

# THE AEROSPACE AND METAL INDUSTRIES IN ISRAEL

A SHORT GUIDE TO YOUR NEXT BEST INVESTMENT



The Foreign Investments  
and Industrial Cooperation Authority

[INVESTINISRAEL.GOV.IL](http://INVESTINISRAEL.GOV.IL)



## THE ISRAELI INVESTMENT PROMOTION AGENCY

**I**nvest 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.

**Our advantage** lies in our ability to bridge between private client needs and to promote activities within the framework of the government.

### Foreign Investment Promotion

Forward-thinking conferences and delegations with key figures, businesses and government officials

### Investor Guidance

Expert sector managers that leads potential investors from initial interest to successful investments

### Post- Investment Support

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

# WHERE COMPANIES COME TO SHINE

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# A GLIMPSE INTO ISRAEL

## AREA

22,072 km<sup>2</sup>

## POPULATION

8,571,200

## CAPITAL

Jerusalem

## MAJOR CITIES

Jerusalem

Tel Aviv-Jaffa

Haifa

Be'er Sheva

All data refers to 2018





## TIME ZONE

GMT + 2 HOUR

## OFFICIAL LANGUAGES

Hebrew | Arabic | English\*

## URBAN POPULATION

92.3%

## CURRENCY

New Israeli Shekel (NIS)

## GDP <sub>(ppp)</sub>

\$37,175

## UNEMPLOYMENT RATE

4.8%

\* Though not specified by the law, English is widely used both officially and unofficially.



# A STABLE ECONOMY

FITCH

RATING

**A+**

OUTLOOK

**STABLE**

MOODY'S

RATING

**A1**

OUTLOOK

**STABLE**

STANDARD &  
POOR'S

RATING

**A+**

OUTLOOK

**POSITIVE**

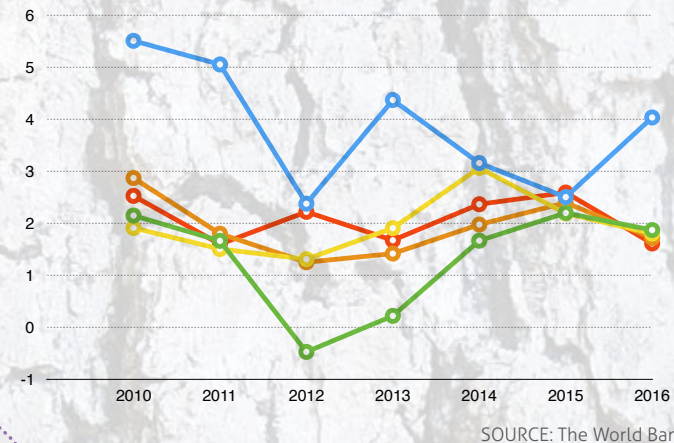




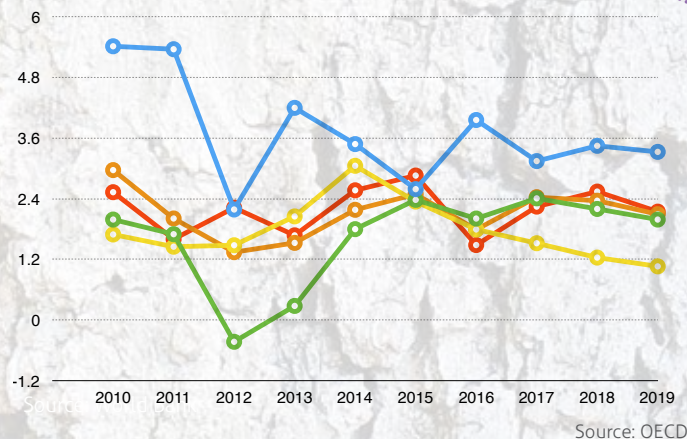
Israel has one of the strongest and most technologically-advanced economies in the world, with a resilient, diverse and open market.

The most recent global financial crisis in 2008-9 led to a brief period of recession in Israel, but the country's prudent fiscal policies and regulations, combined with a particularly robust banking sector, allowed the economy to recover quickly – faster than other advanced economies worldwide.

