National Priority Areas in Science and Technology:

Artificial Intelligence

April 2025

Foreword – Minister of Innovation, Science and Technology

B.S.D

Edward Teller once said, "Today's science is tomorrow's technology." Israel, with its rich history of achievements in this field, is committed to continuing to advance, lead, and secure its place at the forefront of scientific and technological progress. The Ministry of Innovation, Science and Technology under my leadership will continue to work towards shaping and promoting scientific and technological excellence, ensuring the future of Israel's economy and society.

I am honored to present this report on artificial intelligence, one of the seven national priority areas recommended by the National Council for Research and Development. This report, adopted by my ministry, serves as the basis for the extensive activities of the Ministry of Innovation, Science and Technology.

This report focuses on artificial intelligence – an applied technology that has achieved groundbreaking results in various fields in recent years – and one that is poised to transform both the global and Israeli economies.

I would like to express my gratitude to Dr. Ziv Katzir, head of the National AI Program, for his significant contribution to this report. His in-depth comments greatly assisted in refining the data and understanding the conclusions drawn from it.

Israel holds a qualitative edge in scientific research output in the field of artificial intelligence. In 2023, Israeli researchers were involved in developing approximately 4% of significant machine learning systems, more than 30 times Israel's share of the world's population. Israel has 2,132 active startups in AI fields, which have raised approximately $78 billion to date. Israel ranks first in the world in the concentration of human capital in AI fields in the labor market (approximately 1.13%) and fifth in the relative penetration rate of these skills.

This field is expected to lead global innovation in the coming years and holds immense potential for development and economic growth. Israel, despite its size compared to other countries, plays a central role in developing innovative solutions to global challenges. Israeli technology and industry companies in AI fields demonstrate exceptional capabilities and quality human capital. As part of the global struggle for technological leadership, I have directed significant resources to be invested in developing this field, understanding that Israel's economic future depends on its continued technological excellence.

Through comprehensive mapping of national priority areas – **Artificial Intelligence, Quantum, Bio-convergence, Foodtech, Renewable Energy and Energy Storage, Civil Space Industry, and BlueTech (the Sea as a National Resource)** – we can establish a more ambitious vision, with long-term goals and objectives that will advance Israel's position in the world. The analysis presented in the report will enable us to identify Israel's relative advantages, invest unprecedented resources in them, and work to remove the central barriers and obstacles standing in our way.

Israel's scientific-technological strength is an essential part of the country's civil resilience, and we must preserve and strengthen it, especially at this time. Thanks to the knowledge and experience accumulated in industries and academia, we are in a unique position to continue leading in technology and science fields.

Best regards,

MK Gila Gamliel

Minister of Innovation, Science and Technology

Executive Summary

Artificial Intelligence (AI) is a critical strategic asset for both the Israeli and global economies and societies. In 2023, artificial intelligence saw significant developments and impressive technological achievements, as AI began to penetrate many areas of our lives.

Advantages

Israel ranks 9th overall – and 2nd relative to population – among 83 countries in the Tortoise Global AI Index.

Quality Research Output

Israel has a qualitative advantage in scientific research outputs in artificial intelligence fields:

- In 2023, Israeli researchers were involved in developing approximately 4% of significant machine learning systems, more than 30 times Israel's share of the world's population.
- Israel ranks 1st in the world in average citations per paper and 8th globally in H-index in AI fields, according to the Scimago Journal & Country Rank.

Over the last decade:

- Israel has ranked 1st globally in average citations per paper, both in academic publications and patents: an average Israeli publication was cited 40.8 times in other publications (6.2 times the world average) and 0.51 times in patents (7.2 times the world average).
- 68.2% of Israeli researchers' publications are cited in other research (compared to 44.7% worldwide) – 8th place globally.
- 7% of Israeli researchers' publications were cited by patents (2.8 times the world average) – 2nd place globally.

Developed Startup Ecosystem

- Israel ranks 4th globally in the number of AI startups that secured initial funding over the past decade (442 in total), and 1st globally relative to its population size.
- Israel ranks 1st globally, twice the second place, in patents relative to population over the last decade, and 9th globally in absolute terms, by patent inventor residence.

- Israel ranks 3rd in commercial AI applications, 6th in development, and 7th in research out of 83 countries according to the Tortoise Global AI Index.
- 2,132 active startups in AI fields have raised approximately $78 billion to date.
- Prominence in cybersecurity and digital security fields.

Human Capital Advantage

- Israel leads the world in AI human capital concentration within the workforce (approximately 1.13%) and ranks 5th in the relative penetration of AI-related skills.
- Israel ranks 7th in AI human capital out of 83 countries, according to the Tortoise Global AI Index.

Challenges

- **Decline in Scientific Publications:** In recent years, there has been a decline in scientific publications in AI fields in Israel compared to OECD countries (28% decrease vs. 7% in OECD countries).
- **Slower Growth in Skilled Human Capital:** Israel ranks ninth globally in AI human capital concentration growth rate over the past eight years and could lose its leadership within a few years at this trend.
- **Weak Operating Environment:** Israel ranks 65th out of 83 countries in operating environment (regulation and legislation, public opinion, and human capital migration) according to the Tortoise Global AI Index.
- **Infrastructure Weakness:** Israel ranks 26th out of 83 countries in infrastructure required for AI development (electricity, internet, cloud computing, etc.), according to the Tortoise Global AI Index.
- **Weak Government Strategy:** Israel ranks 32nd out of 62 countries in government AI strategy according to the Tortoise Global AI Index, and 24th out of 188 countries in the government category according to the Government AI Readiness Index.
- **Low Data Availability:** Israel ranks 25th out of 188 countries in data availability and 23rd in data representation according to the Government AI Readiness Index.

Next Steps

Despite many successes and efforts, Israel faces several challenges:

- **Infrastructure Improvement:** Invest in upgrading computing and communication infrastructure to support AI development.
- **Human Capital:** Increase investment in training skilled workforce in AI.
- **Regulation and Ethics:** Promote regulatory frameworks supporting safe and ethical AI use.
- **Research and Development:** Increase government support for R&D and expand allocated budgets.

Writing and Editing: Itamar Gazala, Head of Economic Research and Data

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- Eitan Thee, former Deputy CEO of Planning and Development
- Dr. Ziv Katzir, Director of the National AI Program, Israel Innovation Authority
- Josef Gedalyahu, Senior Director of AI Regulation and Ethics

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Background

In 2023, many impressive developments occurred in the field of artificial intelligence. Researchers from Israel and around the world made groundbreaking technological advances, and artificial intelligence began to penetrate many areas of life. Notable developments include significant improvements in AI's ability to learn from text and image data; development of new technologies such as Foundation Models and Generative AI; and increasing implementation of artificial intelligence in many fields such as medicine, aviation, and financial services.

The surge in venture capital investment in generative AI, despite a sharp global decline in overall venture funding in the past year, gives added validity to the meteoric developments in the field. According to OECD.AI (from Preqin data), global venture capital investments in AI startups rose from $1.2 billion in 2022 to $22.6 billion in 2023 (19-fold increase).

As a result of these developments, many countries made political, regulatory, and ethical progress in artificial intelligence. These efforts sought to support continued progress while mitigating potential negative impacts, such as discrimination, privacy violation, and job loss. Significant efforts were also made in Israel, particularly the formulation of an AI plan by the TELEM Forum (National Infrastructure Forum for Research and Development); publication of a regulatory and ethics policy document in the field of artificial intelligence, guiding government ministries; promoting AI adoption in the public sector; establishing AI R&D infrastructure, among other initiatives.

There are different approaches to defining artificial intelligence. Reaching a universally accepted definition remains a significant challenge for international organizations and researchers. In November 2018, the OECD established an expert committee that aimed to define an "artificial intelligence system" in a clear, precise, technology-neutral way that would be relevant both for short timeframes and future-oriented.

On November 29, 2023, the OECD published an updated definition reflecting developments in artificial intelligence over the past five years: *"An artificial intelligence system is a machine-based system that, for explicit or implicit objectives, infers from the input it receives how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. AI systems vary in their level of autonomy and adaptability after deployment."*

This definition is broad enough to contain many of the definitions of artificial intelligence common in the scientific community, business sector, and among policymakers and decision-makers.

Israel is considered a global leader in the development and commercialization of artificial intelligence technology, with a vibrant ecosystem of startups, investors, academic institutions, and government initiatives. According to OECD.AI data, Israel ranks among the leading countries in terms of AI research output, software development, talent concentration, and venture capital investments. Additionally, the past year also brought a breakthrough in the development of Natural Language Processing (NLP) models in Hebrew. In this report, we will review the main trends in artificial intelligence in Israel, focusing on applied academic research, private investments and business sector, and human potential and worker skills in Israel.

The report will present information and data from various sources, some of which define artificial intelligence differently, and therefore discretion should be used when comparing data from different sources.

