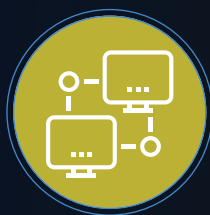


THE HI-TECH INDUSTRY IN ISRAEL





THE ISRAELI INVESTMENT PROMOTION AGENCY

Invest in Israel is an integrative body within the Ministry of Economy and Industry that serves as a one-stop shop for a wide range of potential and existing investors. Invest in Israel identify lucrative investment opportunities, map potential obstacles and help fast-track investment.

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Expert sector managers that
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from initial interest to
successful investments

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Providing ongoing assistance
to overcome challenges,
bureaucratic obstacles,
expanding operations and
promoting conducive
environment for foreign
investors

WHERE COMPANIES COME TO SHINE

THE HI-TECH INDUSTRY IN ISRAEL



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DEFINING THE HI-TECH INDUSTRY

Hi-tech means supreme technology. It generally refers to industries related to computer technology, but can also refer to electronics, biotechnology and more.

HI-TECH INDUSTRY SEGMENTATION



The Primary Segments of the Hi-Tech Industry

The hi-tech industry can be divided into four primary sectors:



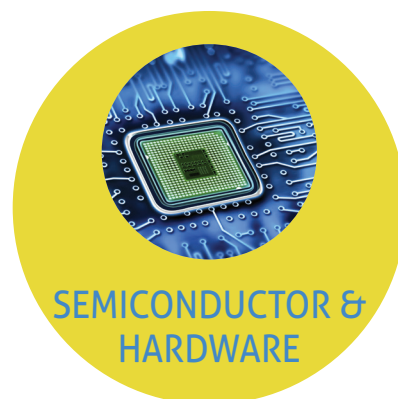
INTERNET



TELECOMMUNICATION & NETWORKS



IT & ENTERPRISE SOFTWARE



SEMICONDUCTOR & HARDWARE

Internet

The Internet segment includes companies that develop software applications and services that are used primarily over the Internet, as well as technologies that are used by Internet suppliers and users.

Telecommunication & Networks

Networking includes processes and systems for transferring data between computers or electronic devices. The data is transferred over cables or wireless connections, rather than physically transferring the data using data storage devices, such as memory sticks.

The Networks segment includes advanced technologies in private and public communications markets, as well as networking infrastructure, applications and devices.

IT & Enterprise Software

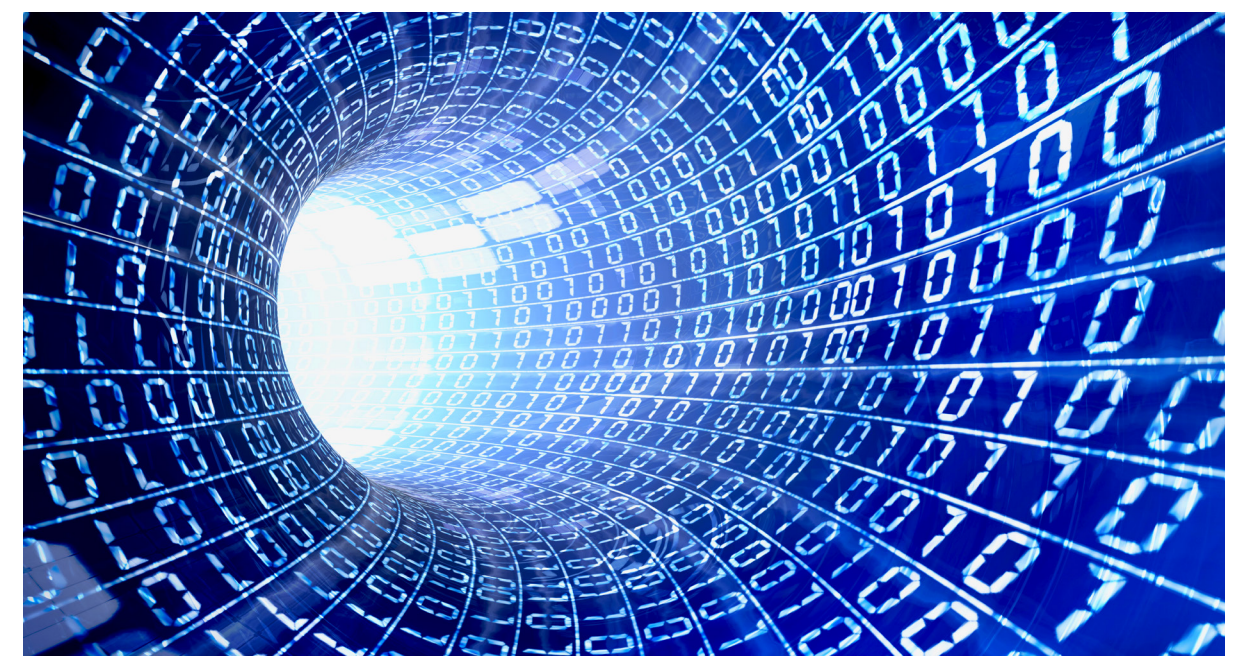
This segment includes various software sub-segments, with an emphasis on information technology for the enterprise market. It includes companies that develop software products for organizations and for organizational end users, as well as those that develop software for home use.

Enterprise software generally serves large organizations such as government companies

and institutions, and is an integral part of their computerized information systems. The services provided by enterprise software generally include business tools such as e-commerce, automatic billing systems, information system security, customer relations management, organization resource management, and more.

Semiconductor & Hardware

Semiconductors are physical components of a computer system. Computer hardware is a general title for the elements that comprise a computer – the monitor, mouse, keyboard, hard disk drive, graphics cards, memory, motherboard, etc.





1 | Internet

The Internet segment includes the following sub-segments:

- **Online advertising:** Tools and technologies for Internet marketing and advertising. This includes market analysis and consumer research tools for advertisers and website owners.
- **Internet applications:** Internet applications are special software applications exclusively for Internet users and publishers. They include user applications such as online messaging, email and browser add-ons, as well as publishing applications such as website building, design tools and traffic monitors.

Digital media: Processes and technologies that help collect information in various ways, and then manage and advertise it.

Data collected in the US and England show a significant increase over the last four years in the amount of time that people spend consuming digital media, while the time spent on other forms of media is either declining or stationary.

The increasing popularity of digital media has changed the philosophy of global advertising; marketing and advertising experts are following the trends and their budget allocations for digital media are expected to increase accordingly.¹

Data collected in the US and England show a significant increase over the last four years in the amount of time that people spend consuming digital media, while the time spent on other forms of media is either declining or stationary.

- **E-commerce:** Refers to all types of commercial businesses and transactions that require transferring information over the Internet. E-commerce covers a wide range of businesses – from retail and auction websites to business to business (B2B) services.
- **E-learning:** Education over the Internet, network or individual computer. E-Learning refers to instilling skills and knowledge using applications and electronic processes.
- **Gaming:** Refers to running special applications that are known as electronic games, either installed on designated computers or played on the Internet using personal computers. The gaming industry can be divided into several segments, based on the screen the game is being played on.
- **Internet infrastructure:** The physical hardware, transmission media and software that link computers and Internet users. The infrastructure includes Internet servers,

Internet storage, Internet networking equipment and infrastructural software.

Internet infrastructure is based on cloud computing services – services that a user can access remotely by connecting to them over the Internet or by using a designated networking line.

The cloud helps avoid the cost of purchasing infrastructural equipment and software, and allows the users to control and regulate the computing power that they need.

- **Search engines:** software systems designed to search for information on the Internet. Semantic network technologies are extremely important for enabling search engines to provide accurate and relevant results based on the meta-data.
- **Social networks:** a map of relationships between people, ranging from random encounters to family relations. This segment includes social networking websites in addition to companies that offer unique applications for websites of this kind.

According to data published by Edison Research and Triton Digital, as of 2017, Snapchat and Facebook are the most popular social networks for American youth, with 79% and 76%, respectively, of youth aged 12-24 connecting often.²

2 | Telecommunication & Networks

Telecom, also referred to as *data communication*, includes all forms of communications and networking that involve signals, such as radio, satellite, Internet or any other type of signal. Information is coded into signals supported by communication protocols and transferred from party A over a network of components until it is received and deciphered by party B. Today, telecommunications are often divided into three primary sub-segments: telephone (and fax), Internet and computer networks (broadband), and mobile technology.

