

START-UP NATION CENTRAL:  
FINDER INSIGHTS SERIES  
**THE STATE OF THE ISRAELI  
ECOSYSTEM IN 2018**

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***START-UP  
NATION  
CENTRAL***

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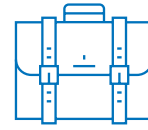
# THE ISRAELI ECOSYSTEM AT A GLANCE

## THE COMPOSITION OF THE ECOSYSTEM

### COMPANIES:

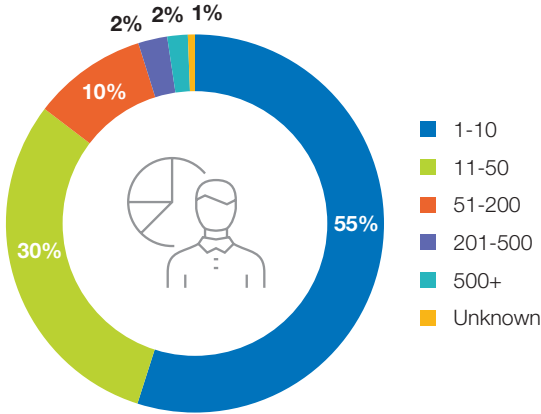


**6600+**  
active companies  
(~500 in stealth mode)

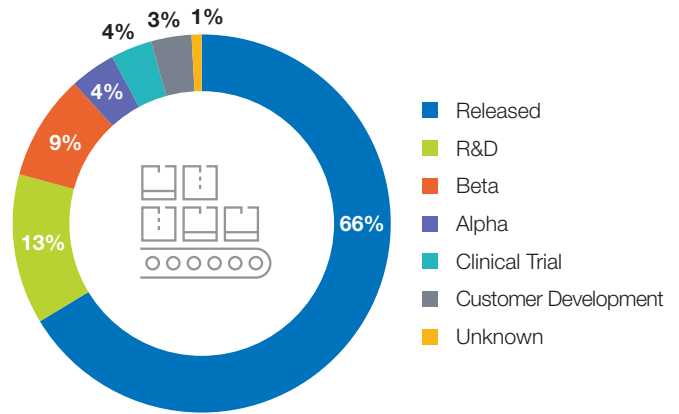


**80%**  
offer B2B  
products

Current Active Companies:  
**Employee Drilldown**



Current Active Companies:  
**Product Stage Drilldown**



### INVESTORS:



There are more than **430 investors** with a permanent presence in Israel, of which **23% are non-Israeli**



The most prominent early-stage investors are from **Israel and the US**, followed by the **UK, Germany, and China**. The most prominent late-stage investors are from the **US**, then **Israel**, followed by **China, the UK, and Japan**

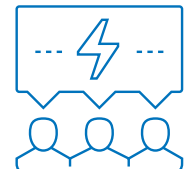
### MULTINATIONAL COMPANIES AND HUBS:



There are **320 multinational companies** active in Israel, of which **more than 300 have R&D activities** across **360 different offices**



The vast majority of multinational activity in Israel comes from **American companies**, with **Germany** and the **UK** as runners-up



There are currently **225 hubs** including accelerators, co-working spaces and entrepreneurship programs

# HIGHLIGHTS OF 2018

## 2018 WAS ANOTHER STRONG YEAR FOR ISRAELI HIGH-TECH



**681**  
funding  
rounds



The total amount  
raised was **\$6B**  
(a **15% increase**  
from 2017)



**\$4M** was the  
median size for all  
round types (a **33%  
increase** from 2017)



Approximately  
**1,500 investors**  
put money into  
Israeli companies



**97** exits  
for a  
total of  
**\$3.53B**

### The three leading verticals by capital raised were:



**Healthcare**



**Cybersecurity**



**Financial Services**

### The leading technology was:



**Artificial Intelligence**

### TOP FUNDING ROUNDS

Landa

Undisclosed Round  
**Industrial Technologies**  
**\$300M**



D Round  
**Software Applications**  
**\$165M**

Trax  
image recognition

E Round  
**Retail Solutions**  
**\$125M**

### TOP M&A

datorama

**AI & Advertising**  
**\$850M**  
Acquired by Salesforce



**Medical Solutions**  
**\$292M**  
Acquired by Philips Healthcare

Perfecto

**Cloud & Mobile**  
**\$200M**  
Acquired by Perforce

### TOP IPOs



**Pharmaceuticals**  
**\$73M (NASDAQ)**

LogicBio  
therapeutics

**Pharmaceuticals**  
**\$70M (NASDAQ)**

gamida Cell

**Pharmaceuticals**  
**\$50M (NASDAQ)**

# INTRODUCTION BY PROF. EUGENE KANDEL CEO, START-UP NATION CENTRAL



The Israeli technological innovation ecosystem is one of the most dense and active of its kind in the world. Whether we compare the expenditure on R&D as a percent of GDP, or the number of innovative companies per capita, or VC investments per capita, or as a percentage of GDP – Israel leads the world. It is also one of the

world leaders in absolute terms in certain areas of technology, including Cybersecurity, Fintech, Industrial IoT, and Agritech among others.

The Israeli innovation ecosystem is in the midst of a period of strong growth. 2018 was another year in which we saw this ecosystem produce great companies and cutting-edge technologies. Another indication of this is the growing presence of the world's leading companies in Israel: in every year over the last decade, more than 20 new R&D centers of multinational companies (MNCs) opened shop in Israel, many of them through acquisitions.

Although acquisition by an MNC is still the main form of “exit” for Israeli startups, we have begun to see another trend over the last few years – that of growth companies. This trend is fueled by the emergence of a new breed of entrepreneurs, who strive to build large Israeli stand-alone companies. Moreover, many MNCs are changing how they work with Israeli innovation and increasingly engaging in open innovation with the entire

ecosystem, as well as, or instead of, acquiring Israeli start-ups. This is a very positive trend, as the ecosystem must have a balance between both MNCs and local companies.<sup>1</sup>

At Start-Up Nation Central, we believe that the potential of the Israeli ecosystem is even greater than the outstanding achievements of the last decades. The accelerating rate of technological change and the disruption that almost every sector in the global economy is going through, are fertile grounds for Israel's culture of innovation. This requires much more international exposure, in order to find and understand the relevant global challenges and opportunities. One of our tasks is to assist with such exposure.

While the technological innovation sector in Israel is in good shape today, it faces increasing competition for tech leadership in the world, and therefore cannot become complacent. The role of Start-Up Nation Central is to help the Israeli tech innovation ecosystem maintain its leadership position. As an organization, we leverage our in-depth knowledge of Israel's innovation sector to draw insights and act on them, working in partnership with individuals and organizations in Israel and around the world, to help this sector expand, and increase its positive impact on the world, while staying firmly anchored in Israel.

This report, which focuses on the state of the Israeli innovation ecosystem in 2018, is another effort in our mission, and follows our previous reports that focused on human capital and the ecosystem sectors.



1 For example, see Figure 14 in [Start-Up Nation Central: Finder Insights Series - Israel's Fintech Industry Report](#)

# GLOBAL VENTURE LANDSCAPE

Venture capital financing reached new heights in dollar terms in 2018, both in the US and globally.<sup>2</sup> Investors continue to see this asset class as a good diversifier for the main parts of their portfolio and are allocating more capital as their portfolios grow. This has been supported by rising equity markets (until late 2018) and the continued global economic expansion.

This increase in venture capital has continued over a number of years and has led to a number of changes in the market structure. We have seen the creation of “mega funds” such as Softbank’s \$100B Vision Fund, which dwarfs everyone else, and even Sequoia which recently raised \$6B and plans to raise an additional \$2B.<sup>3</sup> Funds of \$1B+ now manage 40% of all VC money.<sup>4</sup>

Larger fund sizes have in turn led to larger funding rounds, thus rounds exceeding \$100M reached a record 382 in 2018.<sup>5</sup> The median deal size for Series D has nearly doubled since 2016, from \$26M in 2016 to \$50M by the Q3 2018.<sup>6</sup> This may explain why the number of investment rounds has fallen after peaking in 2015,<sup>7</sup> while the total financing amount has risen. The decline is most pronounced at the Angel and Seed stage.<sup>8</sup> In addition, company valuations have been rising at all stages since 2010.<sup>9</sup> This has caused the size of early-stage rounds to increase, meaning that fewer companies can be funded for the same amount of capital, as the amount of capital allocated to early-stage investing has not increased at the same rate as valuations (unlike later-stage investing). Investors have also become more selective in choosing early-stage companies, preferring to invest in a smaller number of higher quality prospects.

After many years of rising VC financing amounts, there are many companies seeking late-stage financing. At the same time the number of newly founded companies has been gradually declining.

An additional element has been the increasing prominence of Corporate Venture Capital funds (CVCs). Globally, corporates participated in 32% of all VC deals in Q4 2018, up from 25% in Q3 2017.<sup>10</sup> This may be reinforcing the above trends, as CVCs typically have a strategic focus in mind in addition to financial goals and tend to invest in later-stage rounds.

Another important trend has been the globalization of VC investment. For example, much of the funding for the Softbank’s Vision Fund comes from Sovereign Wealth Funds in the Middle East, which are looking to deploy large amounts of capital into this asset class. This globalization is also affecting where the capital is invested. In 2018, of the \$207B invested globally, less than half went to the US.<sup>11</sup> \$81B were invested in Asia, the second largest and the fastest growing destination, up from \$37B in 2016.<sup>12</sup> Some of the largest deals are also occurring in Asia: Chinese online payment services provider Ant Financial raised a \$14B round, after a 65% jump in profit from 2017, while Chinese ride-hailing platform Didi Chuxing received \$4.6B in late-stage financing.

The total number of exits remained steady, but there was an increase of 33% in the total amount of exits in 2018 to \$122B - the highest since 2012. IPOs accounted for more than half of the total exit value, with the median value rising to \$348M, which included large, well-known names such as Spotify, Dropbox, Eventbrite and Docusign. This may signal even larger listings in 2019, including Uber and Airbnb, however the end of the year decline in most stock markets may change the outlook. The median value of acquisitions rose to \$105M, a 30% increase compared to 2017.<sup>13</sup>

While the US had a strong year for public listings, Asia performed even better. The Hong Kong stock exchange was the most prolific stock exchange globally for IPOs, with a record 125 companies raising \$36.5B, the highest amount since 2010. This represented a 17.6% share of the global IPO market, compared to the New York Stock Exchange, which had 64 IPOs that raised \$28.9B, or 13.9% of the total market.<sup>14</sup>

The increase in fund sizes, as well as the large amounts available for later-stage funding have led to a rising trend in secondary exits.<sup>15</sup> With the abundance of large funds looking to invest large amounts, and the fact that companies wish to stay private for longer, some early shareholders are interested in liquidity before a sale or an IPO. Some of the big public secondary deals of the year were those of Uber, LegalZoom, Credit Karma, Saavn and Ola.

