

The Staggering Accomplishments of The Jewish Nation of Israel



Israel is the 100th smallest country with less than 1/1000 of the world's population. While small in size, Israel has contributed to the technology that the world uses every day, and has achieved major status on several business and economic fronts.

All of the achievements listed below were accomplished while engaged in regular wars with an implacable enemy that seeks its destruction, and an economy continuously under strain by having to spend more per capita on its own protection than any other country.

BUSINESS

- Israel's \$100 billion economy is larger than all of its immediate neighbors combined.
- Israel has the highest ratio of university degrees to its population in the world.
- 24% of Israel's workforce holds university degrees, ranking third in the industrialized world, after the United States and Holland and 12% hold advanced degrees.

- Israel leads the world in the number of scientists and technicians in the workforce, with 145 per 10,000. With over 25% of its work force employed in technical professions. Israel places first in this category as well.
- Israel produces more scientific papers per capita than any other nation by a large margin—109 per 10,000 people—as well as one of the highest per capita rates of patents filed.
- With more than 3,000 high-tech companies and start-ups, Israel has the highest concentration of hi-tech companies in the world—apart from the Silicon Valley, U.S.
- On a per capita basis, Israel has the largest number of biotech start-ups.
- Israel has the third highest rate of entrepreneurship—and the highest rate among women and among people over 55, in the world.
- Israel is ranked #2 in the world for venture capital funds right behind the U.S.
- Outside the U.S. and Canada , Israel has the largest number of NASDAQ listed companies.
- Israel has the world's second highest per capita of new books.
- Israel has the highest average living standards in the Middle East .
- Israel has the highest percentage in the world of home computers per capita.
- Israel has produced 10 Nobel prize winners.
- Exports by Intel Israel more than doubled to \$4.6 billion in 2012 from \$2.2 billion in 2011 and now accounts for a tenth of Israel's total industrial exports.
- Around 40,000 students have signed up for the 9-week on-line course“Synapses, Neurons and Brains” run by the Hebrew University of Jerusalem. Participants come from Lebanon, Iran, Saudi Arabia, Malaysia, Pakistan, Morocco and Algeria as well as the U.S., and Europe.
- "Ten of the Best Companies"- Fast Company magazine lists the ten most innovative Israeli companies, which includes SodaStream as the 23rd most innovative company in the world.

POLITICAL

- Israel is the only liberal democracy in the Middle East .
- When Golda Meir was elected Prime Minister of Israel in 1969, she became the world's second elected female leader in modern times.

- The 19th Israeli Parliament will have a record number of women lawmakers in Israel's history. Women comprise 23% of the Knesset.

TECHNOLOGY

- The cell phone was developed in Israel by Motorola, which has its largest development center in Israel.
- Voice mail technology was developed in Israel.
- Thanks to NoCamels.com, the new Samsung S4 will include eye-tracking technology from Israel's Umove. It will allow the smartphone user to scroll through text on the screen simply by gazing down.
- Israeli startup VocalZoom has developed an optoelectronic microphone that is able to extract a person's voice from almost all surrounding noise. Its optical microphone "reads lips" by sensing vibrations on the face of the person speaking.
- Israel designed the airline industry's most impenetrable flight security. US officials now look to Israel for advice on how to handle airborne security threats.
- GridON makes the Keeper, a three-phase fault current limiter developed at Bar-Ilan University. The device, which blocks current surges and limits the current for as long as required to clear the fault, won an Innovation Award from General Electric's Ecomagination Challenge and is of interest to major utilities companies around the world.
- MobileEye combines a tiny digital camera with sophisticated algorithms to help drivers navigate more safely. The steering system-linked device sounds an alert when a driver is about to change lanes inadvertently, warns of an impending forward collision and detects pedestrians. MobileEye has deals with GM, BMW and Volvo, among others.
- Cubital's solid rapid prototyping machines craft 3D models of engineering parts directly from designs on a computer screen. They're used in the automotive, aerospace, consumer products and medical industries, as well as engineering firms and academic and research institutions.
- Rav Bariach introduced the steel security door that has become Israel's standard. Its geometric lock, whose cylinders extend from different points into the doorframe, is incorporated into doors selling on five continents.
- 3G Solar pioneered a low-cost alternative to silicon that generates significantly more electricity than leading silicon-based PV solar modules at a lower cost per kilowatt hour.