The three key layers of the telecommunications market are infrastructure and hardware (metal cables, optical fibers); information transfer protocols (software); suppliers and service providers (ISP, telephone companies, mobile suppliers).

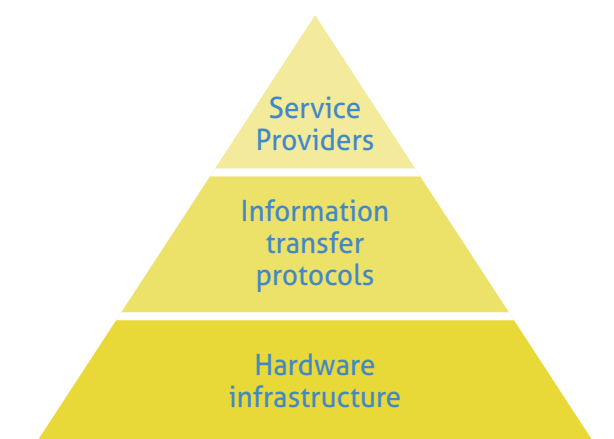


Illustration 1 – Basic layers of the telecommunications market



3 | IT & Enterprise Software

The IT & enterprise software segment includes the following sub-segments:

- **Business intelligence:** An area of IT that focuses on building systems that help organizations derive significant business information from the immense quantities of data that they collect. Business intelligence technologies include data mining, online analytical processing, business performance management, benchmarking and predictive analytics.
- **Enterprise applications:** Computer applications that perform business functions in an organizational setting. Functions include processing orders, procurement, timing production stages, managing customer information, energy management and accounting. Enterprise applications are complex, hierarchic and crucial to the organization's success.
- **Enterprise infrastructure:** Hardware, software, network resources, and services required to maintain, operate and manage an organizational IT environment. Enterprise infrastructure allows the organization to provide solutions and services for its employees and clients. It is generally internal infrastructure that is distributed throughout the organizational facilities.

- **Security:** Security software products are embedded into the computer or available as software packages. They are designed to protect the computer from threats such as viruses, Trojan horses, spyware, computer worms, advertising programs, keystroke logging, phishing, scams and spam. Data published by McAfee and the Center for Strategic and International Studies shows that cybercrime cost the world between \$445 and \$608 billion in 2017, \$100 billion more than the minimum worldwide cost estimated for 2014.²⁵ According to an analysis conducted by Cybersecurity Ventures, the cost of cybercrime could reach \$6 trillion by 2021.²⁶



4 | Semiconductor & Hardware

The semiconductor segment has grown rapidly since the 1980's, following the entry of desktop computers, and has become one of the major forces in the Hi-tech industry. The segment is highly competitive and technology-driven, with companies striving to make everything smaller, faster, and more powerful. As such, research and development is an important part in becoming a leading company in the market. Small companies find it hard to succeed under such conditions, and are often merged or acquired by larger corporations, who dominate the market.

Integrated circuits (IC)

Called both chips and microchips, these are the basic elements of every electrical circuit today. They allow for the assembly of a vast number of components on a minimal surface area, thus creating an opportunity to create better and smaller devices.

The segment is divided into additional sub-segments, with every sub-segment requiring different expertise in the production and development of the components. The main sub-segments are Memory, Microprocessors, and Network & Telecommunications.

Memory refers to components for the temporary storage of information for computers or other electronic devices (phones, cameras, music players, instruments, equipment, etc.).

Microprocessors are the Central Processing Unit (CPU) that contains numerous components that

hold the information required for the execution of a broad range of activities.

Network & Telecommunications chips are intended solely for the telecommunications segment. Their capabilities are specifically geared to the needs of the telecom market, which is extremely demanding. Other sub-segments include System on a Chip, Optical Semiconductors, Radio Frequency Identification (or RFID), Automotive, Power Control, and Smart Cards.

Research and development

The technological aspect of the segment forces companies to look for the competitive edge. However, technological developments are not always adopted by the general market, for various reasons. The ability of leading companies to correctly estimate the degree of adoption of new technologies in the market is key to staying at the forefront. Sometimes ideas are considered funny or weird, and even superstitions might alter user decisions. But nonetheless, strong R&D is vital to maintaining the edge.

Leading companies invest considerable budgets in their R&D departments, while seeking small companies to purchase. In 2017, the total worldwide semiconductor R&D expenditures was \$58.9 billion. That year, the ten largest semiconductor R&D spenders, including Intel and Qualcomm, increased their collective expenditures to \$35.9 billion, an increase of 6% compared to 2016.³ McKinsey points to a direct correlation between the budgets allocated to research and development and the company's future income.⁴



Virtual and Augmented Reality

Augmented reality is a technology that replicates reality. This reality incorporates virtual elements such as tunes and illustrations on the screen, and converts reality into an interactive one that merges with the user's actual surroundings in real time. Virtual reality, on the other hand, completely replaces the real world with a virtual one. The surroundings are simulated to the greatest extent possible, using a computer or mobile phone in order to convince the users that they are actually located in the place simulated by the computer, without the feeling they are using a computer. Virtual reality is used for entertainment, learning and training.

According to Hampton Partners researchers, global market size of the VR sector will likely surpass \$17 billion by 2022. Augmented reality is forecast to see a growth of 85.4% CAGR and reach a size of \$161 billion by 2022.⁵

IoT - Internet of Things

Installing objects – chips, sensors and software, into a wide range of items and then connecting them to the Internet. The connected objects may include home electronic appliances, wearables, vehicles, thermostats and more. Manufacturers have already begun to market smart watches, fitness trackers, and smart home devices, but

this is only the beginning. IoT offers new ways for organizations to communicate with their clients, track employee performance, and more. The challenge will be to find a way of storing and analyzing the vast quantities of data that will be generated by these smart devices.⁶ Asking what is communicative will become redundant, as everything will be.⁷

Wearable Technology

clothing and accessories that incorporate computers and sophisticated electronic technologies. These functions and features are often practical ones. Wearable devices are a good example of IoT, as they are part of a network of physical objects that incorporate electronics, software, sensors and links that support sharing data without human intervention. These devices will soon be able to connect to the Internet without a third-party mobile device, which will pave the way for the development of this entire technology.⁸

Different types of data such as activity levels and sleeping patterns will be designed to automatically and objectively rate the products that we use.

We will soon be able to obtain genuine indications of the quality of food served at a restaurant, how scary a movie is, and how nerve-racking a journey is, based on the biometric responses of people who have had these experiences.

We will soon be able to obtain genuine indications of the quality of food served at a restaurant, how scary a movie is, and how nerve-racking a journey is, based on the biometric responses of people who have had these experiences.

As this sector develops, wearable technology companies will have to share their data for third-party data mining purposes. There will not be one single item that reveals all, but rather thousands of different wearables that sense different things, track them and generate data.⁹

Blockchain Technology (Cryptocurrency)

Cryptocurrency is a payment method ("currency") that was created using technology. The value of this currency is not defined by the value of merchandise or by a central organization, but rather by agreements between a network of users. The most well-known example of cryptocurrency is the **Bitcoin**, which is the basis for most other existing cryptocurrencies.

Blockchain is a decentralized database that is based on the bitcoin protocol. It stores a constantly growing list of data records that is protected against fraud.





Recent investments in the industry show that blockchain applications are expanding beyond payment and are penetrating the healthcare, funding, financial services and even music industries.

According to projections, blockchain technology is expected to mature beyond being the “technology behind bitcoins”.

Today, blockchain is garnering headlines for the vast ecosystem of cross-industry use cases emerging around it. Blockchain is now finding applications in every region and sector.¹⁰

Autonomous Vehicles

self-navigating vehicles that overcome obstacles without human intervention and without preparing the road or its surroundings in advance.

