ISRAEL’S ISLANDS OF EXCELLENCE

METROLOGY AND TESTING IN THE SEMICONDUCTOR INDUSTRY
THE ISRAELI INVESTMENT PROMOTION AGENCY

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

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

- **Forward-thinking conferences and delegations with key figures, businesses and government officials**
- **Data, statistics, facts and figures that lead to knowledge-based decision making**
- **Expert sector managers that lead potential investors from initial interest to successful investments**
- **Providing ongoing assistance to overcome challenges and bureaucratic obstacles, expand operations and re-investments and promote a conductive environment for foreign investors**

Our **Knowledge and Research**

Our **Foreign Investment Promotion**

Our **Investor Guidance**

Our **Post-Investment Support**

Israel’s excellence in various industries is well known around the world thanks to its highly skilled workforce, entrepreneurial thinking, groundbreaking research capabilities, high concentration of MNCs, collaborations with the Israeli academy, its defense industry and advanced manufacturing abilities.

These unique characteristics have influenced the development of Israel’s Islands of Excellence: sectors or industries in which Israel shows extraordinary results.

These areas show excellent performances, high growth rates and significant manufacturing potential.

WHERE COMPANIES COME TO SHINE

ABOUT THE ISLANDS OF EXCELLENCE SERIES

Israel’s Islands of Excellence

- Robotics
- Semiconductor Industry
- Metrology and Testing in the Semiconductor Industry
- Batteries for Electric Vehicles
- Medical and Cosmetic Laser
- Advanced Manufacturing in the Plastics Industry
- Digital and 3D Printing
- Composite Materials for Aviation
- Robotics
- Semiconductor Industry

DEFENSE INDUSTRY

Full Scale Industry

Government

Human Capital

Organizations and Institutions

Academy and Research

THE ISRAELI ECOSYSTEM
Israel economy is one of the strongest in the world, featuring high growth rates and low and declining unemployment rate, that indicate its outstanding resilience to external shocks.

**Economic Structure Risk**

**Currency Risk**

**Country Risk**

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**Real GDP Growth (Annual % Change)**

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<tr>
<th>Year</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>+3%</td>
<td>+2.5%</td>
<td>+2%</td>
<td>+1.5%</td>
<td>+1%</td>
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**Unemployment Rate (%)**

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<tr>
<td>Value</td>
<td>4%</td>
<td>3.5%</td>
<td>3%</td>
<td>2.5%</td>
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**Number of Scientific and Technical Journal Articles, 2015**

- **Israel**: 38,056
- **Korea**: 26,266
- **Japan**: 22,967

*per PPP USD M GDP

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**R&D Investment as % of GDP**

- **Israel**: +6,000 active startups
- **United States**: 0.4
- **Canada**: 0.35
- **Korea**: 0.3
- **Japan**: 0.25
- **Germany**: 0.2
- **United Kingdom**: 0.15
- **Ireland**: 0.1
- **Sweden**: 0.05

**Gross Domestic Spending on R&D, 2016 (Total, % of GDP)**

- **Israel**: 4.5
- **Korea**: 4
- **Japan**: 3.5
- **Germany**: 3
- **United States**: 2.5
- **United Kingdom**: 2
- **Ireland**: 1.5
- **Sweden**: 1
- **Canada**: 0.5

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**SOURCE**: The Economist Intelligence Unit, 2018

**SOURCE**: The Global Talent Competitiveness Index, 2017

**SOURCE**: Global Competitiveness Report, 2016

**SOURCE**: OECD, 2017

**SOURCE**: IMD, 2018

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**GROSS DISCOVERY INNOVATION**

**ATTRACTION BUSINESS ENVIRONMENT**

* per PPP USD M GDP
Israel became a key player in the global market of metrology and testing of semiconductors. While in the 1990s Israel constituted 10% of the global metrology market, today it holds approximately 35% of it.

Since 2010, the number of employees in the Israeli metrology industry increased by 52%, and today it employs over 2,600 employees. Though modest in size, it is a global leader in the field. The annual revenue of the Israeli metrology market is approximately $1.37B; by 2020 it is expected to reach $51B and hold more than 36% of the global market.

The exports of Israeli metrology technologies constitute 10% of the total exports in the Israeli high-tech industry.

In 2017, the total value of the global metrology software market was estimated at approximately $814M, and it is expected to reach $1.45B by the end of 2027. Revenue is expected to increase at a CAGR of 6.2% between 2017–2027.
ORT network of schools and colleges opened an optoelectronics study track in Migdal HaEmek to expose 9th and 12th grade pupils to the field. A dedicated laboratory was established at the school with the financial assistance of KLA-Tencor, whose plant is nearby.

Laboratories and researchers at the Technion, the Weizmann Institute, the Hebrew University, and Ben-Gurion University provide the Israeli market with experts with advanced degrees and make theoretical and empirical scientific discoveries that may lead the entire semiconductor sector, and specifically the field of metrology, forward.

The Ort Braude College and the Holon Institute of Technology offer dedicated programs in the field of electro-optics from the Bachelor’s Degree onwards, which provide the Israeli market with skilled personnel from the junior to senior positions.

A joint study by researchers from the Technion’s Physics Faculty and Electrical Engineering Faculty who, in cooperation with an American university, disproved a scientific theory from the 1960s that could lead to the creation of rapid measurement tools for identifying nanoscale defects in computer chips.

The optics and electro-optics “Oasis” conference and exhibition is held once every two years, led by the Israel Laser and Optoelectronics Association at the Israeli Engineers’ Association and with the participation of the Ministry of Science, Technology and Aerospace. Among the sponsors of the conference are prominent entities in the sub-sector in Israel, including KLA-Tencor, Rafael, Elbit, Applied Materials and more. The conference addresses a variety of topics in the field, including metrology and semiconductor testing. The conference attracts hundreds of experts in electro-optics from Israel and around the world.
THE GOVERNMENT OF ISRAEL OFFERS AN ASSORTED RANGE OF INCENTIVES IN THREE MAIN CATEGORIES

### GLOBAL ENTERPRISE COLLABORATION PROGRAM

**Target**
Encourage the creation of MNC-Startup partnerships in Israel

**Incentives**
The Israel Innovation Authority will support the Israeli startup company with a conditional grant ranging between 20%-50% of the approved development budget

**Qualifications**
Criteria for MNC: Annual revenues over $2B; Significant investment in R&D; Global presence

**Other**
The MNC can invest in cash and/or in kind, i.e. technological guidance, using labs, discounted software licenses, regulatory advice, etc.

### BILATERAL & MULTILATERAL INDUSTRIAL R&D SUPPORT

**Target**
Encourages international collaborative R&D between Israeli and foreign companies

**Incentives**
Public funding is usually 50% of the approved project

**Qualifications**
According to fund criteria

**Other**
40 bilateral and multilateral industrial R&D support agreements, as well as participation in 5 multinational European programs

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### INVESTMENTS AND MANUFACTURING INCENTIVES

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### R&D INCENTIVES

#### GLOBAL ENTERPRISE COLLABORATION PROGRAM

**Incentives**
Subsidizing up to 50% of the project’s cost (60% in priority areas)

**Qualifications**
Approved by a professional committee of the Israel Innovation Authority

**Other**
If the company commercializes the technology or product and generates profit, royalty payments need to be made. Otherwise, not.

#### BILATERAL & MULTILATERAL INDUSTRIAL R&D SUPPORT

**Incentives**
Magnet program for generic R&D - up to 66% of its approved R&D budget

**Qualifications**
The license is elected by the Israel Innovation Authority’s relevant committee.

**Other**
Magneto - cooperation between academia and industry for technology transfer

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