

# ISRAEL HIGH-TECH & INVESTMENT REPORT

A MONTHLY REPORT COVERING NEWS AND INVESTMENT OPPORTUNITIES

JOSEPH MORGENSTERN, PUBLISHER

January 1998 Vol. XIV Issue No.1

ISSN 0334-6307

## High-Tech Bloomed and Boomed Last Year New Risks and Opportunities in 1998

### Achievements

John Sculley former Apple Computer CEO invested in OLiVR, a multimedia Jerusalem based software developer, Ephyx an interactive video producer and Zapa Digital Arts, an electronic advertising firm. More than 50 venture capital firms with \$2.0 billion under management are active today while six years ago there was only one venture capitalist fund with \$30 million under management. Finance Minister Yaacov Neeman put the icing on the "welcome and invest in Israel" policy by exempting foreign investors from Israeli capital-gains taxes.

The high-tech sector has attracted some of America's best know investors: AT&T pension fund, Massachusetts Institute of Technology Endowment Fund, Boston's Hancock Ventres and Chase Capital.

ESC Medical Ltd. a manufacturer of novel and laser systems for cosmetic surgery and treatments, Galileo Technology Ltd. maker of advanced digital chips were the big hits of 1997.. The Nitzanim Fund, whose investors include Japan's Kyocera Corp. realized a paper profit of \$52 million from its \$1.0 million investment in ESC Medical and in Galileo a paper profit of \$89 million.

### The Technology Search

Another huge deal has been added to the series of investments by US companies in Israel. In one of the largest deals of its kind to date, Cordis Corporation, a wholly-owned subsidiary of Johnson & Johnson, announced the signing of a definitive merger agreement with Biosense, Inc. based in Haifa, Israel with corporate headquarters in Orangeburg, N.Y. The company develops catheter-based interbody navigation and location systems

used in cardiology and neurosurgery. Biosense's shareholders will receive a sum estimated at \$400 million in Johnson & Johnson shares.

Germany's Siemens paid \$30 million for Ornet, a developer of data communications software. The American Applied Materials. Inc. a world leader in semiconductor production equipment purchased Orbot Instruments and Opal Ltd., developers of measurement systems for the semiconductor industry, for \$285 million.

### Development

World leader Intel developed, at its Israeli research center its new pentium Processor with MMX Technology, which an Intel executive described as a "processor which will reach every PC-owning household in the world".

### Protected from Economic Vagaries

Most Israeli companies export and as such are generally well protected from any buffeting from Israel's economy which currently is struggling to emerge from recessionary conditions.

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Editorial Offices: P.O.Box 33633, Tel Aviv 61336, Israel

Tel: 972-3-5235279 Fax: 972-3-5227799

### High-Tech Export Growth

The past decade has seen a dramatic change in the composition of Israel's exports. As of August of last year high-tech exports represented 35% of the total and software another 3% per cent. In 1988 high-tech exports represented 24% of the total and software merely one per cent. Exports are growing and should total \$16 billion or more for all of 1997. A 40% rise in high tech-exports in 10 years if unmatched, certainly ranks among the top in the world and is indicative which direction the trend is taking.

### Who will be the Rich Uncles in 1998?

Israel, is a Mecca of high-tech comparable only to California's Silicon Valley. New York City, without competition is the Israel's focal center for global finance and the deep pocket source of billions of dollars for high-tech companies. As we closed out the calendar year we were reminded that raising capital, merger and deal making are a rewarding activity.

On a recent trip to New York the talk of the town were the 1,000 Wall Street executives, among them specialists in bringing companies public, whose end-of-the-year bonuses would be in excess of \$1.0 million. The bonanza in bonus payments is connected to the most bountiful year ever experienced by the New York financial center. Of great interest to Israeli high-tech managers is the extent that Wall Street in 1998 will continue to provide hard cash. The consensus forming is that it is unlikely that 1998 will bring a repetition of this past year which was bountiful not only for the financiers but for the Israeli companies who raised hundreds of millions of dollars. November initial public offerings raised the phenomenal sum of \$7.98 billion, an all-time one month high as 83 new issues came to the market.