Although it may take several years until we begin to see entirely autonomous vehicles, progress has been made in this industry from both technological and regulatory perspectives. 2019 looks poised to see a great deal of development in driverless technology, as well as some on-the-road achievements.¹¹

Mobile Everything

One of the main current trends in telecommunications is the increased use of mobile communications, which is growing at a faster pace than fixed communications. Many developing countries prefer to use mobile communications in order to avoid the high costs of installing wired infrastructures. In places in which these infrastructures exist, it is often too slow for users and they prefer the mobile option. The global mobile industry will reach 5.9 billion unique mobile subscribers by 2025, equivalent to 71% of the world’s population. A more significant growth opportunity lies in mobile Internet – a market which is expected to reach 5 billion mobile Internet users in 2025.⁴⁹



The ability to connect from any location is a basic necessity in today’s world, not a luxury.²⁷

This leading trend is actually comprised of two main components – mobility and connectivity; two concepts that intertwine and advance one another. This trend is further stimulated by the IoT, which is expected to add a tremendous number of devices to the Internet. The number of IoT devices that are active is expected to grow to 10 billion by 2020 and 22 billion by 2025.¹² Many of these devices will connect to the mobile network.

The network infrastructure cannot provide adequate service for users at all locations, including in homes, offices and rural areas. There are several developments that address these issues, including: 5G – the next mobile network protocol that will enable faster browsing and support additional users per cell; and Voice over Wi-Fi/LTE – a protocol offered by service providers for transferring voice over IP on the Internet in a more organized way.

Datafication

Datafication (data overload) is one outcome of the combination of increased quantities of data transferred over the Internet and growing data transfer rates. The amount of data transferred over the Internet is expected to double and even triple over the coming years, especially due to increased video traffic (videofication) on social networks and content sites. The network will be forced to transfer



increased data in less time in order to support real time viewing services. Another contributor to datafication is the IoT. Enhanced use of cloud services, including storing and receiving content, will require more frequent and rapid file transfers than before.

Datafication (data overload) is one outcome of the combination of increased quantities of data transferred over the Internet and growing data transfer rates.

In order to cope with these challenges, several new trends are emerging such as **Fiber to the Home/Curb (FTTx)** and **Convergence**.



General

In today's world, where globalization processes have reinforced beliefs that boundaries no longer exist and that physical distance is no longer an obstacle, it is easy to mistakenly argue that ecosystems, a geographic concept, are obsolete. Only when carefully exploring the traits that characterize successful startup companies and understanding the challenges that they face, especially at the initial phases, can we conclude that a supportive, efficient working environment is a key factor for success.

Venture capital funds are the main funders of successful startup companies, but most of their investments arrive at relatively late stages in the game and are granted to companies that have already proven their success. Most startup companies are dependent on investments from private angels who invest in a relatively large number of companies that are just starting out. What motivates an angel to invest in a specific company? Is a good idea enough of a motivator? The global market is so saturated with excellent ideas that people often say that there are no new ideas left.

The ultimate deciding factor for the decision to invest in a company is its human capital. Despite all of the advantages that today's communications technologies have to offer, trust is best built through personal interaction.

Unlike large companies with organized work routines, predefined goals, and well-established procedures, startup companies face new

challenges every day. Their work routine is constantly changing, and goals and targets are defined independently. Establishing a successful startup company requires several unique traits: the perfect combination of vision and performance, the right balance between taking risks and motivation driven by fear of failure, and excellent leadership and attentiveness qualities. Talent is no less important than personality in this case, and is extremely significant. Many people have the necessary training, but few can utilize their skill to create exceptional, ground-breaking solutions.

The ultimate deciding factor for the decision to invest in a company is its human capital. Despite all of the advantages that today's communications technologies have to offer, trust is best built through personal interaction.

One of the most important success factors for new startup companies is an inspiring work atmosphere and excellent interpersonal relationships. In such a frenzied environment, it is crucial for all of the team members to work together in a shared workspace.

Startup companies are also unique in their ability to change strategies following feedback from customers, even if these changes contradict the company's fundamental presumptions.

Entrepreneurs must therefore be open to their potential clients who will help develop the final product, just as much as they require the skill to develop the product. In addition, no new entrepreneur is expected to know everything about growth strategies, funding, taxation and employment laws, innovative technologies and marketing – which is where the mentor role arises. A mentor offers moral support and advice, opens doors, and encourages the team as they start out.

Studies show that startup companies that worked with a mentor displayed growth rates that were 3.5 times higher than other companies, and raised 7 times the funds raised by startup companies that did not work with a mentor.¹³

Despite all of the glamorous technologies that drive successful startup companies, human interaction is the factor that contributes most to success, while technology plays only a secondary role.

Where can investors and private entrepreneurs find one another? Where can a new entrepreneur seek employees who possess the rare combination of personality and skill required to create a powerful and successful team? Where is the best place to find the perfect variation of clients and dedicated mentors? The answer to these questions can be found in a flourishing local business environment - a supportive, successful ecosystem.

Due to these factors and considerations, certain

geographical locations have become home to significant concentrations of startup and hi-tech companies over the years. It has yet to be proven that an ecosystem improves a startup company's chance for success on an individual level, but it certainly is an enormous producer of an immense number of startup companies, and eases the initial inception stages.

Israel's technological excellence has been acknowledged by the global industry. Many leading international hi-tech companies have established R&D centers in Israel. Companies such as Intel, Microsoft, Cisco, IBM and Apple chose Israel as the site for their first development centers outside of the US. In addition, many Israeli directors hold senior management positions in global technology companies.

The Israeli hi-tech industry has many of the qualities of a business ecosystem. It includes a large number of enterprises and the environment necessary to facilitate unprecedented growth and success on a global scale.

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The Tel Aviv Ecosystem in the Global Arena

Tel Aviv has the highest number of startups per capita in the world ¹⁴, and was ranked sixth worldwide in the 2019 Global Startup Ecosystem Report. ²⁸ There are over 5000 companies in Tel Aviv, most of them specializing in IT, information security and communications technologies, and their total value is estimated at \$23.7-\$28.9 billion.

The main advantage of the Tel Aviv ecosystem is the professional experience of its local human resources. Approximately 49% of employees are now working for their second startup company, which is 21% higher than the European average.

Tel Aviv also ranks first in accessibility to the global market, with double the extent of international clients compared to Silicon Valley. In addition, startup companies in Tel Aviv have succeeded in raising more capital than their European competitors, reaching approximately 38% more than the European average.

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The Local Hi-Tech Industry

It is impossible to refer to all hi-tech companies in Israel as a single industry with uniform characteristics and types of activity. There are, in fact, two active hi-tech sub-industries in Israel that co-exist but differ in essence. One is a mature sub-industry of medium-large companies that employ the majority of hi-tech workers and have a significant impact on the macroeconomic aggregate data of the hi-tech industry, including output (the five largest hi-tech companies in Israel are responsible for approximately one-third of total hi-tech output), exports and employment. This sub-industry enjoys relatively static, stable performance over time. Alongside this sub-industry is a second one that consists mostly of young, competitive startup companies that perform in a frenzied, rapid and relatively unstable market. Macroeconomic parameters such as exports, gross added value, and number of salaried employees, must be considered in order to evaluate the state of the medium-large companies. Small companies, on the other hand, are assessed by the number of exits, the value of the exits, funds raised, and the number of new companies in the market.

These two sub-industries co-exist in a single business environment. They are connected to each other and inspire one another. Hi-tech industry growth rates in recent years show that some of the small companies grow into large, well-established ones.

