



The Automotive Sector in Israel

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Topics

- 1. Automotive Sector in Israel: Figures and Characteristics**
- 2. Automotive Innovation and Entrepreneurship Ecosystem: Technology Trends**
- 3. Collaboration Opportunities for Catalan Companies**

1. Automotive Sector in Israel: Figures and Characteristics

A GLIMPSE INTO ISRAEL

AREA

22,072 km²

POPULATION

8,571,200

CAPITAL

Jerusalem

MAJOR CITIES

Jerusalem

Tel Aviv-Jaffa

Haifa

Be'er Sheva



TIME ZONE
GMT + 2 HOUR

OFFICIAL LANGUAGES
Hebrew | Arabic | English*

URBAN POPULATION
91%

CURRENCY
New Israeli Shekel (NIS)

GDP (ppp)
\$33,656

A STABLE ECONOMY

FITCH

RATING

A1

OUTLOOK

STABLE

STANDARD &
POOR'S

RATING

A+

OUTLOOK

STABLE

MOODY'S

RATING

A+

OUTLOOK

STABLE

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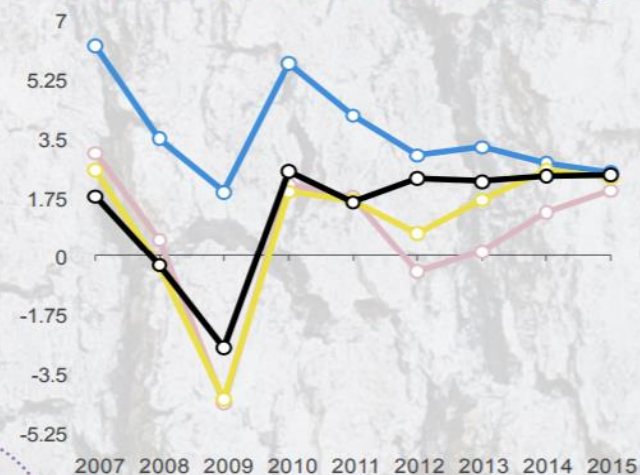
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Israel has one of the strongest and most technologically-advanced economies in the world, with a resilient, diverse and open market.

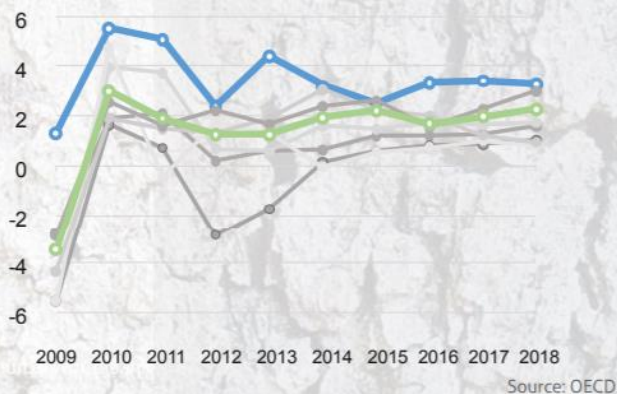
The most recent global financial crisis in 2008-9 led to a brief period of recession in Israel, but the country's prudent fiscal policies and regulations, combined with a particularly robust banking sector, allowed the economy to recover quickly – faster than other advanced economies worldwide.

GDP GROWTH RATE (%)