Academic Research in Israel: Artificial Intelligence

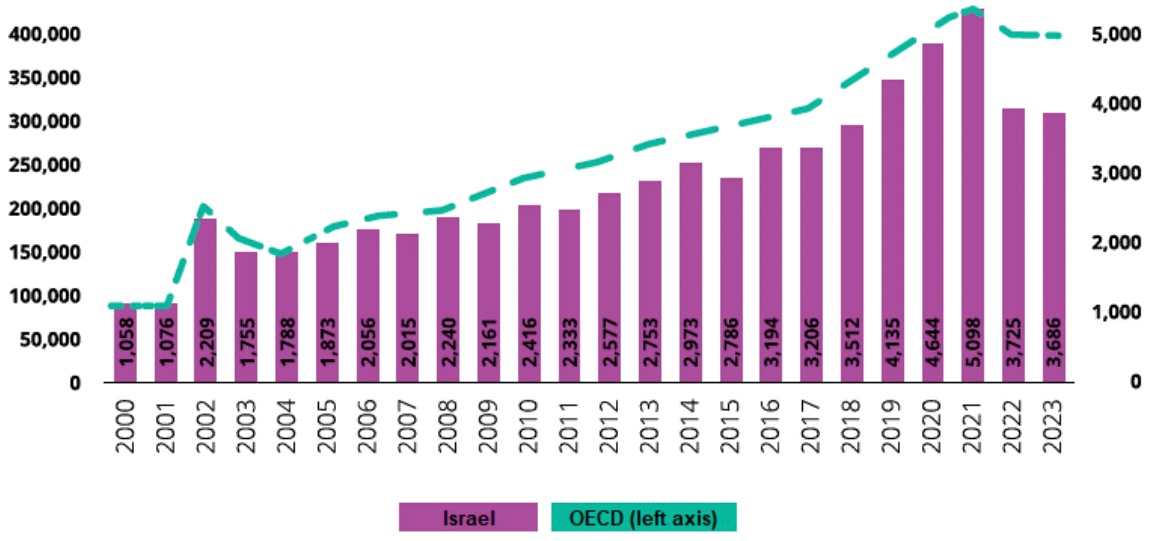
Israel has a longstanding tradition of excellence in computer science, engineering, and mathematics – the foundational disciplines of artificial intelligence. Leading academic institutions in Israel have research centers and dedicated departments specializing in artificial intelligence, producing high-impact publications and patents across diverse AI domains, including natural language processing, computer vision, machine learning, robotics, and more.

Scientific breakthroughs in AI research in Israel have paved the way for practical applications and numerous commercialization opportunities. Israeli researchers have filed numerous patents in AI-related technologies, spanning areas such as healthcare services, cybersecurity, autonomous vehicles, and fintech.

Moreover, Israel has seen the rise of numerous technology companies and startups leveraging AI in their products and services, gaining global recognition in many content areas such as autonomous transportation, cyber, and more. Israel's ability to translate cutting-edge research into viable commercial ventures has established it as a global hub for AI-driven innovation.

Academic research output in AI steadily increased from the early 2000s, peaking in 2021. However, in the last two years, there has been a significant decline, with Israel seeing a 28% decrease in the number of scientific publications in AI fields, returning to 2018-2019 levels, compared to 7% in OECD countries.

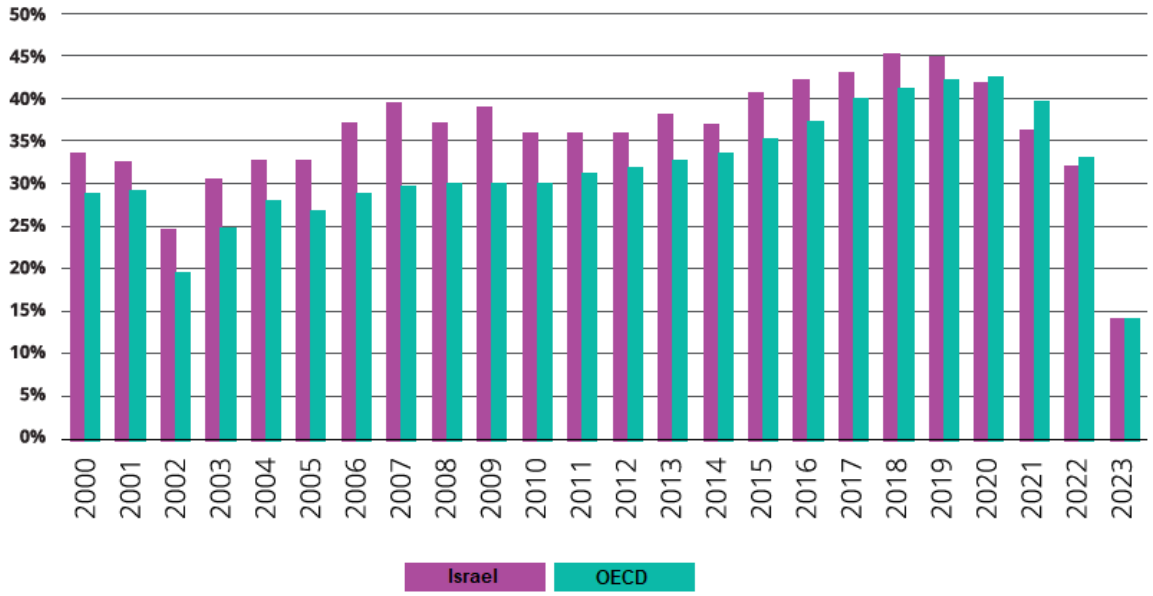
Figure 1: Number of AI Scientific Publications in Israel and the OECD, 2000–2023



Source: Ministry of Innovation, Science and Technology analysis of OPENALEX data, from OECD.AI

The rate of high-impact publications[1] in Israel exceeded the OECD average until 2019, but this trend reversed starting in 2020.

Figure 2: Share of High-Impact Scientific Publications Out of Total Scientific Publications, Israel and the OECD, 2000–2023

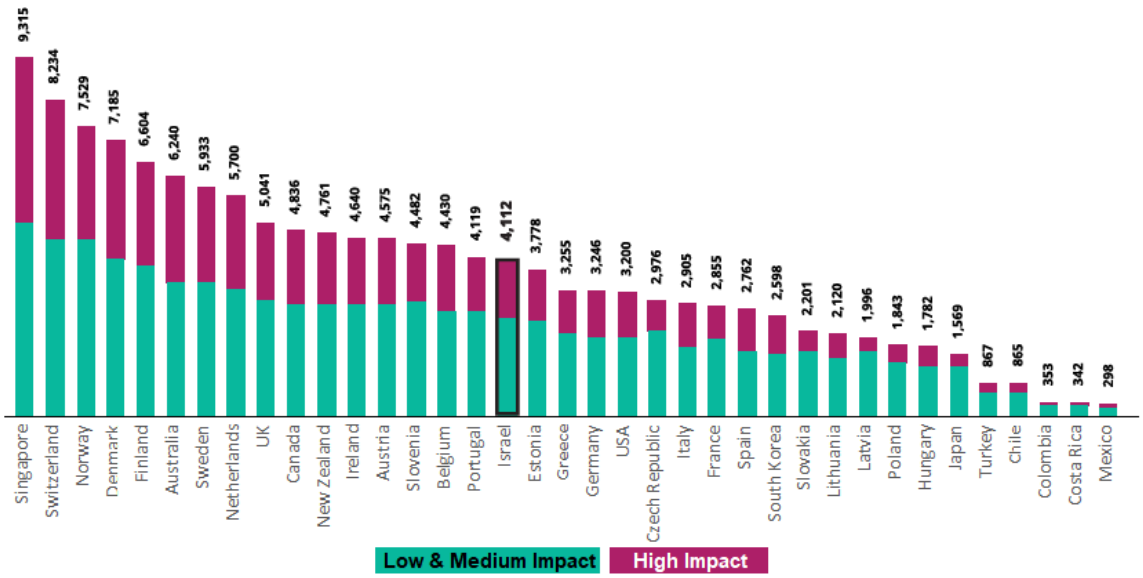


Source: Ministry of Innovation, Science and Technology analysis of OPENALEX data, from OECD.AI

In international comparison of publications per million people, relative to OECD countries plus Singapore (which leads the world in publications relative to population), in the last decade Israel ranks 17th out of 37 countries in publications per capita and 15th in high-impact publications.

[1] A publication was defined as "high-impact" if it influenced other high-impact publications or if the researchers are highly ranked or belong to prestigious research institutions or if the article was published in a prestigious journal (also considering the field's competitiveness level). Note that naturally, a publication may become high-impact only after several years, so it's reasonable to see a decline in recent years. For more details, see the OECD.AI methodological document.

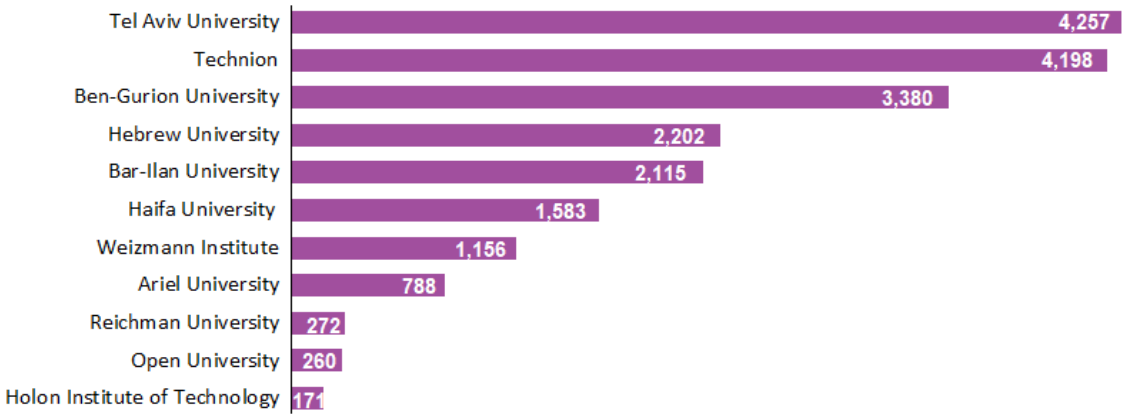
Figure 3: Number of AI Scientific Publications per Million People in Israel and the OECD, by Impact Level, Cumulative 2014–2023



Source: Ministry of Innovation, Science and Technology analysis of OPENALEX data, from OECD.AI

Tel Aviv University researchers were the most active in AI fields in Israel over the last decade, with Technion researchers slightly behind them.