Business data

Technological innovation has played a key role in the success of the local hi-tech industry over the last few decades. Israeli companies contribute greatly to shaping all aspects of the technological world of tomorrow, from computer chips to popular applications. The Israeli hi-tech industry is known as "Silicon Wadi", indicating the great value attributed to the industry by international companies and enterprises. In 2017 there were over 5,500 different active hi-tech companies in Israel. ¹⁵ In 2018, Israeli high-tech companies raised \$6.4 billion in 623 deals, marking a record following six years of the consecutive growth. 2018 had a 18% increase in the number of seed financing deals, compared to the previous year. ²⁹

In fact, Israel ranks first in the world for venture capital raised per capita. The high percentage of capital from foreign investors (88%) indicates the power of the local market and its excellent reputation. ⁵¹

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An exit is defined as an IPO (initial public offering) or a merger or acquisition (M&A). The value of exits is the primary index for evaluating the strength of the local market. In many cases, large international technology providers began to operate in Israel following the acquisition of a local company. Hundreds of Israeli companies were sold over the last ten years. In 2017, the total transaction value for exits of Israeli companies reached \$23 billion. The number of exit transactions of all types (IPOs, strategic M&A and private-equity buyout deals) amounted to 112. Two mega-exits exceeding \$1 billion accounted for almost 72% of the total value. Mobileye was acquired by Intel for \$15.3 billion

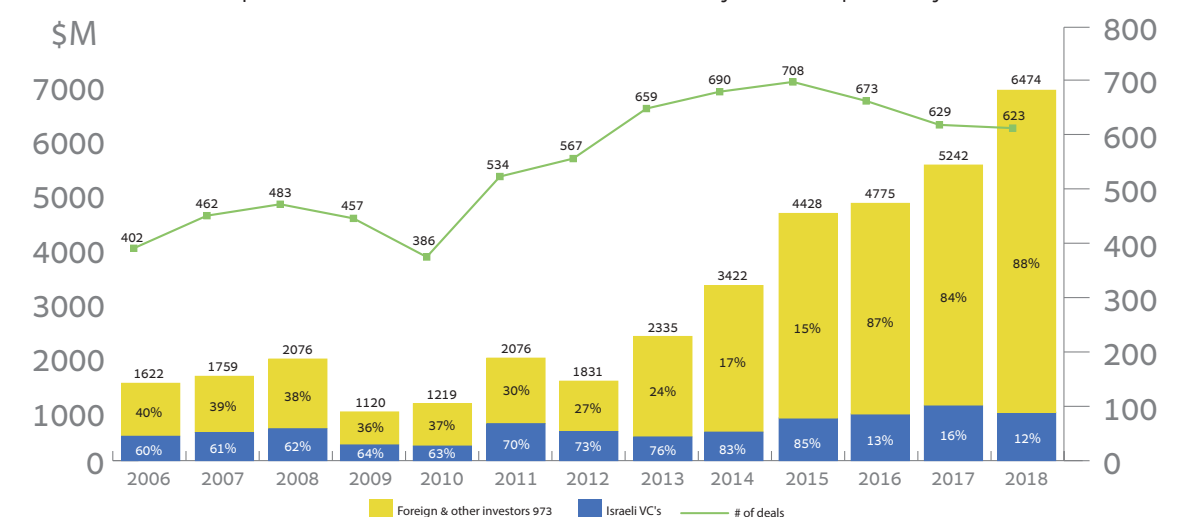


Illustration 6 – Capital raised by the hi-tech industry in Israel, 2006-2018 Source: IVC Research Center, 2018



and NeuroDerm was acquired by Mitsubishi Tanabe Pharma for \$1.1 billion. When excluding these two deals, the total transaction value was \$6.6 billion, an increase of 19% from 2016.⁵⁰ This information, combined with the fact that the average time period for company acquisitions has increased to 9.5 years, seems to indicate greater confidence of international funds in Israeli companies. This is reflected in the longer time period that companies are given to mature and reach their full potential.

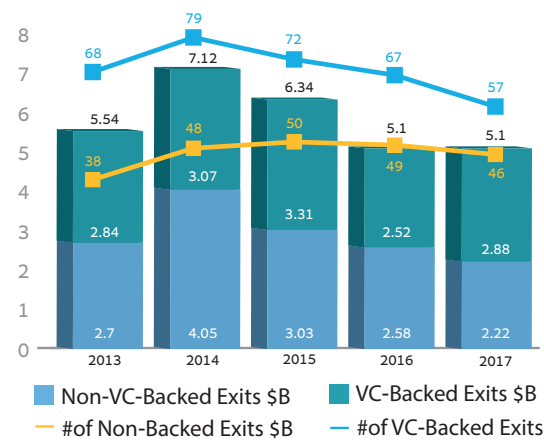


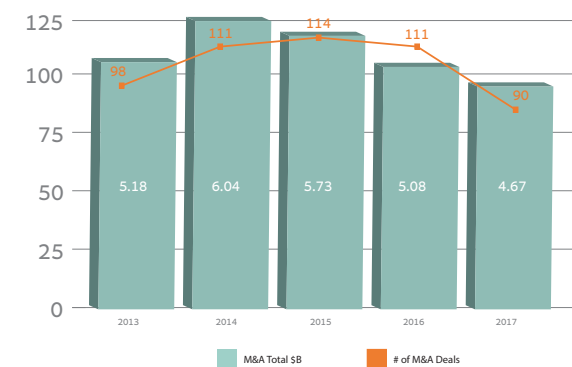
Illustration 7 – Quantity and value of Israeli hi-tech company exits, 2013-2017; Source: IVC Research Center, 2017

Israel's reputation as the Startup Nation is especially reinforced by the number of companies traded on NASDAQ – a total of 85 Israeli companies worth over \$55 billion in total, the third largest figure outside of the US, after Canada and China.¹⁷

As mergers and acquisitions are the most common forms of exits among Israeli companies,

meticulously assessing them can provide vast information on the Israeli startup sector.

In 2017, there were 92 mergers and acquisitions, totaling \$21.07 billion. When excluding the mega deals, the number of M&A transactions was 90, totaling \$4.67 billion.¹⁷



* Without deals above \$1B

Illustration 8 – Mergers and acquisitions of Israeli hi-tech companies, 2013-2017; Source: IVC Research Center, 2017

In keeping with the trend seen in previous years, over 30% of all exits in 2017 are in IT & Enterprise software. This can be attributed, among other things, to the number of large cyber deals this year. It shows that demand still exists for technologies that are geared to specific verticals, like automotive, finance and industry 4.0.

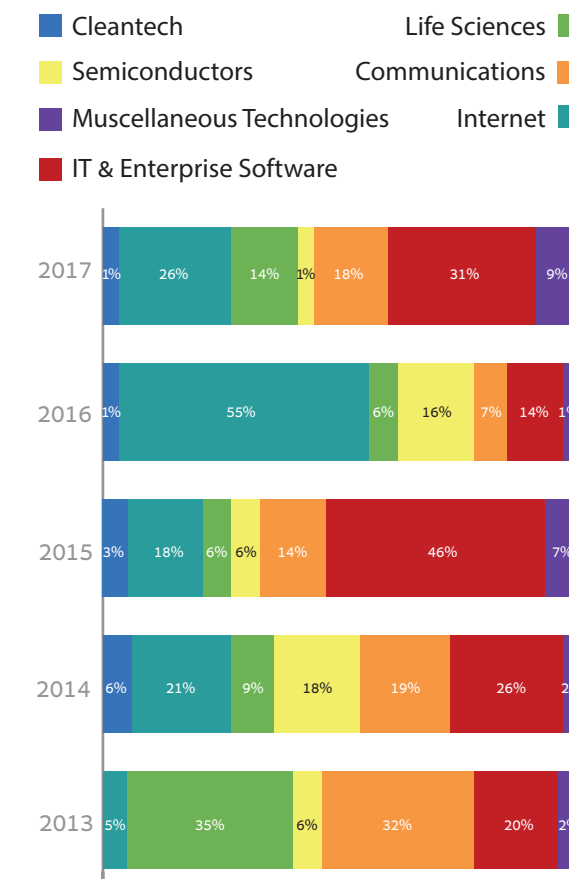


Illustration 9 – Israeli hi-tech exits per sector (%), 2013-2017; Source: IVC Research Center, 2017

Main components of local success

This steady investment over time is proof of a government policy aimed to encourage entrepreneurship and facilitate growth of new ideas.

Government investments

Since the beginning of the 21st century, Israel has been a world leader in national investments in research and development when calculated as a percentage of GDP, maintaining a steady average of 4.2%. Today, Israel's expenditure on R&D as a percentage of its GDP is the highest in the world. In 2016, expenditure reached 4.25, far above the 2.34% OECD average.¹⁸

This steady investment over time is proof of a government policy aimed to encourage entrepreneurship and facilitate growth of new ideas.