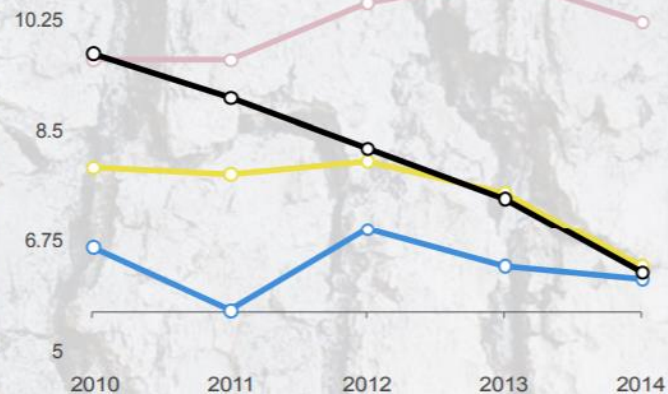


REAL GDP FORECAST

Total, Annual growth rate (%), 2009 – 2018



UNEMPLOYMENT RATE



Catalonia: Some Data

- ✓ Area: 32,108 sq km
- ✓ Population: 7.5 million (2016)
- ✓ GDP: € 214.92 billion (2015)
- ✓ GDP per capita: € 28,929/year (2015)
- ✓ Companies: 596,196 (2016)
- ✓ Industrial companies: 35,698 (2016)
- ✓ 17.4 million foreign tourists/year (2015)
- ✓ € 65.1 billion exports (2016)
- ✓ € 77.8 billion imports (2016)
- ✓ 16,929 regular exporting companies (2016)
- ✓ 6,454 foreign companies (2015)
- ✓ € 4,905 million foreign investment (2015)
- ✓ 8,346 Catalan companies abroad (2015)
- ✓ 9,449 innovative companies (2015)
- ✓ 1.52% of GDP dedicated to R&D (2015)
- ✓ 1.0% of world's scientific production (2014)

16%

OF SPANISH POPULATION

20%

OF SPANISH GDP

23%

OF SPANISH INDUSTRY

26%

OF SPANISH BUSINESS
ENTERPRISE R&D
EXPENDITURE

34%

OF SPANISH REGULAR
EXPORTING COMPANIES

45%

OF SPANISH FOREIGN
MULTINATIONALS

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Catalonia-Israel: Figures



Size - square km

Catalonia: 32,108
Israel: 22,072



Number Of Universities

Catalonia: 13
Israel: 9



Culture

Mediterranean
climate



Unique Language

Israel: Hebrew
Catalonia: Catalan



Population

Catalonia: 7.5 million
Israel: 8.6 million



GDP Per Capita

Catalonia: US \$35.763
Israel: US \$ 33.656



Patent per M. inhabitants

Barcelona: 515
Tel Aviv: 438.9

Catalonia-Israel: International Trade Figures (2016)

Catalan Export to Israel

Total: €427 M

30% of the Spanish Export to Israel

Sectors: Vehicles (28.1%), Plastics (9.2%) and Electrical Products and Machines, Chemicals, Preserved Food and Ceramics & Stones, and Metal, Iron and Steel

Catalan Import from Israel

Total: €182 M

25% of the Spanish Import from Israel

Sectors: Machines and Mechanical Appliances (21%), Plastics (20.3%) and Electrical Products (10.9%), Chemicals & Oil Refineries, Electronics, Optical Supervision Equipment, and Machinery (Agroecology)

The Automotive Sector in Israel: Characteristics & Figures

- Although there is **no Israeli car manufacturing** company, Israel has recently become active in the automotive and smart mobility industry.
- There are about **150 Israeli manufacturers** supply systems, parts, modules and tooling to original equipment manufacturers and the aftermarket.
- There are **500 startups operating** in the areas: shared mobility economy, fleet management, Big Data for transportation, connected vehicles, autonomous driving and electric mobility.
- Expertise in advanced technologies, ability to adapt military solutions for civilian use.
- There are 3.31 million registered vehicles (in the end of 2017), 281,563 vehicles were delivered in 2017.

The Automotive Sector in Israel: Characteristics & Figures

- Hyundai, Toyota and Kia account for 37% of the market, following Skoda, Suzuki and Nissan, Mazda, Mitsubishi, Renault and Seat (2017).
- **84.3% private cars**, 11.7% trucks and commercial vehicles (including taxis, buses, minibuses and special vehicles) and 4% were motorcycles (2016).
- In 2009 the Israeli Government approved a "**green tax**," offering incentives for hybrid or electric cars (lower purchase tax – 30%).

