

ISRAEL HIGH-TECH & INVESTMENT REPORT

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Israel - Intel Love Affair

Intel Corp's Israeli subsidiary said that its exports surged 145 percent in 2009 to a record \$3.4 billion and the company is hoping growth will continue with further expansion in the country.

Exports rose thanks to Intel's new \$3.5 billion chip manufacturing plant in southern Israel which came into full production in early 2009.

It is the third plant in the world to make processors with 45 nanometer-wide circuitry and Intel is negotiating with the Israeli government for a possible grant to expand the plant to include production of smaller 22-nanometre chips.



"We are competing with other countries on the ability to bring to Israel 22-nanometre technology," Intel Israel General Manager Maxine Fassberg said, adding that

the company plans to have two 22-nanometre plants.

The first one will be built in Arizona and Fassberg said she'd like the second plant to be in Israel.

The investment to expand the Israeli plant is estimated at \$2.7 billion, she said.

"We have asked for a decision (from Israel) by mid-March when Intel is due to make a decision," Fassberg said. "Intel's second 22 nanometer plant needs to start producing by the start of 2012."

Fassberg declined to give an outlook for 2010.

Intel is the largest private exporter in Israel as well as the largest employer in the private sector with 6,340 workers at its two plants and four research and development centers.

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Israel-Intel Love Affair

Israel to export \$2.5b. in water technologies by 2011

Dell buys data storage company Exanet

VC funding slumped in 2009

Israeli mind-scanner may take over US airports

Drug surveillance drones frequent flyers in Latin America

New device switches traffic in less than 100 billionth of a second

Better Place wins \$350 million investment

Oracle buys Israeli start up Convergin

European Investment Bank to invest €100 Million in Ashalim renewable energy plant

Defense Update Business Report - January 2010

First non-invasive technology for treatment of uterine fibroids wins MHLW Approval in Japan

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IAF launches the un-manned aerial vehicle

GSK to invest \$2.5m in Teva startup Proteologics

Israeli scientists show DNA evidence can be fabricated

A hiring freeze at Intel in Israel was lifted at the beginning of the year when more than 120 workers were recruited.

In 2009 the company converted its former Fab 8 plant in Jerusalem into a \$40 million die preparation plant which opened in November and will also contribute to exports.

Intel accounts for 10 percent of Israel's industrial exports and \$7.3 billion has been invested in its operations in Israel, including \$1.2 billion in grants from the government, Fassberg said. In Fab 28. Intel Israel has 6,300 employees altogether at its fabs in Kiryat Gat and Jerusalem and at its R&D centers in Haifa, Petah Tikva, and Yakum.

The company estimates that an additional 20,000 jobs are directly and indirectly related to its activity in Israel.

Intel made \$392 million in reciprocal procurements from Israeli companies in 2009, including \$103 million for the automation of production lines at its fabs.

Intel Israel bought metrology equipment to diagnose flaws in the production process from Applied Materials Israel Ltd. and Jordan Valley Semiconductors Ltd., in which Intel invested \$11 million in 2008.

Dell buys data storage company Exanet

Dell Inc. (Nasdaq: DELL) is acquiring the business of bankrupt Israeli start-up Exanet Ltd. for \$12 million, a month after the company went into receivership. The acquisition of Exanet will give Dell its first R&D center in Israel. Dell, founded by chairman and CEO Michael Dell, lacks Exanet's clustered storage solution, in contrast to its competitors.

In early December, Exanet informed its employees that it was going out of business because it could not repay the principle on the \$10 million loan it had taken from Kreos Capital.

VC funding slumped in 2009

The latest Kesselman and Kesselman PricewaterhouseCoopers Israel MoneyTree Report indicates that venture capital-backed high-tech companies raised \$735 million in Israel during 2009, a 47% decrease compared with 2008.

The average investment per company in 2009 was \$3 million, compared with \$ 4.4 million in 2008 and \$3.9 million in 2007.