2 PwC / CB Insights, MoneyTree™ Report Q4 2018, page 2

3 The Q3 2018 Global VC Report: New Records Hit Amid Seismic Shift In The Industry - CrunchBase

4 PitchBook-NVCA Venture Monitor Q4 2018, page 30

5 PwC / CB Insights, MoneyTree™ Report Q4 2018, page 75

6 Venture Pulse Q3 2018 report

7 PwC / CB Insights, MoneyTree™ Report Q4 2018, page 79

8 PitchBook-NVCA Venture Monitor Q4 2018, pages 8 and 13

9 Venture Pulse Q3 2018 report, page 12

10 PwC / CB Insights, MoneyTree™ Report Q4 2018, page 78

11 PwC / CB Insights, MoneyTree™ Report Q4 2018, pages 6, 74

12 PwC / CB Insights, MoneyTree™ Report Q4 2018, page 85

13 PitchBook-NVCA Venture Monitor Q4 2018, page 27 and 28

14 Hong Kong regains global IPO crown from New York in 2018 thanks to its listing reforms

15 The deals that made 2018 the year of VC secondaries - Pitchbook

# ISRAELI HIGH-TECH ECOSYSTEM LANDSCAPE

## FINANCIALS

### INVESTMENTS

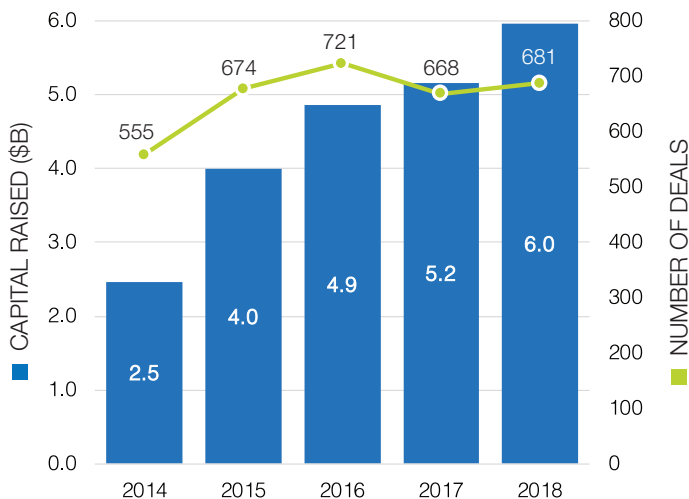
During 2018, 645 Israeli high-tech companies raised \$6B in 681 funding rounds.<sup>16</sup> With a 15% increase from 2017 (\$5.2B) and a 140% jump from 2014, it seems that Israeli companies have become increasingly attractive to investors. In comparison, the amount of investments in U.S. companies jumped 64% between 2014 (\$60.5B) and 2018 (\$99.5B), according to PwC MoneyTree Q4 2018.<sup>17</sup> This makes the 2018 VC funding per capita \$303 in the US, compared to \$674 in Israel.

The number of rounds rose gradually between 2014-2016, then dropped in 2017. The number of funding rounds in 2018 increased by 2% from 2017 but remains 6% below the 2016 peak (721 rounds). However, the median size of all round types rose from \$1.5M in 2014 to \$4M in 2018.

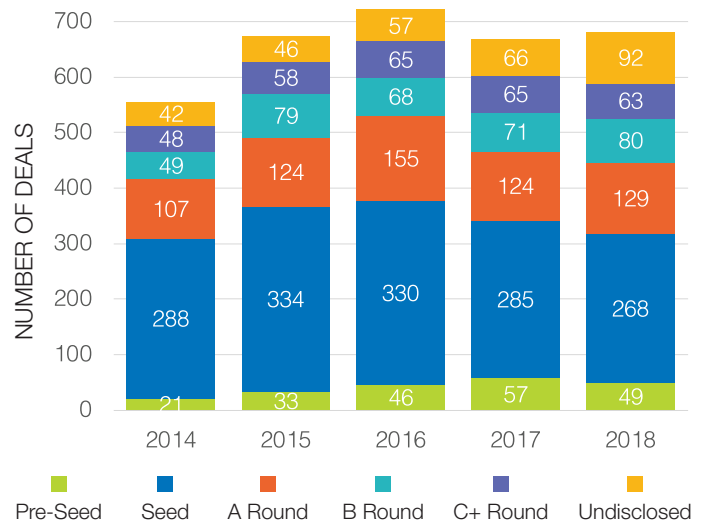
The number of Seed rounds began to decline after 2015, and in 2018 there were 20% fewer Seed rounds compared to the peak (see Figure 2). This trend corresponds to the global slowdown in the number of Seed rounds.

Not surprisingly, the average time it takes to raise a Seed round went up, from 16 months in 2014 to 24 months in 2018. Industry experts identify several contributing factors: There was a gradual increase in the number of Pre-Seed rounds from 2014 to 2017 and their total amount raised grew by 109% in this time period. Consequently, the conditions for raising a Seed round are tougher than in the past, since Seed investors now require more mature and “promising” companies. The median Seed round has doubled from \$750K in 2014 to \$1.5M in 2018 (see Figure 3). Moreover, some companies are able to rely on technological tools at the Pre-Seed stage and require fewer employees.

**Figure 1: Israeli Equity Investments**



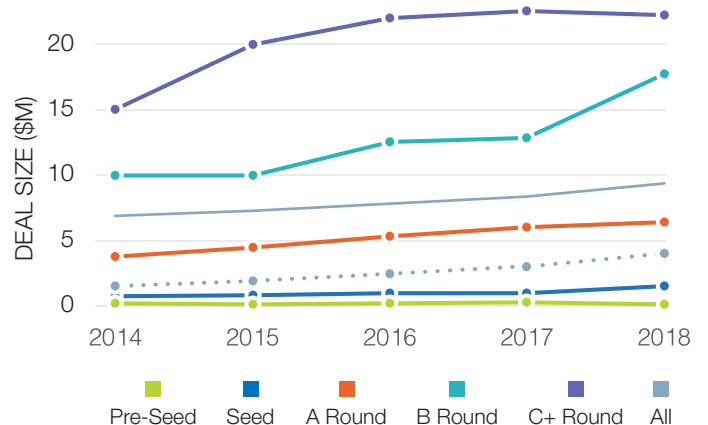
**Figure 2: Deal Activity by Stage**



When compared to 2016, the minor slowdown in the number of rounds stems from a 16% drop in early-stage rounds. Late-stage round numbers rose by 8% compared to the same year. Both types experienced an increase in the total amount raised in 2018. Early-stage rounds attracted \$1.46B, double the amount raised in 2014 (\$729M). Late-stage rounds raised a total of \$3.46B in 2018, 132% higher than in 2014 (\$1.49B).

Between 2014-2018, the median size of early-stage rounds more than doubled from \$1M to \$2.3M, while late-stage median size grew from \$12M to \$18M. According to Pitchbook, the trend in the U.S. was even more pronounced: the median size of an early-stage round grew from \$1M to \$3M during the same time period, while the late-stage median size also grew considerably, from \$13M to \$28M.

**Figure 3: Median Deal Size by Stage**



<sup>16</sup> This includes 33 Israeli high-tech companies that raises more than one round or had extension round(s) during 2018.

<sup>17</sup> PwC / CB Insights, MoneyTree™ Report Q4 2018, page 6



The number of Series A rounds soared in 2014-2016, only to decline in 2017-2018. In 2018 there were 21% more Series A rounds compared to 2014, and their median size leapt by 68% to \$6.5M. The total investment in Series A rounds in 2018 was \$947M.

Series B rounds have shown a dramatic rise in median deal size – from \$10M in 2014 to \$17.5M in 2018. Their numbers also swelled from 49 rounds in 2014 to 80 rounds in 2018, an increase of 63%. A few notable Series B rounds in 2018 include:



Next Insurance, an InsurTech company developing solutions for small businesses, raised \$83M from Munich Re and TLV Partners, among others.



Habana.ai, which develops AI processors optimized for the specific needs of training deep neural networks, raised \$75M from Intel Capital, Bessemer, Battery Ventures, and WRV Capital.



Lightricks, which provides visual editing apps for content creators, raised \$60M from ClaiTech and Insight Venture Partners.



Claroty, which develops industrial cyber solutions raised \$60M from Team8, Bessemer Venture Partners, Innovation Endeavors, and Temasek.

The three largest funding events of 2018 (below) come from different verticals, and raised money from different investors, which indicates that Israel offers a variety of opportunities to a wide range of investors, with varying interests.



Landa Digital Printing has developed a new technology called Nanography, for the commercial, packaging, and publishing markets. Landa raised the largest funding round of 2018 from Altana AG, a chemical company, and SKion GmbH, an investment company, both from Germany and both of which are wholly owned by the same person.<sup>18</sup>



JFrog provides DevOps platforms, which enable the automation and acceleration of software update processes. The company's core products, Artifactory and Bintray, serve as an automated toolset for developers to manage and distribute software releases. JFrog raised \$165M in a series D round of funding led by Insight Venture Partners, with participation from Battery Ventures, Spark Capital, Sapphire Ventures, Scale Venture Partners, Dell Technologies Capital, Vintage Investment Partners, and Geodesic Capital.<sup>19</sup>



Trax Image Recognition combines image recognition, machine learning and data collection methods to build a proprietary retail database and analytics products used by tier-one retailers and manufacturers. The company enables in-store execution controls and the ability to unlock revenue opportunities at all points of sale. Trax raised \$125M from Boyu Capital, one of the largest investment funds in China, and DC Thompson, a Scottish publishing and television production company. Some of the funds will be used to buy shares from previous investors.<sup>20</sup>

<sup>18</sup> Press Release, Globes, Calcalist, Times of Israel, PC.co.il

<sup>19</sup> [DevOps platform JFrog raises \\$165 million with valuation 'way north' of \\$1 billion](#)

<sup>20</sup> [Trax Image Recognition raises \\$125m](#)

## INVESTORS

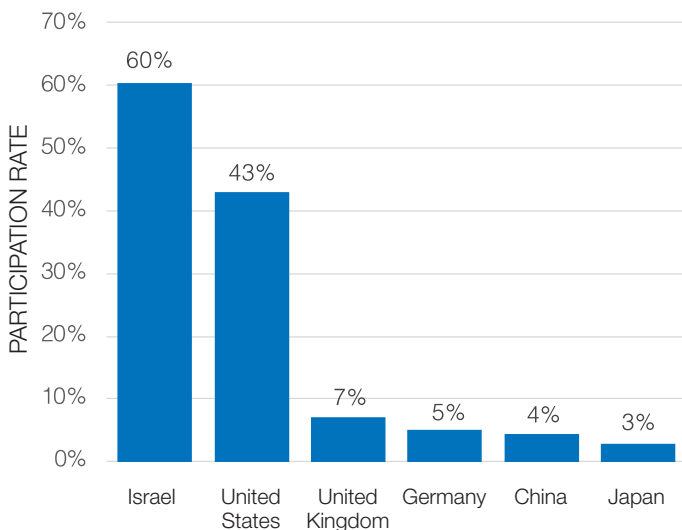
More than 430 professional investors have a permanent presence in Israel,<sup>21</sup> 23% of which are non-Israeli. Close to 1,500 investors, representing more than 30 countries, invested in Israeli companies during 2018.