- NDS VideoGuard technology is the pay-TV industry's advanced suite of conditional access (CA) solutions. It protects branded service from piracy and ensures that consumers will have the choice and flexibility they demand in broadcast and on-demand content.
- PrimeSense revolutionizes interaction with digital devices by allowing them to “see” in three dimensions and transfer control from remote controls and joysticks to hands and body. It is the leading business provider of low-cost, high-performance 3D machine vision technologies for the consumer market.
- Hewlett Packard's (HP) Indigo digital printing presses for general commercial printing, direct mail, photos and photobooks, publications, labels, business cards, flexible packaging and folding cartons print without films and plates, allowing for personalized short runs and changing text and images without stopping the press.
- Like-A-Fish unique air supply systems extract air from water, freeing leisure and professional scuba divers, as well as submarines and underwater habitats, from air tanks.
- AFC (Active Flow Control) was developed at Tel Aviv University as an intelligent gas-air mixing system to replace all existing mixing technologies.
- The Space Imagery Intelligence (IMINT) unit of Elbit Systems makes a “space camera,” a compact, lightweight electro-optic observation system for government, commercial and scientific applications.
- Decell Technologies is a global leader in providing real-time road traffic information based on monitoring the location and movement of phones and GPS devices. Swift-i Traffic, Decell's premium product, is incorporated in leading navigation systems, fleet management services, mapping operations and media channels in several countries.

[TOP](#)

- The superconducting fault current limiter (FCL), designed for limiting short currents, comes out of a \$2 million project developed over two years by RICOR Cryogenics and Vacuum Systems with the Institute of Superconductivity at Bar-Ilan University.
- SolarEdge makes a module that optimizes every link in the solar PV chain, maximizing energy production while monitoring constantly to detect faults and prevent theft.
- Samsung to open Israeli innovation and strategy center. Samsung's new center in Ramat Gan will focus on Israeli startup companies, Israeli research academia and

venture capital funds investing in start-ups. The new center will be part of Global Samsung, through which the company will expand its activity in Israel.

- Israel's Valens makes the chips for HDBaseT technology, which projects High Definition multimedia over a single cable, and has now enabled the popular display port.
- Israel's Moovit application for public transport information is now available in beta in the UK. Already operating in the US, Canada, and Western Europe, Moovit is the first public transport application to harness the power of the crowd, using real-time user-generated information to improve public transport trip planning and navigation.
- Thanks to Atid-EDI, Israel's Corephotonics develops computational cameras and tiny electro-mechanical engines to improve focusing capabilities. Corephotonics have raised \$5.2 million to put the power of still cameras into smartphones.
- For the fourth year in a row, Israeli hi-tech company NICE has been ranked as the global market leader in Speech Analytics by DMG Consulting.
- Building a virtual cable TV service for Singapore. Thanks to EDI, Singapore-based MediaCorp has hired Israeli video startup Tvinci to build a new streaming video service called Toggle that will provide live and on-demand access to streaming video content.
- Apple opens Ra'anana development center. The new Apple development center in the Ra'anana Industrial Zone will be the company's third in Israel after it opened a development center in Haifa and acquired flash memory developer Anobit in Herzliya.
- Israel's mobile navigation and traffic community application, Waze, won the "Best Overall Mobile App" prize at the 18th Annual Global Mobile awards at the Mobile World Congress in Barcelona.
- If you search for anything on a smartphone running the new Firefox operating system, it will fire up the software from Israeli start-up Everything.me.
- Israel's Pumpic is for those who frequently want to share large numbers or high quality photos with their friends and colleagues. Users can send up to 10,000 images—each up to 100 MB in size—instantaneously.
- Two Israeli companies Cellebrite and CommuniTake are working together to establish a service that can diagnose and repair smartphones whilst still in the hands of the customer.