Israel's Automotive Sector: Total Import/Export

Motor Vehicles, Trailers and Semi-Trailers Market in Israel - Import/Export (USD, in millions)

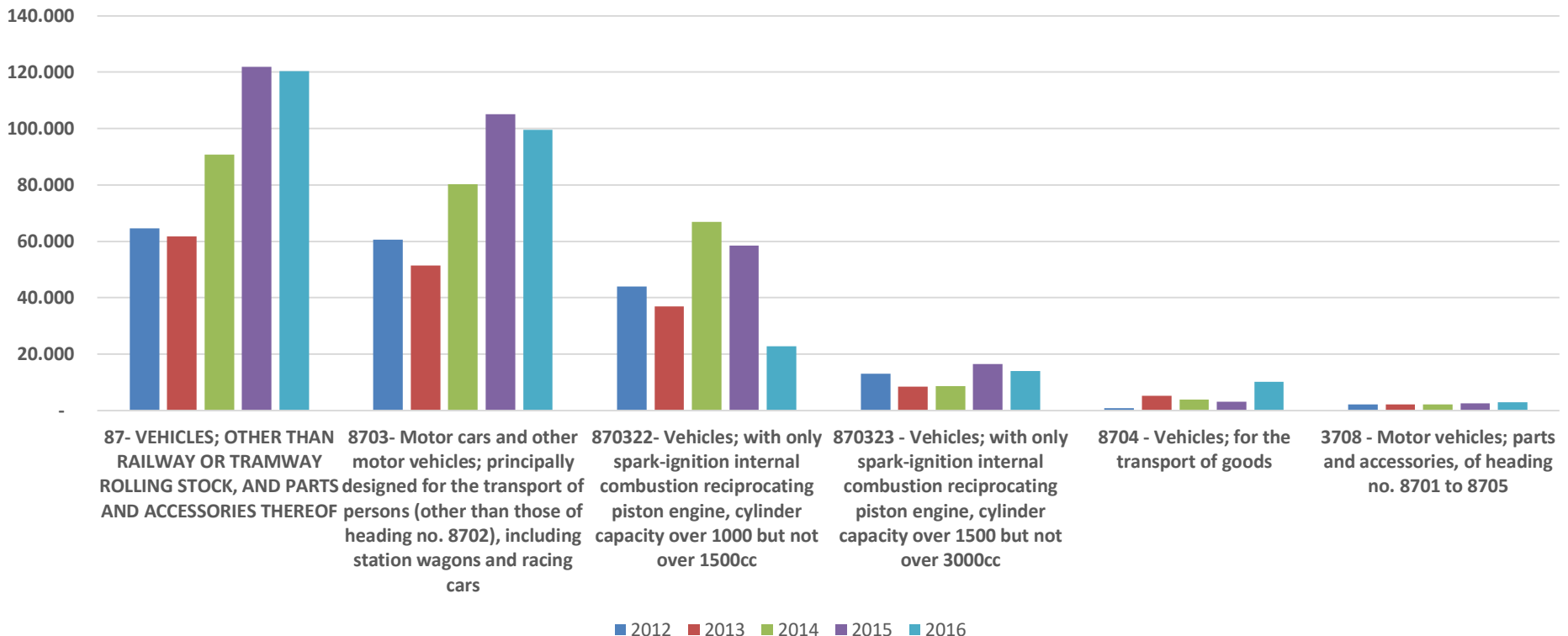
Source: UN Comtrade Database



Israel's Automotive Import from Catalonia

Israel's Automotive Import from Catalonia (USD in thousands)