Sixteen new investors set up a presence in Israel in 2018, including RED Capital Partners, the first VC firm investing in companies co-led or led by female entrepreneurs in Europe and in Israel; Playtika Growth Investments, which raised a \$400M fund and invests in consumer Internet and digital entertainment start-ups generating revenues of at least \$10M; and Cactus Capital, a VC run by Ben-Gurion University students.

Investment deals typically involve more than one investor but information on the amount of capital invested by each investor individually is not available. Nevertheless it is possible to analyze the data on the participants in each transaction and this provides a helpful overview of the space. We looked at every deal that occurred during the year and checked whether there was at least one investor of each country or investor type that participated in it. The numbers add up to more than 100% since investors from different countries/types often participate in the same round.

In terms of country of origin,<sup>22</sup> Israeli and American investors were present in most deals (see Figure 4). In 2018, almost two thirds of the deals had at least one Israeli investor and 43% had at least one American investor. Although there were some fluctuations in the rate of involvement, this is a stable trend. British investors follow US investors, while German investors were fourth as their participation rose steadily from 2% in 2014 to 5% in 2018. Japanese and Chinese investors show a small increase in their rate of involvement.

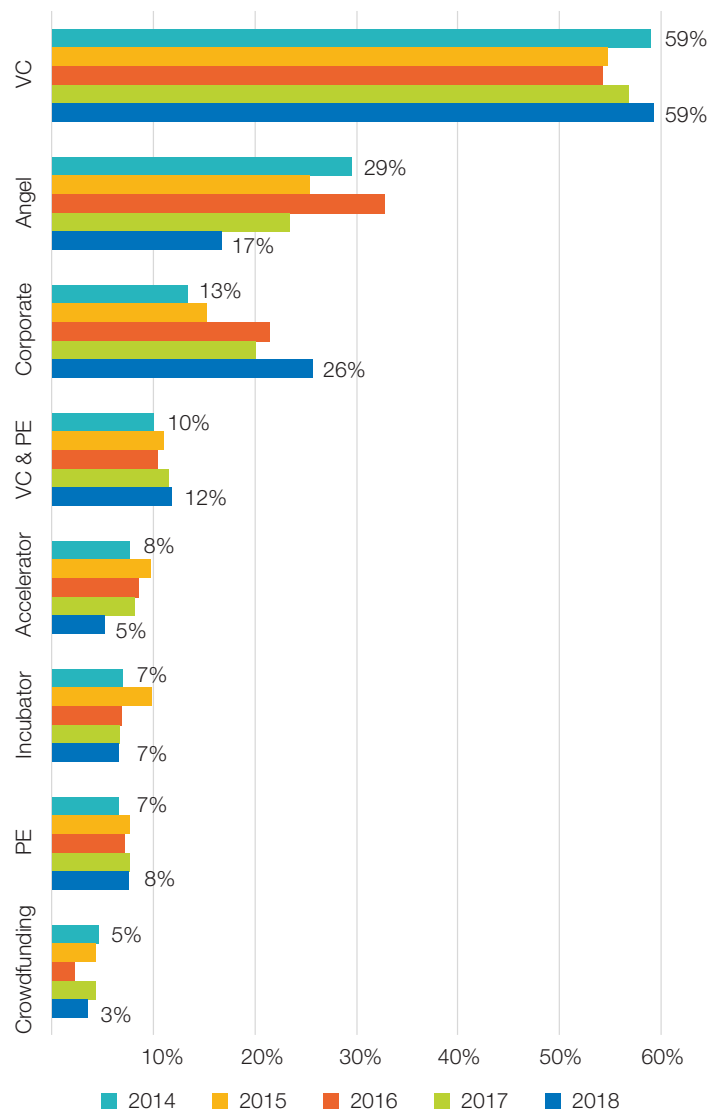
**Figure 4: Participation by Number of Deals – Countries (2018)**



In terms of investor type, at least one VC firm participated in 59% of the deals in 2018, the same as in 2014 (see Figure 5). However, the involvement of corporates – both by the direct investment of multinational companies or that of their investment arms – has grown strongly from 13% in 2014 to 26% in 2018. In recent years, corporate investments around the world have increased significantly, as corporations realized that they must not only engage with external innovators (mostly start-ups) but must also develop the capabilities with which to do so.<sup>23</sup>

Interestingly, Angel involvement - both that of individual Angels and Angel groups - has declined considerably over the years, from 29% in 2014, to 17% of all deals in 2018. This is a trend that has been seen worldwide as the size of early stage deals have risen, and VCs and corporates are better placed to invest at those sizes.

**Figure 5: Participation by Number of Deals – Investor Type**



21 This includes all types of investors: Angels, Venture Capital firms, Private Equity firms, corporates and their venture arms, accelerators, incubators and more.

22 Country of origin means the country in which the HQ of a parent organization is located. For instance, Samurai Incubate Israel is located in Israel, but its parent organization is Samurai Incubate Inc., headquartered in Japan, so it is considered a Japanese investor. This analysis does not refer to the country of origin of investors' limited partners, since complete data on their identity is unavailable.

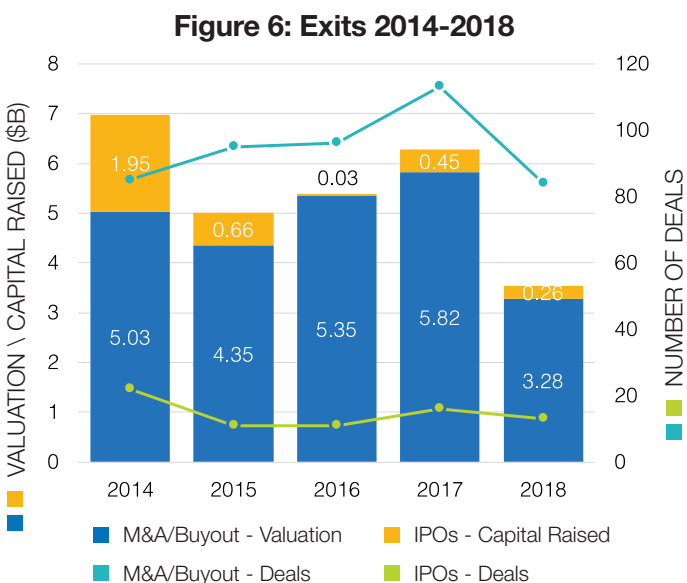
23 VC & PE describes firms that combines both venture capital and private equity investing.



## EXITS

During 2018, 97 Israeli high-tech companies had an exit for a total of \$3.53B. This was a 9% decline in the number and a 49% decline in the total amount, compared to 2014, which was the peak year for exits over the last five years. As stated earlier, this trend is largely due to companies staying private for longer, since they are able to raise large private rounds. The trend in the US was slightly different: according to the MoneyTree Q4 2018 report, the number of exits rose by 2% between 2014-2018.

The vast majority of the exits were acquisitions, which has been the case for the last few years. Recent years have shown a decline in the number and value of IPOs of Israeli companies. In this context, the Israeli tech sector showed a marked difference from the global trend of increased IPO activity in 2018. This is a cause for concern, as this reduces the chances of these companies staying in Israel as “whole” companies, rather than as R&D centers.



Consistent with the global trend<sup>24</sup>, the time-to-exit in Israel grew significantly between 2014 and 2018.<sup>25</sup> Companies founded in or after 2004 and acquired in 2014, took 53 months on average to reach this point. In the case of companies that were founded in or after 2008 and acquired in 2018, it took 63 months – a 19% increase. This is apparently related to the founders’ desire to grow larger companies to attain a higher valuation before heading to an exit.



The largest and most significant exit of the year was the acquisition by Salesforce of Datorama, the \$850M AI powered marketing data analytics company. Datorama helps marketers connect all their data sources into a single source for more efficient reporting, better decision making, and complete control over their marketing performance.

Other notable acquisitions:

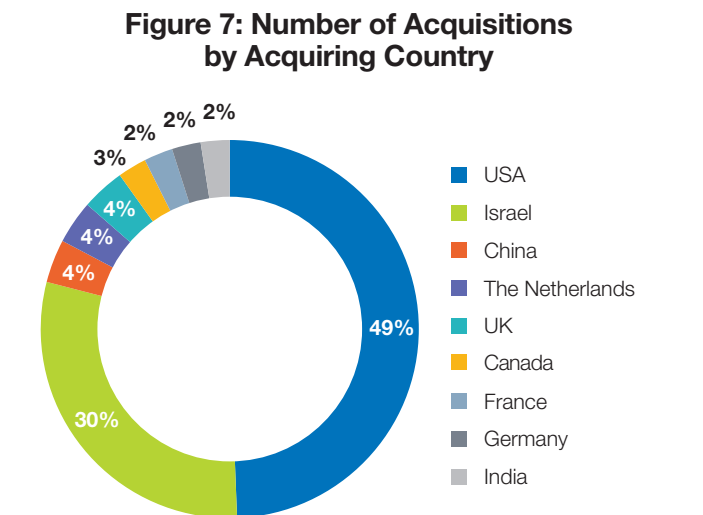


EPD Solutions was acquired by the Netherlands’ Royal Philips for \$292M. EPD developed a cardiac mapping and navigation system which utilizes electromagnetic technology to create real-time, three-dimensional, high definition images of a patient’s cardiac structures. The Caesarea-based company’s R&D staff remains in Israel as part of Philips.



Perfecto Mobile, a cloud-based testing lab for mobile apps, was acquired by Perforce for \$200M.

US companies were the largest acquirers of Israeli start-ups with 49% of all deals. The participation of Israeli companies somewhat declined in 2018 to 30% relative to 36% in 2017, but remained in line with the overall average since 2014 of approximately 30%. Some notable examples of local acquisitions include Dome9 Security by Check Point, Frontline PCB by Orbotech, and CureTech by InSight Biopharmaceutical.



Of 97 exits, 13 were IPOs. The top three Israeli IPOs of 2018 were launched on NASDAQ by Life Sciences companies - dermatological drugs developer Sol-Gel Technologies raised \$73M, with a valuation of \$225M, gene therapy company LogicBio Therapeutics raised \$70M, with a valuation of \$219M, and cellular and immune therapies company Gamida Cell raised \$50M, with a valuation of \$210M.

According to our research and based on interviews conducted by Start-Up Nation Central with Israel-based investors, a significant portion of growth rounds over \$50M in recent years has included some form of “secondary exits”, i.e. late-stage investors buying shares from early-stage investors, founders or employees. Such exits provide some liquidity to early investors who need it, while concurrently not selling the company, and keeping an upside potential.