Figure 4: Number of AI Scientific Publications, by Academic Institution[2], 2014–2023



Source: Ministry of Innovation, Science and Technology analysis of OPENALEX data

Examining collaborations between researchers from different academic institutions within Israel, Tel Aviv University leads in collaborations with other institutions. The most productive collaborations include:

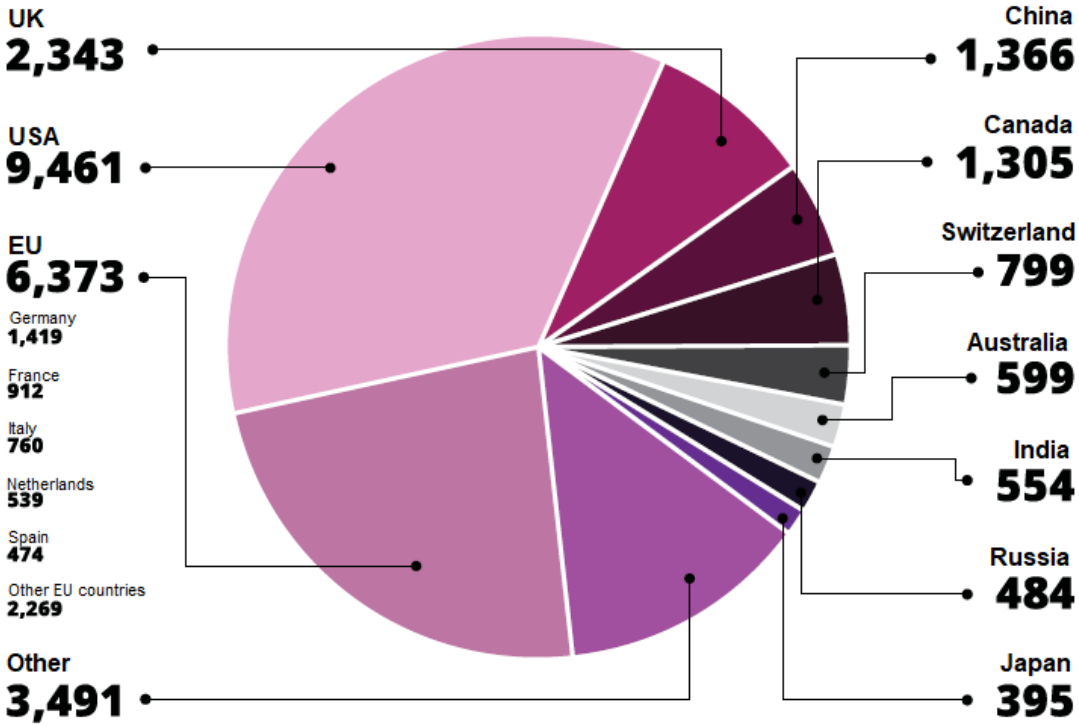
[2] If there is a publication with authors from different institutions, the publication will be counted for each institution proportionally (for example, a joint publication by a researcher from the Technion and a researcher from Tel Aviv University will be counted as 0.5 for each).

- Sheba Medical Center (350 joint publications between 2014-2023)
- Bar-Ilan University (317 publications)
- Technion (312 publications)
- Hebrew University (307 publications)
- Ben-Gurion University (259 publications)

The most productive collaboration not including Tel Aviv University is between Technion and University of Haifa researchers (184 joint publications).

About 35% of international collaborations by Israeli researchers in AI fields are with researchers from the USA and about 23% are with researchers from EU countries (about 22% of those from Germany[3]).

Figure 5: International Collaborations in AI Scientific Publications by Researchers from Israel, 2014–2023



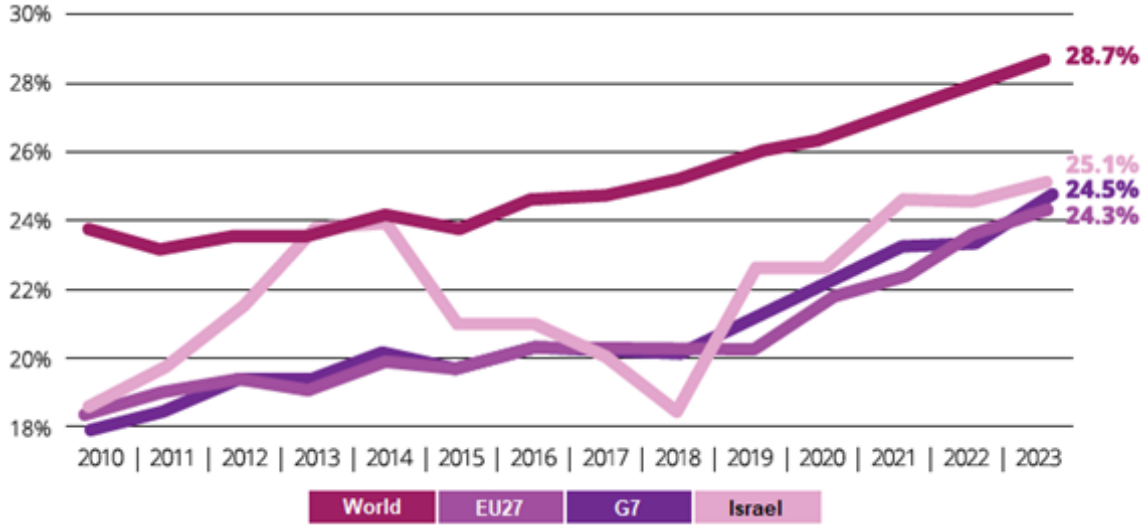
Source: Ministry of Innovation, Science and Technology analysis of OPENALEX data, from OECD.AI

Over recent years, the proportion of women in Israel participating in scientific publications in AI fields has gradually increased, and today women constitute about a quarter of all researchers who published papers. The global rate is higher (about

[3] To avoid double counting, distribution within EU countries was done proportionally. For example, if there was an article published with a researcher from Germany and a researcher from the Netherlands, each country received 0.5

29% in 2023), but this is mainly due to higher women's participation rates in China and India. The rate in Israel is slightly higher than the average in EU and G7 countries.

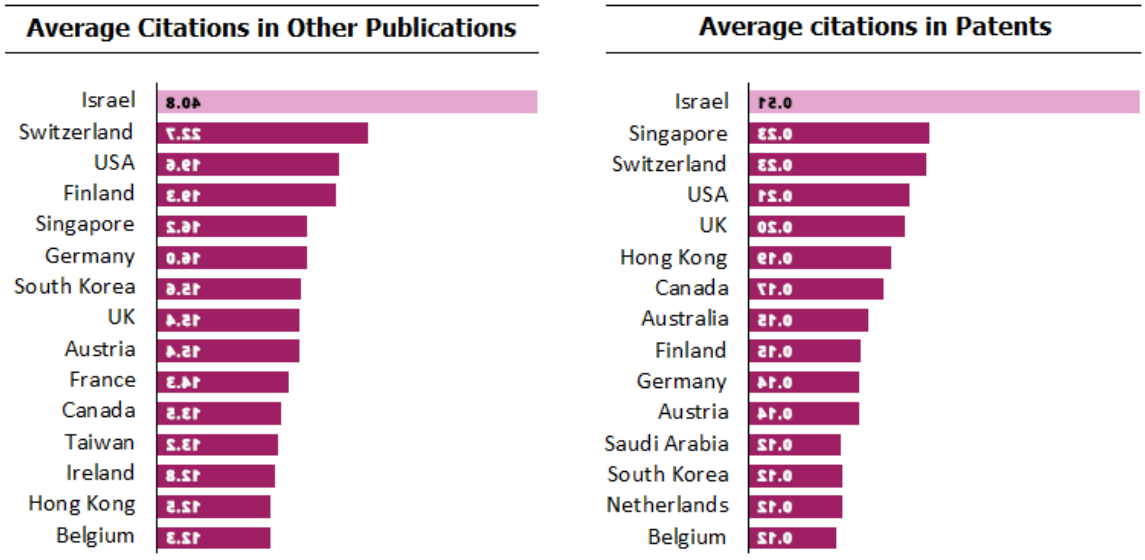
Figure 6: Share of Women Among Authors of AI Scientific Publications, 2010–2023



Source: Ministry of Innovation, Science and Technology analysis of SCOPUS data, from OECD.AI

According to LENS.ORG[4] data, Israeli AI researchers lead by a significant margin in average citations per paper: - Citations by other papers: More than 6 times the global average of 6.6 - Citations by patents: More than 7 times the global average of 0.07.

Figure 7: Average Citations per AI Publication, Top 15 Countries, 2014–2023



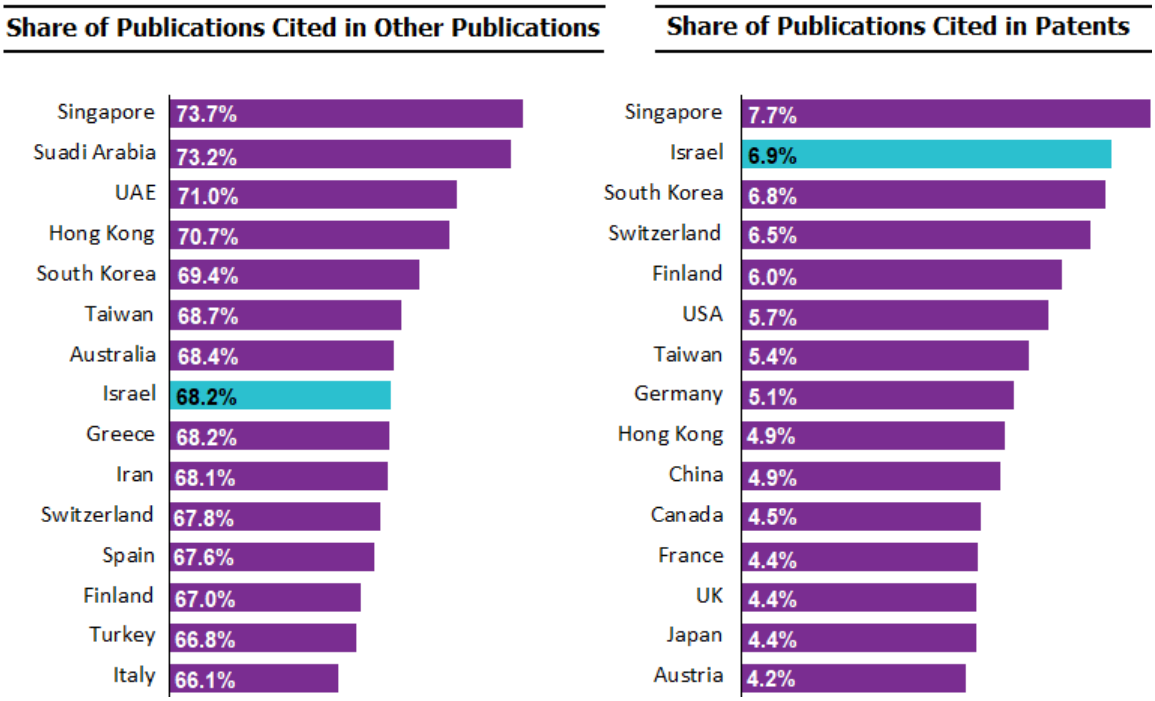
Source: Ministry of Innovation, Science and Technology analysis of Lens.org data