At the beginning of December Wall Street was still in an euphoric state of mind firm in the belief that the so-called Asian Flu syndrome could not spread to the US. However, global economics are a reality and many business entities are affected by events taking place far from their own corporate homes.

An upbeat President Bill Clinton proclaimed the highest budgetary surplus in recent times and at

once prompted rumors of a possible income tax cut.

Was it really surprising that the queue for new issues shrunk and numbered 43 companies. The optimism waned considerably since mid-December as Wall Street nearly daily was faced with shock announcements.

At first it was the prestigious banking firm J.P. Morgan which announced an earnings warning due to financial losses incurred from its Asian business. Other companies blamed lower earnings for similar reasons. Semi-conductors and multi-nationals shares became suspect due to business connections in the Far East. Wall Street has become even more nervous as it awaits in mid-January Q4 1997 results.

One Wall Street analyst who understands the Israeli scene pointed out to me that over the foreseeable future he expects US investors to be considerably more conservative in their evaluation of new investments. New issues will come under greater scrutiny as investors will look for a record of several years of rising earnings, he suggested. We have watched, since the 1980s and have noted how Israeli managers bring companies to Wall Street prematurely. The analyst's views are likely to become the run-of-the-mill reality of 1998.

As previously noted on these editorial pages, Israeli companies will have to contend with a more demanding environment on Wall Street. However, there are other options for raising capital including venture capital funding, Government of Israel research & development grants and the many larger foreign companies who are seeking to "buy in" to niche technologies. The window of opportunity on Wall Street may be narrowing but for the nimble there are many other open windows which offer similar opportunities.

### Deal in the Works

The Recanati family is close to obtaining Goldman Sachs as a strategic partner. If current negotiations are concluded, Goldman Sachs a leading American investment banker will acquire nearly 10% of IDB Holding Corporation which heads the IDB group of companies. IDB Holding is one of the largest business enterprises operating

Nortel (Toronto:NTL.) are negotiating with the Palestinian Authority the possibility of setting up a cellular phone network in its territory, telecommunications sources said.

Koor president and chief executive Benjamin Gaon, has sought to stimulate economic ties between Israel's private sector and the Palestinian economy, the sources said.

A Koor spokesman refused to comment, saying it was not the company's policy to comment on its activities within the Palestinian areas or elsewhere in the Arab world.

Israel's Globes financial newspaper speculates that the project is valued at several hundred millions of dollars.

#### Tadiran Telecommunications, Ltd. Creates New Global Wireless Systems Concern

Tadiran Telecommunications Ltd. (TTL) (NASDAQ:TTELF) announced that it is transferring the operations of its Wireless Systems Division to a newly established subsidiary TT Wireless Ltd. TTL will be the new entity's majority shareholder. Raychem Corporation (NYSE: RYC), a global technology company headquartered in Menlo Park, California, intends to extend its existing sales and marketing alliance with TTL by investing a 5 percent stake in the new company. The partnership with Raychem will give TT Wireless a major distribution channel to telephone operating companies that are seeking to improve network deployment to customers with wireless systems in the local loop," said an TTL executive.

As a result of intensive development that began in 1995, TTL sales exceeded \$20 million in 1996. The new company will continue to focus on the global wireless local loop (WLL) market where it has captured about 5 percent of the market and is ranked as one of the five leading companies in the field alongside Motorola, Nortel, Ericson, and Hughes. TTL's MultiGain Wireless (MGW) system is currently in commercial operation with more than 30 customers worldwide, and it is under evaluation by an additional 20 telephone operating companies.

The MGW business ranked fifth in total installed wireless local loop lines, according to a market research report issued last year by Yankee Group, industrial consultants.