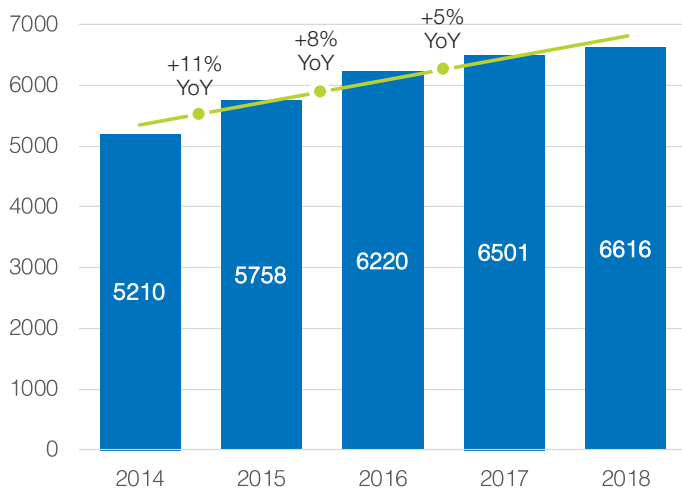
<sup>24</sup> 3Q 2018 PitchBook-NVCA Venture Monitor page 5

<sup>25</sup> We include only first liquidity events in our exit aggregation. There were large-sized acquisitions of public companies, such as Orbotech, Frutarom and Mazor Robotics.

# COMPOSITION OF THE ISRAELI ECOSYSTEM

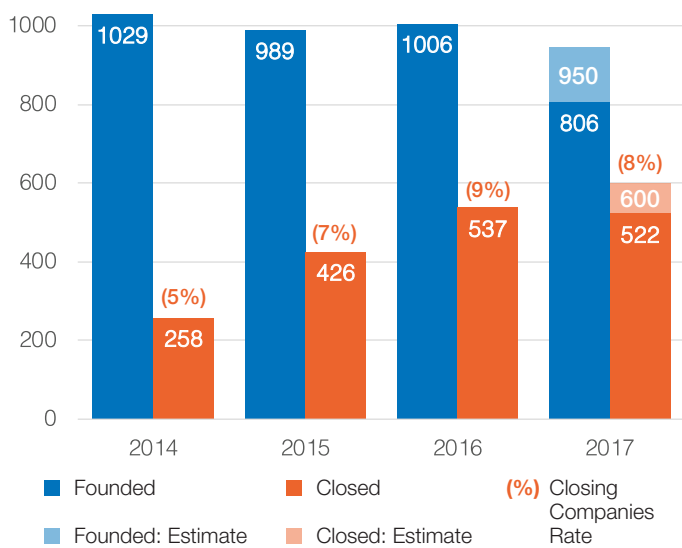
## HIGH-TECH COMPANIES

**Figure 8: Number of Active Israeli Companies**



The number of active Israeli high-tech companies continues to grow steadily each year, and by the end of 2018 exceeded 6,600,<sup>26</sup> having grown by 27% since 2014. (Note: the numbers for 2017-2018 are likely to change as additional data is gathered).

**Figure 9: Founded and Closed Companies**



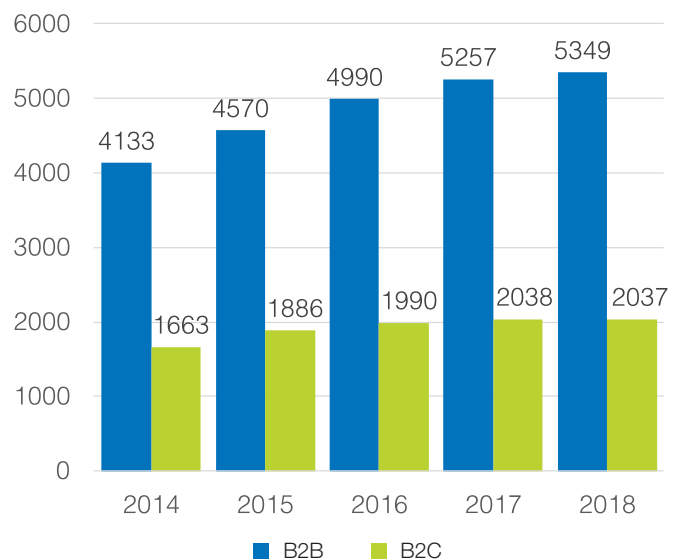
The number of companies founded every year remains relatively steady. The number of companies closing every year has increased steadily, which is to be expected as the total number of active companies rises.<sup>27</sup>

This means that the ratio between the number of founded and closed companies has declined over time. This is not a purely Israeli phenomenon but is also evident in the United States and there have been many indications that the ratio there has declined more than expected.<sup>28</sup> One potential reason that has been suggested is the growing dominance of tech giants, both in terms of their competitive advantage, and the fact that the allure of working for a large corporation and all the side benefits that brings, makes it challenging to start up a new tech company.

Another contributing trend is a general decline in the establishment of B2C companies,<sup>29</sup> both in Israel and globally.<sup>30</sup> While the past three decades have introduced revolutionary infrastructure technologies for B2C tech, including the Internet, mobile, and cloud, in very recent years it has become more challenging for start-ups to create game-changing consumer technologies, especially given the dominance of the tech giants in consumer markets with access to enormous pools of consumer data.

Israel has always had an advantage in and a bias towards B2B verticals such as Cybersecurity, Agritech, Digital Health, Enterprise Software, Fintech and Industry 4.0. The emphasis on B2B is not surprising since Israel does not have a large local market to sell to, therefore local start-ups find it easier to sell abroad to a small number of businesses than to a large number of consumers.

**Figure 10: Active Israeli Companies by Business Model**



<sup>26</sup> The number of active companies that existed in 2018 also includes companies that closed during 2018.

<sup>27</sup> In our experience, more complete information on the number of companies that opened and closed is usually available within two years after the date of the event. For this reason, we have not included the data from 2018. However, preliminary findings indicate similar trends.

<sup>28</sup> [Bloomberg](#), [The New York Times](#), [Quartz](#), [Inc](#)

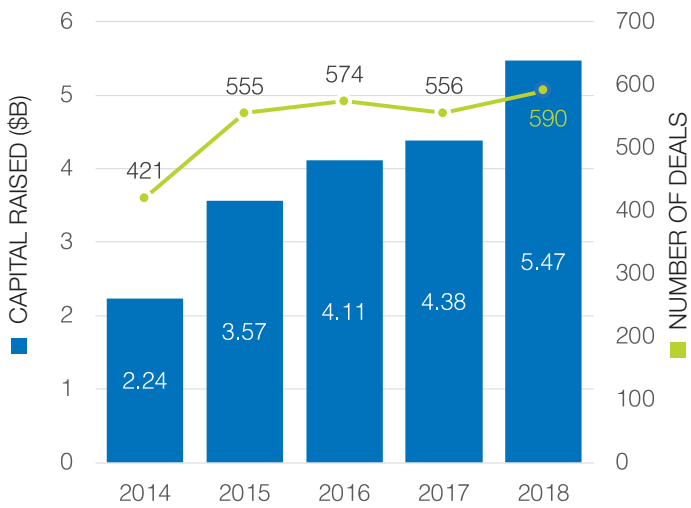
<sup>29</sup> We refer to B2C/B2B companies as companies that include this business model as part of their offering. There are cases where companies are counted twice if they have both B2B and B2C offerings.

<sup>30</sup> [Viola Group](#), [RTi Research](#), [SmallBizDaily](#)

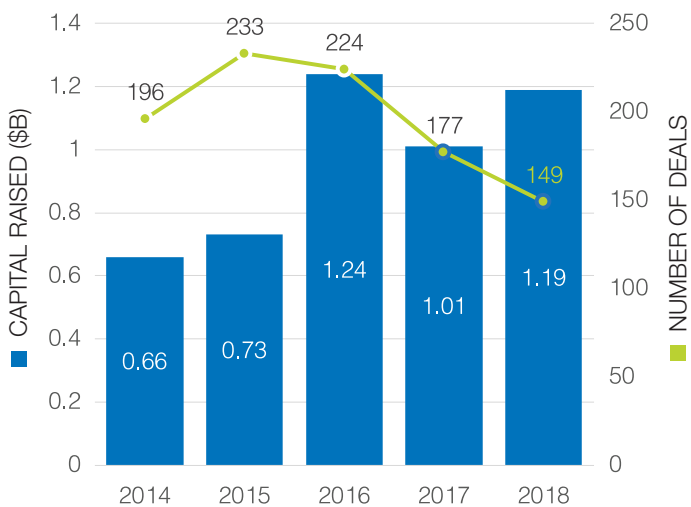
Israeli B2B companies have enjoyed significant success in recent years: the amount of funding has risen by 31% since 2016, while the total funding amount to B2C companies has fallen over the same period by 4%. The number of Seed rounds to B2C companies declined by 50% since 2014, while the number of B2B Seed rounds remained steady. On average nine B2C companies received C+ round financing per year since 2014, compared to 55 per year average for B2B companies. Similarly, the majority of exits seen in the ecosystem have been from B2B companies. These trends are consistent with the global trend over the past five years.<sup>31</sup>

Nevertheless, the one area where B2C companies led was in size of deals. The average amount raised for B2C companies in 2018 was \$1.7M, while the average for B2B companies was \$1M.

**Figure 11a: Equity Investments in B2B Companies**



**Figure 11b: Equity Investments in B2C Companies**



<sup>31</sup> [Techcrunch, Inc.](https://www.techcrunch.com/2019/01/22/israeli-startups-2018/)

# VERTICALS & TECHNOLOGIES

Below we examine the leading technologies and verticals in the Israeli tech innovation sector, as they have developed over the last five years. The technologies chosen are the ones that are either dominant today, or growing most rapidly and therefore likely to be among the most dominant in the next few years. The verticals reflect those that attracted the most investment in 2018, alongside those with large number of existing companies.

## PROMINENT TECHNOLOGIES



### Artificial Intelligence

Over the past decade, companies have increasingly strived to collect massive datasets and apply advanced information analysis tools, to generate valuable insights for their own applications or as a service for others. Artificial Intelligence (AI) technologies have become more capable and accurate in recent years, thanks to increased computational power, and greater availability of massive data. These advances are making AI much more prevalent across a variety of industries.

Israel is home to a vibrant AI ecosystem, with more than 1,000 companies and world-leading academic research centers, as well as many multinational R&D centers specializing in AI. These companies include those that develop core AI technologies, as well as those that utilize AI technologies for their vertical-related products.

In 2018, AI-related companies accounted for 17% of the total number of innovative technological companies in Israel. More notably, 32% of all funding rounds and 37% of the total capital raised went to AI-related companies.

2018 was a peak year in terms of capital raised by Israeli AI companies. The \$2.24B in total capital raised by these companies more than tripled from the amount raised in 2014. Prominent funding rounds were raised by companies utilizing AI, including Trax Image Recognition, eToro, Sisense, and Gett, and also by core-AI companies such as Habana.ai which develops AI processors.