COMPUTER SOFTWARE

- Most of the Windows NT and XP operating systems were developed by Microsoft Israel.
- The Pentium MMX Chip technology was designed in Israel at Intel.
- Both the Pentium4 microprocessor and the Centrino processor were entirely designed, developed and produced in Israel.
- Both Microsoft and Cisco built their only R&D facilities outside the US in Israel.
- The technology for the AOL Instant Messenger ICQ was developed in 1996 by four young Israelites.
- USB flash drive was developed and manufactured by M-Systems (in partnership with IBM).
- Quicktionary Electronic dictionary, a tiny pen-sized scanner which is able to scan words or phrases and immediately translate them into other languages, or keep them in memory in order to transfer them to the PC, was developed by Wizcom Technologies Ltd.
- Laser Keyboard, a virtual keyboard projected onto a wall or table top, was developed simultaneously by the Israeli company Lumio and Silicon Valley startup company Canesta.
- Israeli-developed designer eyeglasses provide mobile phone and iPod users a personalized, high-tech video display. Lumus-Optical's lightweight and fashionable video eyeglasses feature a large transparent screen floating in front of the viewer's face that projects their choice of movie, TV show, or video game.
- Turbulence, the world's first hyper-narrative, interactive movie, is also the name of the company developed by Prof. Nitzan Ben-Shaul of Tel Aviv University. The technology allows the viewer to choose the direction of the film's plot by pressing buttons on the PC, Mac or iPad at various moments in the action.
- BriefCam video-synopsis technology lets viewers rapidly review and index original full-length video footage by concurrently showing multiple objects and activities that actually occurred at different times. This technology drastically cuts the time and manpower involved in event tracking, forensics and evidence discovery.
- The Israeli start-up Eqsquest has created what is believed to be the first semantic search engine designed specifically for scientific and mathematical equations. Symbolab allows users to search for equations using both numbers, symbols and/or text.
- Adi Shamir is co-inventor of Differential cryptanalysis.

- Lempel–Ziv–Welch algorithm, a universal lossless data compression algorithm, was created by Abraham Lempel and Jacob Ziv of the Technion institute together with the American Information theorist Terry Welch.
- Babylon, single-click computer translation, dictionary and information source utility program, was developed by Amnon Ovadia.
- ICQ, an Instant Messaging software, was developed initially in 1996 by the Israeli company Mirabilis.
- Michael O. Rabin introduced the concept of nondeterministic finite automats.
- Amir Pnueli introduced temporal logic into computing science.

MEDICINE

- Israeli scientists developed the first fully computerized, no-radiation, diagnostic instrumentation for breast cancer.
- Tel Aviv University researchers have invented a method for repairing damaged peripheral nerves. A biodegradable implant and a new Guiding Regeneration Gel (GRG) relieves pain and restoring mobility.
- Given Imaging developed the camera pill that can perform a virtual colonoscopy eliminating the need for insertion of a colonoscope, sedation, pain medication or any recovery period.
- BabySense is a non-touch, no-radiation device designed to prevent crib death. Made by HiSense, the device monitors a baby's breathing and movements through the mattress during sleep.
- Researchers in Israel developed a new device that directly helps the heart pump blood, an innovation with the potential to save lives among those with heart failure.
- EpiLady, the first electric hair remover (epilator), secured its leading position in the international beauty care market and since 1986 has sold almost 30 million units.
- The optical heartbeat monitor developed by Bar-Ilan University's Prof. Ze'ev Zalevsky is a revolutionary medical technology using a fast camera and small laser light source.
- Mazor Robotics' Spine Assist and other surgical robots are transforming spine surgery from freehand procedures to highly accurate, state-of-the-art operations with less need for radiation.

- TACount real-time microbiology enables the detection and counting of harmful microorganisms in a matter of minutes, rather than the conventional method of cell culture that takes several hours to a few days.
- Itamar Medical's WatchPAT is an FDA-approved portable diagnostic device for the follow-up treatment of sleep apnea in the patient's own bedroom, rather than at a sleep disorders clinic.
- The EarlySense continuous monitoring solution allows hospital nurses to watch and record patients' heart rate, respiration and movement remotely through a contact-free sensor under the mattress.
- The 3D tethered particle motion system developed by three professors at Bar-Ilan allows for three-dimensional tracking of critical protein-DNA and protein-RNA cell interactions in the body.
- Eshkol-Wachman Movement Notation is a notation system for recording movement on paper that has been used in many fields, including dance, physical therapy, animal behavior and early diagnosis of autism.
- The Copaxone immunomodulator drug, which treats multiple sclerosis, was developed in the Weizmann Institute of Science in Israel by Michael Sela, Ruth Arnon and Deborah Teitelbaum.
- Interferon proteins were developed by Michel Revel from the Weizmann Institute of Science in Israel.
- A new acne treatment developed in Israel, the Clear Light device, produces a high-intensity, ultraviolet-light-free, narrow-band blue light that causes acne bacteria to self-destruct without damaging surrounding skin or tissue.
- A team including researchers from Israel's Technion has developed an innovative technique that they believe will cure deformities and blindness caused by ectodermal dysplasia, which affects seven out of every 10,000 babies born in the world.
- Israel's Gamida Cell Ltd. reported success in the Phase III clinical trial of its StemEx treatment for leukemia and lymphoma.
- Thanks to Atid-EDI, a new distribution agreement with Hospira of Illinois means that the Sapphire medical infusion pumps developed for ambulances and hospitals by Israel's QCore Medical will soon be available in more than 60 key markets across Europe, Asia and the Americas.

