approved, and installed successfully in main Brinks offices around the country to secure highly restricted area access.

C-ENTRY is an innovative and advanced biometric solution that uses individual's face as a key to grant access of use to premises, which needs to be secured against unauthorized individuals.

"C-ENTRY proved superb and fast employee authentication performance under extremely demanding conditions, fast deployment and proved that face recognition can deliver significant customer satisfaction" says Mr. Yitzhak Rabin, General Manager of Brinks Israel.

C-ENTRY was deployed using existing employees' badges, in a swift enrollment and training process.
C-True unveil its technology and solutions in the recent Brinks' EMEA Security meeting and was received with great excitement and interest.