Government support for industrial research and development began in 1968 when the Office of the Chief Scientist (OCS) was first established in order to subsidize R&D in private companies. Today, the Israel Innovation Authority (Formerly the OCS) is a branch of the ministry of Economy and Industry. In 1985, the Encouragement of Industrial Research and Development Law was passed, defining parameters for relevant government policies. The law authorizes the Israel Innovation Authority to provide grants to companies that meet certain criteria. These criteria guarantee that the company itself



will engage in R&D, that its R&D products will be manufactured in Israel, and that the knowledge will not be shared with any third party. The Israel Innovation Authority may subsidize up to 50% of R&D expenses in an existing company and up to 66% for startup companies. In addition, incubator plans are developed into technological initiatives that help entrepreneurs who are just starting to transform their ideas into commercial businesses. Government-supported research centers maintain ongoing relationships with the private commercial sector by sharing information and human resources and helping the domestic ecosystem to flourish.

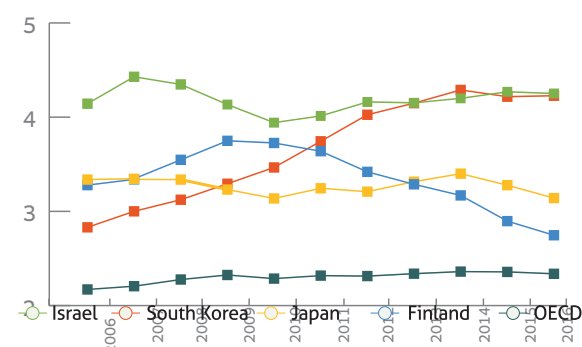


Illustration 10 – National expenditure on R&D as a percentage of the GDP, 2006-2016; **Source:** Main Science and Technology Indicators, OECD Science, Technology and R&D Statistics

Military-commercial market relations

The Israel Defense Forces is a leading social integrator. As it trains the majority of Israel's young population, it has the privilege of selecting and training the best young minds in technological units, thus assigning substantial project management responsibilities to very young engineers. The constant security challenges that Israel faces have induced the military technological R&D units in the intelligence corps and communications division to develop cutting-edge solutions on a global scale. Military service in one of these units cultivates entrepreneurship and presents opportunities to develop a wide range of skills and excellent connections.

In many places, this military service gives the young soldier an opportunity to learn how to exercise responsibility and authority in a relatively non-hierarchical environment that values creativity and intelligence.

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values creativity and intelligence.

While there is no official policy regarding direct trading of military information technologies, the capabilities acquired during military service are later translated into independent entrepreneurship when the soldiers are discharged. These former soldiers later go on to create powerful bonds between research groups in the military and in industry. Companies such as Nice, Comverse, Check Point and Outbrain were all founded by former soldiers from Unit 8200 of the IDF Intelligence Corps. These companies are perfect examples of civilian commercial success based on military innovation. In some ways, the IDF technology units have become training incubators for the next generation of the Israeli hi-tech industry. Organizations of veterans of such units, and networking conventions where such veterans are in attendance are excellent platforms for recruiting new employees and promoting innovative ideas. Other than information and communications technology (ICT), Israel has also become a world leader in security technology. The military R&D units often collaborate with public enterprises in order to advance many of their projects, while using the knowledge acquired while developing these projects in order to successfully design Israel's security and civilian defense systems. Companies such as Elbit, Israel Aerospace Industries, Rafael, Tadiran, Israel Military Industries,

Elisra Electronic Systems, Plasan and Magal are excellent examples of established Israeli companies that specialize in security technology and develop military and civilian infrastructure that incorporates cutting-edge technologies.

Academia

Israel's academic institutions have contributed greatly to establishing and developing the local technology market. In the 1960s, a group of scholars from the Technion and Hebrew University laid the academic foundations for the Israeli hi-tech industry. At the time, university graduates entered the workforce equipped with advanced knowledge in their fields. They were the first to found hi-tech companies that became the heart of the industry and continue to lead the industry even today. Israel is ranked third by the global competitiveness index for the quality of its scientific research institutes.¹⁹ The leading academic institutes in Israel are ranked in relatively respectable places in the global universities index: In 2018, The Hebrew University was ranked 19th worldwide in mathematics, and in 2016, it was ranked in the top 75 universities in social science, natural sciences and mathematics. The Technion was ranked 44th in natural sciences and mathematics, and both it and Tel Aviv university were ranked both in the top 75 in engineering/technology and computer sciences.²⁰

According to OECD data, Israel ranks second



worldwide (together with Japan) in percentage of the population with academic degrees.²¹ 51% of the population has an academic degree and approximately one-third of these graduates hold degrees in engineering and technological fields.

According to OECD data, Israel ranks second worldwide for the percentage of the population with academic degrees. 51% of the population has an academic degree and approximately one-third of these graduates hold degrees in engineering and technological fields.

Israel leads in percentage of researchers (number of R&D scholars in relation to the population), and despite being a small country, it is a world leader in academic nanotechnology and materials engineering R&D. Academia provides diverse support for the local industries, and many academic institutions offer employment training programs for the ultra-orthodox community in hi-tech fields. Hi-tech parks enjoy the support of local universities in offering opportunities to combine studies, research and careers. In addition, universities collaborate with leading international companies to establish accelerators and research innovation centers in which the

students gain vast experience and develop some of the most advanced technological innovations in the world. Most academic institutes offer entrepreneurship programs that promote innovation among students and support students through the development and maturation stages of their ideas. The academic institutions in Israel grow and develop hand-in-hand with the local industry, and thus maintain a steady supply of high-quality, skilled human resources, while creating fertile ground for



independent innovation. The flow of data from the academic institutions, combined with migration of excellent students and researchers from the academic institutions to the private-commercial sector, guarantees the success of the industry and is one of the most important

advantages of a domestic ecosystem.

Local spirit of entrepreneurship

Israel is situated in a tumultuous geographical region, and therefore cannot depend on business and trade via its land boundaries or count on normative relations with its neighbors. These factors, combined with Israel's lack of natural resources, have produced a self-reliant society that encourages innovation and fosters the ground-breaking ideas that are such an inherent part of Israeli culture.

As a multi-cultural immigration country, Israel is home to a population with diverse views and perspectives that facilitate a flow of ideas

and collaboration between individuals with differing points of view. These processes enhance creativity.

Israeli society views failed attempts as educational phases from which people can learn and not as something to be ashamed of, as is so common in other countries around the world. The innovative spirit is cultivated from a very young age, and is reinforced during military service and particularly in the technology units where the rigid hierarchy of command is often replaced with a supportive system that encourages mutual inspiration and welcomes independent initiatives. This explains how Israel is among the top 20 countries in the number of patents that it registers in relation





to the size of its population²², and is ranked third in innovation in the 2017-2018 Global Competitiveness Report.²³

Multinational corporations

Multinational hi-tech corporations in Israel are positively influenced by the local hi-tech industry. There are currently some 300 R&D centers in Israel, operated by leading international companies such as **Apple, Google, Intel, Microsoft, HP, IBM, eBay**, and many more. These foreign companies have a tremendous impact on the local industry. R&D centers of multinational companies in Israel provide jobs

to almost a quarter of the people employed in high-tech. The companies introduce new capital and knowledge to the Israel's well developed tech ecosystem. In 2016, Tel Aviv was home to fifth of International R&D centers in Israel and quarter of Israeli high tech companies.⁵² These tech companies influence the local workforce, as one out of every ten jobs in the city is in the hightech sector.²⁴ Expenditure on R&D as a percentage of yields in foreign, multinational companies in Israel is among the highest in OECD countries at 17%. National expenditure on civilian research and development in Israel was 4.5% of the GDP in 2017.³¹ According to Dun & Bradstreet International companie

currently account for 66% of total business R&D expenditure in Israel. About 20% of the multinational companies operating R&D centers in Israel also have production activities in Israel in a variety of sectors requiring advanced production levels such as semiconductors, medical devices, pharmaceuticals, aerospace and water technologies. These companies employ about 43,000 workers.³²

The presence of foreign companies in Israel has contributed greatly to economic growth and has a positive impact on employment, productivity, and knowledge flow as skilled employees switch to local companies.