- Compass3D, a leading provider of 3D Digital Solutions, has begun offering Stratasys 3D Printing Solutions in Brazil. The Objet Eden 3D Printers from Stratasys can be used in conjunction with dental, orthodontics and guided implant products.
- Weizmann Institute scientists have developed Nano-genetic diagnostics which hope to destroy cancerous cells.
- Israel21c is a unique-to-Israel use of virtual reality (VR) has been pioneered at ALEH, Israel's largest network of facilities for children with severe cognitive and physical disabilities.
- Thanks to Israel21c, Israel's Premia Spine offers a unique treatment to those suffering from spinal degeneration. Its artificial titanium joint replaces the posterior spinal column totally. No more pain, full mobility and none of the problems that alternative spinal fusion treatments cause.
- Researchers from Ben-Gurion University and Teva have developed an improved version of an experimental medicine for the treatment of the chronic skin disease psoriasis
- Researchers at Tel Aviv University and Sheba Medical Center have enhanced the immune system using proteins from melanoma (a severe form of skin cancer). T-cells in the immune system are stimulated to produce cytokines, which can fight other cancers in the body.
- Thanks to Atid-EDI, early trials of NiCord (umbilical cord stem cells) from Israel's Gamida Cell, have proved successful in maintaining the health of patients with high-risk hematological malignancies.
- Israel's Enopace Biomedical is developing an endovascular micro-stimulator, which reduces the strain on the heart by expanding the arteries to accept incoming blood.
- Australia approves Israeli robotic spinal surgery. Israel's Mazor Robotics has obtained approval from Australia's Therapeutic Goods Administration (TGA) for the import and sale of the company's Renaissance navigation robot for spinal surgery.
- Tel Aviv University Professor Karen Avraham found that mutations in the LINC cells of the inner ear of an Iraqi family with a history of deafness could lead to new treatments.
- Researchers at Jerusalem's Hadassah Medical Center have found mutations in the LRRC6 gene cause primary ciliary dyskinesia (PCD).
- Weizmann Institute's Professor Michal Schwartz and her team have discovered that immune cells at the edge of the brain travel an extraordinary route to repair brain trauma.

In the elderly, the cells no longer do their function, which could open up new treatments for dementia.

- Professor Rifaat Safadi's team from Hadassah Medical Center in Jerusalem has identified that the normal function of Neuroligin 4 in the immune system is to fight cirrhosis of the liver.
- Sheba Medical Center researchers and Israeli start-up Lev-El Diagnostics of Heart Disease have developed an algorithm that could save lives by quickly identifying patients with heart disease. Patients used to have to wear heart monitors for 24 - 48 hours. Now they are diagnosed in one hour.
- Eighteen Israeli companies develop or market cell-based treatment products - an unprecedented large proportion in relation to the country's population.
- Israeli start-up Oxitone has developed a blood-oxygen monitor that can be worn on the wrist by those "at risk" to warn of any sudden deterioration in their condition. Oxitone has been selected for GE Healthcare's Start-Up Health Academy Entrepreneurship Program – one of only two companies outside of the US to be chosen for their 3-year program that turns fledgling businesses into prime companies.
- Thanks to NoCamels.com, Israeli start-up NowForce has developed a replacement for expensive emergency call centers. It comprises a distress signal app for the smartphone; an app for the rescue worker and dispatch center back-end solution.
- Israeli biotech SciGen's Sci-B-Vac, the only third-generation HBV vaccine, is the best vaccine against Hepatitis B Virus.
- The Integrated Cancer Prevention Center program is considered to be unique in the World. In a few hours you get examined for early detection of at least 11 most common cancers.
- A Tel Aviv University team can diagnose the psychiatric disease of schizophrenia at an early stage by taking samples of nerve cells from the upper internal part of the nose and test for a specific molecule of micro-RNA that has high levels in schizophrenia patients.
- The cure for Syphilis was discovered by Dr. Ehrlich.
- The Wasserman test for syphilis was discovered by a Jew.
- The test to detect Gonorrhoea was discovered by Neisser.
- Digitalis for heart disease was discovered by Ludwig Traube.
- Novocaine used in dental surgery was discovered by Widal and Weil.