[4] Based on search by main research fields related to artificial intelligence (artificial intelligence, machine learning, computer vision, natural language processing, artificial neural networks, and robotics)

Israel ranks:

- 2nd globally (after Singapore) in the rate of publications cited in patents
- 8th globally in rates of publications cited in other publications
- 68% of Israeli researchers' papers are cited in other papers (23.5 percentage points above global average)
- 7% of Israeli researchers' papers were cited by patents (2.8 times the global average)

Figure 8: Share of Cited Publications in the Field of Artificial Intelligence, Top 15 Countries, 2014–2023



Source: Ministry of Innovation, Science and Technology analysis of Lens.org data

According to ScholarGPS rankings: - Ben-Gurion University: Leads in AI (general) and artificial neural networks - Technion: Leads in machine learning and robotics - Hebrew University: Leads in computer vision - Bar-Ilan University: Leads in natural language processing

Table 1: ScholarGPS Ranking of Research Institutions in Israel in Selected Fields of Artificial Intelligence

ScholarGPS		
Subfield	***Institution***	***Global Rank***
Artificial Intelligence	***Ben-Gurion University***	***#15***
	Bar Ilan University	***#41***
	The Technion	***#61***
	Hebrew University	***#79***
	Tel Aviv University	***#233***
	Haifa University	***#352***
	Ono Academic College	***#393***
Machine Learning	***The Technion***	***#116***
	Tel Aviv University	***#131***
	Ben-Gurion University	***#163***
	Hebrew University	***#201***
Artificial Neural Network	***Ben-Gurion University***	***#150***
Natural Language Processing	***Bar Ilan University***	***#21***
	Tel Aviv University	***#51***
Computer Vision	***Hebrew University***	***#20***
	The Weizmann Institute of Science	***#30***
	Tel Aviv University	***#34***
	The Technion	***#55***
	Open University	***#132***
Robotics	***The Technion***	***#95***
	Tel Aviv University	***#170***
	Ariel University	***#197***
	Bar Ilan University	***#298***
	Ben-Gurion University	***#355***
Robot Navigation	***The Technion***	***#7***
Mobile Robot	***The Technion***	***#60***
	The Weizmann Institute of Science	***#83***

Source:ScholarGPS

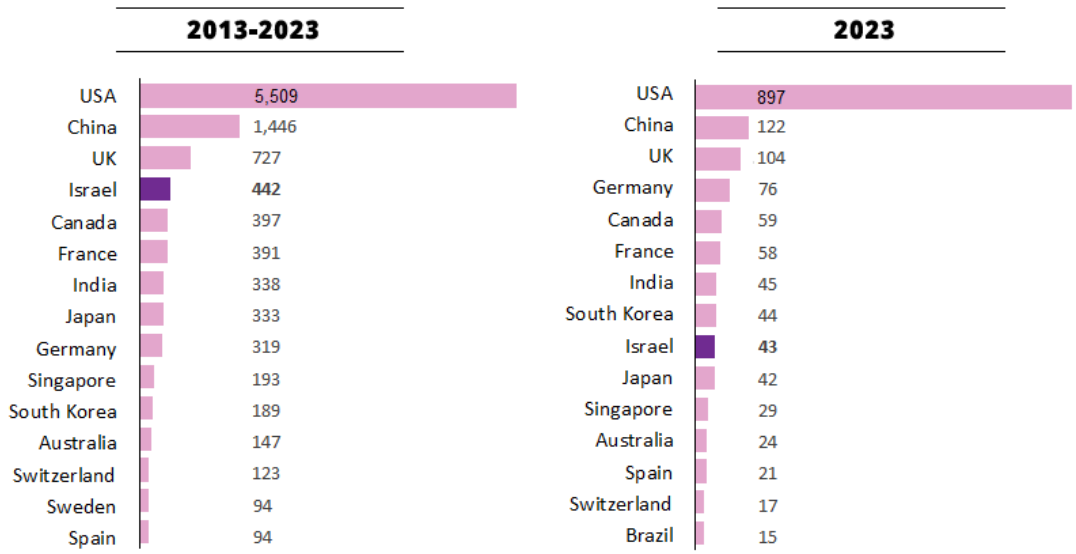
Business Sector

Israel boasts a dynamic AI business sector, comprising hundreds of startups and companies delivering innovative solutions for various domains and diverse markets.

Furthermore, AI adoption in Israel extends well beyond startups. Established companies are also integrating AI to enhance operations and maintain competitiveness. Large corporations as well as small and medium-sized businesses identify the transformative potential of artificial intelligence and integrate it into their business strategies and ongoing operations. This adoption ranges from applications such as supply chain optimization and improving customer experience to developing AI-driven analysis for decision-making.

Israel ranks fourth globally – after the USA, China, and the UK – and first worldwide relative to its population size, in the number of AI startups[5] (442) that raised funding for the first time throughout the last decade. In 2023, Israel dropped to ninth place in the number of AI startups that raised funding for the first time (43 startups), after being in fourth place in 2022 and 2021.

Figure 9: First-Time Funded AI Startups by Country, 2013–2023, 2013-2023



Source: Ministry of Innovation, Science and Technology analysis of AI Index 2024 data

According to data from Startup Nation Central, 3,109 companies and startups, where AI is defined as one of the company's core technologies, have been established in Israel to date[6], of which 958 companies are no longer active (acquired/merged or

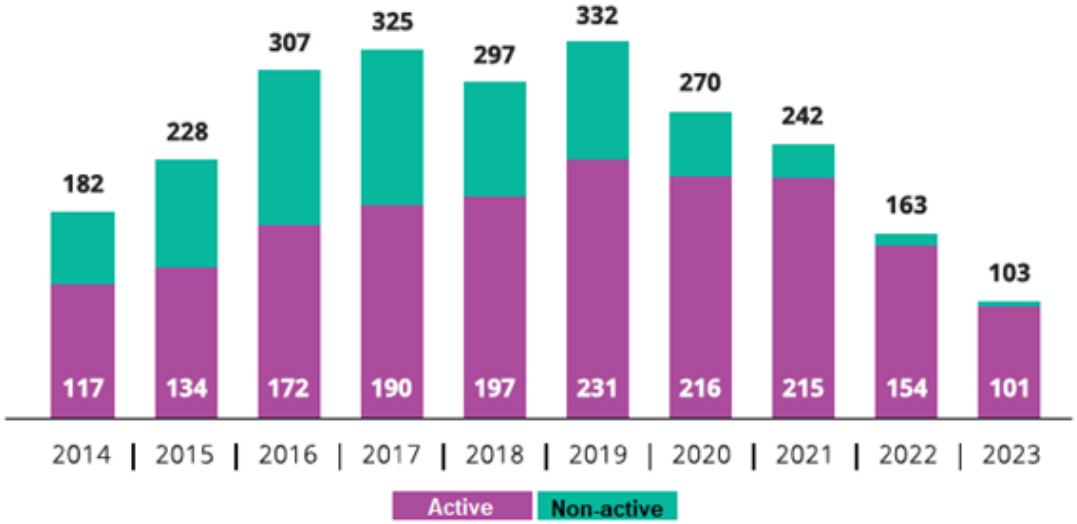
[5] There are different methods for defining startups in the fields of artificial intelligence. Therefore, it is better to avoid comparing data from different sources.

[6] As of 1.8.2024, according to Startup Nation Central

ceased operations). This broad definition includes any company making significant use of artificial intelligence .

In the last decade, 2,449 startups were established, 71% of them are still active. It appears that 2016-2019 were the most productive years in the last decade with 1,255 new startups. Since then, the number of new startups in the field has been declining[7].

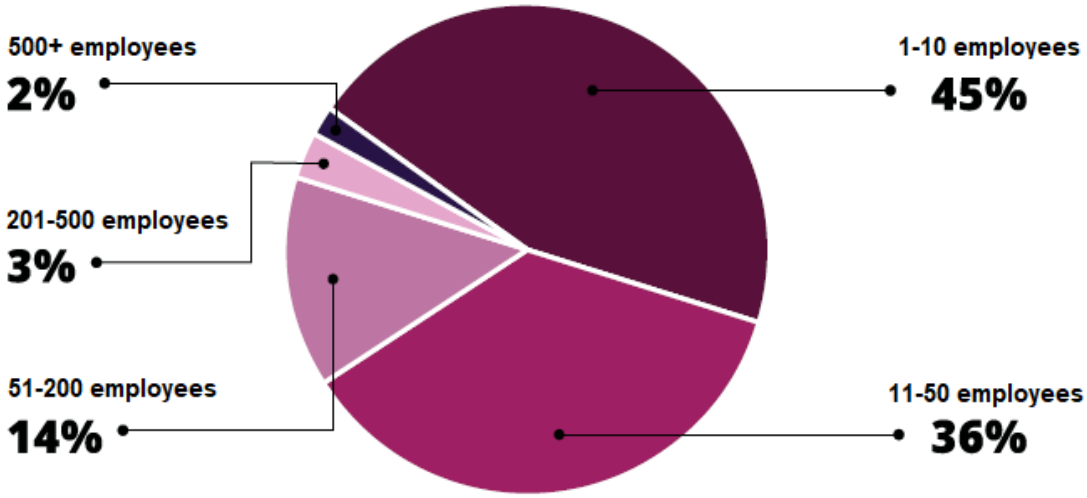
Figure 10: Number of new AI startups in Israel, by operational status, 2014-2023



Source: Ministry of Innovation, Science and Technology analysis of Startup Nation Central data

Over 80% of active startups have fewer than 50 employees.