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Foreign companies also promote overall investment in R&D. A 1% increase in R&D expenditure in foreign companies results in a 0.27% increase in spending on R&D in locally-owned companies.

High concentration and diversity

There are currently over 5,000 active hi-tech companies in Israel. This is a small figure

compared to the number of companies in Silicon Valley, but it nevertheless reflects the largest concentration of hi-tech companies in the world. When considering concentrations of public hi-tech companies, Israel is ranked 5th worldwide in the Bloomberg 2018 Innovation Index.³³ At first, the local companies focused mostly on ICT, but today Israeli companies are leaders in other fields as well such as printing, clean-tech and energy. The diversity of fields in which Israeli companies are involved has contributed greatly towards developing new sources of knowledge and implementing them throughout the industries. This process promotes technological innovation on a global scale. The high concentration of hi-tech companies in a relatively small geographic region reinforces the local ecosystem and accelerates the establishment of new startup companies.

In Tel Aviv alone, there are currently over 90 active accelerators for local startup companies, a figure that more than doubled in the last three years.

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This indicates the rapid growth rates in the local industry and the support that new companies receive. The large number of companies and the





Internet

Online advertising



Kenshoo

Kenshoo was founded in 2006 by Amos Talmor, Yoav Izhar-Prato, Alon Sheaffer and Nir Cohen, and is one of the leading developers worldwide of technological solutions for marketing management and advertising in search engines and social networks. The company offers systems for marketing experts, brands and companies that run Internet campaigns, which enable them to save on advertising costs by comparing prices and assessing the effectiveness of relevant search words in real time.

Kenshoo provides services to nearly half of the 50 leading Fortune companies and to all 10 leading global advertising networks. Its clients include eBay, Facebook, Walmart and Target. The company's headquarters is in Tel Aviv, with 27 additional offices throughout the world.



AppsFlyer

AppsFlyer was founded in 2011 by Reshef Mann and Oren Kaniel. The company developed a one-stop-shop solution for managing, monitoring,

analyzing and optimizing campaigns on all media platforms for brands, companies and advertising agencies. The company is an official partner in the Facebook and Twitter advertising systems and measures the efficiency of their advertisements.

The company raised \$83.1 million in four investment rounds.³⁴ Its investors include Magma Ventures, Microsoft Ventures, and Pitango Venture Capital. The company headquarters is located in Herzliya, with 15 global offices around the world, including in India, South Korea, Japan, New York, San Francisco and Beijing.³⁵



Matomy Media Group

Matomy was founded in 2007 by Adi Orzel, Ofer Druker and Kfir Moyal, and is now controlled by advertising expert Ilan Shiloah, Chairman of McCann-Erickson Israel. The company offers a digital distribution system for marketing and advertising that functions as a performance-based platform on digital media channels, and particularly on mobile, video and social networks.

After facing many challenges, the company was issued on the London Stock Exchange in 2014 for \$347 million. In 2016, was dual-listed on the Tel Aviv Stock Exchange

in addition to London.³⁶ Matomy has made eight acquisitions so far, including Optimatic, a leading video advertising company that was acquired for \$25 million in November 2015.³⁷ The company has approximately 400 employees worldwide, of which 230 are located in Israel. Its main offices are in Tel Aviv, and has eight additional offices around the world, located in Spain, Germany, Mexico, New York, South Korea and more.³⁸

Network applications



Waze

Waze was founded in 2007 by Ehud Shabtai, Amir Shinar and Uri Levine. The company developed a free, community-based GPS navigation application for smartphones. The sharing features enable the application to plan the fastest route for each driver based on real time traffic information from other application users.

The company raised \$67 million over the years, and was purchased in 2013 by Google for the astronomic sum of \$966 million. After the acquisition, the company's main offices were

transferred from Israel to California. In 2013, the application won first prize in the World Mobile Congress competition.



Extreme Reality

Extreme Reality (also known as XTR) was founded in 2005 by Dor Givon. The company developed unique Natural User Interface (NUI) technology that identifies full body gestures, without physical contact, using standard 2D cameras; therefore making motion identification technology accessible and inexpensive. The company has 17 registered patents in countries worldwide. To date, the company has raised \$35 million in five investment rounds. The company's offices are located in Herzliya.



Moovit

Moovit was founded in 2011 by Nir Erez, Roy Bick and Yaron Evron. The company develops a free, community-based public transportation navigation application that provides travelers with real time information on public transportation routes. The application has 330 million users worldwide and is available in 44 languages and in over 2,700 cities in 87



countries, including New York, London, Los Angeles, Paris, Madrid, Bogota, Sydney, Mexico City and Tel Aviv.³⁹

The company has raised \$131 million in five rounds.⁴⁰ Its investors include BMW i Ventures, Nokia Growth Partners, Jerusalem Global Ventures and Sequoia Capital. The company has 120 employees at its main offices at the Rehovot Science Park, and has additional offices in San Francisco.



Pango was founded in 2005 and is located in Kadima. The company offers a mobile app used to pay for parking, car washes, fixing flat tires, roadside assistance, and petrol. Pango is worth about \$25.9 million, according to the terms of a recent sale of shares in its parent company Milgam Municipal Services.

Pango has nearly 1.9 million subscribers and is used three million times a month.⁴¹

The company struggled in 2015 following a class action suit filed against it, but recovered quickly and even increased its market share with

several successful marketing efforts. Today, it is considered a leader in Israel's cellular parking market.



Magisto

Magisto was founded in 2009 by Dr. Oren Boiman and Dr. Alex Rav-Acha. The application enables users to create impressive videos using photos and video clips stored on their mobile devices, without any effort and based on a sophisticated algorithm.

The company raised \$23 million in four rounds.⁴² from impressive investors such as SanDisk, Qualcomm, Magma, Li Ka-shing's Horizon, and ru.mail, and it collaborated with the Samsung Galaxy Note 4 launch. The company operates from Nes Ziona and has offices in the US. In May 2018, Magisto announced it had reached 100 million registered users, including tens of thousands businesses.⁴³



IronSource

IronSource was founded in 2010. It specializes in mobile advertising and discovery. The company reports a global reach of over 1.5 billion active

users each month.⁴⁴

The company raised over \$100 million in two rounds. In 2015 it purchased the Israeli company SuperSonic, which specializes in mobile video advertising. The two companies merged into the largest independent Internet company in Israel in terms of the number of employees, value and revenue. In July 2016, ironSource announced the acquisition of Sequoia-backed video ad technology company StreamRail.⁴⁵ In 2017, ironSource was valued at \$1.8 billion.⁴⁶ In 2017, the company's revenues grew 26% to \$462 million.⁴⁷ The company currently employs 850 people in over 10 countries worldwide including the US, UK, China, India, and South Korea.⁴⁸

Digital Media



Outbrain

Outbrain was founded in 2006 by Yaron Galai and Ori Lahav. Outbrain is unique in that it was a pioneer in content discovery and in fact created a market that did not exist beforehand.

The company incorporates recommendations for interesting articles into news websites and generates income from content discovery that is sponsored by advertisers. Nearly 600 million users are exposed to Outbrain content recommendations, and the company collaborates with publishers worldwide, including CNN, ESPN, Le Monde, FoxNews, Late News, The Guardian, The Telegraph, The New York Post, Time, and Sky News.

Outbrain raised \$150 million in seven rounds of financing. The company has annual sales of \$400 million and net revenue of \$120 million. Outbrain has purchased four companies, including Revee, an American company capable of pricing websites in real time based on the profitability of their content.

Outbrain is based in Netanya and has offices in New York. The company has some 400 employees, 150 in Israel.



MyHeritage

MyHeritage was founded in 2005 by Gilad Yefet. The company has three main platforms



– a website, mobile application, and desktop software. The product enables all users to build a private family tree and research their family's roots.

The product has been translated into 43 languages and has over 80 million users and 28 million family trees documenting 1.6 billion people.

MyHeritage raised \$50 million in five rounds of investment. Investors include prestigious funds such as Bessemer, Accel and Index. It has acquired eight genealogy companies, of which geni.com, which was one of the company's biggest competitors, is the largest and most well-known. The company's offices are located in Or Yehuda.