It was also a good year in terms of exits for Israeli AI-related companies. The biggest acquisition of the year was the acquisition of Datorama by Salesforce for \$850M. Datorama utilizes AI to drive its marketing analytics platform. Other significant AI-related acquisitions that occurred in 2018 were the acquisition of the “virtual nutritionist” company Nutrino for \$100M by Medtronic, and video synopsis solutions company Briefcam for \$90M by Canon.

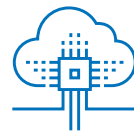
Towards the end of the year, two major tech-giants - NVIDIA and Intel - announced that they will be opening AI research centers in Israel. Nvidia’s center will be led by Prof. Gal Chechik, a former senior official at Google’s AI division.

The Intel Corporation collaborated with the Technion to create a new Center for Artificial Intelligence that will focus on advancing research in AI fields in collaboration with scientists from both organizations.

The AI boom isn’t limited to Israeli tech companies. During 2018, a number of leading AI products were unveiled by multinational companies which were developed by their Israeli R&D centers. Google introduced Google Duplex, a program for conducting natural language conversations, led by Yossi Matias, Google Vice President and Director of Google Israel’s R&D center, and engineers Yaniv Leviathan and Matan Kalman.

Microsoft launched a new product called “Microsoft Healthcare Bot” on the company’s Azure cloud service, enabling healthcare organizations to build and deploy AI-powered virtual assistants and chatbots. It was led by a team from Microsoft’s Israeli R&D center.

IBM’s Project Debater, a new AI program that can debate humans on complex topics, was first presented by Noam Slonim in 2011 as the IBM Research next Grand Challenge and exposed for the first time at a closed media event on June 18, 2018, in San Francisco, under the leadership of Ranit Aharonov and Slonim, both from the IBM Research lab in Haifa, Israel.



### IoT & Sensors

The Internet of Things (IoT) is the network of connected devices that contain sensors, electronics, software and connectivity which allows these devices to collect and exchange data, and to interact with each other.

The global adoption of IoT accelerated since 2015, and now the number of connected devices in use worldwide exceeds 17 billion, of which 7 billion are pure IoT devices (as opposed to smartphones, tablets, laptops or fixed-line phones). IDC predicts that worldwide technology spending on IoT will reach \$1.2T in 2022, implying a CAGR of 13.6%. For example, the IoT segment of Microsoft Azure and Amazon AWS grew 93% and 49% respectively between 2017 and 2018. C3IoT, a smaller player, also reported a 60% revenue increase for the same time period.

In 2018, Israeli IoT and sensor-related technologies accounted for 10% of the companies in the ecosystem, 16% of the total number of funding rounds, and 11% of the total capital raised. Of course, there is still ample room to grow, but an examination of the trends over the last five years shows that there has been an impressive 80% jump in the number of rounds raised by companies in this domain.

Prominent IoT-related funding rounds in 2018 were raised by Claroty, Spotinst, ThetaRay, and Cyberbit, all of which operate within the Cybersecurity, Manufacturing and Enterprise Solutions verticals.<sup>32</sup>

32 For more information regarding IoT in the industrial context, see [Start-Up Nation Central: Finder Insights Series - Israeli Industry 4.0 Special Edition](#)



## Blockchain

Blockchain is a hard-to-corrupt, peer-reviewed, digital ledger of transactions that can be programmed to record not just financial transactions but virtually anything of value.<sup>33</sup>

Blockchain has been attracting the interest of enterprises across the globe, with its cryptographically secure and transparent way of transferring digitally registered assets without the need for trusted third parties. According to PwC, 77% of financial institutions expect to adopt blockchain by 2020, and the majority of these are already working on one or more blockchain projects. For example, Santander Bank recently launched a blockchain-based application for cross-border payments, routed through Ripple's blockchain network.

Israel has become known as a leader in blockchain solutions, boosted by its expertise in Cybersecurity and Cryptography, significant academic work on crypto-technology from leading Israeli universities, and thousands of enthusiastic community members. Of the Israeli blockchain companies, 50% do not operate within the Fintech sector.

The Israeli blockchain industry is evolving fast, with 155 active companies in this field. In 2018, Blockchain companies raised \$107M in venture-backed rounds (a significant increase from the \$8.5M raised in 2014), and \$295M through initial coin offerings (ICOs). For Blockchain companies, initiating tokens serves as an alternative way to raise funds, largely without any equity commitment.

## PROMINENT VERTICALS



### Cybersecurity

Israeli companies continued to demonstrate excellence in identifying the new challenges and threats that the world faces and developing new solutions to address them. Investors from all over the world are increasingly showing confidence in the local industry. 2018 ended with \$1.19B of investments in Israeli companies, a 47% increase from 2017, and an amount which was raised in 117 investment rounds (39% more deals than 2017). According to the preliminary numbers, it constitutes almost 20% of the global VC investments in Cybersecurity. By the end of 2018 there were 450 active Cybersecurity companies, 60 of which were founded during the past year (compared to 75 companies in 2017).

In 2018, Israeli Cybersecurity-related technologies accounted for 7% of the companies in the ecosystem, 17% of the total number of funding rounds, and 20% of the total capital raised. Therefore, despite Cybersecurity being a small fraction of the ecosystem in terms of number of companies, it still managed to raise a large percentage of rounds and capital. In addition, the number of funding rounds and capital raised doubled in comparison to 2014.

In contrast to previous years, the dramatic growth in the amount of funding is not a result of a few "mega-funding" rounds. There were only three investment deals of more than \$50M, which accounted for less than 15% of the total amount invested in 2018, as opposed to 2017, when three deals accounted for 40% of the year's total. Prominent investment deals were raised by Claroty (\$60M), BigID (\$44M in two deals) and Demisto (\$43M).

The IoT Security segment continued to grow in 2018, with many new start-ups and investments. The Data Protection and Privacy subsector was the fastest growing subsector, in light of the General Data Protection Regulation (GDPR) and countless large data breaches that occurred over the last few years.

2018 saw 12 exits, the total of six of which was \$418M – the value of the other six has not been disclosed. Relative to previous years, this is a decline in the number of exits. We are seeing a similar decline across all verticals, which could be interpreted as a sign that more companies are choosing to stay private longer and grow their business, rather than looking for an early exit.<sup>34</sup>



### Healthcare

There are more than 1,200 innovative companies in the Healthcare market (around 500 of which are in Digital Health, 500 in Medical Devices and 200 in Pharma), as well as industry-focused incubators and accelerators, multinational corporation (MNCs) R&D centers, and government and academic initiatives. In 2018, innovative Israeli healthcare companies received almost \$900M of investment and made a number of strategic exits.

In 2018, Israeli healthcare-related technologies accounted for 24% of the companies in the ecosystem, and the same share of the total number of funding rounds and capital raised. The total investment amount raised in 2018 was less than in 2017, as impressive growth in digital health investments was offset by a decline in pharma and medical devices. The median round was ~\$4M, virtually unchanged year on year. The largest amounts were received by medical devices manufacturer V Wave (\$70M), diagnostics company MeMed (\$70M), and biopharmaceutical company 89Bio (\$60M). The largest exit was the acquisition of EPD Solutions by Philips Healthcare for \$292M. 2018 also saw the first pure Digital Therapeutics exit: Medtronic bought personalized nutrition company Nutrino for \$100M.<sup>35</sup>

33 Blockchain Revolution: How the Technology Behind Bitcoin and Other Cryptocurrencies Is Changing the World – by Don & Alex Tapscott

34 For more information regarding the vertical, see [Start-Up Nation Central: Finder Insights Series - Israel's Cybersecurity Industry in 2018](#)

35 For more information regarding Digital Health, see [Start-Up Nation Central: Finder Insights Series - Israel's Digital Health Industry, 2017-2018 H1](#)



## Financial Services

Technology keeps changing the competitive landscape of the finance industry. Established financial institutions still possess three unique assets that keep them deeply entrenched: data, trust, and capital. However, it is well understood that to remain the leading players, financial institutions must adopt an open innovation approach. This will allow them to collaborate with smaller disruptive Fintech companies, in order to jointly develop innovative products and services, while leveraging their unique assets; many institutions are seeking Israeli Fintech innovators for collaboration. Moreover, there seems to be a profound change of operation models, from establishing R&D centers through an acquisition, to alternative models of engagement, including innovation labs, accelerator programs, CVCs, partnerships and more. These all represent collaborative ways in which to work with Fintech companies. With more than 500 companies, the Israeli Fintech sector has become recognized globally, attracting investors from around the world, and serving hundreds of global financial institutions.

2018 was a record-breaking year for Fintech investments both globally and locally: \$832M was raised in 82 deals by Israeli Fintech companies, almost doubling the total amount raised during 2017. Consistent with the increased deal size trend, the median deal size for both late-stage and early-stage investments in Fintech leapt to an all-time record of \$30M and \$3.1M respectively. Three prominent companies accounted for 30% of the total amount raised in 2018: social trading and investing platform eToro (\$100M), Next Insurance, which serves small to medium businesses (SMBs) (\$83M), and Bluevine, a lending platform for SMBs (\$72M in two deals).

In 2018, Israeli Fintech companies accounted for 7.5% of the companies in the ecosystem, 13% of the total number of funding rounds, and 14% of the total capital raised. The number of funding rounds grew by 74% since 2014, and there was a 40% increase in the number of companies and the total capital raised.

Since the beginning of 2017, we have also observed an increase in debt financing amounts for Fintech start-ups: \$646M in debt was raised across six deals by four companies, three of which are online lender platforms. Raising debt allows these companies to dramatically expand their loan offerings. A portion of this debt comes from large banks, as it allows them to tap into the growing market of SMB lending platforms.

2018 saw eight exits in Fintech, which represent a peak for the last four years. Notable exits were Tapingo, acquired by GrubHub for \$150M, and Zooz, bought by PayU for \$80M.<sup>36</sup>



## Transportation

Over the last decade, car manufacturers have found themselves in a struggle for survival against the data and sharing companies (such as Google, and Uber), which are trying to commoditize the car industry. As a result, the industry became much more driven by data and communication technologies.

2018 ended with 517 companies operating in the field, accounting for 8% of the companies in the ecosystem and demonstrating a growth of 41% since 2014. About 10% of the total number of funding rounds and 12% of the total capital raised went to the companies in this sector in 2018, representing a jump of 81% jump in the number of funding rounds since 2014, with 25 deals passing the \$10M mark. The top three largest funding rounds were Gett with \$80M, followed by Valens with \$63M, and Moovit with \$50M. The total funds raised in 2018 amounted to \$753M, more than double the amount raised in 2014.