Figure 11: Distribution of AI companies in Israel, by company size

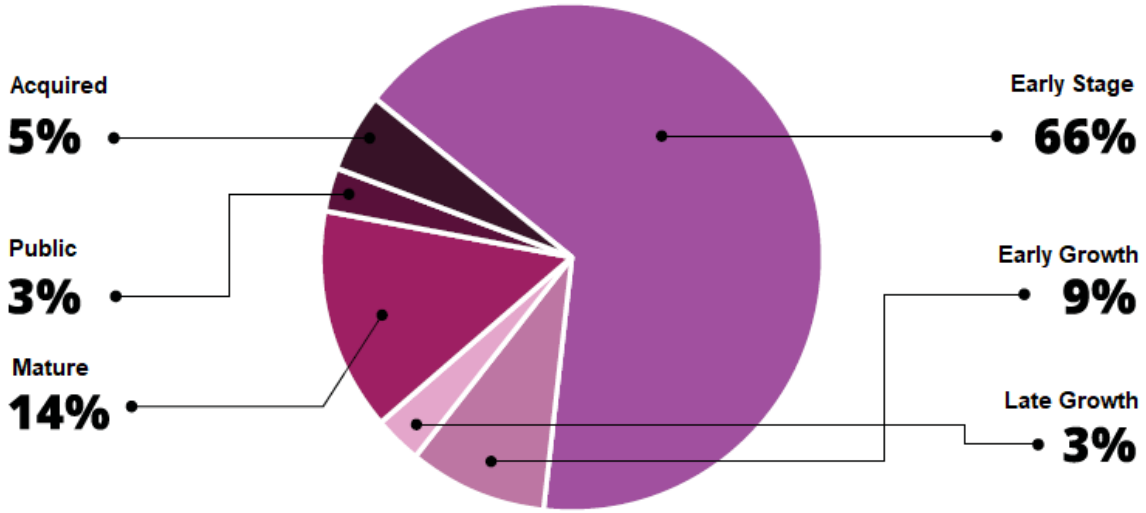


Source: Ministry of Innovation, Science and Technology analysis of Startup Nation Central data

[7] It should be noted that startup data from recent years are characterized by missing data, as some companies are identified at a later stage (for example, when they start raising funding or begin employing workers)

Approximately two-thirds of active startups are in early funding stages[8]; 12% are in early[9] or late[10] growth stages, and 14% are mature companies.

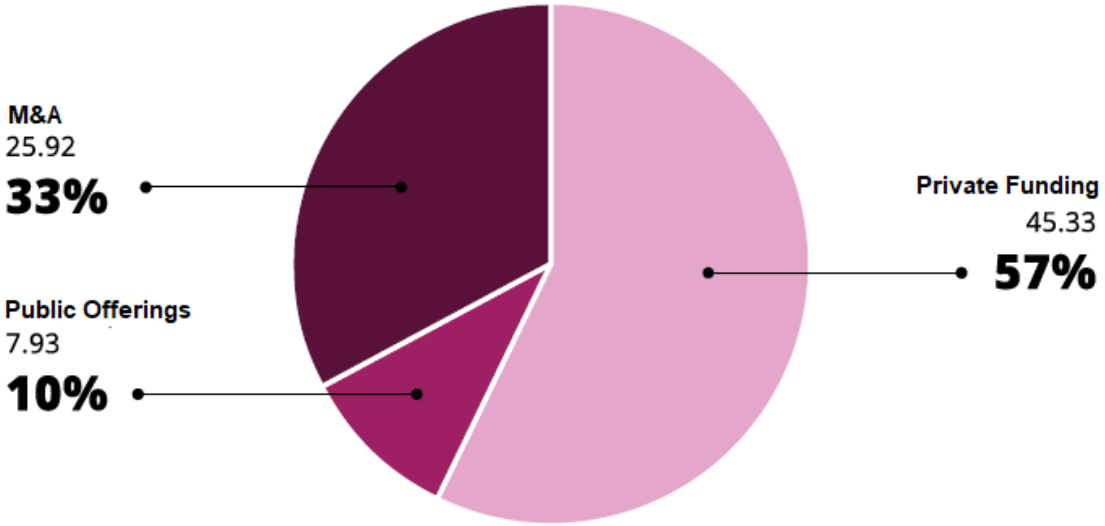
Figure 12: Distribution of AI companies in Israel, by funding stages



Source: Ministry of Innovation, Science and Technology analysis of Startup Nation Central data

The total amount of capital raised stands at $78.21 billion, across 3,081 funding events (investment rounds, IPOs, or M&A transactions).

Figure 13: Distribution of total capital raised, by type of funding, in billions $



Source: Ministry of Innovation, Science and Technology analysis of Startup Nation Central data

[8] Pre-Funding, Pre-Seed, Seed & Round A

[9] Rounds B & C

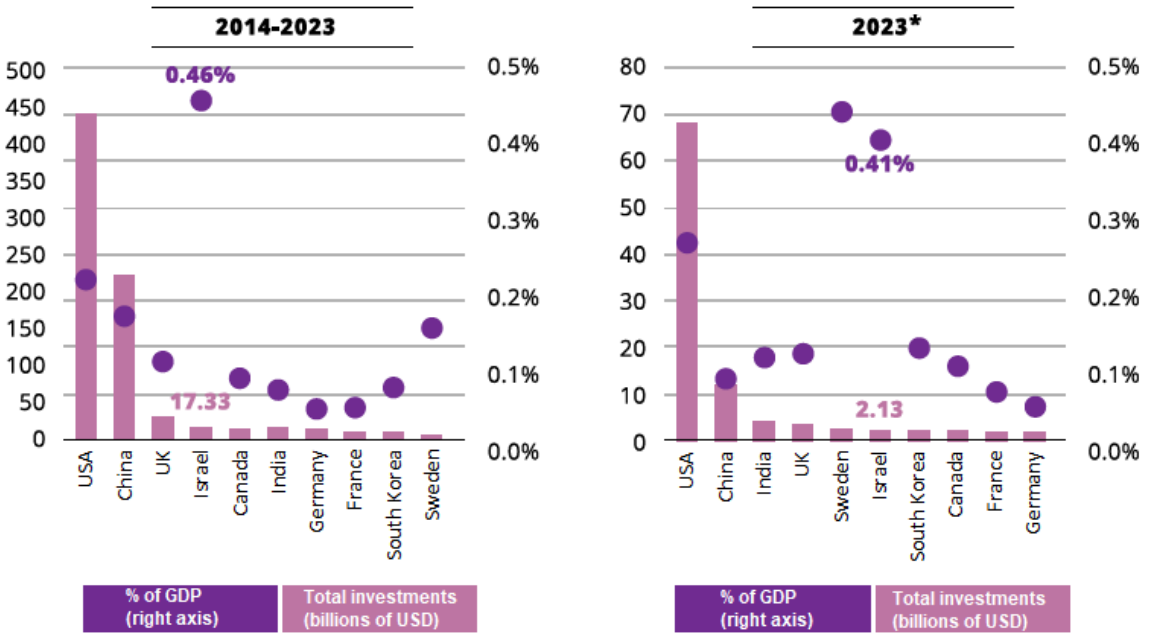
[10] Rounds D, E, F & G

In 2023, Sweden surpassed Israel, both in investment amount and as a percentage of GDP, and Israel now ranks fifth globally in venture capital investments in AI companies. Throughout the last decade, Israel has ranked fourth after the USA, China, and Britain, and has ranked first, relative to GDP.

In 2023, the average investment amount in Israel was about $15 million and the median amount was about $9 million, compared to a global average of about $25 million and $4.5 million, respectively.

Throughout the last decade, the average investment amount in Israel was about $14 million, compared to a global average of about $18 million.