Taboola

Taboola

Taboola was founded in 2007 by Adam Singolda and is one of the two leading content discovery companies in the world (along with Outbrain). The company recommends news and commercial articles, and incorporates their recommendations in different websites.

In 2016, a Comscore survey measuring Internet traffic reported that Taboola content reaches approximately 88% of desktop computer owners in the US, making it the world's largest

content discovery company. Taboola has 640 million designated computer users, and in October 2015 it crossed the threshold of one billion clicks on recommendations in a single month. The company collaborates with dozens of websites and leading global companies, including Microsoft via the MSN site, AOL, Yahoo Japan, Baidu, TODAY, Business Insider, and more.

Taboola raised \$160 million. The company headquarters is located in New York, with additional offices in London, California, Thailand and Tel Aviv. It employs 350 people, of which 100 are in Israel.



Treato

Treato was founded in 2008 by Gideon Mantel, Dr. Yitzhak Lichtenfeld and Jacob Sabo. Treato is a medical social network that automatically collects information on illnesses, medication, treatments and physicians from medical blogs and semi-professional forums. The information is summarized using linguistic algorithms, big data processing and NLP technologies to provide processed insights for patients, pharmaceutical companies and insurance companies.

In addition to the social network designed for patients, the company also offers the Treato Pharma feature, a paid service for

pharmaceutical companies, research centers and other medical organizations.

Treato raised \$22 million in five investment rounds. Its main offices are located in Yehud, with additional offices in New Jersey.

E-commerce

fiverr®

Fiverr

Fiverr was founded in 2010 by Micha Kaufman and Shai Wininger. The website is the world's largest online marketplace for professional and creative services. The site enables service providers from all over the world to offer services without establishing their own business, while allowing service consumers to instantly, efficiently and cost-effectively outsource their needs.

The company has raised over \$110 million so far, in five investment rounds. The website is one of 130 leading websites worldwide according to Alexa Internet Inc., with services offered from every country in the world.

Fiverr employs approximately 150 people and has offices in Tel Aviv, New York, Chicago and Miami.



Zooz

Zooz was founded in 2010 by Oren Levy and Ronen Morecki, and is a payment optimization company. The company offers Internet payment platforms that help companies simplify payment processes and thus maximize their profits from online sales. Zooz provides services for large companies worldwide, including Ikea and Groupon.

Zooz raised \$17 million in three investment rounds, including investments from Bloomberg Capital and others. The company is located in Kfar Saba.

Gaming



TabTale

TabTale was founded in 2012 by Sagi Schliesser, Oran Kushnir and Nir Bejerano. The company develops mobile applications for children, particularly innovative games, interactive books, and various educational applications. In 2015, TabTale was ranked sixth among the leading game developers in App Store and



Google Play, with 660 applications developed and distributed by the company. It is the leading independent application distributor in Israel – in terms of both revenue and number of downloads.

The company raised \$14 million from investors including Magma Ventures Partners. TabTale has made four acquisitions of small or competing gaming companies. TabTale has 250 employees at its various offices, 150 of which are at its Tel Aviv headquarters. The remaining employees are based in Macedonia, China, Ukraine, Bulgaria and Serbia.



Plarium

Plarium was founded in 2009 by two sets of brothers – Avi and Gabi Shalel and Haim and Ilya Turpiashvili. The company develops strategy games for social networks and offers a selection of strategy games that take place in different fantasy worlds. The company has 90 million users, 3 million of whom play daily. Soldiers Inc., launched in August 2013, was declared “best game of the year” by Facebook and is one of Plarium’s most popular titles with 85 million players.

Plarium was originally funded by private investors, and was already profitable by its

second month of activity. Its value was estimated at \$800 million as of 2014.

The company’s headquarters is located in Herzliya Pituach, and it has additional offices in Ukraine and San Francisco. The company employs 500 people, 120 in Israel.

Internet infrastructure



WIX

WIX was founded in 2006 by Giora Kaplan, Avishai Avrahami and Nadav Avrahami. The company develops a cloud-based platform used to build websites without prior experience and free of charge. WIX has 77 million registered users, of which 1.7 million are paying premium customers.

The company raised \$58 million in four investment rounds. WIX has been traded on NASDAQ since 2013 and made several acquisitions of Israeli companies.

The company is showing impressive growth rates. In 2015, it reported revenue of \$56.8 million and operating loss of \$49 million. The company’s main offices are located at the Tel Aviv Port, with additional offices in San Francisco.



LucidLogix Technologies

Lucid was founded in 2004 by Reuven Bakalash, Efi Fogel and Offir Remez.

In 2013, Lucid merged with CellGuide, and the two became a single company called LucidLogix. After the merger, the company began to focus primarily on software-based engines for the mobile market, for applications that require high performance rates with low energy consumption. It therefore signed an agreement in late 2013 with Samsung to integrate Lucid software into the Galaxy Note 3. The software is installed on the device’s graphics processors and reduces processor computations, thus extending battery life by 50%.

Lucid raised \$40 million from GSE, Genesis, Rho Ventures, Intel Capital and Maayan Ventures. It is located in Poleg and employs 35 people.

Telecom and Communications



Radcom

Radcom was founded in 1991 by Zohar Zisapel and provides innovative services for leading

fixed and mobile communications companies. Radcom specializes in providing integral services that connect multiple technologies for suppliers, while maintaining user experience and content quality.

Radcom raised \$8 million in two investment rounds – in 2008 and 2011, and was issued on the stock market in 1997. The company’s estimated market cap is \$130 million.

The company is part of the RAD Group. It is headquartered in Tel Aviv, with additional offices in the US, Brazil, Singapore, India and China.



PacketLight Networks

PacketLight was founded in 2000 and develops solutions for streamlining and expanding bandwidth for optical fiber networks. The company specializes in storage and data transfer methods over the network, and manufactures components that can be used to increase network traffic volume.

PacketLight is part of the RAD Group, owned by the Zisapel brothers. The company is headquartered in Tel Aviv.



THE ELASTIC NETWORK

ECI Telecom

ECI Telecom was founded in 1961 when Clipper Radio Company merged with the Electronics Corporation of Israel. At first, ECI focused solely on telephony, but its main field today is Internet communications, providing tier-1 infrastructure to various companies and countries.

ECI raised \$220 million in three rounds. ECI headquarters is located in Petah Tikva, with additional offices in over 20 different countries. The company employs 1,700 people worldwide.



BATM Advanced Communications

BATM was founded in 1992 by Zvi Marom and the late Gerson Baras as a bootstrap that specialized in the development of advanced communications technologies for optical fibers, multipurpose communication, and services that integrate voice, video and data. BATM expanded and became a multinational company by acquiring additional companies and merging them into the company. Today, BATM is involved in a wide range of communications fields, particularly infrastructure and data transfer. It

is also involved in biomed, and develops and distributes evaluation products.

BATM is now traded on the Dutch stock exchange after it delisted in Israel in 2015. It appears on the FTSE techMARK 100 index.

The company's headquarters is located in Hod Hasharon, with offices in 12 countries around the world including the US, England, Germany, France, China and Singapore. BATM employs 700 people worldwide. Its clients include Motorola, Qualcomm, AT&T, IBM, Intel, and Microsoft.

IT & Enterprise Software

Enterprise applications



Clarizen

Clarizen was founded in 2006 by Avinoam Nowogrodski and Tanya Epstein. Clarizen is a world leader in the field of work collaboration. The company developed a project collaboration management tool for organizations, and serves 2500 clients in 76 different countries including Sony Electronics, EA game company, and dozens of other Fortune 500 companies. Clarizen raised over \$90 million in six rounds, with the largest round led by the Goldman-Sachs Investment Bank. The company is located in Hod Hasharon

and employs 240 people, 100 in Israel and the rest in the US and England.



Freightos

Freightos was founded in 2012 by Zvi Shreiber as a commerce management company for the logistics industry. The company developed a Waze-style application for delivery companies that calculates the fastest and cheapest route for transporting commercial cargo from the production site to its destination. Freightos targets precisely the logistics and cargo transport market using a SaaS business model by which the delivery company pays a certain sum for each user, as well as fixed prices for uploading contracts to the platform. The company raised \$23 million from various funds. It employs 30 people in total, at its main offices in Jerusalem and additional offices in Ramallah, Germany and Hong Kong.