- Insulin for Diabetes was the result of research by Minkowsky.
- Chloral Hydrate, used to control convulsions, was invented by a Jew.
- The Schick reaction for Diphtheria was invented by Bella Schick.
- The Polio vaccine, which eliminated Infantile Paralysis as a major health threat, was discovered by Jonas Salk.
- Streptomycin, which is used to treat Tuberculosis, was invented by Zalman Waxman.

[TOP](#)

BIOTECHNOLOGY

- Nanowire - an conductive wire made of a string of tiny particles of silver—a thousand times thinner than a human hair—was developed by Uri Sivan, Erez Braun and Yoav Eichen from the Technion.
- World's smallest DNA computing machine system (the smallest biological computing device ever constructed according to Guinness Book of Records) was developed in the Weizmann Institute of Science by professor Ehud Shapiro and his team.
- A team of Israeli, American and Canadian scientists has unraveled the workings of anti-freeze proteins that allow animals, plants, fish and microorganisms to exist in cold climates. The discovery can help improve food and medicine production around the world.

CHEMISTRY

- Discovery of Quasicrystals by Dan Shechtman of the Technion, for which he was awarded the Nobel Prize in Chemistry
- Discovery of the role of protein Ubiquitin by Avram Hershko and Aaron Ciechanover of the Technion Institute (together with the American Jewish biologist Irwin Rose) for which they were awarded the Nobel Prize in Chemistry

PHYSICS

- Eshkol-Wachman Movement Notation
- Prediction of Quarks by Yuval Ne'eman of Tel Aviv University (together with the American physicist Murray Gell-Mann)

- Discovery of the Aharonov–Bohm effect by Yakir Aharonov and David Bohm
- Formulation of Black holes Entropy by Jacob Bekenstein of the Hebrew University of Jerusalem

AGRICULTURE

- Refinement of existing Drip Irrigation Systems by introducing a non-clogging plastic emitter was invented by the Israeli engineer Simcha Blass and his son Yeshayahu. This method was very successful and subsequently spread to Australia, North America, and South America by the late 1960s.
- Cherry tomatoes were developed by a group led by Nachum Kedar and Haim Rabinowitch from the Agriculture Faculty of the Hebrew University in Rehovot.
- Israeli start-up Veterix has developed an innovative new electronic capsule that sits in the stomach of a cow, sheep, or goat, sending out real-time information on the health of the herd to the farmer via email or cellphone. The e-capsule, which also sends out alerts if animals are distressed, injured, or lost, is now being tested on a herd of cows in the hopes that the device will lead to tastier and healthier meat and milk supplies.
- Israeli date trees are now yielding 400 pounds/year and are short enough to be harvested from the ground or a short ladder.
- Israeli scientists in Israel found that the brackish water drilled from underground desert aquifers hundreds of feet deep could be used to raise warm-water fish.
- Netafim is a worldwide pioneer in smart drip and micro-irrigation, starting from the idea of Israeli engineer Simcha Blass for releasing water in controlled, slow drips to provide precise crop irrigation. The kibbutz-owned company operates in 112 countries with 13 factories throughout the world.
- Rosetta Green, a 2010 spinoff of the agro-biotechnology division of Rosetta Genomics, develops improved plant traits for the agriculture and biofuel industries, using unique genes called microRNAs.
- Israel exports 60 million roses, orchids, Bonsai trees and other flowers to Europe for Valentine's Day.
- Israeli start-up 22Seeds is raising finance for Greenbox - a revolutionary iPhone-controlled wireless irrigation system. From the comfort of your home you can program

your irrigation valves, optimize water usage, import water programs, integrate with weather forecasts and much more.