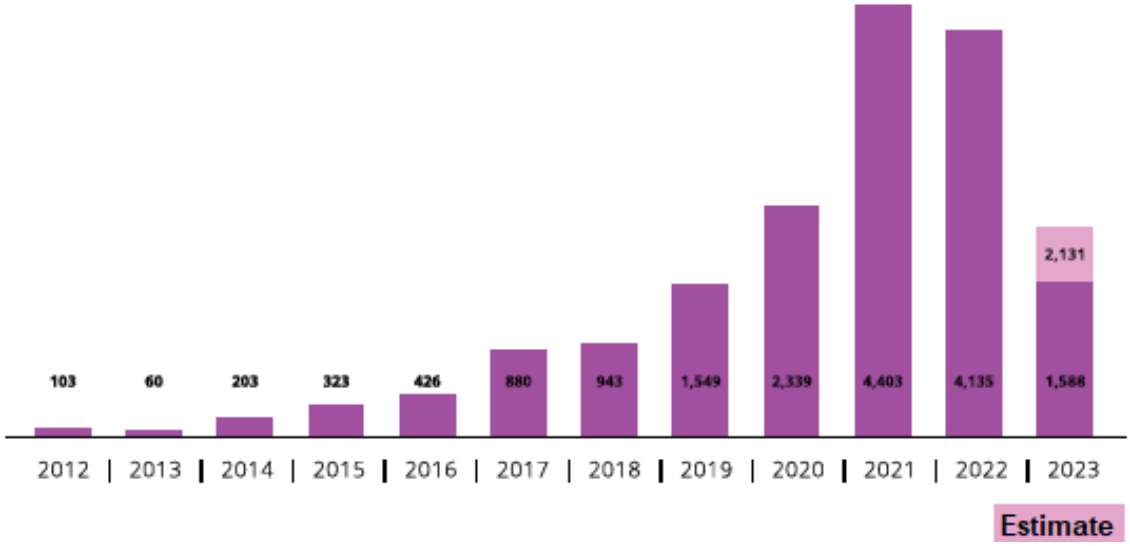
Figure 14: Venture capital investments in AI fields, by country, 2014-2023



Source: Ministry of Innovation, Science and Technology analysis of Preqin data, from OECD.AI
**2023 data is estimated and not final*

Similar to the global trend, in Israel too, venture capital investments overall and in AI in particular, dropped sharply in the last two years, despite the number of deals increasing but with lower average amounts. The significant global decline occurred in 2022 (42% decrease globally compared to 6% decrease in Israel) while the significant decline in Israel occurred in 2023 (48% decrease in Israel compared to 11% decrease globally).

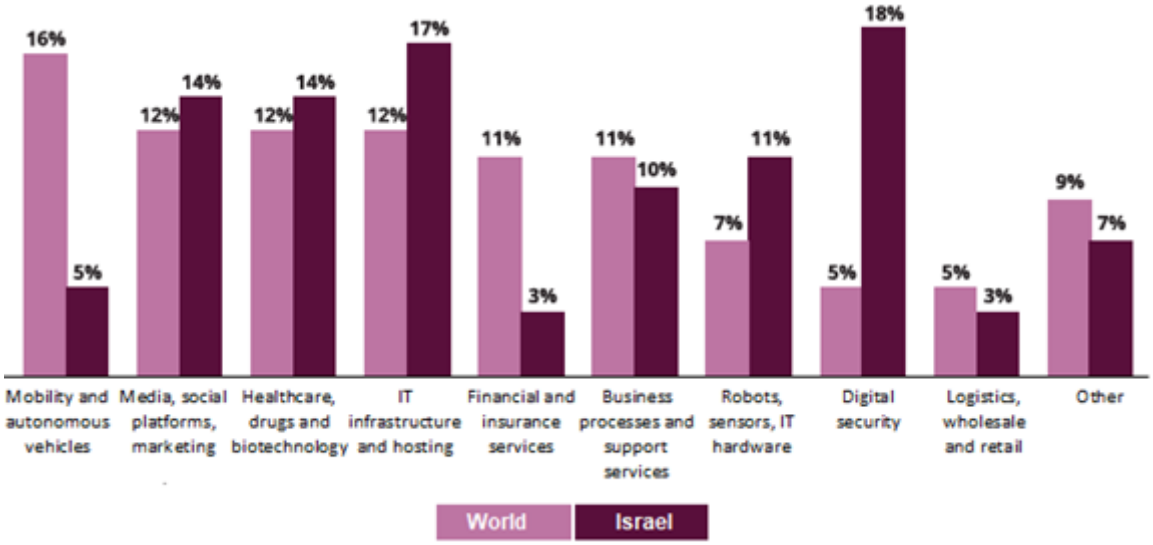
Figure 15: Venture capital investments in AI in Israel (in millions $), 2012-2023



Source: Ministry of Innovation, Science and Technology analysis of Preqin data, from OECD.AI

Israel stands out in AI-based startup funding in cybersecurity, digital security, and IT infrastructure compared to the global ecosystem.

Figure 16: Distribution of venture capital investments in AI, by industry, Israel vs. World, 2019-2023



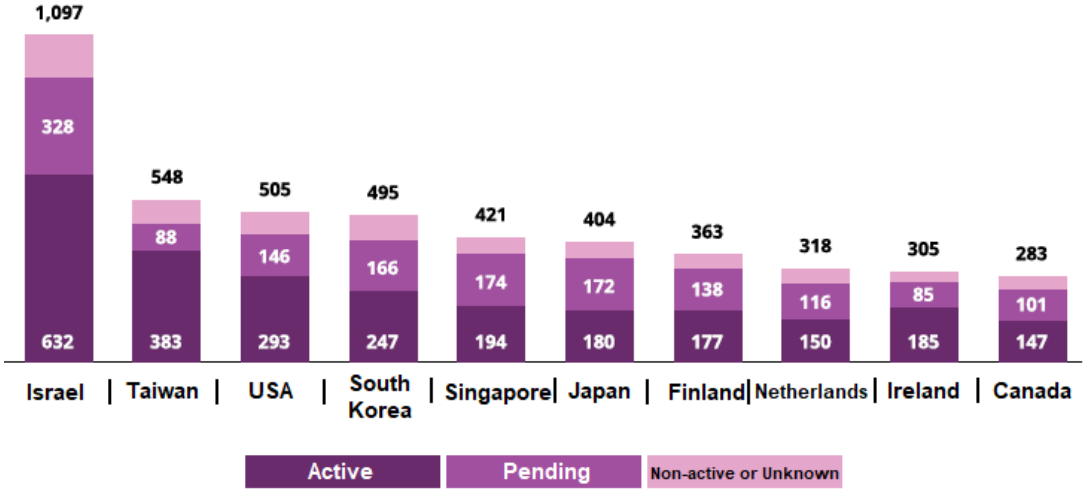
Source: Ministry of Innovation, Science and Technology analysis of Preqin data, from OECD.AI

From our analysis of AI patents using the Lens.org database[11], Israel ranks first globally (by patent inventor's residence) with a gap of 2x from second place in the number of patents relative to population over the last decade and ninth globally in

[11] The analysis was done based on a search of 20 different classifications (CPC codes) that comprehensively cover AI fields. Since there are hundreds of thousands of classifications, this data might be underrepresented.

absolute terms. In examining active patents relative to population, there is a 65% gap from second place.

Figure 17: Number of AI patents per million population, top 10 countries, by patent status, 2014 to present

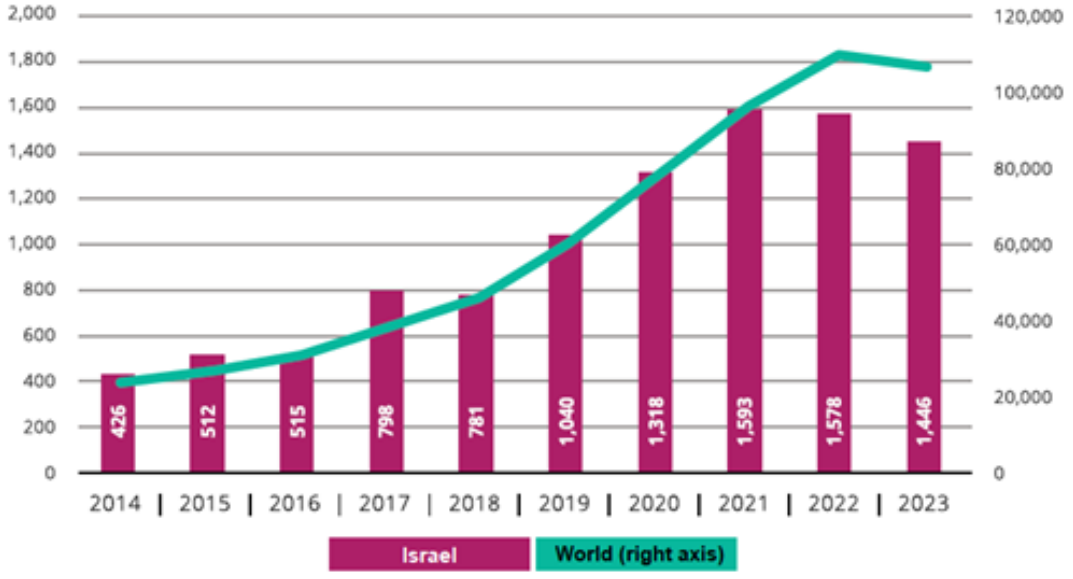


Source: Ministry of Innovation, Science and Technology analysis of Lens.org data, population data from World Bank

The leading fields addressed in patents are machine learning (27%) and image processing (23%).

Analysis of patent numbers over the last decade shows that almost throughout the entire decade, the growth rate in patents in Israel was similar to the world and even higher. However, in the last two years, a certain gap has opened - Israel experienced a slight decline while globally there was moderation.

Figure 18: Number of AI patents, Israel vs. World, 2014-2023



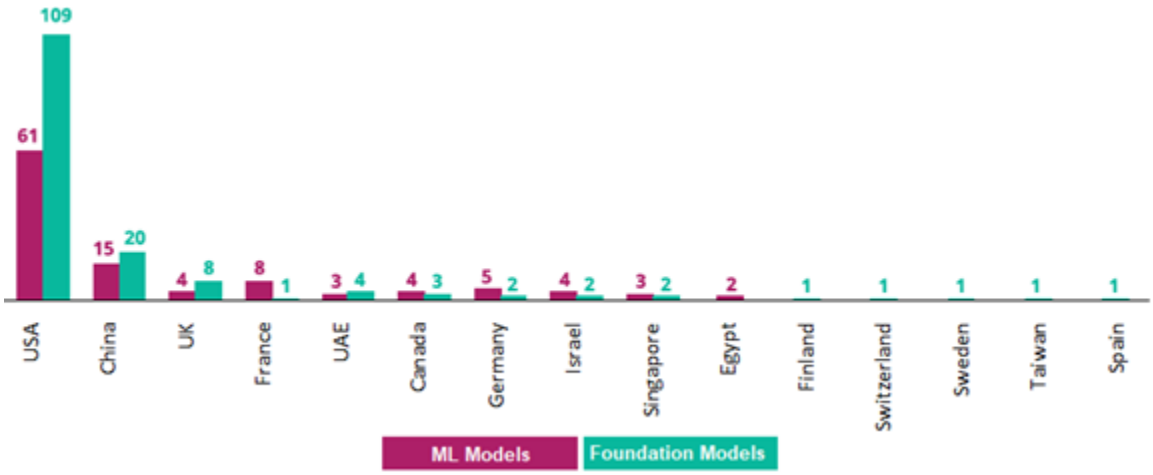
Source: Ministry of Innovation, Science and Technology analysis of Lens.org data

Human Potential and Employee Skills

As in many parts of the world, Israel is experiencing strong demand for professionals in the field of artificial intelligence, driven by the rapid growth of the tech industry and the increasing reliance on AI technologies. Additionally, professionals from diverse backgrounds are acquiring AI-related skills and competencies to remain at the forefront of technology and benefit from the competitive advantages these skills offer.