The Israeli transportation ecosystem is flourishing, with dedicated venture capital funds, global players with an established presence in Israel, such as Ford, General Motors, Honda, and dedicated accelerators. In 2018 the sector received global attention due to the opening of an R&D center by Parkwhiz, aimed at improving parking decisions. Konnect, a co-working space sponsored by the Volkswagen group, also launched in 2018. The sector also saw the arrival of a new foreign venture arm by Hyundai called CRADLE, which opened last May.<sup>37</sup>

<sup>36</sup> For more information regarding the vertical, see [Start-Up Nation Central: Finder Insights Series - Israel's Fintech Industry Report](#)

<sup>37</sup> For more information regarding the vertical, see [Israel's Automotive & Smart Mobility Industry – Roland Berger Report](#)



## Agriculture and Food

By the end of 2018, Israel's AgriFoodtech sector comprised 680 active companies. Spanning 15 subsectors, Israeli AgriFood targets the obstacles that farmers and agribusinesses encounter in growing, processing, and distributing foodstuffs, as well as addressing the nutritional interests of consumers worldwide. With only a small, regionally isolated domestic market, Israeli AgriFood entrepreneurs build their companies for international markets. The sector's customers are farmers, leading input companies, insurance corporates, food and beverage leaders, agritraders, and governments from around the world. Israeli smart irrigation systems are saving water and labor resources for huge farms in Australia and the USA, while Israeli green biological pesticides are relieving infestations for fruit farmers in Africa.

Today's sector draws from decades of collaboration between Israel's academic institutions, government, and farming communities, which have had to embrace innovation to achieve food security for a growing population where natural resources are scarce, and the neighbors offer no aid.

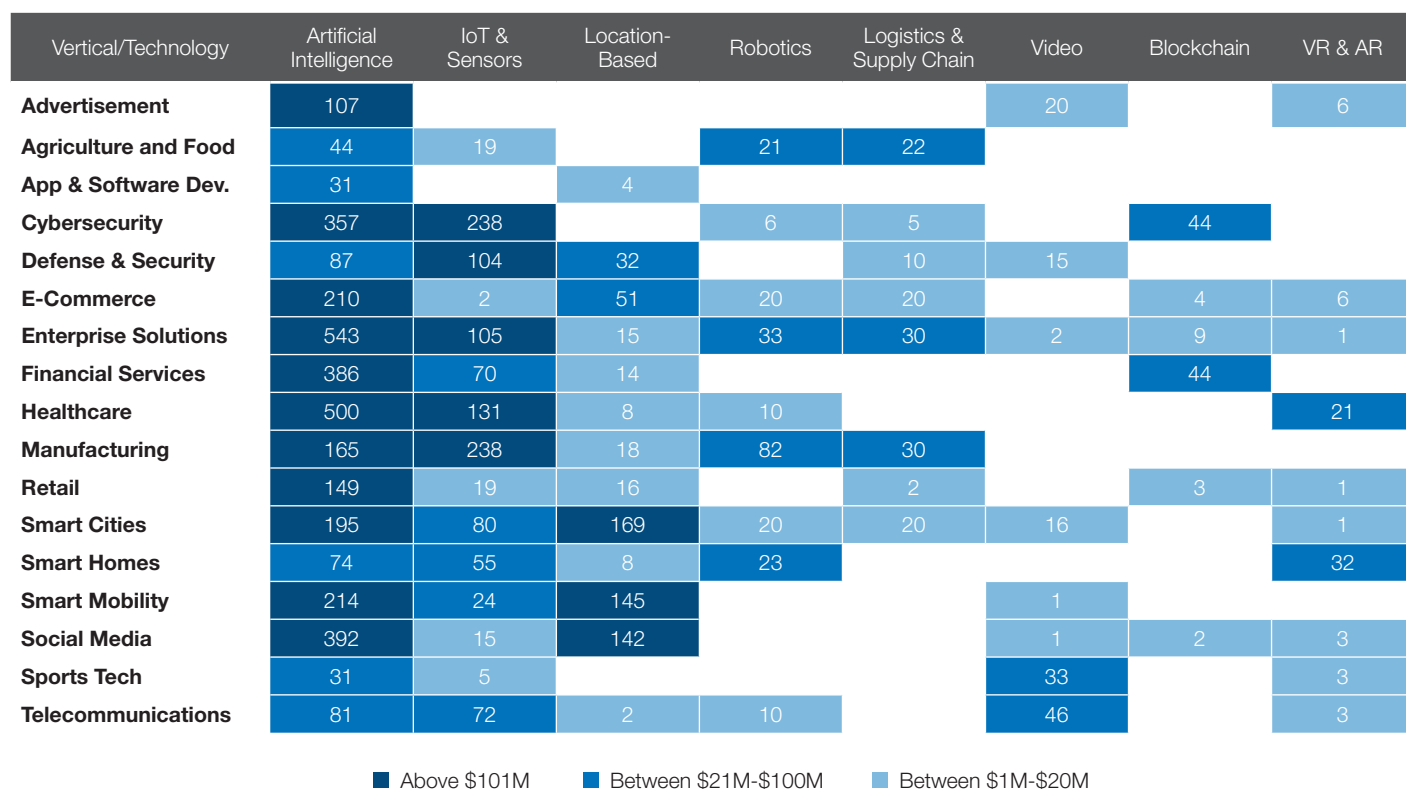
In 2018, Israeli agriculture and food-related technologies accounted for 11% of the companies in the ecosystem, 11% of the total number of funding rounds and 6% of the total capital raised. Since 2014, there has been a 24% jump in the number of funding rounds in this vertical.

VC figures reflect investors' perception of the sector's potential to disrupt the Agriculture and Food/Beverage industries globally. In 2018, Israeli AgriFoodtech raised \$196M in 66 deals; a total which is \$20M short of the 2017 total, but which represents an increase of seven deals, and a much higher value than any year prior to 2017. The largest rounds in 2018 went to Velox for its digital packaging solution (\$32M), Taranis for its crop-monitoring solution to identifying disease in crop rows (\$20M), and CommonSense Robotics for its automated supply-chain platform (\$20M). In Agritech in 2018, Smart Farming and Agribiotechnology start-ups proved the most attractive to investors; and in Foodtech, it was Supply Chain & Logistics, and Packaging start-ups. Foodtech also attained a large number of corporate acquisitions.<sup>38</sup>

Figure 12 shows funding trends in 2018 for companies at the intersection of verticals and technologies. For example, in Artificial Intelligence, the leading verticals in terms of capital raised in 2018 were Enterprise Solutions, Healthcare, and Social Media, with \$107M raised by AI-based companies in the Advertisement vertical. It seems that the leading technologies in the Israeli ecosystem are those that are widely used across various verticals.

Note: This analysis is based on a tagging system in which companies can be associated with multiple verticals.

**Figure 12: Total Funding in 2018 in \$M for Prominent Vertical-Technologies Combinations**



<sup>38</sup> For more information regarding the vertical, see [Start-Up Nation Central: Finder Insights Series - Israeli Agritech - Special Edition for Israel's AgriFoodTech week 2018](#)

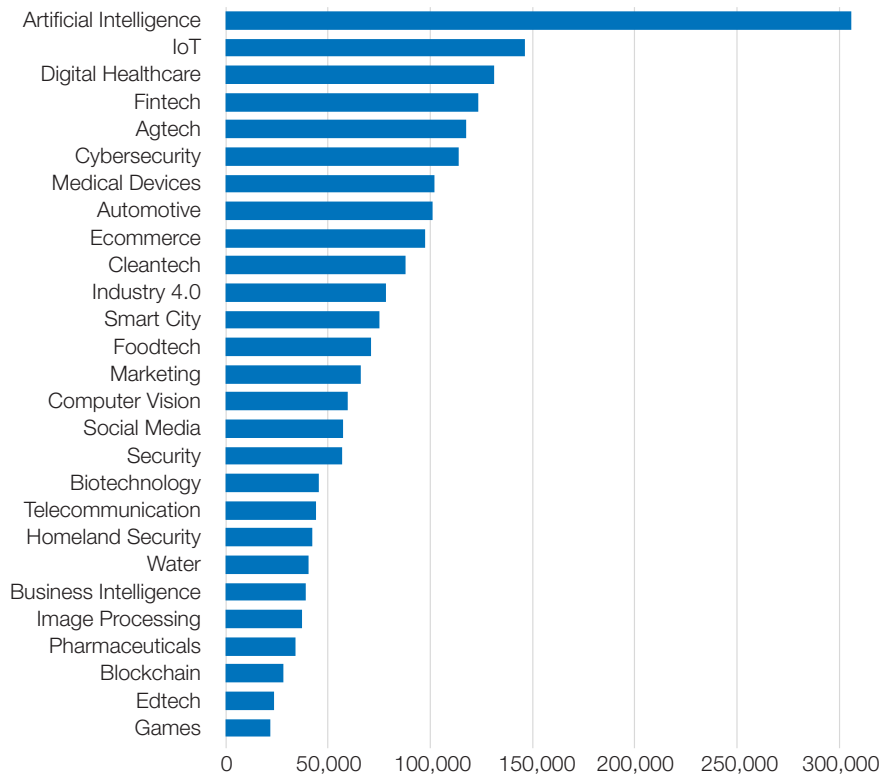
# FINDER TRAFFIC



Start-Up Nation Finder™ is a free online innovation discovery platform produced and curated by Start-Up Nation Central. It is a resource for in-depth information about Israeli start-ups, investors, hubs, multinational corporations, and academic technologies. By combining data technology, crowdsourcing, and a team of professional analysts, we are able to provide the latest and most up-to-date information and insights.

By examining searches in Start-Up Nation Finder, we see that the most popular search terms in 2018 were Artificial Intelligence, IoT, Digital Healthcare, Fintech and Agtech.

**Figure 13: Views of Companies by Top Searched Tags (2018)**



## MULTINATIONAL CORPORATIONS

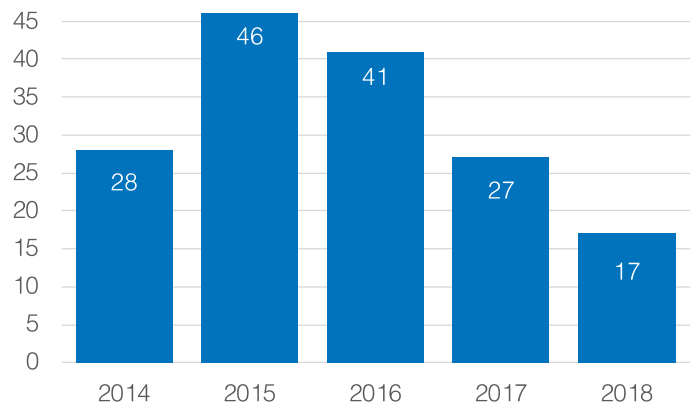
In general, global corporations tend to invest in start-ups to gain access to disruptive innovation. This allows them to shorten innovation cycles, implement new technologies, enrich existing business models, and craft new ones in a quicker and more effective way than they could on their own. In return start-ups gain access to new markets, a wide network of customers and partners, increased visibility, and the possibility of investment or acquisition.

Multinational corporations (MNCs) began to show interest in Israeli technological innovation from the early 1970s. Today more than 500 multinational companies from 60 countries<sup>39</sup> are involved in the Israeli high-tech ecosystem in some way; whether through a local R&D/innovation center, strategic investments in Israeli companies, sponsorships of various programs, and other models of operation.