- Thanks to Israel21c, Israeli farmers in the Negev have cut their use of chemical pesticides by about 80%. They use natural predators – bugs that don't harm the crops. Also they allow the land to rest in the July heat to kill off any remaining insects and fungus diseases in the soil.
- Israeli farmer invents solution for lemon rot. Rafi Koren, a lemon farmer from Moshav Avigdor near Kiryat Malachi has invented a product that prevents the spread of Mal Secco, a fungal disease affecting citrus trees that has been known to kill entire lemon groves.
- The commercial arm of Israel's Weizmann Institute has developed a system to protect soil and groundwater from contamination from pesticides. Environmentally friendly substances called prophyrins act as catalysts to dissolve toxic substances into harmless ones after they have served their pest-killing purpose.
- Israeli start-up Catalyst Ag Tech is commercializing the system that introduces eco-friendly catalysts into the soil to break down the dangerous chemicals into inert compounds.
- Israel's Dimona Silica Industries has developed a road asphalt compound that uses old tires for strength and safety. The new compound, RuBind, recycles many of the 50,000 tires disposed of every year, and is already in use in Israel's Beit She'an Valley.

ENERGY

- Rooftop solar hot-water system
- A new class of a rechargeable electric battery based on a special kind of iron was developed by Stuart Licht of the University of Massachusetts.
- Energy tower - a theoretical alternative electricity generation and water desalination technology in low cost. The Energy towers spray water on hot air at the top of the tower, making the cooled air fall through the tower and drive a turbine at the tower's bottom. The brainchild of the American physicist Phillip Carlson which was expanded by Professor Dan Zaslavsky and Rami Guetta from Israel's Technion

- A unique technology for producing hydrogen in vehicles as an alternative fuel source was produced by the Israeli company Engineuity and was invented by Amnon Yogev and Eli Gmaazaon.
- An Israeli company was the first to develop and install a large-scale solar-powered and fully functional electricity generating plant, in southern California 's Mojave desert.
- Ormat Technologies designs, develops, builds, owns, manufactures and operates geothermal power plants worldwide, supplying clean geothermal power in more than 20 countries.
- Leviathan Energy innovated the Wind Tulip, a cost-effective, silent, vibration-free wind turbine designed as an aesthetic environmental sculpture, producing clean energy at high efficiency from any direction.
- Solaris Synergy innovated an environmentally-friendly and economically beneficial way to float solar panels on water instead of taking up valuable land, generating energy while protecting and limiting evaporation from reservoir surfaces.
- ZenithSolar developed a modular, easily scalable high-concentration photovoltaic system (HCPV). The core technology is based on a unique, proprietary optical design to extract the maximum energy with minimal real estate.
- Israel-Cyprus Sign Gas and Oil Explorations Deal. Israeli firms Delek and Anver signed an agreement to acquire a 30% stake in exploration rights for gas and oil off Cyprus's southern shore.
- The 2012 Munich Cleantech Conference awarded their very first MCC Venture Award to Israel's TIGI. TIGI's Honeycomb solar thermal collectors generate heat for space heating, domestic or industrial uses at extremely high efficiency.
- Israeli wind sensor company Pentalum Technologies has raised \$5.5 million to expand production of SpiDAR, a cost effective device for remote sensing of wind. The device is 20% of the price of competitors, allowing wind farms to improve electricity production by up to 10% - equal to millions of dollars.

ENVIRONMENTAL

- Israel is the only country in the world that entered the 21st century with a net gain in its number of trees, made more remarkable because, this was achieved in an area considered mainly desert.