The report does show some improvement in the fourth quarter of 2009, when 77 companies raised \$201 million the highest amount raised in a single quarter last year. This represents an increase of 13% (in monetary terms) compared with the previous quarter, in which 55 Israeli companies raised \$178 million.

"Year 2009, as far as venture capital investments are concerned, is one that we will soon want to forget. In this year, the level of venture capital investments was even lower than the lowest point set in 2003, following the burst of the high-tech

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bubble. In this year it was clear that the rules have changed; the funds invested less in “dreams” and more in clear-cut and mature products with a real business plan. The funds focused more on the existing portfolio, and the natural selection process caused the closure of many companies,” said a Kesselman executive.

In 2009, in the investment funds segment, foreign funds with representatives in Israel invested \$333 million, 45% of total investment for the year, similar to the 48% of total investment made in 2008.

In 2009, communications attracted the most investment, 28% of the total investment. However, in the fourth quarter, the software sector took the lead, attracting 36% of total investment.

Investment in cleantech was a bit of a surprise. It was not counted as a separate sector, because of a shortage of investment in it - just \$3 million in the fourth quarter. In comparison, cleantech accounted for 12% of total investment in the US in 2009, and the percentage invested in Israeli cleantech was particularly low.

Israeli mind-scanner may take over US airports

As part of stringent measures to increase airport security, US authorities may use an Israeli-made mind-reading scanner that allegedly predicts whether a passenger is a potential threat or not.

The Transportation and Safety Administration (TSA) and the Homeland Security are considering the installment of a controversial mind-reading system that was recently developed by the Israeli-based WeCU Technologies, in all American airports.

The device, which functions by blending high computer technology and behavioral psychology, is essentially designed to “get inside the evildoers head” without the subject’s knowledge and prevent him or her from placing the lives of fellow travelers in jeopardy.

According to WeCU Technologies CEO, Ehud Givon, people cannot help reacting mechanically to recognizable images which suddenly appear in unfamiliar places.

With that in mind, the system aims to project images onto airport screens, such as symbols affiliated with a terrorist group or signs only a terrorist would recognize.

Givon said while the WeCU system would use humans to do some of the observing, it would rely largely on concealed cameras or covert biometric sensors that can distinguish a rise in body temperature and heart rate, however slight it may be.

“One by one, you can screen out from the flow of people those with specific malicious intent,” Givon claimed.

The controversial device has sparked an outcry among civil rights groups, who argue that a system that combs through your brain to look for evil intentions is “Orwellian” and akin to “brain fingerprinting.”

The groups note that the US should not follow in Israeli footsteps with regards to Airport security.

The US is already subjected to widespread controversy over the appliance of full body scanners, which according to critics, are in violation of child protection laws as well as the right of travelers to privacy.

Drug surveillance drones frequent flyers in Latin America

Drone aircraft are increasingly engaged in counter drug missions over South American jungles and Mexican cities. The drones represent the latest high-tech escalation of Latin America’s anti-drug efforts.

Unlike the U.S. military’s Predator drones, used to shoot missiles at suspected terrorists in Pakistan’s tribal areas, the models known to be in use

in Latin America limit their roles to intelligence, surveillance and reconnaissance. The drones are not known to have flown armed missions.

Israel Aerospace Industries, a company that is Israel's largest industrial exporter, struck recent multimillion-dollar deals in Ecuador and Brazil for its large, 54-foot wingspan Heron drone model.

Israel Aerospace has offices in Colombia, Chile and Ecuador and launched a new joint venture company in Brazil in 2008. The manufacturer sees promise in the Latin American UAV market.

"As we have experienced in other markets, as the (UAV) system becomes more familiar, new applications are found and, as a result, the market will grow," stated Doron Suslik, spokesman for Israel Aerospace.

The UAVs make sense for Latin America since they are more cost-effective and remain in the air longer than manned flights, said Ray Walser, senior policy analyst for the conservative Heritage Foundation in Washington, D.C.