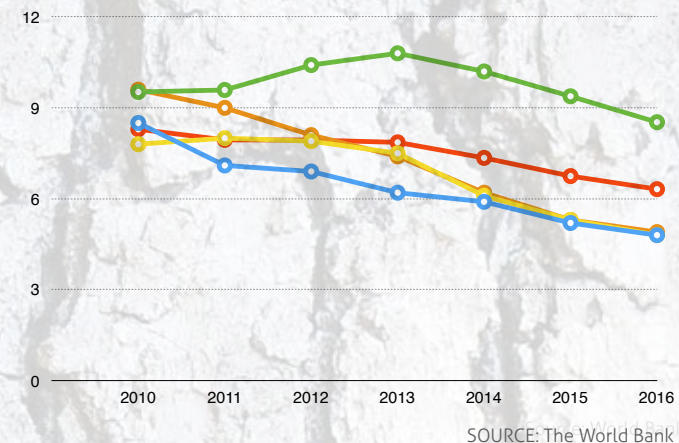
## GDP GROWTH RATE (%)



## REAL GDP FORECAST



## UNEMPLOYMENT RATE (%)





# GLOBAL AEROSPACE TRENDS

WHERE THE WORLD  
IS HEADING –  
ISRAELI COMPANIES  
ARE LEADING THE WAY





## INCREASED COMMERCIAL AVIATION TRAFFIC

Commercial air traffic has doubled every 15 years since the 1980s. This growth rate is expected to continue over the next 20 years, with an annual increase of approximately 4.6%. International cargo transport is also expected to grow, by approximately 4.4% on average each year.

*As a result, demand for commercial aircraft that are larger (more seats per aircraft) and more efficient is expected to grow.*

## SUSTAINABILITY

More and more companies are implementing production methods that are more environmentally friendly, and have begun to manufacture greener products as well. Regulations have also changed in recent years and now focus on limiting damage to the environment.

*Sustainability goals have become an integral part of many company and organizational policies, and are trickled down from the OEMs through the entire value chain.*

Recently, the Israeli company Ashot Ashkelon Industries collaborated with two Italian companies (EFESTO and C.F.M. Air) to develop a hybrid propulsion system (HPS).

## COMPOSITE MATERIALS AND ADVANCED METALS

Aerospace companies are on the lookout for new materials with novel characteristics such as high rigidity, light weight and high durability in order to reduce aircraft weight, conserve fuel, reduce pollutant emissions and more.

*The aerospace industry comprises approximately one-third of global demand for composite materials. Analysts expect an 8%-13% increase in composite materials sales by 2020, due to demand from the commercial aircraft segment alone.*

Leading Israeli companies: Kanfit, Aero Sol, and Plasan Sasa.

## ALTERNATIVE FUELS

Alternative fuels are used to reduce the aerospace industry's dependence on oil and its exposure to oil price fluctuations, and to reduce pollutant emissions.

*The main challenge is to produce alternative fuels, which currently cost three times the price of regular fuel, on a large enough scale and at prices that are competitive and attractive for commercial airlines.*

The Fuel Choices Initiative, Israel's national program for alternative fuels and means of transportation, aims to establish Israel as a center of know-how and industry in alternative fuels and smart mobility, serving as a showcase to the world in these two fields.

## DIGITALIZATION

Digitalization can be used to optimize performance and lower costs both in aviation and in production. For example, in aviation it can improve communication between aircraft and ground control and shorten overall flight time; in production, it can help streamline production, improve product quality and upgrade associated services.

*The Boeing 777 and 787 airframes were developed using virtual design methods that significantly reduced time to market by more than 50%.*

X-Sight, for example, is an Israeli company that developed systems already integrated in several airports around the world.

Leading Israeli companies: IAI, Nexus IT Solutions, TAT Technologies, Elmo Motion Control, and Astronautics CA.





## 3D PRINTING TECHNOLOGIES

3D printing technologies are expected to dramatically change the industry value chain. Digital supply will replace physical product supply: instead of supplying precise, finished components, suppliers will sell raw materials and design data.

*This change may result in fewer production sites, less shipping, enhanced manufacturing possibilities for component manufacturers and more.*

The Israeli companies Elbit and Cyclone initiated the establishment of an Israeli consortium called Atid (Future), for the joint development of generic 3D printing technologies for titanium aircraft components.