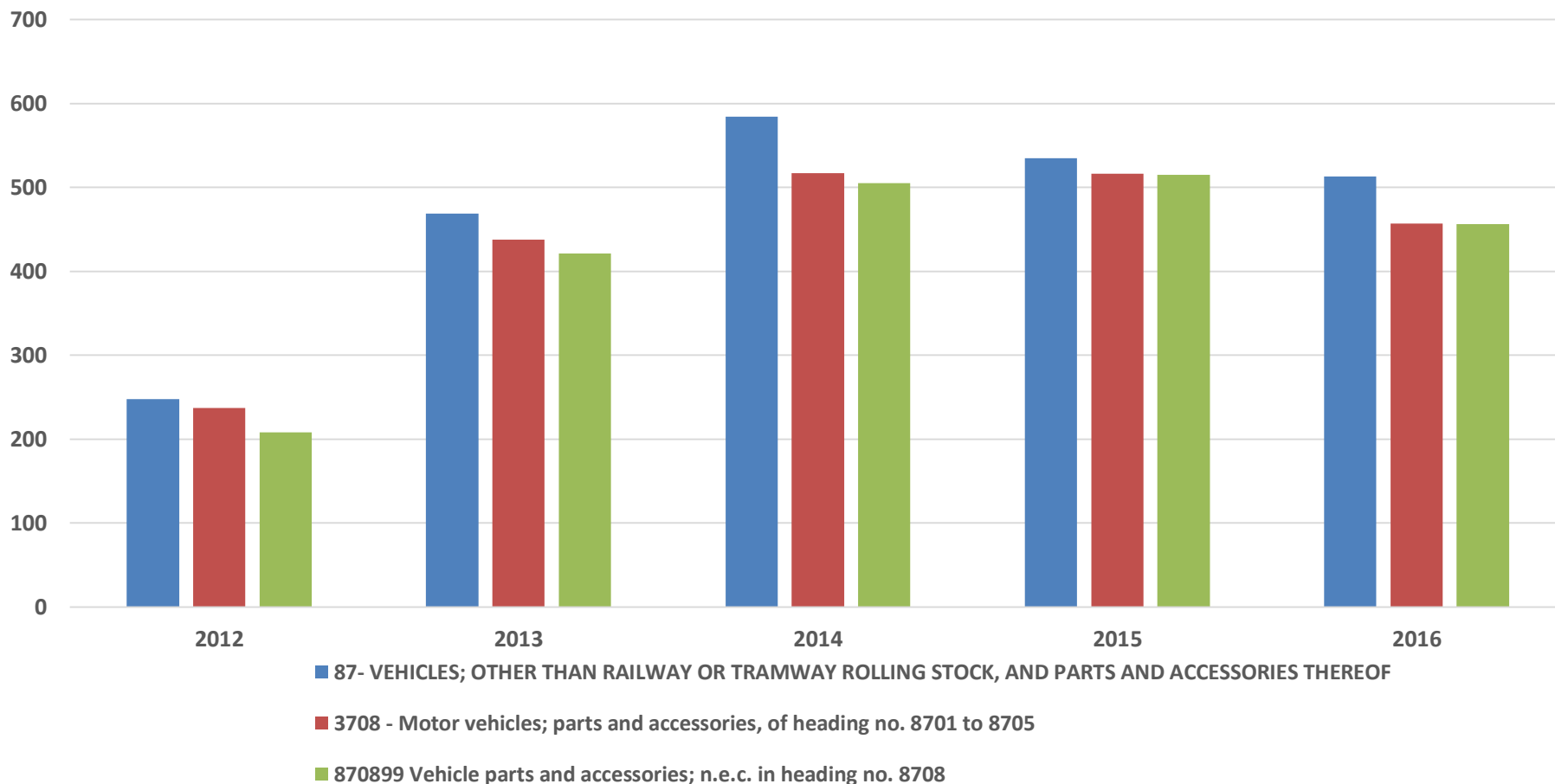
Source: UN Comtrade Database



Israel's Automotive Export to Catalonia

Israel's Automotive Export to Catalonia (USD in thousands)

Source: UN Comtrade Database



Israeli Companies – Advanced Manufacturing

The logo for Raval, featuring the word "RAVAL" in a bold, green, sans-serif font. A thick red horizontal bar is positioned directly beneath the text.

Develops and manufactures
Fuel Tank Venting Systems - Tier
1 and 2 supplier for automakers and
large-scale suppliers

The logo for MotoRad, with "MotoRad" in a large, bold, red font. Below it, the tagline "EXCELLENCE IN MOTION" is written in a smaller, grey, sans-serif font.