"I think the more the merrier," he said. "Right now, there are some nations in which you simply don't know what's going on in your own territory."

Two other Israeli manufacturers, Elbit Systems and Aeronautics Defense Systems Ltd., have also sold UAVs to clients in the Americas in the last two years.

The U.S. defense industry also manufactures UAVs, including the Predator series deployed in Afghanistan and Pakistan. But the transfer of U.S.-made military technology to foreign governments is highly regulated.

"If it is something you can buy off the rack in Israel," you can avoid some of the scrutiny accompanying U.S. sales, said Rick Van Schoik, director of Arizona State University's North American Center for Transborder Studies.

Latin American buyers of UAVs may be acquiring them from Israel, but they are following the example of the United States, which pioneered the use of UAVs in non-combat law enforcement roles.

As early as 2004, the U.S. Border Patrol tested Elbit Systems' 34-foot wingspan Hermes drone to patrol the border with Mexico.

The Pentagon has also deployed UAVs for counter-narcotics work.

Drones play an important role supporting "allies around the world in efforts to curb the illegal narcotics trade," said U.S. Defense Department spokesman Cmdr. Bob Mehal.

However, it is known that the Miami-based U.S. Southern Command, which oversees Pentagon operations in Latin America, has been a testing ground for UAVs.

One Southcom test in May 2009 at a base in El Salvador involved a Heron UAV manufactured by one of Israel Aerospace's North American subsidiaries, Stark Aerospace, headquartered in Mississippi.

The air base, Comalapa, is one of the overseas "Forward Operating Locations" the Pentagon established for counter-narcotics missions in cooperation with Latin American and Caribbean governments.

"We think it was a resounding success," Southcom spokesman José Ruiz said of last year's test, in which the Heron flew over 100 hours, through strong winds, heavy cloud cover and rain, tracking a suspected drug ship in the Pacific.

New device switches traffic in less than 100 billionths of a second

Voltaire Ltd. is hoping to attract the attention of high-frequency trading firms with the launch of a new communications device it claims can switch traffic between servers in less than 100 billionths of a second.

The Chelmsford, Mass., company also says its hybrid switch and network gateway can move traffic between Ethernet-based networks at less than two thousandths of a second.

The speeds should help reduce total trade execution times and other trading firm processes, Voltaire asserts.

The company, which is also headquartered in Ra'anana, Israel, says the combination product is designed to take up only 1.75 vertical inches of data center rack space rather than comparable technology that can take twice as much space. This helps reduce co-location costs.

The Grid Director 4036E combines the power of a 40-Gigabyte InfiniBand switch with a low-latency Ethernet gateway that can bridge traffic to and from Ethernet-based networks and “takes the pain out of bridging from InfiniBand to Ethernet which is a much-needed capability in many high-performance, enterprise IT environments,” according to Asaf Somekh, vice president of marketing at Voltaire.

He believes the new product could be a “game-changing solution” for high-frequency trading firms, exchanges and trading venues that use large clusters of computers and need smooth, fast more traffic management between Ethernet-based networks.

The firm is a well known advocate for InfiniBand-based switching technology, while some of its competitors -- including Cisco Systems -- appear to have focused more energy on promoting purely 10G Ethernet-based switching devices.

Voltaire devices are included in server and blade offerings from firms such as Hewlett-Packard, IBM, NEC, SGI and Sun Microsystems.

Somekh also pointed out that in financial services, market data feeds typically run multicast traffic over 1 to 10 Gigabit Ethernet which the Grid Director 4036E “significantly accelerates” the transfer of “multicast” traffic coming from an Ethernet network onto an InfiniBand network.

Adam Honore, a senior analyst at Aite Group, said that for trading firms that do choose to employ InfiniBand technology, the new product is an important development, particularly when using market data products over Ethernet hubs or when aiming to speed up and better integrate networks related to risk management and settlement efforts or anywhere where cross connect capabilities are important.