#### El Al awards Boeing \$170-\$180 Million Deal

El Al Israel's state-owned airline decided to buy five aircraft from Boeing Co. for \$170-\$180 million over a rival bid by Airbus Industries. After last moment price slashing by Boeing, which substantially improved its offer, El Al director Joel Feldschuh announced El Al's decision.

Boeing's Israel agent said the Seattle-based firm slashed its offer price for the five medium-range 737-700 and 737-800 jets by some six percent. But in Paris, an Airbus spokesman insisted that the decision had been political.

"We put in a good fight but politically, the United States won the day, just as it did in Saudi Arabia, pointing a to the 1995 sale of 61 Boeing and McDonnell Douglas airliners to Saudi Arabia", an Airbus spokesman said.

Despite El Al's disclaimers, the airline had come under massive pressure from the United States and Israel's defense ministry to buy American. U.S. officials have said Israel made a commitment upon receiving \$10 billion in U.S. loan guarantees in 1992 to substantially enhance its purchase of U.S. goods. Israeli Defense Minister Yitzhak Mordechai met El Al officials and urged them to buy from Boeing, citing national security reasons, according to the defense ministry sources. The deal depending on El Al's final options and configuration of the planes could reach \$20 million.. El Al declined to reveal the value of the order, which was originally expected to cost near \$200 million.

The aircraft are to be outfitted with CFM56 engines supplied by CFM International, a joint venture between General Electric Co. and France's state-owned Snecma.

## SCIENCE CORNER

PROTEIN 'HEROES' BLOCK GENETIC MUTATIONS

Researchers at the Weizmann Institute of Science have discovered that two repair proteins perform a truly "heroic" act, stopping genetic mutations dead in their tracks. In a study reported in a recent issue of the Journal of Biological Chemistry, Institute researchers describe how these proteins "fling themselves" onto damaged genes, which, if replicated, lead to the formation of mutations. Mutations are changes in DNA that can cause cancer by turning on cancer-causing genes or turning off the genes that suppress cancer. "If we can fully understand this and other natural DNA repair mechanisms, we may one day be able to turn them on as required in order to prevent cancer," says research team leader Prof. Zvi Livneh of the Weizmann Institute's Department of Biological Chemistry.

#### Protein valor

DNA damage is a normal part of the life of a cell. Carcinogens, such as ultraviolet radiation or the chemicals in cigarette smoke, routinely damage DNA, leading to numerous mutations. Luckily, DNA can repair itself, relying on proteins known as repair enzymes. These enzymes literally cut out the damaged parts of the DNA and replace them with healthy DNA material. Without them, life on earth would be impossible because mutations would go haywire.

Sometimes, however, the damaged DNA escapes repair and a cascade of events leading to cancerous growth can begin. This is precisely where our two heroic proteins, known as Fpg and UvrA, step in. These proteins were previously known to play a role in cut-and-paste DNA repair jobs. But now the team has discovered that they are capable of a far more valiant task. By hurling themselves onto the damaged DNA and physically attaching themselves to it, these proteins can prevent the damaged site from multiplying and causing a mutation.

According to the scientist, the two "heroic" proteins may be part of a larger family of DNA repair proteins that work on the same principle. This mechanism provides a second line of defense against the mutation and gives the cell a crucial second chance at healthy growth.

"The proteins block the road to replication like demonstrators throwing themselves down on the road to block traffic," the professor. "When a protein sits on the lesion and directly binds itself

onto the site of the damage, the mutation cannot be formed."

Only when this emergency defense mechanism fails, can malignant transformation begin. Building up natural defenses Weizmann scientists discovered the new role of the two proteins by analyzing E coli bacteria. They will follow up this research by analyzing human cells, he said.

Every human body contains different kinds and quantities of repair proteins. In each individual they vary in their rate of repair. When scientists learn more about these proteins -- determining, for example, which proteins repair which kinds of damage -- they may be able to strengthen people's own natural defenses.