Manufacturer and supplier of cooling
system products - Tier 1 and 2 supplier

The logo for Arkai Automotive, featuring a stylized blue and orange arrow pointing upwards and to the right, followed by the word "Arkai" in a bold blue font and "Automotive" in a smaller blue font below it.

Manufactures thermoplastic parts –
Tier 1, 2 and 3 supplier

The logo for Tadir-Gan Group, featuring a circular emblem with the letters "TG" inside, followed by "TADIR-GAN GROUP" in a bold blue font and the tagline "Light Solutions for Heavy Industry" in a script font below it.

Supplier of aluminum and
magnesium high-pressure die
cast (HPDC) products - Tier 1 and
2 supplier

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OEM and OES Presence in Israel

		Technology scouting	Local investment	Local R&D center	Comments
OEM	BMW				> Several investments, e.g. Moovit
	Daimler				> R&D center to be opened in Q1/2017
	Fiat				> Several collaborations with startups & regional dev.
	Ford				> Invested in SAIPS, before tech. scouting activities
	GM				> R&D center, founded 2008, today > 250 employees
	Renault				> Intention to participate in R&D activities
	VW Group				> Invested in cyber security solutions & Gett
OES	Bosch				> Recently opened R&D center after VC activities
	Faurecia				> Mainly technology scouting activities
	LG				> R&D for IoT, wellness devices, entertainment.
	Plastic Omnium				> Investment in Elbit Energy
	Samsung / Harman				> Harman acquired Red Bend and TowerSec

Other OEM: Honda, Hyundai, Toyota, Volvo; Other OES: Delphi, Magna

Source: Roland Berger Study: "Israel's Automotive & Smart Mobility Industry, 2016

OEMs in Israel: Recent Developments

Opening Innovation Offices



2. Automotive Innovation and Entrepreneurship Ecosystem: Technology Trends

The Israeli Innovation Ecosystem: Technology Sectors

1 Electric mobility



- > Electric vehicle
- > Batteries/storage/e-powertrain
- > Charging infrastructure
- > Other

15%

2 Autonomous mobility



- > Automated & urban vehicle
- > Active safety & ADAS
- > Drones
- > Sensors
- > Others

17%

3 Smart mobility



- > Infotainment & connected car
- > Sharing mobility
- > Navigation & ITS
- > Fleet management/logistics
- > Parking
- > Big Data
- > Other

40%

4 Vehicle technology



- > Manufacturing
- > Energy efficiency
- > Engines
- > Passive safety
- > Security
- > Other

23%

5 Other



- > Alternative fuels
- > Infrastructure
- > Other

5%

>500 companies

Source: Roland Berger Study: "Israel's Automotive & Smart Mobility Industry, 2016"

Israeli Startups

Electric Mobility

ElectRoad - No need for charging, zero emission, minimum vehicle weight.



Autonomous Mobility

Innoviz- Providing LIDAR remote-sensing solutions for fully autonomous vehicle.