However, he also pointed out that among trading firms at large -- not just high frequency, low latency traders -- there has been far broader interest in purely 10Gigabyte Ethernet technology rather than InfiniBand

Better Place wins \$350 million investment

The deal, led by HSBC, is one of the largest ever in cleantech.

Shai Agassi's electric car venture Better Place has signed a major funding deal, in which a consortium of investors, led by HSBC, will invest \$350 million in the venture.

The investment is one of the largest ever in cleantech, and values Better Place at \$1.25 billion after money.

New investors in this financing deal include HSBC, which invested \$125 million of its own, Morgan Stanley Investment Management, and Lazard Asset Management. They join existing investors including Israel Corp. (TASE: ILCO), Vantage-Point Venture Partners, Ofer Hi-Tech Holdings, Morgan Stanley Principal Investments, and Maniv

Energy Capital, among others, as shareholders of Better Place.

The deal represents one of the largest financial investments of its kind by HSBC. , HSBC Head of Global Capital Financing Kevin Adeson will join the Better Place board of directors, and HSBC will own approximately 10% of the venture's shares.

Adeson said, "We are confident that Better Place has the technical and commercial solutions to allow for the mass adoption of electric cars in the near term. The Better Place switchable battery solution, which addresses the range limitation of fixed battery electric cars, will offer the consumer an affordable and attractive alternative to current combustion engine and hybrid vehicles. We expect the Better Place model to be widely adopted across many countries and cities, particularly in those markets with policies strongly favoring electric vehicle adoption."

Oracle buys Israeli start up Convergin

Oracle this afternoon that it was buying Israeli start up Convergin. The announcement did not mention the price, but according to industry estimates it is of the order of \$80-90 million, a fair achievement for a company in which just \$13 million has been invested.

Convergin was founded in 2000 by Dr. Ayal Itzkovitz, president and CEO of the company. It provides service broker and service capability interaction management telecommunications network solutions.

The link with Oracle began about a year ago with an OEM agreement, but at a certain stage Oracle decided to move ahead and offer to buy the company. "Oracle is the ideal player," says Pitango managing general partner Rami Beracha. "After buying Sun, it has a software and hardware products framework, and it wants to enter the telecommunications world. The match with the company's products is very successful."

According to Beracha, Convergin has been prof-

itable since 2002. It had sales of \$15 million in 2009, and a cash surplus. The only thing Beracha would say about the acquisition price is that "the multiple on the investment is very good."

In its announcement, Oracle said that "the combination of Oracle and Convergin is expected to provide a single carrier-grade, standards-based IT platform allowing CSPs to effectively evolve their service delivery capabilities at a lower total cost of ownership."

The transaction is expected to close the first half of this year.

This is Oracle's third acquisition in Israel, and its most expensive. In September 2009, it bought HyperRoll Inc., which develops what are known as financial reporting acceleration solutions, for what is believed to have been a low amount. In 2006, Oracle bought planning solutions company Demantra for a reported \$41 million, and set up a local development center.

European Investment Bank to invest €100 Million in Ashalim renewable energy plant

Ashalim is First Step in Our Goal of Supplying Renewable Energy-Generated Power to Every Israeli Home

Dr. Uzi Landau, Israel's Minister of National Infrastructures, announced at the Eilat-Eilat Renewable Energy Conference that the European Investment Bank, the European Union's long-term lending institution, will double its initial €50 Million investment in the Ashalim Renewable Energy Power Plant to €100 Million. The Ashalim plant is slated to be built in Israel's Western Negev desert over the next few years.

'Israel as an agricultural innovative country in the middle East'.

As a relatively young country Israel has highly developed agriculture. Breeding new varieties, developing new high-tech methods of grading, harvesting etc. The wide range of different climates offers possibilities and challenges while producing the whole fruit and vegetable basket

for their population of 7 million (2.7 million labor force). Not many countries grow such a wide range of products on a commercial scale.