Scientists may also one day be able to identify people whose bodies aren't as effective as others at repairing DNA. For example, they may be able to warn people who are more prone to genetic defects induced by ultraviolet radiation to avoid excessive exposure to sunligothen

Electronics Command (CECOM) to develop an advanced portable zinc-air battery. The \$400,000 contract runs through mid-1999.

The contract marks the first portable zinc-air product revenues for EFCV since it began development of high-energy primary zinc-air products for consumer and industrial applications about a year ago. Electric Fuel was one of three companies selected to perform the development work, along with Rayovac Corp. [NYSE:ROV] and Eagle Pitcher Industries, Inc.

**NICE-Systems in Distribution PACT with Siemens**

NICE-Systems Ltd (Nasdaq:NICEY) and Siemens AG said they entered into an agreement for Siemens to market and distribute NICEY's Computer Telephony Integrated products on a global basis, effective immediately. The agreement covers a wide range of CTI logging markets, including trading floors, call centers and public safety organizations, the companies noted.

**Silicom Ships the Industry First USB Host Controller CardBus PC Card**

**Silicom Ships New Product**

Silicom Ltd. (NASDAQ:SILCF) announced that the company has begun shipping its unique dual port USB (Universal Serial Bus) host controller CardBus PC Card. The Card provides a simple high performance vehicle for adding a USB interface to portable computers equipped with CardBus PCMCIA slot that otherwise would not be able to use USB devices. Universal Serial Bus (USB) is a peripheral bus standard developed by PC and telecom leaders such as Compaq, DEC, IBM, Intel, Microsoft, NEC and Northern Telecom. PCs equipped with USB allow computer peripherals to be automatically configured as soon as they are physically attached without the need to reboot or to run setup. Thus, USB brings true out of the box, plug-and-play technology to computer peripherals such as keyboards, modems, phones, scanners, printers, cameras and others. USB features a fast I/O transfer rate of 12 Mbit/s and allows up to 127 devices to run simultaneously on one computer.

**Astra Medical Fund in French Public Debut**

A number of entrepreneurs led by patent attorney

Zvi Vromen over a period of several years raised funds privately which they invested in innovative medical projects in Israel. Last month in a first for any Israeli private group, they sold 1.8 million shares to investors and the Fund shares were registered for trading on the Paris Stock Exchange. Previously to this financing Israeli companies had mostly issued shares on the American stock exchanges, mostly NASDAQ, the London AIM market, Vancouver and Toronto.

**Mint Receives Bank Order**

Mint Technologies recently received an order for its intelligent financial middleware solution, MINT, from Societe Generale Bank in New York. The bank will use the technology to integrate its computer systems. Mint Technologies of Herzliya provides software products to the financial industry.

**New Tecology from Medis El**

Medis El Ltd. (NASDAQ: MDSLFL) announced that it has filed an application with the US Patent Office for its Reciprocating Electric Machine. The Machine produces electrical power at one-third less cost than currently is possible. The machine offers a simple electro-mechanical design that takes the reciprocated motions of energy sources, such as sea waves and winds, and converts such rotation into electrical power resulting in reduced cost, better efficiency and environmental conservation.

Proposed applications include electrical vehicles and magnetic levitation trains.

Medis El believes that the machine will revolutionize the design of electrical vehicles by replacing the less efficient rotary electric motor. It claims to have already demonstrated that its electrical piston has an efficiency of 80 percent, as compared to 50 percent in the rotary electric motor.

Medis El, founded in 1992, is an Israeli corporation involved in building a line of proprietary products based on Israeli and former Soviet Union technology for exploitation by large

international corporations. In addition to the Reciprocating Electric Machine, the company recently obtained a patent for its Synchronous Twin Piston Recipro-cating Linear Compressor, a revolutionary and environmentally friendly, synchronous twin piston compressor that has high-value applications in the fields of refrigeration and air-conditioning. The company's other products include the CellScan, a unique proprietary laser-based cytometer that repeatedly monitors the fluorescent intensity and polarization of individual living cells, and the Neuritor, a small, lightweight EEG and EKG device that offers flexibility and quality at a cost significantly lower than currently marketed EEG equipment.