There are 320 multinational companies with a direct presence in Israel, of which more than 300 have R&D activities across 360 different offices. The vast majority of these MNCs are headquartered in the United States (246), while the UK, Germany, France, and Canada each have more than 10 offices in Israel engaged in R&D activities.

MNCs contribute a substantial part of the total domestic R&D activity, providing opportunities for engineers and programmers to work on cutting-edge technologies, and influence a wide array of customers globally. MNC graduates often set up start-ups or are recruited as executives for local companies. Various MNCs with a presence in Israel, such as Intel, KLA, and Applied Materials, also operate manufacturing activities in Israel, as well as R&D. As a result, MNCs provide a platform for acquiring quality knowledge and experience for local employees.

**Figure 14: Number of R&D Center Openings**



39 [Forbes Global 2000](#)



According to data from the Israel Central Bureau of Statistics, the average rate of MNC R&D centers opening in Israel per year stood at 3.6 on average between 1989 – 2003. The average between 2004-2016 jumped to 19.5. Nevertheless, our data suggests that since 2015 there has been a gradual decrease in the number of R&D centers that have opened each year in Israel.<sup>40</sup> It seems that foreign corporates have begun operating in more diverse ways, such as opening Corporate VC offices in Israel, partnering with accelerators and innovation centers, or engaging in other forms of collaboration.<sup>41</sup>

17 MNCs opened Israeli offices during 2018. Here are some prominent examples:



Nike opened an R&D center in Herzliya following the acquisition of Invertex. The Israeli team will continue to develop products for Nike using computer vision technologies.

The top verticals in which the multinationals operate are:



**Software**  
(35)



**Semiconductors**  
(21)



**Electrical Equipment and Electronics**  
(16)



**Telecommunications Equipment / IT**  
(14)



**Financial Services and Banking**  
(14)



**Medical Devices, Equipment, and Supplies**  
(13)



**BNY MELLON**

American worldwide banking and financial services holding company BNY Mellon opened an R&D center in Israel following their acquisition of the Israeli company Rumble, which offers a smart content-management system.



**Broadridge®**

Broadridge Financial Solutions – provides advanced technology and operations, communications, data and analytics solutions for the financial services industry and financial businesses. It acquired the Israeli company ActivePath Solutions in 2018 to expand its R&D and open investment in Israel. ActivePath's software is to be integrated into Broadridge's platforms, and the local team will also develop further products for the company.

**JABIL**

Jabil Inc. is a global manufacturing partner who provides its expertise in engineering, design and supply chains to the world's biggest brands. Jabil Optics Israel was opened in 2018 as its innovation and development center, and it aims to provide the local community with additional opportunities in computational cameras, projection systems and combined solutions.

**HUMAN CAPITAL**



The Israeli high-tech workforce consists of 280,000 people, which is just under 8% of the entire employed population in the country.<sup>42</sup> This number has been growing steadily over the last five years in absolute terms, although it has remained stagnant as a percentage of the labor force as the total number of people employed has risen.

For more information, see the [Start-Up Nation Central Human Capital Survey Report 2018](#).

40 The numbers may change as we gather additional data

41 For more information regarding MNC modes of operation in Israel, see "The State of Innovation - Operating Model Frameworks, Findings and Resources for MNCs Innovating in Israel"

42 Source: CBS. This number is below the CBS estimate, as we exclude telecoms that have a high number of service workers.

## HUBS

Hubs (incubators, accelerators, etc.) are an integral part of the overall support system that encompasses entrepreneurs and start-ups. Whether they provide physical space for office work, help entrepreneurs understand and build their business, assist with legal and technological elements of a project, or connect them to a vast network of customers and allies - they represent an important part of what enables entrepreneurs to turn their ideas into a sustainable business.

We have seen the proliferation of new acceleration and entrepreneurship programs, both local and foreign, as well as co-working spaces in recent years. In 2018 there were more than 220 active hubs. Almost half of them were accelerators, 29% of which were non-corporate, while 15% were corporate owned. Another big part of Israeli-based hubs are co-working spaces which take up 34%, while entrepreneurship programs constitute the rest.

22 new hubs were opened during 2018, a far lower figure than at the peak in 2015, when 47 hubs were opened. Four of the new hubs that opened in 2018 were non-Israeli:



**Microsoft, Prodware Group, and Tech Data** launched the “365x”, a scale-up program for mature start-ups that have a product and initial clients and want to expand to international markets.



French-Italian multinational electronics and semiconductor manufacturer **STMicroelectronics** opened an accelerator called “ST-Up”.

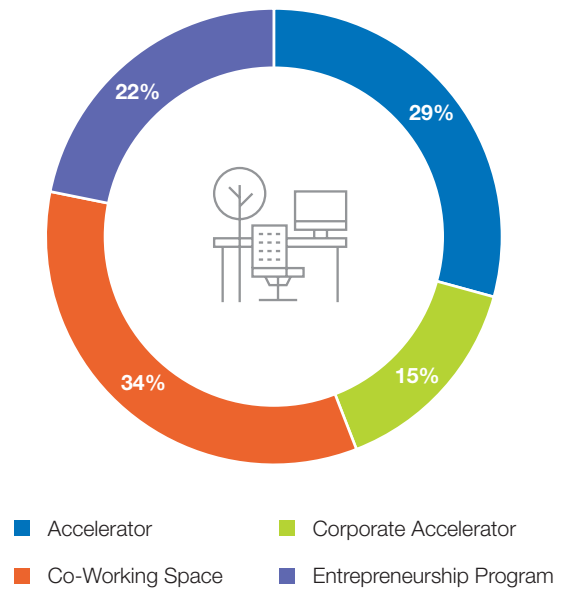


German car manufacturer **Volkswagen** opened “Konnnect”, a co-working space that aims to provide local partners and mobility-based start-ups with close and direct access to the Volkswagen Group, including business collaborations, mentoring and consulting.



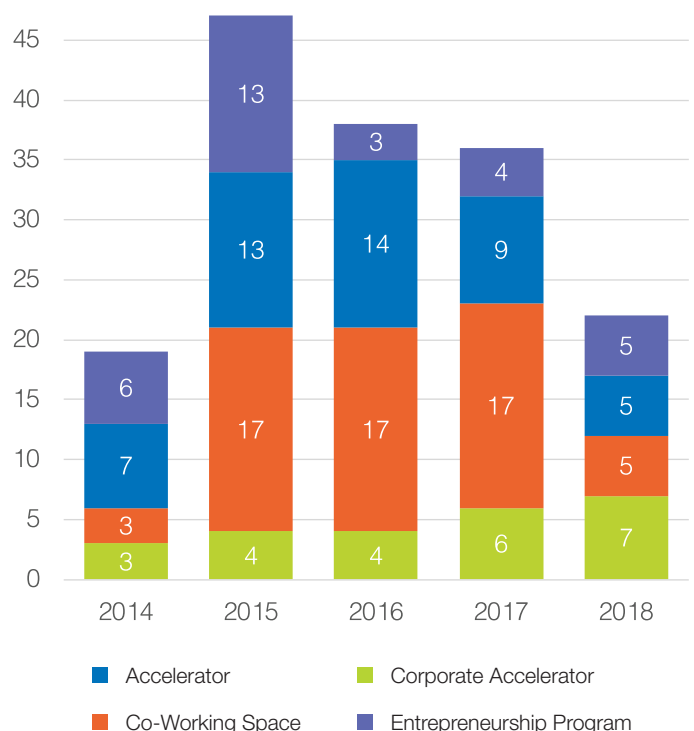
American package delivery company **UPS** opened a new accelerator called “Ship Your Innovation” which is operated by O.P.S.I. The accelerator aims to nurture partnerships and collaboration with local technology entrepreneurs and start-ups who focus on logistics-oriented solutions.

Figure 15: Hubs by Type



Segmentation of the new openings by hub type shows that from 2015 there was a steady trend of new corporate accelerators opening. However, since there has been a downward trend in the number of new co-working spaces, accelerators and entrepreneurship programs opening per year, it is possible that the market is currently saturated and strong players have already established their hubs in Israel, therefore fewer extra hubs are needed per year.

Figure 16: Hub Openings by Type



# THE ORIGIN AND STORY OF ISRAELI INNOVATION

Israeli technological innovation originates from the existential needs faced by the hundreds of thousands of people that came back to the land of Israel during the late 19th century, and in the first half of the 20th. They came from very different environments and geographies, spoke different languages, and found little water, minimal arable land, no trees and a fairly inhospitable neighborhood. Without innovation, there would have been no survival. This was the first phase of Israeli innovation.

In the 1950's, Israelis realized that some of their existential problems could also be found in other countries, and they slowly started sharing their solutions. Israeli innovation began to go global, as some Israeli companies started exporting technologies. By the early 1970's, we began seeing technological multinationals establish R&D centers in Israel. This was the second phase of Israeli innovation.

The third phase began in the early 1990's when the innovation ecosystem in Israel started growing exponentially, largely unnoticed by most of the world and unbeknown to most Israelis. It was driven by several factors:

- The cancellation of the huge Israeli fighter plane project in the late 1980's released a large number of scientists, programmers and engineers into the market with cutting-edge technology experience.
- The Soviet Union collapsed, and over a million Jews immigrated to Israel during the 1990's. This wave brought tens of thousands of highly skilled engineers, programmers and scientists to the Holy Land, creating a large pool of talent waiting to be deployed at reasonable cost.
- The worldwide demand for information and communication technology skyrocketed, specifically in areas where Israeli military technologies were very strong.
- The Yozma program, initiated by the Government of Israel, which launched the Israeli VC industry, as well as attracting foreign VCs to Israel. Various other support programs also helped facilitate the third phase of innovation.

These factors led to the establishment and financing of a large number of technological start ups. The standard path for a successful Israeli company in the 1990's was to raise two to three rounds of early-stage capital and then list on NASDAQ. During the technology boom of the late 1990's there were more Israeli companies listed there than of any other country, other than the US. MNCs became more interested in Israeli talent and intensified their entry; between 1990 and 2004, on average approximately four foreign R&D centers were established per year, most of them greenfield.

In 2002, the Sarbanes-Oxley Act was passed in the US and imposed a much higher regulatory burden on public companies. This meant that most companies could no longer justify the listing on NASDAQ, and as a result, many Israeli companies had to search for alternative late-stage financing.

At the same time, many US-based technology MNCs displayed a large appetite for overseas acquisitions, finding many interesting opportunities in Israel. This was the beginning of a massive growth of MNC R&D centers in Israel; between 2004 – 2018, an average of 20 centers per year opened, many of them through acquisitions. This development changed the mindset of many Israeli start-ups and investors, who began to see an acquisition by a large corporate as a natural “exit” strategy for their company. For Israeli start-ups, the main form of “exit” continues to be acquisition by an MNC. However, the emerging new trend of growth companies has helped create a different breed of Israeli entrepreneur, who is aiming to establish large Israeli stand-alone companies.