With a total area of 22,000 km and 440,000 ha of arable land (182,000 ha irrigated) it is not a mass producer of FMCG's. 'We have to focus on nich

Defense Update Business Report - January 2010

Israel's defense exports Soar to \$6.75 Billion in 2009

Major General (ret.) Udi Shani, Director General, Israel Ministry of Defense (IMOD) Despite the economical crisis, Israel's revenues from defense exports increased in 2009 to US\$6.75 billion. According to Major General (ret.) Udi Shani, head of the Ministry of Defense Foreign Defense Assistance and Defense Export Department, this growth is attributed to the ingenuity of Israel's defense industries and the support provided by the country's defense establishment. On January 15 Shani was nominated Director General of the Ministry of Defense, replacing Brig. General (ret.) Pinchas Buchris.

Israel's largest target markets are in North America, Asia, Europe and in Latin-America. Major contributors to Israel's defense export growth were the growing demand for force protection, armored vehicles, command, control and intelligence among coalition forces operating in Afghanistan, and the growth in demand for defense systems in countries such as India and Brazil.

Photo: Maj. General (ret.) Udi Shani, the former Head of SIBAT and the new Director General of Israel Ministry of Defense.

Israeli firms keen to tap \$1-bn security market
Israel has launched an effort to tap India's \$1-billion homeland security market. Israeli companies such as Elmo Tech, Elbit Systems, ISDS, NetFind and Max Security are looking at the opportunities available in infrastructure, training and technol-

ogy, excluding defense and weapons.

Security systems and products are classified into the following categories — command and control, commodity protection, emergency solutions, identification and authentication, information technology security and software, perimeter protection, protective solutions, and system integrators.

Various state governments and companies such as Tata Group, Mahindra & Mahindra, Godrej, GMR, Rolta, Bosch and Siemens are in talks with the Israeli companies.

Avi Hefez, director general of the Israel Export and International Cooperation, said, "Enquiries from India for homeland security solutions and products have increased, especially after the 26/11 terror attack in Mumbai. India has a huge potential in this sector and Israel has decided to send a record number of nine trade delegations to India in 2010." Hefez was accompanied by Israel's minister for industry, trade and labour, Binyamin Ben Eliezer.

Hefez said M&M Special Services Group had already struck some deals for transfer of homeland security solutions and products. Similarly, GMR Infrastructure-promoted Raxa, Rolta, Siemens, Godrej and Zicom are working out technology transfer arrangements with Israeli companies.

Israel's government and companies are also exploring opportunities in telecommunications, agriculture, drip irrigation, water and desalination. The government of Israel has launched a Grow Win scheme to provide help to farmers in water-scarce regions.

"The government has already held preliminary talks with National Bank for Agriculture and Rural Development and governments of Gujarat and Rajasthan for tie-ups under which farmers will be able to procure technology. Though the scheme is at the preliminary stage, the government of Israel wants to give assistance to farmers to avail of latest drip irrigation and water-use technologies,"

he said. Hefez said Israel's government had held talks with the BrihanMumbai Municipal Corporation for transfer of technology for desalination and use of waste water.

First non-invasive technology for treatment of uterine fibroids wins MHLW Approval in Japan

InSightec Ltd. has announced that Japan's Ministry of Health, Labor and Welfare (MHLW) has approved the company's ExAblate(R) MR-guided Focused Ultrasound (MRgFUS) system for the treatment of women with uterine fibroids.

"We are very pleased that the Japanese Ministry of Health has approved the ExAblate system and that women in Japan will now have access to a noninvasive treatment option for uterine fibroids," said Dr. Kobi Vortman, President and Chief Executive Officer of InSightec. "The approval was based on a growing body of evidence showing that ExAblate is a safe, effective, and durable treatment for this widespread, life-impacting condition. ExAblate is an outpatient procedure and patients normally return home the same day and to work within one to two days compared to lengthy hospitalizations and recovery times associated with more invasive procedures such as hysterectomy, myomectomy or UAE."