#### Swiss Army Buys C3 Systems

Tadiran Ltd. (NYSE:TAD) said its Tadiran Electronic Systems Ltd. subsidiary received a contract from the Swiss Ministry of Defense to supply advanced Command and Control Systems valued at about \$120 million. The systems will be delivered over four years.

TAD said the Command and Control Systems, based on civilian telecommunications technologies, are used to increase "hit" accuracy, conserve ammunition usage, and shorten firing response time.

#### Turmoil in Asia Impacts TTEL's Results

Tadiran Telecommunications announced a projection of lower 1997 fourth quarter earnings due to weakness in Asian markets, Tadiran Telecommunications Ltd(Nasdaq:TTELF) reported that revenues for the fourth quarter of 1997 "are likely to be below previously announced expectations and will amount to approximately \$90 mil. As a result, the company's net income is likely to be "materially below plan" but not substantially lower than the net income recorded for the fourth quarter of 1996. Wall Street analysts, however, had projected fourth quarter sales of \$110 mil. or more and profits of \$11.3 mil. Based on the company announcements of expectations of no better than Q4 96 earnings these may come at about \$3.7 mil.

TTELF stated that "the shortfall in revenues is primarily due to the weakness in Asian markets, especially South Korea. Based on orders received and their scheduled delivery dates, sales to South Korea in the fourth quarter were expected to be relatively high. However, as a result of the regional economic situation, this market now faces difficulties in completing transactions on schedule. More specifically Korean Telecom is unable to obtain letters of credit as part of guarantees for orders to TTELF worth up to \$15 mil. and it advised Tadiran that until further notice it is stopping its orders. Minutes after the announcement the price of the TTEL shares plummeted by more than \$5 to \$14.50.

#### FDA Recommends

The Radiological Devices Panel to US Food & Drug Administration (FDA) has recommended approval of the Company's pre-market application (PMA) for the SoundScan™ 2000. The panel provided guidelines for minor revisions to the product's indications for use. Myriad Ultrasound Systems Ltd, which manufactures the SoundScan line of products filed its PMA for the Sound Scan™ 2000 in July, 1997.

SoundScan™ 2000 is a clinical bone sonometer, a device that uses quantitative ultrasound to assess bone strength. This measurement provides information which, when combined with the patient profile and relevant risk factors, is useful in diagnosing and managing diseases associated with skeletal fragility. These conditions include osteoporosis, a bone-thinning disease that affects 200 million people, primarily postmenopausal women. Though not required to, the FDA usually follows the recommendations of its advisory panel. SoundScan™ 2000 is the first of a generation of products that Myriad expects to market in the United States. In the near future, Myriad hopes to introduce to the US market the SoundScan Compact, a portable and less expensive version of the SoundScan™ 2000.

The company is seeking a partner in the US to market its SoundScan products to primary-care

through the bone, and a proprietary patented design excludes the soft tissue from the measurement path.

#### BMW Selects Tecnomatix

Tecnomatix Technologies Ltd. (NASDAQ-NM Symbol: TCNOF ) announced that it has reached a 3-year agreement with BMW through which Tecnomatix will provide Computer-Aided Production Engineering (CAPE) software products and maintenance services to BMW worldwide. Tecnomatix has delivered to BMW by the end of 1997, 30 ROBCAD and DYNAM software licenses, 7 SIMPLE++ software licenses, and will upgrade the 44 licenses already in operation at BMW. An additional 35 ROBCAD and DYNAMO software licenses will be delivered through the term of the agreement.