Leading Israeli companies: Landa Corporation, Scodix, DigiFlex, XJet, Nano Dimension and Massivit 3D.

## PRODUCT LIFECYCLE MANAGEMENT

Better product lifecycle management can improve aircraft production processes and product quality while saving time and resources

*Product lifecycle management will optimize the maintenance stage and streamline routine servicing of the aircraft, reducing the extent of unplanned service by 20%-40%.*

32.4  
321.21  
235.654  
789.25  
3256.124  
124.3258

475.321  
659.325  
888.236  
45.32  
1124.145  
658.225

# ALL THE MAJOR AEROSPACE SEGMENTS ARE REPRESENTED IN ISRAEL

Israeli companies can be found among all of the links in the aerospace global value chain, from aircraft OEMs to advanced electronic systems and precision metal components.

Israel is a world leader in UAV production, with advanced space-launching capabilities. In addition, Israel maintains its classic advantages in fields such as relatively low-cost but high-quality manufacturing for Western countries, innovation and entrepreneurship that produce advanced technologies, and operational experience with aerospace defense technologies and products.

Israeli technologies are integrated into the world's most advanced fighter aircraft, including the Lockheed Martin F-35 and F-16, the Boeing F-15 and F/A-18, the Sukhoi Su-30, the Dassault Mirage 2000, the Eurofighter Typhoon, the Saab Gripen and more.





## SATELLITE AND SPACE

Israel is known as a world leader in the satellite industry. Ofeq satellites were the first mini-satellites to be developed in the 200-300 kg range, and Israel is one of the 12 countries in the world with independent launching capabilities. The Israeli space industry has also significantly developed its installed equipment capabilities (e.g. cameras, radar, command and control systems, etc.), as well as developing satellites and launching systems. The capabilities that Israel has developed make it a leader in nano-satellite technology, just as it was a leader in mini-satellite technology in the early years of the industry. The Samson project, led by Israeli scientists, is the first attempt to launch to space a three Nano-Satellite structure that will orbit in formation in the world. Furthermore, Israel plans to launch to

space 70 Nano-Satellites that will fly in formation to mark its 70th independence day in 2018. The satellites are being built by Israel's leading science high-schools, universities and research institutes in collaboration with IAI, the Ministry Of Science, Technology and Space and the IDF.

The Israel Space Agency cooperates with many space organizations around the world, including its cooperation agreements with both NASA and ESA.

Among the reasons the Israeli space and satellite industry is a global pioneer in small satellite technologies are the fact that it features high-quality human resources and highly effective work processes, the fact it is supported by Israeli cutting-edge academic activities, and that it constantly interacts with the renowned world-leading Israeli hi-tech sector.

## AERIAL DEFENSE

Israel is a world leader in aerial defense technology and is known for its Arrow (developed by the IAI in conjunction with other international companies), Iron Dome (developed by Rafael in conjunction with Elta and MPreSt Systems), and David's Sling (developed by Rafael and Raytheon) missile systems. These systems use cutting-edge technology to provide protection from multiple threats, ranging from surface missiles fired by low-flying helicopters to every type of ballistic threat; exo-atmospheric interception, long-range interception; and interception in large defense zones.

Leading Israeli companies: Rafael, IAI, Elbit, and IMI.







## UNMANNED AERIAL VEHICLES (UAV)

According to Frost & Sullivan, Israel is the largest UAV exporter in the world, with total revenue of approximately \$4.62 billion between 2005 and 2012, an annual average of \$578 million. The Israeli UAV industry has many advantages, such as manufacturing high-quality products at low cost; the innovation and entrepreneurship that produce highly sophisticated technologies (such as the ability to land and takeoff automatically); and the fact that Israel is one of the only countries in the world with operational experience with various types of UAVs (assault, intelligence).

A great number of Israeli start-ups are trying to utilize the experience and information gained from the militarized application of UAV to new, ground breaking civil-commercial applications. Airobotics, who developed fully automated industrial drones, is only one stellar example.

Leading Israeli Companies: IAI, Elbit, Aeronautics, Rafael, Urban Aeronautics, UVision Air, and BlueBird Aero Systems.