ExAblate is currently the only noninvasive treatment for uterine fibroids approved for use in Japan. Approximately 25% Japanese women will develop symptomatic uterine fibroids, primarily during childbearing years. These benign tumors can significantly impair functionality and degrade quality of life resulting in significant work absences.

Using the ExAblate system, the physician uses the Magnetic Resonance Imaging (MRI) to visualize the patient's anatomy and then aims focused ultrasound waves at the targeted tissue to thermally ablate, or destroy it. The MRI allows the physician to monitor and continuously adjust the treatment in real time. The patient is consciously sedated to alleviate pain and minimize motion.

A growing body of evidence supports the system's safety and efficacy, including the results of a study published in the August 2007 edition of *Obstetrics and Gynecology*. The study showed that ExAblate offered women sustained relief from uterine fibroid symptoms for up to two years, with a low incidence of side effects. The 359-patient Mayo Clinic-led collaborative study also showed that destroying as much of the fibroid as possible leads to the most durable symptom relief with 85% of the participants experiencing symptom improvement after one year. Studies conducted in Japan indicate similar results.

The ExAblate system received the CE Mark for uterine fibroids in October 2002 and US Food and Drug Administration (FDA) approval in 2004. Over 5,500 women around the world have chosen to undergo the non-invasive ExAblate treatment for their symptomatic uterine fibroids over invasive surgery.

Summary of Israeli High-Tech Company Capital Raising – 2009

Israeli high-tech capital raising in 2009 reached \$1.12 billion,

46 percent below 2008 level

First Investments by Israeli VCs continue to decline

In 2009, 447 Israeli high-tech companies raised \$1.12 billion from local and foreign venture investors, 46 percent below \$2.08 billion raised in 2008 and 36 percent below 2007 levels. (Chart 1)

In the fourth quarter, 124 Israeli high-tech companies raised \$275 million from venture investors – both local and foreign. The amount was 30 percent below the \$394 million raised in the fourth quarter of 2008, and down 9 percent from the \$303 million raised in the third quarter of 2009.

In Q4 2009, the average company-financing round was also lower at \$2.22 million, compared to \$3.61 million in the fourth quarter of 2008 and \$2.8 million in the previous quarter.

Sixty-seven companies attracted more than \$1 million each. Of these, 17 raised \$5 million to \$10 million each and four companies raised more than \$10 million.

“Even though 2009 capital raising was sharply lower than previous year’s – consistent with our projections – a further decrease to about \$800 million is foreseen for 2010,” said Koby Simana, CEO of IVC Research Center. “The decline in capital raising in 2009 reflected the impact of the economic crisis on Israel’s high-tech industry, but despite talk of recovery, the effect of the economic situation continues to linger. Israeli companies are likely to have an even harder time raising capital in 2010,” Simana concluded.

Israeli VC Funds - Investment Activity

In 2009, Israeli VC funds invested \$410 million in Israeli high-tech companies. The Israeli VC fund share of the total amount invested in Israeli high-tech companies was just under 37 percent, which compares to 38 percent (\$780 million) in 2008 and 39 percent (\$678 million) in 2007.

In the fourth quarter, Israeli VC funds invested \$102 million or 37 percent of the total capital invested in Israeli high-tech companies, compared to \$151 million invested in Q4 of 2008 and \$89 million invested in the previous quarter. The remainder came from foreign investors as well as non-VC Israeli investors.

In 2009, First investments made by Israeli VCs were 29 percent of the total amount invested by Israeli VC funds, compared to 31 percent in 2008. The average First and Follow-on investments were \$2.07 million and \$0.86 million, respectively.

In the fourth quarter, First investments made by Israeli VC funds accounted for 27 percent of their investments, compared to 23 percent in the fourth quarter of 2008 and 20 percent in the third quarter. The average First investment by Israeli VC funds was \$1.55 million, while the average

Follow-on investment was \$0.73 million.