- IDE Americas Inc., a subsidiary of Israel's IDE Technologies Ltd that is already responsible for the brunt of Israel's salty-to-fresh water transformation, will be designing a 204,412-cubic-meter seawater desalination plant for the San Diego, California region.
- Pythagoras Solar makes the world's first solar window, which combines energy efficiency, power generation and transparency.
- Hazera Genetics, a project of two professors at the Hebrew University Faculty of Agriculture, yielded the cherry tomato, that ripens slowly and doesn't rot in shipment.
- Better Place electric car network, Israeli Shai Agassi's brainchild, is implementing the Israeli pilot that will provide a model for a worldwide electric car grid.
- Elya Recycling developed and patented an innovative method for recycling plastic based on a specialized formulation of natural ingredients. Making the new raw material for handbags, reusable totes and lumber products requires 50% less energy than current recycling methods and 83% less energy than virgin manufacturing.
- HydroSpin is developing a unique internal pipe generator that supplies electricity for water monitoring and control systems in remote areas and sites without accessibility to electricity.
- TourEngine significantly reduces fuel consumption and harmful emissions by common engines through a sophisticated thermal management strategy. It can also be easily integrated with future hybrid engines, further improving their efficiency and environment-friendly attributes.
- Takadu provides monitoring software to leading water utilities worldwide. The product offers real-time detection and control over network events such as leaks, bursts, zone breaches and inefficiencies.⁴¹ Heliofocus led an industry trend to provide solar-energy boosting for existing coal or gas power plants, reducing carbon emissions and overall costs.
- Transbiodiesel makes enzyme-based catalysts (biocatalysts) used in the production of biodiesel.
- Israel's Atlantium has developed Ultra-Violet systems (validated by the U.S. Environmental Protection Agency) to render germs harmless without damaging equipment or generating high levels of ozone.
- South America and India to go Blue. (Thanks to EDI) Israel's Blue I Technologies has raised \$3 million, for expansion into South America and India. Blue I's advanced

water controllers and analyzers measure parameters such as Chlorine, pH, Redox, turbidity, conductivity and temperature.

ECONOMICS

- Work of Daniel Kahneman and Amos Tversky of the Hebrew University of Jerusalem explaining irrational human economic choices.
- Developments in Game theory. Israel Aumann of the Hebrew University of Jerusalem received the Nobel Prize in Economics for his work in this field
- The Rubinstein bargaining model, one of the most influential findings in game theory, refers to a class of bargaining games that feature alternating offers through an infinite time horizon. The proof is from Ariel Rubinstein 1982

DEFENSE

- Boeing protects planes with Israeli defense system. Boeing will offer Elbit Systems-produced directed infrared countermeasures (DIRCM) equipment with all of its military and civil aircraft. Boeing is working to integrate the systems on to new and existing aircraft.
- Uzi Submachine gun was invented by Uzi Gal.
- Gabriel - a sea-skimming anti-ship missile
- Arrow - a family of operational anti-ballistic missiles. Jointly funded and produced by Israel and the United States
- Protector USV is an unmanned surface vehicle, developed by the Rafael Advanced Defense Systems. It is the first of its kind to be used in combat.
- Python - a family of air-to-air missiles (AAMs) was built by the Israeli weapons manufacturer Rafael Advanced Defense Systems.
- Unmanned aerial vehicles, aircraft that flies without a human crew on board the aircraft, was developed by Israel Aircraft Industries.
- Nautilus laser system, a laser developed for military use, was jointly funded and produced by Israel and the United States.
- Iron Dome, the only proven-to-work mobile anti-missile and anti-artillery air defense missile-based system, by Rafael Advanced Defense Systems, was designed to intercept

short-range rockets and artillery shells. On April 7, 2011, the system successfully intercepted a Grad rocket launched from Gaza, marking the first time in history a short-range rocket was ever intercepted. The system has proven very successful in defending Israel from missile attacks by Hamas.

- Barak 1 is a surface-to-air missile designed to be used as a point-defense missile system on warships, defending against aircraft, anti-ship missiles, and UAVs.

MUSIC

- Multi Spectral Infrared Countermeasure, a system that counters surface-to-air heat-seeking missiles, is manufactured by Elbit Systems.
- MagnoShocker, which combines a metal detector and a taser, was developed by the mathematician Amit Weissman and his colleagues Adir Kahn and Zvi Jordan.
- Reconnaissance satellite TecSAR was developed and built by Israel Aerospace Industries.
- Tavor TAR-21 assault rifle is a modern assault rifle designed with the aim to be used as the IDF's standard assault rifle. The rifle was developed by Magen, the small arms division of the Israel Military Industries (IMI).
- Technion Satellite, launched into space in July 1998, is one of the smallest satellites in the world. Cube-shaped satellite which has 45 centimeter-long sides and weighs 48 kilograms and has an extremely low power consumption.
- Israel to make wings for F-35. Israel Aerospace Industries has signed a long-term contract with US defense giant Lockheed Martin to produce wings for the F-35 next-generation fighter jet. State-owned IAI already manufactures the wings for the F-16 jet and the T-38.
- Wall radar, a unique radar which utilizes Ultra Wide Band (UWB) that to allows users to see through walls, was developed by the Israeli company Camro.