Leverate

Leverate was founded in 2008 by Itai Damti, Doron Cohen, Ron Strauss and Doron Somech. Leverate is a fintech company that provides technological solutions for financial commerce

companies. It supplies services and software such as commerce arenas, a risk management system, mobility solutions, and even entry permits to new markets to 80% of the brokers in Israel, making it Israel's leading software provider for this industry. In 2014, Leverate was selected by Deloitte as one of the fastest growing startup companies in Israel. Leverate raised \$12.5 million from Saxo Bank. Its main offices are located in Bnei Brak and additional offices are located in China, Cyprus and India.



Scodix

Scodix was founded in 2007 by Kobi Bar and Eli Grinberg. Scodix is a global pioneer in digital printing enhancement. It specializes in the final enhancement stage in which prints are embellished, enlarged and embossed. The unique Scodix machinery enables the enhancement stage to be incorporated into the printing houses themselves, making specialty employees redundant and conserving the resources required to transport printed products to and from designated service centers. It raised \$19 million from Sequoia and Lightspeed Venture Partners. The company has offices in Rosh Haayin and in New Jersey.



Panoramic Power

Panoramic Power was founded in 2009 by David Almagor and Adi Shamir. The company specializes in cleantech, particularly energy management and operational streamlining for commerce and industry. Panoramic Power identifies operational inefficiencies of sites and equipment, detects malfunctions in real time, receives information on energy consumption at any given time, and more.

Panoramic Power recently appeared on the Forbes Magazine list of 100 leading IoT companies, and even appeared on the list of leading 100 global cleantech companies for three years in a row. The company raised \$27 million in five investment rounds. In 2015, the company was purchased for \$60 million by the American Direct Energy company, which has approximately 50 million private and commercial customers in North America. After the acquisition, the company continues to operate in Israel as a Direct Energy development center.

Panoramic Power is located in Kfar Saba and employs 40 people. The company has additional offices in New York.

Enterprise infrastructure



CTERA

CTERA was founded in 2008 by Lira Eshel and Zohar Kaufman, both originally employed by CheckPoint. The company develops software and hardware systems for the enterprise and small business sector that backup and share files.

In 2015, the company signed two major contracts – one with an American finance company on the Fortune 100 list, for which it will develop a file sharing and synchronization project. The second is with one of the largest banks in Europe, for which it will provide cloud storage solutions and file synchronization services for thousands of branches of the bank throughout Europe.

The company raised \$45 million in three rounds. CTERA is based in Petah Tikva, with additional offices in Palo Alto and New York. It employs 120 people; 60 of whom are in Israel.

Security



Soluto

Soluto was founded in 2008 by Tomer Dvir and Yishai Green. It provides services that support remote management, repairs and support for computers and mobile devices. The software was originally intended for professional tech support experts, but the company converted the product into an end-user one.

In 2010, the company won the prestigious TechCrunch Disrupt startup competition, giving it international publicity. As a result, it was ultimately purchased in 2013 by the American Asurion company, a company that insures mobile phones and supports use of the device. The acquisition price was estimated at \$130 million and transformed Soluto into an Asurion development center in Israel. The company is headquartered in Tel Aviv.



Sansa Security

Sansa Security was founded in 2000 by Gal Salomon, David Deitcher and Limor Elbaz. The company developed a hardware-based security layer for chips that screens malicious

code such as viruses and other malware, and prevents distribution of content that is protected by copyright by the users themselves. The company's technology is integrated into over 100 million devices. Sansa clients include companies such as Samsung, Motorola, htc, LG and Huawei.

In 2015, the company was acquired by ARM – a world leader in chip development, for an estimated \$80 million. Sansa is a leading provider of security products for ARM, which uses Sansa technology to secure its processors. ARM chips operate the majority of mobile devices currently on the market. After this acquisition, ARM opened a development center in Netanya.

Sansa raised \$32 million from Genesis, Pitango, Accel, Sequoia and other venture funds. The company has 70 employees and is located in Kfar Neter.



FST Biometrics

FST Biometrics was founded in 2007 by Major General Aharon Zeevi Farkash, former head of IDF Military Intelligence (Aman). The company develops innovative, cutting-edge technology for biometric identification and face recognition called IMID (In Motion Identification). This



technology identifies people while in motion, without requiring the person being inspected to stand still.

FST Biometrics raised \$31 million in two rounds. In 2015, former Israeli Prime Minister Ehud Barak joined the ranks of investors in the company and now even represents the investors on the company's board of directors. In 2015, the company was chosen to supply the biometric security systems for the Diamond Exchange District in Ramat Gan. The company's offices are located in Rishon Lezion.



LightCyber

LightCyber was founded in 2012 by Giora Engel and Michael Mumcuoglu. The company specializes in the automation of active discovery of security breaches and enables organizations to quickly and accurately locate breaches in their databases by identifying typical actions taken by hackers when they penetrate an organization's network for the first time, and before the hackers successfully steal or damage information.

LightCyber raised \$16 million in two investment rounds. It is located in Ramat Gan and employs 40 people in Israel and the US.

Semiconductor



Amimon

Amimon was founded in 2004 by Noam Gray. The company specializes in the development of special chips for the transfer of uncompressed video files, with high resolution (HD), over wireless connections. The company is proud of its capability of developing systems capable of broadcasting video segments in real time and with high viewing quality. Today, Amimon specializes in the development of means especially for the drones market, and is one of the leading companies in the world in this field.

Amimon raised about \$52 million in six rounds between 2005 and 2015. The offices of the company are located in Herzliya, and it maintains branches in the US and in Japan.



Sckipio

SCKIPIO was founded in 2012 by Michael Weisman, Ron Stranson, and Dudi Baum. The company develops for the G.fast technology, telecommunications chips that permit the transfer of up to 1 GB/s over local telecommunications networks, mainly domestic ones. The aforesaid technology

permits increased exploitation of the copper cables mainly located in residential buildings throughout the world, and whose bandwidth is generally low.

SCKIPIO raised \$36 million in three rounds between 2013 and 2015, and in the last round Intel invested \$9 million through its investment fund. The company offices are located in Ramat Gan.



Tower Jazz

Tower Jazz (formerly called only Tower) was founded in 1993. In 2008, Tower merged with the American company, Jazz, and together they formed Tower Jazz.

The company develops and manufactures chips independently for a wide range of uses, lying between RF, image processing, memory, power supply management, etc.

In 2014, Tower Jazz developed, together with Panasonic, a component permitting the transmission of fast virtual telecommunications at high frequencies, mainly for radar for vehicles, simulation, and scanning.

Tower Jazz raised \$95 million in two rounds. The company is traded on NASDAQ and on the Israeli Stock Exchange. Its share is included in the TA 100 index and in the TA Hi-Tech index.

The company maintains two production factories in Israel, one in the US, and another in Japan.

The company employs about 4,500 workers throughout the world. Its offices are located in Migdal Ha'Emek, and in addition, it maintains offices in the US and in Japan.



Valens

Valens Semiconductors was founded in 2006 by Dror Yerushalmi. The company develops chips for the transfer of multimedia files with high definition (HD) without compression. Furthermore, it supplies components for television sets, DVDs, computers, play stations, receivers, and routers.

In 2010, Valens, together with Samsung, Sony, and LG, established the HDBaseT protocol for the transfer of HD files over domestic networks, the Internet, USB, etc. This protocol was subsequently adopted by the IEEE, as a standard.

The company has recently attempted to enter the field of transport and use its technology to create integration between all the systems in the vehicle: entertainment, control, automatic driving, safety, and other systems. During 2016, Valens is expected to announce its partnership with General Motors and Mercedes.

Valens raised \$41 million in three rounds. The offices of the company are located in Hod Hasharon, and in addition, it maintains offices in the US, China, Japan, South Korea, and Taiwan.



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The information included in this guide is relevant for September 2019. The content included is intended to provide only a general outline of the subjects covered and it is necessary that specific professional advice be sought before any action is taken.