Israeli VC Fund Activity in Foreign Companies
Israeli VC funds invested \$80 million in foreign companies during 2009 (in addition to their investments in Israeli high-tech companies), compared to \$57 million in 2008 and \$50 million in 2007. Nine of the 37 investments were First investments, with Follow-ons accounting for the remainder.

Capital Raised by Sector

In 2009, the Life Sciences sector led capital raising with \$272 million or 24 percent of total capital raised, followed by Software with \$258 million or 23 percent and the Communications sector with \$219 million or 20 percent. Internet firms continued to attract investor attention with 13 percent of capital raised in 2009 and 14 percent and 15 percent in 2008 and 2007, respectively. (Chart 2)
The Software sector led capital raising in Q4 2009 with \$74 million or 27 percent of capital raised, followed by the Life Sciences sector with \$62 million or 22.5 percent.

“Investors are allocating to the life sciences a significantly larger share of the capital invested than in previous years,” observed Marianna Shapira, Research Manager at IVC. With 24 percent of capital invested in 2009, the sector allocation well outpaced the 15 percent of 2008, and also exceeded the six-year average of 21 percent.”
“Interestingly, said Shapira, “the life sciences attracted even more investment than the communications sector, which slipped from first place for the first time since 2000.”

Capital Raised by Stage

In 2009, 77 Seed companies attracted \$63 million, the lowest amount raised since 2004. At 5.5 percent, the Seed share of total capital raised was in line with the 5 percent of the previous year, which was lower than the previous four-year average of 8 percent.

In the fourth quarter of 2009, Seed companies attracted just 4 percent of total capital raised, compared with 8 percent in the fourth quarter of 2008 and 5 percent in the previous quarter. Mid

Stage companies captured \$153 million or 56 percent of the total capital raised.

Oracle buys Israeli start up Convergin

The price is estimated at \$80-90 million for the company, in which \$13 million has been invested.

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most expensive. In September 2009, it bought HyperRoll Inc., which develops what are known as financial reporting acceleration solutions, for what is believed to have been a low amount. In 2006, Oracle bought planning solutions company Demantra for a reported \$41 million, and set up a local development center.

IAF launches the un-manned aerial vehicle

With the attendance of Commander of the Air Force, Maj. Gen. Ido Nehushtan recently, an official ceremony marked the launch of the IAF's new air plane, the Eitan. . During the ceremony, the air plane was officially transferred from the Israel Aerospace Industries to the IAF.

The Eitan is an, developed in a cooperation of the Israel Aerospace Industries and the IAF. The Eitan marks a technological breakthrough and a new level in the air force's ability to operate against threats, near and far, in its every day missions and during emergency.

Maj. Gen. Nehushtan said during the ceremony: "The launching of this air plane is another, substantial landmark in the development of unmanned aerial vehicles. From the humble beginning of their development, with initial operational results during the first Lebanon war, to the substantial and professional apparatus that now accompanies almost any air force operat

GSK to invest \$2.5m in Teva startup

Proteologics

International drug manufacturer GlaxoSmithKline will take part in the initial public offering of Israeli startup Proteologics. GSK will pay \$2.5 million for 7% of Proteologics' shares, and is dependent on the company's raising at least \$7.5 million.

Proteologics plans to raise a minimum of NIS 35 million in its IPO, valuing the firm at NIS 104 million, after the money. Teva Pharmaceuticals owns a 51% share of Proteologics, before the IPO, and announced it would buy NIS 2.8 million of shares in the IPO.

Proteologics is a biopharmaceutical company that discovers and develops drugs exploiting the body's ubiquitin system, the discovery of which earned professors Avram Hershko and Aaron Ciechanover the 2004 Nobel Prize in Chemistry. The two sit on the company's scientific advisory board. Ubiquitin is a protein involved in cellular regulation.

The company signed an agreement with GSK at the end of last week in which the two firms would cooperate on six research and development programs over the next three years. Proteologics receive \$3 million from GSK immediately upon signing and another \$2 million in the first year and \$1.7 million in each of the following two years.