## SIMULATORS

The increase in commercial air traffic and the decline in aerial hours incorporated into pilot training programs in recent years resulted in higher demand for training tools and simulators with advanced technological capabilities, and an emphasis on the ability to train multiple personnel simultaneously.

Elbit is one of the leading companies in the field in Israel. EHUD is a simulator that allows multiple users to train simultaneously, and has been selected by 18 leading air forces in different countries on four continents, including NATO members. In 2014, Elbit was awarded the Blue Ribbon for Innovation from Military Training Technology Magazine, along with corporations such as L-3 Communications and Lockheed Martin.

Leading Israeli companies: SimiGon (F-35), Hartech Technologies, and ISREX.





## METAL PRODUCTS

The Israeli metal industry consists of two primary sub-segments: basic metals and metal products. It employs approximately 60,000 people, and includes nearly 2,800 companies in different fields.

There are dozens of Israeli companies that provide metal products and services for the aerospace industry. The majority of these companies specialize in machining, precise metal products, aircraft assembly and aircraft structural components. Some of the companies specialize in composite materials.

Many companies manufacture products that are tailored specifically to their clients' needs, using advanced manufacturing techniques and technologies. These companies supply products for other industries, such as vehicles, maritime and electronics, in addition to the aerospace industry.

Leading Israeli companies: Ashot Ashkelon, BSEL, H.R. Givon, Kanfit, Shimshon Fine Mechanics, Admar Metals, BAZ Airborne Components and Assemblies, Carmel Forge, Migan, NIDCO and Orlite Industries.

# WHAT LIES BENEATH THE ISRAELI AEROSPACE INDUSTRY'S SUCCESS







# 1 LOCAL SPIRIT OF ENTREPRENEURSHIP

Israel is situated in a tumultuous geographic region, and therefore cannot depend on business and trade via its land borders. This, combined with Israel's lack of natural resources, 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 cultures

and perspectives that facilitate a flow of ideas and collaborations between individuals with differing points of view.

The innovative spirit is cultivated from a very young age. 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.

These processes enhance creativity and easily explain how Israel ranks as the third most innovative nation in the Global Competitiveness Report.

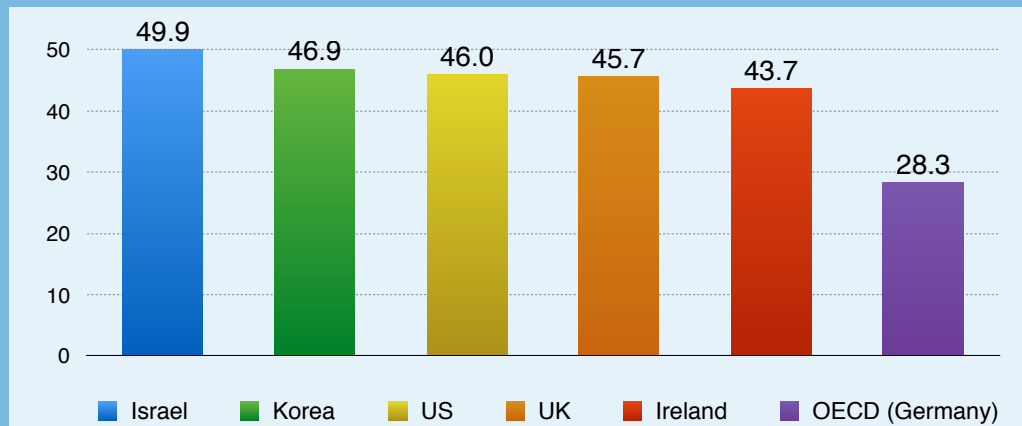
## 2 ACADEMIA

Israel's academic institutions have contributed greatly to establishing and developing the local technology market. According to OECD data, Israel ranks third worldwide in percentage of the population with academic degrees: 49% of the population has an academic degree and approximately one-third of these graduates hold degrees in engineering and technological fields.

Israel is ranked third for the quality of its scientific research institutes and leads the category for percentage of researchers (number of R&D scholars in relation to the population).