Smart Mobility

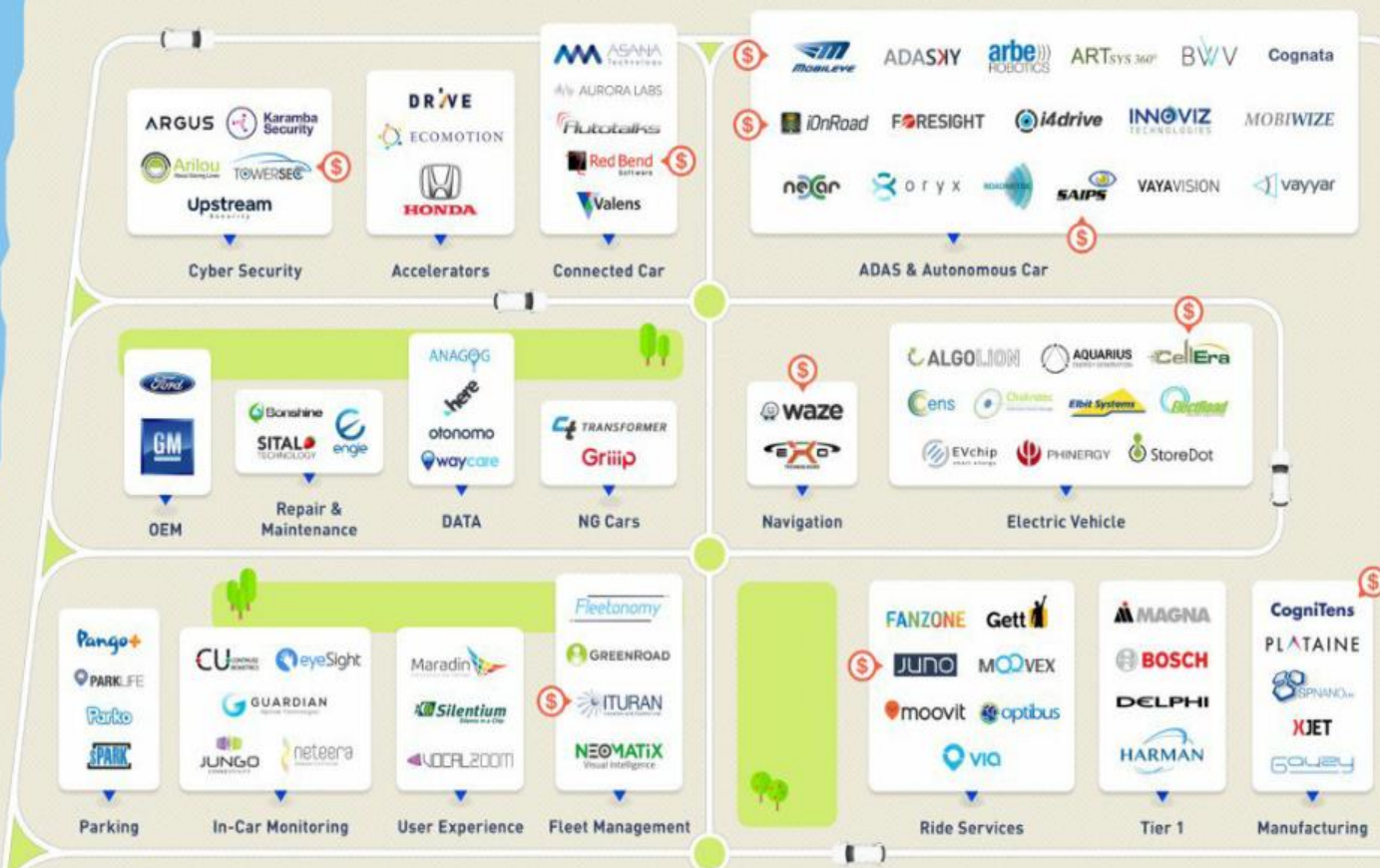
AutoTalks – Fabless semiconductor company developing a novel solution for vehicle to vehicle and vehicle to infrastructure communication



ISRAEL STARTUPS - AUTOMOTIVE 2.0

UPDATED AUGUST 2017

PRESENTED BY
vertex
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* This map lists companies that have raised >\$100k
\$ companies that were acquired / IPO

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Israeli Autonomous Car Market

The global autonomous vehicles market will reach
approximately \$40B by 2025

Areas of expertise of Israeli companies:

Vehicle
Communication &
Mapping

Cyber Security

Manufacturing

Machine Learning

Computer Vision

Artificial
Intelligence

Energy

Mapping Israeli Autonomous Vehicles Startups

Infrastructure & Connectivity

otonomo



AURORA LABS



Autotalks



OTA

Fleet Management

GASNGO

GREENROAD

Traffilog

ADAS

Autonomous Driving

Safety Apps

iOnRoad™

neQar

INNOVIZ TECHNOLOGIES

oryx

ADASXII
Driven to save lives

BrightWayVision™

MOBILEYE™

RFISec

SAIPS

e2e

Save the car. Save the road.

i4drive™

Karz.io

MOBIWIZE

FORESIGHT

VAYAVISION

RADS



In-Car Technologies

Cybersecurity

Analytics & Telematics

ROCKWELL



BNC

Guard KNOX



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Recent Trends in Automotive Technology Sectors