In 2023, Israel ranked fifth globally (tied with Canada and the UK) in the number of significant machine learning (ML) systems and ranked sixth (alongside Singapore, Germany, and Finland) in foundation models, with both rankings based on systems developed by researchers affiliated with national institutions. Relative to population size, Israel is second only to Singapore in machine learning systems and fourth in foundation models. Notably, Israeli researchers contributed to the development of approximately 4% of all significant machine learning systems in 2023, more than 30 times Israel's share of the world's population.

Figure 19: Leading Machine Learning Models by Country, 2023



Source: Ministry of Innovation, Science, and Technology Analysis of AI Index 2024 Data

Israel is a global leader in the relative penetration of AI skills within the workforce. This index measures the intensity of AI-related skills in a country's labor market. The chart below presents the prevalence of workers with AI skills as reported by LinkedIn members on their profiles from 2015 to 2023, relative to the global average (global average = 1). The methodology used involved identifying the top 50 skills most representative of LinkedIn members in the country for a consistent set of professions/occupations and calculating how many of these were classified as AI skills (AI literacy or AI engineering) by LinkedIn.

Israel ranks fifth globally, after India, the US, Germany, and Canada (and third globally among women, after India and the US), in the relative penetration rate of AI skills in the workforce. A relative penetration rate of 1.63 indicates that AI skills in Israel’s workforce

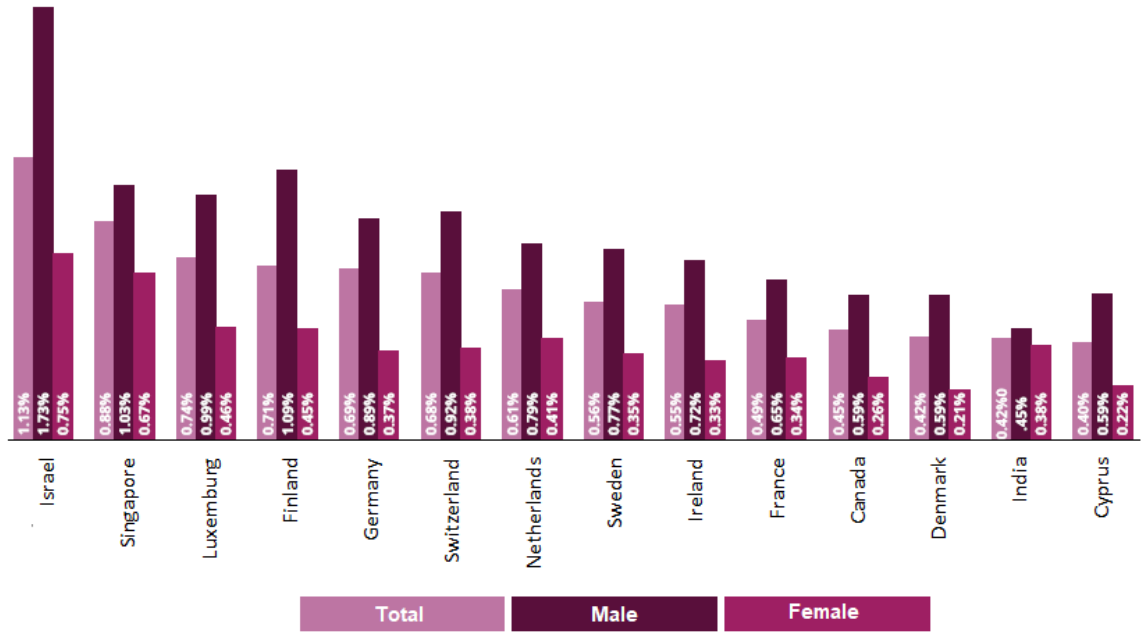
are 1.63 times more prevalent than the global average for the same professions. A rate of 0.86 among women suggests that the average penetration of AI skills among women in Israel is 14% lower than the global average (for both genders).

Figure 20: Relative Penetration Rate of AI Skills in the Workforce, 2015-2023

Source: Ministry of Innovation, Science, and Technology Analysis of AI Index 2024 Data

This trend is also reflected in the concentration of human capital in AI fields in Israel, calculated as the percentage of LinkedIn members who explicitly list AI skills and/or are employed in AI-related professions (from a predefined list of skills and/or professions) out of the total number of LinkedIn members in the country. Israel ranks first globally, with approximately 1.13% of workers (0.75% of women and 1.73% of men).

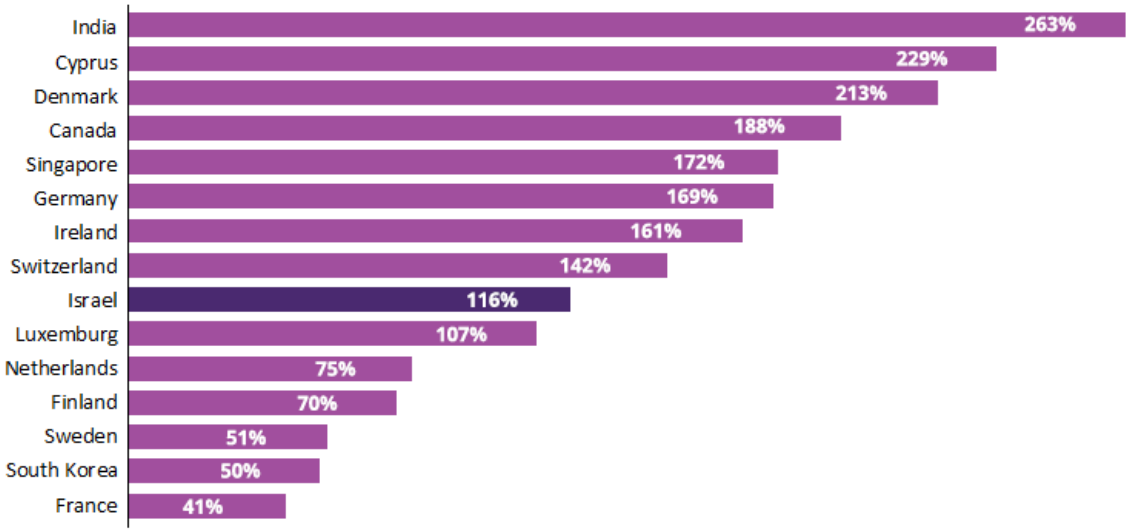
Figure 21: Concentration of Human Capital in AI in the Workforce, 2016-2023



Source: Ministry of Innovation, Science, and Technology Analysis of AI Index 2024 Data

However, Israel ranks just ninth in the growth rate of this concentration over the past eight years. This concentration grew at an average annual rate of about 17% over the past eight years (19.2% on average among women and 15.9% among men). If this trend continues, Israel may lose its lead in human capital concentration within a few years.

Figure 22: Growth Rate of Human Capital Concentration in AI Fields in the Workforce, 2023 vs. 2016



Source: Ministry of Innovation, Science, and Technology Analysis of AI Index 2024 Data

Between 2017 and 2018, the growth in human capital concentration was most significant, but the pace has slowed somewhat in recent years. The growth rate among women has been higher than among men over almost all of the past eight years.

Israel's Ranking in International Indices

Numerous research organizations and international consulting firms assess the status of countries in various AI-related domains. Some focus on scientific publications and their impact, while others take a broader view – evaluating factors that enable AI activity, the state of the business sector, government initiatives, and more. The following is an **Tortoise Global AI Index**

This index ranks 83 countries based on their investment in, innovation of, and adoption of artificial intelligence. These three categories are divided into seven sub-categories: human capital, infrastructure, operating environment, research, development, government strategy, and commercial applications. The index is updated annually and is based on 122 indicators from various sources.

	Overall	Talent	Infrastructure	Operating Environment	Research	Development	Government Strategy	Commercial	Scale	Intensity
United States	1	1	1	2	1	1	2	1	1	3
China	2	9	2	21	2	2	5	2	2	21
Singapore	3	6	3	48	3	5	10	4	11	1
United Kingdom	4	4	17	4	4	16	7	5	3	9
France	5	10	14	19	6	4	9	8	6	10
South Korea	6	13	6	35	13	3	4	12	7	11
Germany	7	3	13	8	8	11	8	9	5	15
Canada	8	8	18	16	9	10	3	6	8	8
Israel	9	7	26	65	7	6	32	3	14	2
India	10	2	68	3	14	13	11	13	4	36

- **Israel ranks 9th out of 83 countries** in the 2024 index—a drop of two spots from 2023, continuing a downward trend from 5th place in 2021 and 2022.
- The United States, China, Singapore, and the United Kingdom maintained their positions in the top four.
- France made a sharp rise from 13th in 2023 to 5th in 2024.
- South Korea remained in 6th place, Germany rose from 8th to 7th, and Canada dropped from 5th to 8th
- **Notably**, when looking solely at relative metrics (e.g., per capita or GDP-adjusted figures), Israel ranks **second only to Singapore**, unchanged from 2023.