The flow of knowledge from the academic institutions, combined with the migration of excellent students and researchers from the academic institutions to the private-commercial sector, guarantee the success of the industry.

### ADULT EDUCATION % OF 25-64 YEAR-OLDS



Source: OECD

**No. 1**

**in Research  
Talent**

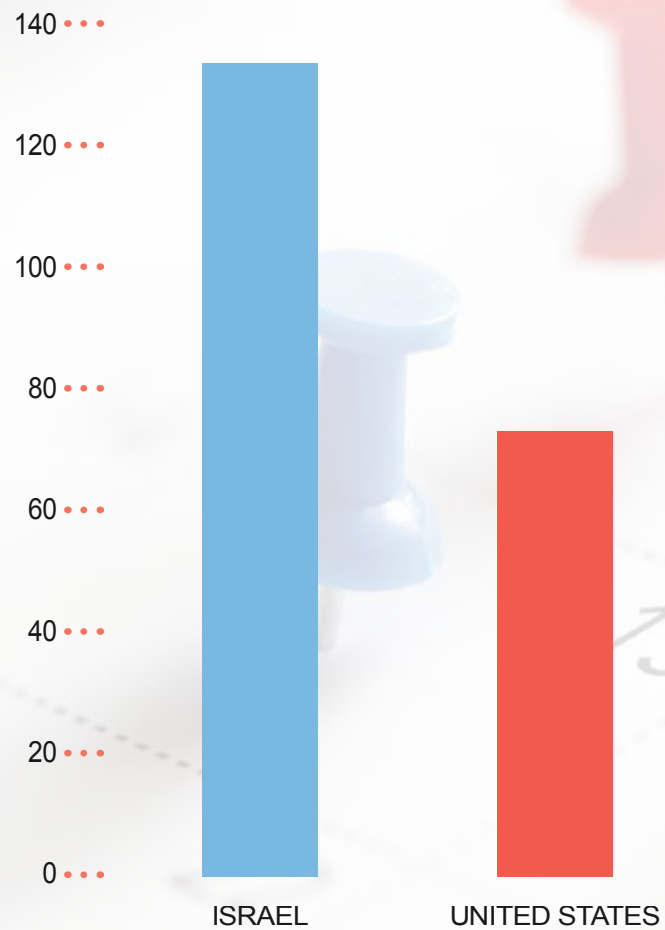
**No. 1**

**in Digital/  
Technological Skills**





## ENGINEERS PER 10,000 PEOPLE



Source: OECD

### 3 GOVERNMENT INVESTMENTS

Over the past several decades, Israel has been a world leader in national investment in research and development when calculated as a percentage of the GDP, maintaining a steady average of 4.2%, far above the OECD average of 2.3%. This steady investment over time is proof of a government policy aimed at encouraging entrepreneurship and facilitating the growth of new ideas.

The Israel Innovation Authority subsidizes R&D expenses of start-ups (up to 75%) as well as large companies, with some programs tailored specifically for cooperation with foreign MNCs. 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.