GSK will make additional payments based on milestones in each of the research programs, such as identification of molecules as candidates for drugs, progress in testing the drugs and approval of the drugs by regulatory authorities. These further payments can vary from \$3 million to \$176 million per drug - based on the various milestones. If all six projects succeed (an unlikely possibility), the sum could reach \$1 billion. The lion's share of the payments would only come if the drugs are approved for sale. In addition, Proteologics would receive 4% royalties on sales of drugs developed from the projects with GSK.

Proteologics was founded in 1999. The ubiquitin system controls the breakdown of proteins in the body and allows their reuse.

Besides Teva, other investors in Proteologics are Concord Ventures, the Challenge Fund and Giza Venture Fund.

The GSK deal follows an agreement signed in December 2009 with French pharmaceutical firm Prestwick Chemical on developing cancer drugs, a similar deal to that signed with GSK.

Proteologics has been working with Teva since March 2005. The company has lost a total of NIS

52 million since it was founded. It last raised funds in September 2008 when Teva invested \$2.5 million at a company value of \$8 million.

Israel OKs new controversial weapon

The Thunder Generator produces shock waves that result in a loud sonic boom and extreme air pressure.

Israeli Defense Minister Ehud Barak has approved the use and sale of a new weapon that simulates a feeling of being shot in those targeted.

The cannon called "the Thunder Generator" has been produced by the Netanya-based technology development advisory firm, ArmyTec company, and is capable of creating shockwaves that pass through people.

The feeling of "being hit" produced by the stun gun is said to be similar to that of standing in front of a firing squad.

The weapon uses a mixture of liquefied petroleum, cooking gas and air which traveling through the cannon barrel detonates and intensifies until it exits.

The process generates a succession of 60 to 100 high-velocity shock bursts per minute, each traveling at about 2,000 meters per second and lasting up to 300 milliseconds, according to a report by Defense News website, citing company data.

"That's more than enough for hours of continuous operation," said ArmyTec President Shlomo Tabak, a former Israeli military special operations officer, describing the new device as "controlled and safe."

Experts, however, say the Thunder Generator could be lethal or inflict permanent damage if fired at less than 10 meters.

Israeli scientists show DNA evidence can be fabricated

Scientists from the Tel Aviv based company Nucleix have demonstrated that it is possible to create fake DNA samples and plant them as evi-

dence at a crime scene, in a paper published in the journal *Forensic Science: International Genetics*.

“You can just engineer a crime scene,” said lead researcher and Nucleix co-founder Dan Frumkin. “Any biology undergraduate could perform this.”

In addition to having developed a method of fabricating DNA evidence, Nucleix has also developed a method of detecting faked DNA that it plans to sell to forensics labs.

The scientists have developed two different ways to manufacture DNA samples in order to fool law enforcement. The first involves using DNA profiles from law enforcement databases, which record the code at 13 different spots on a person’s genome. Using a pooled library of DNA samples from a number of different people, the geneticists were able to physically construct DNA that was identical to a suspect’s DNA at those 13 points. It would take only 425 different DNA snippets to be able to construct every possible permutation, the researchers said.

The second method involved collecting actual DNA from the person whose genetic material was to be faked, such as by collecting a strand of their hair or saliva from a cup they had used.

In both cases, the DNA was then reproduced in large quantities using a technique called whole genome amplification. This DNA was inserted into red blood cells, which were then passed off as a real DNA sample.

A normal blood sample would contain both red and white blood cells, and the red blood cells would contain no DNA. In addition to this difference from a normal sample, amplified DNA lacks certain molecules contained by normal DNA. Forensics labs are unlikely to test for either of these anomalies without cause, however.

“DNA is a lot easier to plant at a crime scene than fingerprints,” said Tania Simoncelli of the American Civil Liberties Union, in response to the study. “We’re creating a criminal justice system that is increasingly relying on this technology.”

The researchers warned that their techniques could also be used to replicate enough of a person’s DNA to carry out genetic testing on them without their consent, thus violating their right to genetic privacy.



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