Smart Mobility Technology

- ✓ Leading technology companies: **Mobileye** and **Valens** or mobility service providers like **Waze** and **Gett**.
- ✓ Startups working in areas: **object recognition** and **tracking for advanced driver assistant systems**, or **mobility behavior projections for shared ride services**.
- ✓ Israeli experience in these fields resulting from military defense applications or Big Data applications for intelligence services.
- ✓ Increasing investments and activities of automotive players like **GM, VW, Daimler, Ford, Renault-Nissan, Bosch, Samsung (Harman)**, and others.

Driver-assistance systems

- ✓ Systems that incorporate features such as sensors, cameras and warning devices to alert the driver to potential threats on the road and facilitate certain driving functions.
- ✓ Israeli companies such as **Mobileye, VocalZoom, Redbend** and **Guardian Optical Technologies** are developing advanced products designed to assist drivers and reduce the risk of road accidents.

Recent Trends in Automotive Technology Sectors

Reduction of Vehicle Weight

- ✓ The use of alternative materials to manufacture certain automotive parts, in order to lower vehicle weight, reduce fuel consumption, and limit pollutant emissions.
- ✓ Several Israeli companies are currently in advanced stages of manufacturing vehicle components, using plastic, aluminum, various alloys (e.g., magnesium and zinc), and more. These companies include **Raval**, **Tadir-Gan**, **MPE**, **Omen Casting Group** and **Arkal**.

Investments in Israeli Startups

- ✓ Investment in the Israeli smart mobility sector reached \$1.6 billion over the last four years.
- ✓ In 2016 and first half of 2017, Israeli autonomous driving and connected car startups raised \$350M.
- ✓ Two chip vendors -**Valens and Autotalks**, raised together close to \$100M while LIDAR vendor **Oryx Vision** raised \$50M.

✓ Investment of Automotive Tier 1 vendors

- Automotive Tier 1 vendors are the most important investor in the automotive sector.
- **Magna International, Delphi and Samsung** are among the most active investors in 2016.

Investments in Israeli Startups

Investments in Ride Applications



2015 \$50M



Volkswagen

2016 \$300M



2017 \$50M



Acquisition of Israeli companies



2017 \$15.3B



Advanced Driver
Assistance & Warning
Systems



2013 \$966M



Community-based
Traffic and
Navigation App



2017 \$450M



Automotive
Cybersecurity
Solution



2016 \$75M



Automotive
Cybersecurity
Solution

Accelerators & Community Ventures



Governmental Programs/Initiatives



Fuel Choices and Smart Mobility Initiative (FCI)

- ☐ Launched in 2011 as a joint governmental effort headed by the Prime Minister's Office.
- ☐ Objective: to establish Israel as a center in alternative fuels and smart mobility.
- ☐ Supports the startup ecosystem, funds smart mobility accelerators and community initiatives: Capsula and Ecomotion.
- ☐ In cooperation with the Ministry of Energy have funded in the last four years more than 30 pilots to demonstrate technologies like innovative aluminum air batteries or mobility solutions.

Governmental Programs/Initiatives

Governmental Program for Multinationals to open Tech Innovation Labs

- ❑ The Israel Innovation Authority at the Ministry of Economy and Industry announced in August 2017, after tendering process, that it selected the five franchise holders to operate its Technological Innovation Labs for a period of three years.
- ❑ The Labs provide technological infrastructure and knowhow to entrepreneurs to establish their proof of concept.
- ❑ The Israel Innovation Authority will fund 33% of the costs of establishing the lab infrastructure and making the technology accessible — this amount will rise to 50% for labs set up in peripheral areas of the country — and up to a maximum conditional grant of 4 million shekels (Euro 970,000).
- ❑ The Authority covers ongoing operational costs of the Labs up to (Euro 120,000) per year. The startups accepted to the Labs receive up to 85% of funding up to (Euro 242,340) to establish their proof of concept.
- ❑ The Renault-Nissan Alliance was selected to operate a technological lab focusing on smart urban mobility.