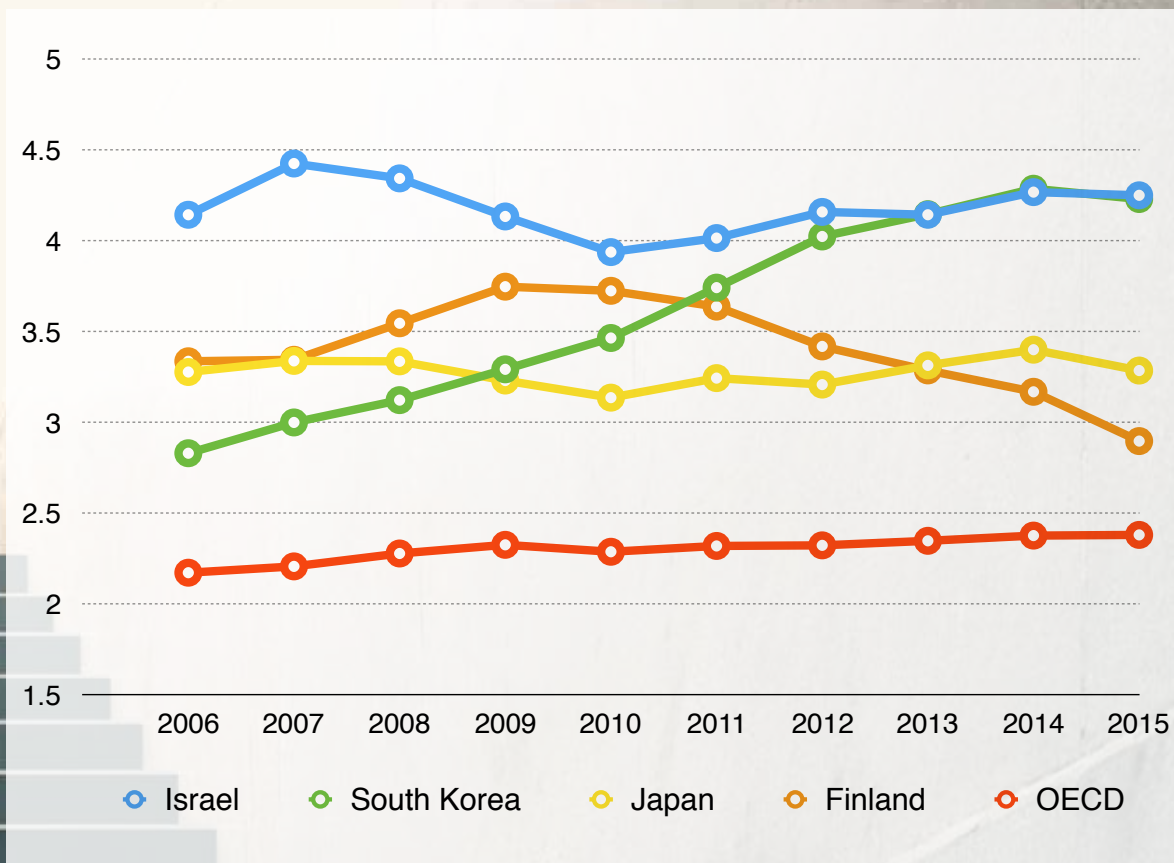
Source: OECD







## NATIONAL EXPENDITURE ON R&D AS A PERCENTAGE OF THE GDP, 2006-2016



Source: OECD

# ISRAEL IS PRO-BUSINESS. YOUR BUSINESS.

The Ministry of Economy and Industry offers countless programs and services designed to simplify the investment process. The wide range of governmental incentives and grants makes Israel the perfect place for foreign investors to shine.





## THE GOVERNMENT OF ISRAEL OFFERS AN ASSORTED RANGE OF INCENTIVES IN THREE MAIN CATEGORIES

### INVESTMENTS AND MANUFACTURING

Investment grants  
& tax benefits for  
investors

### INDUSTRIAL R&D

Various programs  
that support  
Industrial R&D

### EMPLOYMENT

Employment subsidies  
& vocational training  
programs

## INVESTMENTS AND MANUFACTURING INCENTIVES

	CENTER OF ISRAEL	PRIORITY AREA
Reduced corporate tax rate - priority enterprise (special priority enterprise)	16% (8%)	7.5% (5%)
Reduced dividend tax rate (special priority enterprise)	20% (15%)	20% (15%)
Investment grant		Up to 30%
Innovation box for IP based companies (consolidated revenues of over NIS 10b)	12% (6%)	7.5% (6%)

\* The regular Israeli tax rates are 24% for business and 25% for dividend.



## EMPLOYMENT INCENTIVES

	CENTER OF ISRAEL	PRIORITY AREA
"High Salary" sub-track	NA	10% - 35% of the wage cost for 48 months, with a maximum monthly wage of \$7,500.
Special populations Ultra-Orthodox, ethnic minorities, individuals with disabilities, single parents	10%-37.5% of the wage cost, with a maximum monthly wage of ~ \$4,000.	10%-37.5% of the wage cost, with a maximum monthly wage of ~ \$6,000.
Minorities in knowledge based industries	30% - 40% of the wage cost for 24 months with a maximum monthly wage of ~\$3,000.	30% - 40% of the wage cost for 24 months with a maximum monthly wage of ~\$3,000.