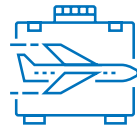
# THE ORIGIN AND STORY OF ISRAELI INNOVATION

Why was Israel so successful in developing such a dense innovation ecosystem over time? The reasons for this include several characteristics of the Israeli society:



## Culture

Israeli culture is a combination of characteristics – a package deal – that seems to be very conducive to innovation. Israeli society is very non-hierarchical, and people are often less than receptive to authority or to common practice. People doubt conventional wisdom and challenge it quite frequently, even as early as when they are at school. This leads them to take more risks, and Israeli society does not penalize risk-taking and its associated failures. Israelis want to change the world – and they believe that they can do it. Given that the culture is very goal-oriented, all of the above reasons make Israelis well-suited for the perils and difficulties of establishing and running a technological start-up, which may explain why Israel has the most start-ups per capita in the world.



## Immigration

Israel is a country of immigrants from all over the world, and every year continues to absorb a much higher percentage of new immigrants than almost any country in the world. Immigrants bring with them a diversity of opinions, skills, and mindsets, creating an incredibly powerful ground for innovation.



## Governmental Support

The Israeli Government played a very important role in developing the ecosystem. Apart from investing in higher education and in the military, it also established a grants system that supports the late stages of research and the early stages of development in Israeli tech companies, reducing their risk without diluting their equity. As mentioned earlier, in 1993 the Government launched the Yozma program that facilitated the creation of the Israeli VC industry, by attracting foreign capital and expertise. In addition, it provided grants and a favorable tax regime to technology companies. Today it provides extensive support via the Israel Innovation Authority, but overall it deliberately refrains from too much intervention in the sector, which has also helped the sector develop.



## The Military

The military in Israel is mandatory for the majority of the population. It plays a very important role in supporting the innovation ecosystem: by training a large number of young people in cutting edge technologies, and then discharging them into the economy. Even when they serve in non-technological units, young Israeli men and women develop responsibility, discipline, leadership, and learn to be focused on achieving their goals – and all this by the ages of 21-23. The military service also creates very strong social networks, which often later translate into professional networks.



## METHODOLOGY

This study and the analysis presented within are based on data from Start-Up Nation Finder, the innovation discovery platform from Start-Up Nation Central. Research was conducted on public web sources, free and premium databases, intra-organizational knowledge, interviews with prominent players in the Israeli high-tech and venture capital ecosystem, as well as a survey sent to investors. This report describes the Israeli high-tech ecosystem only. Amounts and definitions accord with those of Start-Up Nation Finder.

We refer in this report to investments as any equity transaction (e.g. VC, corporate and angel investments, private equity in late-stage). Included round types are Pre-Seed, Angel, Seed, Round A-G and Undisclosed Round. Excluded round types are Crowdfunding, Grant, Initial Coin Offering, Joint Project Grant, Convertible Debt, Debt Financing and Post-IPO Equity. Investment amounts entail only the value invested in a given year; even if a deal includes terms for future obligations, in this report they are not considered part of the year amount.

We refer to exits as only first-time liquidity events (including M&A, buyout, reverse merger, and IPO) of companies that have not previously exited. Reverse mergers/buyouts are addressed as M&A.



## GLOSSARY

### Company

In order to qualify for Finder a company must meet all the following criteria:

- It develops a proprietary technology/invention
- It has an office in Israel with local R&D activity \*
- At least one of the founders must be an Israeli citizen (does not have to reside in Israel)

\* If the company opened its first R&D office in Israel more than one year after opening its office(s) abroad then the organization should instead be considered a "foreign company with R&D in Israel" and should be listed under the MNC section.

### Investor

A business entity with a constant presence in Israel in Israel that invests in Israeli tech companies. This can be an Angel, VC firm, corporate-VC firm, PE firm, or incubator sponsored by the Israel Innovation Authority.

### Investor Types

Finder categorizes investors among eight types:

- VC (venture capital) refers to a company that invests its limited partners' money in a venture to support its expansion. VCs focus on strictly financial return.
- Corporate VC is a corporate's investment arm that directs funds directly to external start-ups. Such entities usually invest with the intention of integrating the sponsored technology (and potentially its creators) into the corporate.
- PE (private equity) refers to a company that invests venture capital in companies, usually in late-stage, in exchange for a private equity stake.
- VC and private equity describes a firm that combines both VC and PE policies.
- Crowdfunding is the practice of funding a project or venture by raising money from private individuals from the public, typically through social media and crowdfunding websites.
- An angel is an affluent individual who invests capital in a venture, usually in exchange for convertible debt or ownership equity. Angels presented in Finder are those who are serial angels which invested multiple times, address themselves as angels and conduct deal flow.
- An angel group refers to several angels that collaboratively invest in enterprises.
- Incubator refers to a program sponsored by an investment firm and the Israel Innovation Authority that supports entrepreneurs' early work of building a technology-based start-up.

## Hub

An accelerator, guided program, or coworking space housed in Israel, whose membership includes innovative Israeli companies.

## Hub Types

Finder categorizes hubs into four types:

- Accelerator describes a company development program for a batch or cohort of companies selected for participation. These programs last for a set amount of time that usually concludes with a demo day.
- Corporate accelerator refers to accelerator programs funded and managed by a corporate.
- Co-working space is an office complex that encourages collaboration between resident companies.
- An entrepreneurship program resembles an accelerator, teaching tech entrepreneurship, but has no pre-determined limit on time, nor is it batch/cohort-based, and it is usually supported by an academic institution. Participants usually fully develop a product.



## ABOUT START-UP NATION CENTRAL

Start-Up Nation Central is an independent non-profit that builds bridges to Israeli innovation. We connect business, government, and NGO leaders from around the world to Israeli innovation, through highly customized business engagements, and through Start-Up Nation Finder – an easy to use, up-to-date, free online platform for discovering and connecting with thousands of relevant innovators.

We identify technological sectors with high-growth potential, and help them develop to maturity. We currently focus on the Digital Health, AgriFoodtech and Industry 4.0 sectors, exposing them to global audiences, helping them develop practical tools, attracting investors, and establishing and nurturing tech communities to increase collaboration, knowledge-sharing, and skill expansion.

We accumulate knowledge and generate in-depth insights about Israel's innovation sector, and share these findings with our clients and partners.

## Multinational Corporations (MNCs)

A company which originating abroad and has headquarters abroad and in addition has a subsidiary or branch located in Israel with R&D activities. If a company was founded by Israeli founders and started its activity abroad and in Israel simultaneously (or with a one-year gap) it is considered an Israeli company. If the company had an office with R&D activities abroad and only after more than one year from its foundation it has opened an office in Israel, then it will be considered as an MNC branch.

## Multinational Corporation (MNC) Types

The kind of activities the MNC pursues in Israel.

Finder distinguishes between three types:

- R&D refers to offices used for the extensive, focused process of developing products and determining target markets or of enhancing the MNC's existing technology.
- Sales describes a base devoted to marketing the MNC's products.
- Innovation center refers to an in-house think tank, tasked with considering potential direction for the MNC beyond of its current scope.

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## Contact us

For more information on the Israeli high-tech ecosystem and the companies cited in this report, please visit: [finder.startupnationcentral.org](http://finder.startupnationcentral.org)

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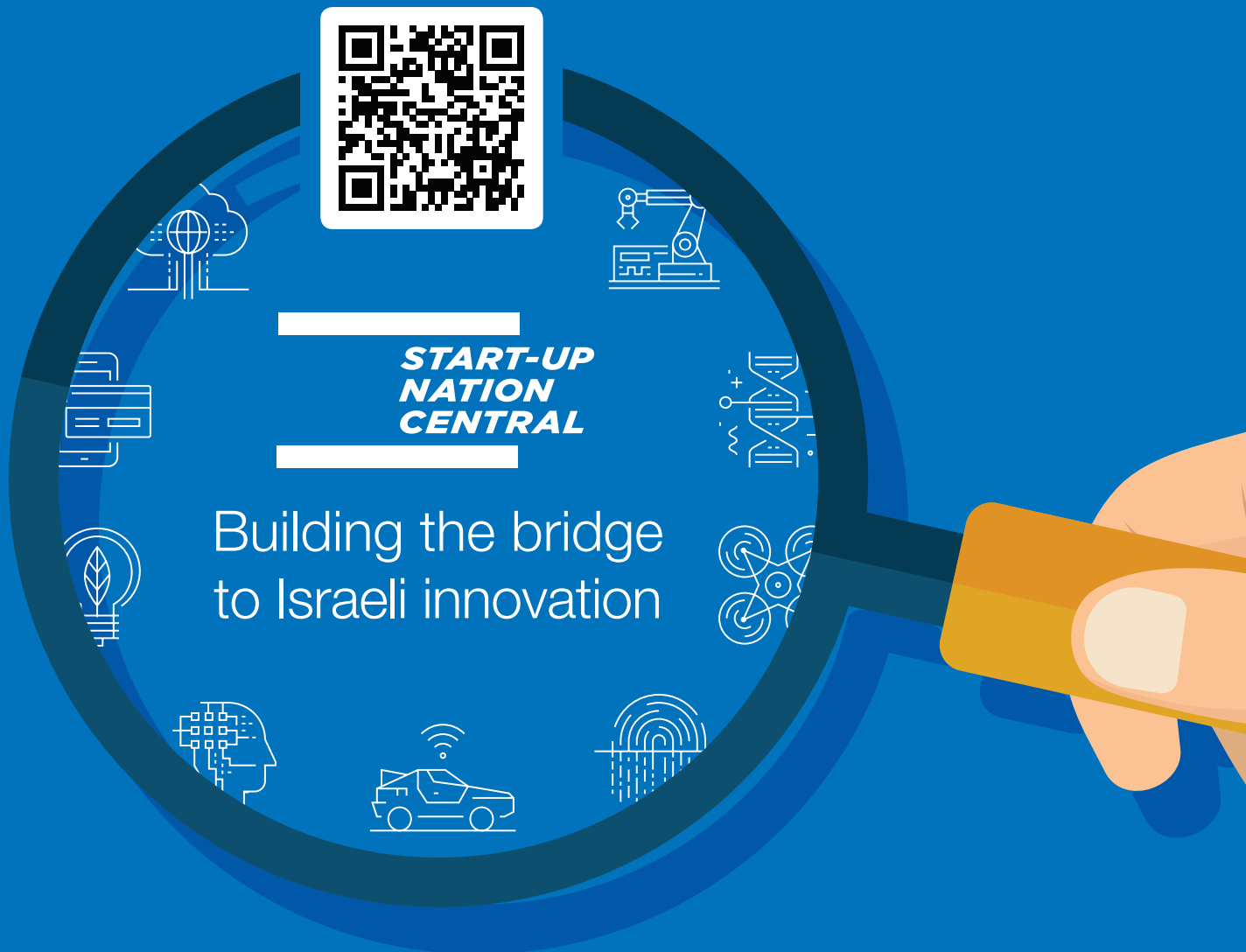
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