Commenting on the agreement, Mr. Nikolaus Bauer, General Manager of BMW Information Technologies Process Production said, "BMW's strategy is to shorten drastically the development phase of a new car. The key factor will be the vision of the Digital Factory. Tecnomatix CAPE tools will enable BMW to achieve this goal." The agreement is a long-term, multi-million dollar strategic contract and represents the largest ever program for CAPE implementation in Europe. The broad use of CAPE solutions will allow BMW to plan, simulate and optimize production processes from the plant level down to a single operation.

With this wide implementation, BMW joins other major automotive companies, such as FORD, General Motors, MAZDA and PSA-Peugeot Citroen.

Tecnomatic Technologies is the pioneer and world leader of the computer-aided production engineering (CAPE) market. The company develops, markets and supports industrial companies with software tools to fully computerize the industrial process and achieve seamless transition from design to production. CAPE products enable production engineers to

Ozgood is a new creation of Yaacov Kirschen, whose political cartoons are internationally syndicated

physicians. "The introduction to the market-place of new drug therapies for osteoporosis, has made intervention in patients in the early stages of osteoporosis, practical for the primary-care setting," said a company spokesman.

In order to fully realize the value of these accessible therapeutics, it is important that there exists equally accessible diagnostic tools for detecting and monitoring the disease.

SoundScan™ 2000, Myriad Ultrasound's first high-precision bone assessment system, was introduced to the market in 1994 and is currently available in Europe, Asia and Latin America. It is a mobile workstation primarily used in multi-user environments such as hospitals and research centers. The SoundScan Compact is a small, lightweight and portable instrument designed for single-users, small clinics and private offices. Myriad Ultrasound's technology measures the speed of sound (SOS) along the bone rather than

create an on-screen virtual manufacturing environment that graphically displays and simulates actual manufacturing operations.

This digital factory is a single integrated, fully associative computer model of a complete manufacturing plant which is scalable from the level of the complete factory down to the individual production operations. The company's CAPE products include the ROBCAD line of products for manufacturing processes; the VALISYS line of quality engineering products; DYNAMO for the study of assembly and disassembly of new designed products; EXALINE for printed circuit board (PCB) assembly machines; PART for generative machining and process planning; and SIMPLE++ for design, planning and optimization of a complete factory.

R&D Expenditure Rises by nearly 12 per cent  
Government of Israel spending on research and development (R&D) has risen by about 12 per cent in 1997 to \$2.15 billion (NIS 7.6 billion) reflecting a continuing trend in the 1990s. The R&D expenditure represents 2.2% of Israel's Gross Domestic Product, according to data published by the Central Bureau of Statistics.

On a percentage basis the business sector, primarily high-tech industries accounted for 46% of the total. 37% was allocated for R&D in the country's universities, 10% for government and 7% for non-profit organizations.

### Versabook Technologies Invites Investors

Versabook Technologies develops new technologies for use in conversion, processing and development of electronically published products. The company is in the process of introducing a suite of Versabook tools that will represent a breakthrough in the industry. Versabook is a proprietary, patentable technology which significantly reduces the cost of development and time to market by at least 75% in each case.

The products consist of:

A search, retrieve and display engine that features the Library Builder technology that for the first time allows users to add an unlimited number of new books to an existing database without any maintenance or recompilation. The Dynamic Retrieval feature, allows media to be stored on any magnetic, optical or on-line source and then seamlessly imbedded and displayed by the end user. An automated publishing tool that provides book publishers with a fully automated solution of converting content for word processing format to full multimedia products that can be distributed on CD, DVD or as NetBooks that can be downloaded in the background over the internet. The Versaview technology allows publishers to select a number of specialty templates that will provide users with multiple views that are category dependant while still accessing the same library and interface.

A media library for the publishers that provide a large selection of all types of media that have been digitally prepared for immediate use.

An auto-update module that pushes updates and new content to the end user.

Versabook Technologies is a New York State corporation formed in January of 1997. Its wholly owned Israeli subsidiary Versabook Ltd. does all development. The founding investment group and management include eminently experienced and successful individuals in the field of computers and electronic media.

Though only a one year old startup, Versabook is actively merchandising its product.



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