## R&D INCENTIVES

	GLOBAL ENTERPRISE COLLABORATION PROGRAM	BILATERAL & MULTILATERAL INDUSTRIAL R&D
<b>Target</b>	Encourage the creation of MNC-Startup partnerships in Israel.	Encourages international collaborative R&D between Israeli and foreign companies.
<b>Incentives</b>	The Israel Innovation Authority will support the Israeli startup company with a conditional grant ranging between 20%-50% of the approved development budget	Public funding is usually 50% of the approved project.
<b>Qualifications</b>	Criteria for MNC: Annual revenues over \$2 billion; Significant investment in R&D; Global presence.	According to fund criteria.
<b>Other</b>	The MNC can invest in cash and/or in kind, i.e. technological guidance, using labs, discounted software licenses, regulatory advice, etc.	40 bilateral and multilateral industrial R&D support agreements, as well as participation in 5 multinational European programs.



	R&D FUND	OTHER R&D SUPPORT
Target	To promote R&D by lowering the company's risk.	Support early stage companies as well as the development of technological infrastructure for the Israeli industry.
Incentives	Subsidizing up to 50% of the project's cost (60% in priority areas) .	Technological Incubators - the operating licensee invests only 15% of the project budget (the state invests the remaining), and receives in return 50% of the shares of the companies in the incubator. Magnet program for generic R&D - up to 66% of its approved R&D budget.
Qualifications	Approved by a professional committee of the Israel Innovation Authority.	Technological Incubators - the licensee is elected by the Israel Innovation Authority's relevant committee. Magnet - group of companies and academia join forces to develop new generic technology. Magneton - cooperation between academia and industry for technology transfer.
Other	If the company commercializes the technology or product and generates profit, royalty payments need to be made. Otherwise, not.	Magnet project is usually approved for a 3-year period with extensions of 1-3 years possible.



# WHAT WE CAN DO FOR YOU

Israel  
Investments  
Authority  
for Industry  
& Economy  
Development

Population &  
immigration  
authority

Fuel choices  
initiative

Administration  
of industrial  
zones

Foreign trade  
administration

Israel tax  
authority

Israel innovation  
authority

Israel land  
authority

Municipal  
authorities

The israel  
export &  
international  
cooperation  
institute





MAKING THE DECISION TO INVEST IN A NEW LOCATION CAN OFTEN BE DIFFICULT, CONFUSING AND FRUSTRATING. THERE ARE SO MANY THINGS TO TAKE INTO ACCOUNT, AND SO MANY DIFFERENT OPTIONS TO CONSIDER. AT *INVEST IN ISRAEL*, WE OFFER A WIDE RANGE OF SERVICES TO SUPPORT AND OPTIMIZE YOUR BUSINESS IN ISRAEL. IN FACT, WE'LL WALK THROUGH EVERY STEP OF YOUR INVESTMENT, TOGETHER.

## FROM PROPERTY TO WAGES TO TAXES, WE'LL PROVIDE YOU WITH ALL THE INFORMATION YOU NEED.

Starting a new operation in a new location requires a myriad of information, and you know as much as we do that every detail counts. We'll help you understand every aspect of your journey here in Israel, from the smallest issue to the biggest problem. Laws, regulations, locations, taxes, incentives and costs — we have it all figured out.

## FEEL AT HOME, FROM DAY 1.

No need to feel like the new guy. We can introduce you to peer companies and key figures in your industry, so you can easily facilitate your network of connections. Join the best companies in the world, in the most innovative ecosystem on earth.



# LET'S CONNECT

## A VISIT IS WORTH A 1,000 WORDS. COME SEE FOR YOURSELF.

There's nothing like an actual tour to help make a decision, and Israel has so much to offer for potential investors. We invite you to come to Israel and see why so many companies have made Israel their innovation center. Meet the people, see the locations, hear the stories.

Visit Israel. It's your first step toward your best investment.

## LET'S TALK, LET'S MEET.

You can schedule a meeting, give us a call or leave your details at our website, and we'll get back to you. You can also meet our global experts in your region. We are here to make it your easiest investment yet.



## THE FOREIGN INVESTMENTS & INDUSTRIAL COOPERATION AUTHORITY

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The information included in this guide is relevant for January 2018. 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.