Technological innovation laboratory (incubator) in Israel

Smart car and shared transportation technologies

- The Carasso Motors, which imports Renault-Nissan cars to Israel, is also participating in the venture.
- Startups selected for the incubator will receive government funding of up to NIS 1 million at the stage of proving feasibility.
- The incubator is designed to connect the startups with Renault-Nissan -cooperation with the automaker's international R&D laboratories.

3. Collaboration Opportunities for Catalan Companies

Opportunities for Catalan companies in Israel

Opportunities for manufacturers of components and accessories companies

- ✓ **Industries:** car security and safety devices, car body and service parts, air conditioning parts, replacement service parts, vehicle accessories and electronic accessories.
- ✓ Recommendation for Catalan companies to contact local importer/distributor with a good reputation, contacts, technical and sales capabilities.

Opportunities for startups

- ✓ Possibility to connect with Israeli smart mobility ecosystem by cooperating with corporates via participating in their acceleration programs.

Opportunities for startups, SMEs, Corporates and Technology Organizations

- ✓ Cooperation with Israeli automotive companies and startups in R&D project and programs such as Horizon 2020 projects and Catalonia-Israel Bilateral Call.

Opportunities for corporates and automakers

- ✓ Establishment of R&D Centers, innovation labs and accelerators, acquisitions and investment opportunities.

Projects, Programs and Instruments for Support

Catalonia-Israel Bi-Lateral Call for Joint R&D Projects

- ✓ The Call aims at developing innovative products and applications in all technological and application areas.
- ✓ Ready to market solutions or projects which have strong market potential for both Catalonia and Israel.
- ✓ Catalan companies can submit project proposals in areas such as transportation and smart mobility.

Horizon 2020

- ✓ Catalan companies and organizations with R&D capabilities can apply for funding in one of Horizon 2020's areas with relevance for transportation and mobility.
- ✓ ACCIO Tel Aviv can assist Catalan companies to find Israeli partners.

Automotive Events in Israel



Ecomotion Annual Event

The 6th Main Event, May 23, 2018, Tel Aviv



Fuel Choices and Smart Mobility Summit

31 October - 1 November, 2018, (final dates –
TBC), Tel Aviv

Initiatives to Promote the Automotive Sector

- ❑ **Inverse Company Mission of Israeli automotive companies to Catalonia**
(November, 2018 - estimated) - Technological prospection and promotion of opportunities for technological cooperation with Catalan entities in the automotive sector, especially vehicle of the future (connected, autonomous and electric)
- ❑ **Individual Projects** – ACCIO Tel Aviv can assist you to enter the Israeli market and to find Israeli commercial and technology partners (distributors, agents, importers, service and technology providers).

Services offered from Catalonia Trade and Investment Office in Tel Aviv

For Catalan Companies and organizations:

Specialized one-stop-shop services to Catalan startups, companies and organizations that are looking for R&D, commercial, and investment opportunities in Israel:

- Consultation projects - innovation and commercial: market research and road show of meetings in Israel
- Company missions in priority sector
- Promotional Activities: seminars, workshops, exhibitions
- Preparation of sectorial reports
- Partner search for R&D projects: Bilateral Program, Horizon2020



Services offered from Catalonia Trade and Investment Office in Tel Aviv

Projects

- Phase 1 - Kick-off Meeting & Documentation Analysis
- Phase 2 - Market Research (industry, competition, main actors, regulation etc.,)
- Phase 3 - Market Prospection
 - ✓ Data base of companies
 - ✓ Initial contact with the companies
 - ✓ Organizing/Scheduling meetings
- Phase 4 – Personalized Agenda in Israel
 - ✓ Preparation of a meeting schedule between a representative of the Catalan company and the Israeli contacts.
 - ✓ Providing Advice on accommodation and transportation
 - ✓ Participation in the meetings
 - ✓ Preparation of an Assessment Report and follow up

Information on Our Website – Catalonia Trade & Investment

<http://www.catalonia.com/en/>



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