Figure 23: Israel's rankings by sub-category in the 2024 Tortoise Global AI Index

A detailed analysis of the index indicators shows that Israel performs relatively weakly in categories related to:

- **Operating environment** (regulation and legislation, public opinion, and talent migration)
- **Government strategy** (budget and national strategy)
- **Infrastructure** (e.g., electricity, internet)

Israel excels in:

- **Commercial elements** (startups, investment, and initiatives)
- **Research and development**
- **Human capital in AI**

Table 2: Changes in Israel's rankings in the Tortoise Global AI Index from 2023 to 2024, by sub-category

	2023	2024	Change
Overall	**7**	**9**	**2-**
Intensity	2	2	0
Scale	17	14	3
Talent	7	7	0
Infrastructure	28	26	2
Operating Environment	23	65	42-
Research	11	7	4
Development	7	6	1
Government Strategy	47	32	15
Commercial	3	3	0

- +15 places in government strategy
- +4 in research
- +2 in infrastructure
- +1 in development
- However, there was a sharp **drop of 42 places in the operating environment** category.

Global AI Vibrancy Tool – Stanford University

This tool compares AI performance across 36 countries. It is divided into three domains and eight categories, incorporating 42 different indicators, each weighted differently in the overall score. Israel showed significant improvement in the overall index in 2023, **rising 15 places** primarily due to advances in infrastructure, policy, and governance.

Country	Overall	Per Capita	R&D	Responsible AI	Economy	Education	Diversity	Policy and Governance	Public Opinion	Infrastructure
USA	**1**	3	1	1	1	4	27	6	1	1
China	**2**	29	2	2	2	24	14	33	7	2
UK	**3**	8	4	3	4	1	8	1	19	21
India	**4**	33	3	11	7	11	1	24	5	33
UAE	**5**	4	18	20	5	3	2	23	8	5
France	**6**	23	9	8	31	2	6	3	16	4
South Korea	**7**	17	7	15	13	18	23	4	3	6
Germany	**8**	20	5	4	9	9	29	15	10	14
Japan	**9**	25	8	13	11	23	16	18	24	3
Singapore	**10**	2	10	6	6	16	3	14	13	22
.....										
Israel	**16**	7	20	17	8	32	28	34	27	8

- **Israel ranks 16th out of 36 countries**, up from 31st in 2022.

Top countries (unchanged from 2022):

1. United States
2. China
3. United Kingdom
4. India

Other notable movements:

- The UAE surged from 10th to 5th
- France rose from 8th to 6th
- South Korea from 9th to 7th
- Germany dropped from 6th to 8th
- Japan fell from 5th to 9th
- Singapore dropped from 7th to 10th

Figure 24: Israel's rankings in the Global AI Vibrancy Tool, 2017–2023

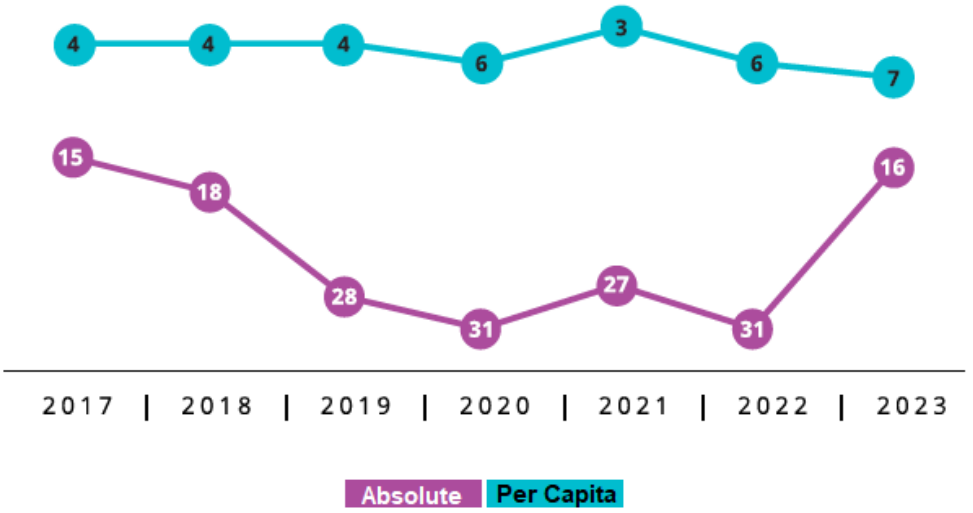


Table 3: Israel's 2023 performance by sub-category in the Global AI Vibrancy Tool

	Overall			Per Capita		
Category	**Rank** (Change from previous index)	**Score** (out of 100)	**Top Countries** (Score)	**Rank** (Change from previous index)	**Score** (out of 100)	**Top Countries** (Score)
Total	**#16 (15+)**	**15.32**	**1. USA (70.06) 2. China (40.17) 3. UK (27.21)**	**#7 (1-)**	**18.89**	**1. Luxemburg (46.85) 2. Singapore (43.72) 3. USA (27.29)**
R&D	#20 (2+)	2.05	1. USA (67.52) 2. China (51.72) 3. India (32.81)	#4 (2+)	28.29	1. Singapore (74.25) 2. UAE (43.32) 3. USA (31.87)
Responsible AI	#17 (7-)	1.77	1. USA (100) 2. China (34.25) 3. UK (19.43)	#10 (7-)	15.03	1. Singapore (85.63) 2. Switzerland (52.15) 3. Denmark (32.95)
Economy	#8 (3-)	15.7	1. USA (59.27) 2. China (27.09) 3. Luxemburg (26.25)	#4 (2-)	32.34	1. Singapore (48.70) 2. USA (44.56) 3. Luxemburg (41.02)
Education	#32 (2-)	11.46	1. UK (64.52) 2. France (56.25) 3. UAE (56.20)	#27 (2-)	4.1	1. Luxemburg (60.19) 2. UK (46.90) 3. Ireland (44.55)
Diversity	#28 (1-)	34.79	1. India (100) 2. UAE (94.17) 3. Singapore (69.22)	-	-	-
Policy and Governance	#34 (1+)	38.46	1. UK (84.62) 2. Belgium (78.46) 3. France (64.73)	#17 (16+)	2.64	1. Luxemburg (76.92) 2. Ireland (27.96) 3. Estonia (26.94)
Public Opinion	#27 (13-)	9.01	1. USA (69.76) 2. Saudi Arabia (39.36) 3. South Korea (27.76)	#19 (3-)	7.24	1. USA (60.91) 2. Luxemburg (57.22) 3. Singapore (29.63)
Infrastructure	#8 (7+)	26.18	1. USA (98.66) 2. China (55.34) 3. Japan (35.84)	#14 (4+)	6.23	1. Luxemburg (73.08) 2. Finland (45.38) 3. Norway (14.41)

AI Rankings

A research-based index evaluating the number of AI-related scientific publications in leading journals and conferences from 2014 to 2024.

AI Field	Israel's Rank	# of Countries
AI - Total	**8**	**49**
AI - General	9	44
Computer Vision	10	41
Natural Language	8	45
Machine Learning	8	47
Cognitive Reasoning	10	28
Robotics	17	38
Multi-Agent Systems	5	36
Simulation	13	39

Government AI Readiness Index 2024 - Oxford Insights–

This index ranks 188 countries based on their governments' readiness to implement AI in public service delivery. Updated annually, it includes three main categories broken into ten sub-categories and is based on 40 indicators from various sources.

	2020	2021	2022	2023	2024
Total	**20**	**20**	**20**	**30**	17
Government	**35**	**50**	**57**	**68**	24
Vision	35-53	49-62	59-73	66-79	**1-77**
Governance and Ethics	26	26	29	19	**31**
Digital Capacity	21	19	19	18	**44**
Adaptability	25	26	24	23	**18**
Technology	**3**	**8**	**4**	**3**	10
Maturity	9	6	8	10	**10**
Innovation Capacity	1	1	2	1	**2**
Human Capital	9	24	28	27	**34**
Data & Infrastructure	**32**	**26**	**23**	**25**	24
Infrastructure	39	21	10	21	**31**
Data Availability	24	41	40	40	**25**
Data Representativeness	37	27	31	27	**23**

- **Israel ranks 17th out of 188 countries** in the 2024 index – **up 13 places** from 2023.

Top countries in 2024:

1. United States
2. Singapore
3. South Korea (up from 7th)
4. France (up from 6th)
5. United Kingdom (down from 3rd)
6. Canada (down from 5th)
7. Netherlands (up from 10th)
8. Germany (unchanged)
9. Finland (down from 4th)
10. Australia (up from 12th)

AI Preparedness Index – International Monetary Fund (IMF)

This newly launched index (first published in early 2024) assesses the ability of 174 countries to adopt AI. It is divided into four equally weighted domains and uses data from eight institutions, including the UN, World Bank, and World Economic Forum. **Israel ranks 16th overall and 1st in innovation and economic integration.**

Category	Rank	Score	Top Countries (Score)
AI Preparedness Index	**#16**	**72.55**	**1. Singapore (80.06)** **2. Denmark (77.85)** **3. USA (77.13)** **4. Netherlands (76.65)** **5. Estonia (76.44)**
Digital Infrastructure	#22	17.33	1. Singapore (20.86) 2. Denmark (20.18) 3. Estonia (20.18) 4. Hong Kong (19.95) 5. New Zealand (19.39)
Innovation and Economic Integration	#1	19.09	**1. Israel (19.09)** 2. Sweden (18.38) 3. South Korea (18.25) 4. USA (18.25) 5. Netherlands (18.22)
Human Capital and Labor Market Policies	#13	17.24	1. Taiwan (19.55) 2. Singapore (19.52) 3. Switzerland (18.78) 4. Estonia (18.50) 5. Germany (18.47)
Regulation and Ethics	#21	18.88	1. Finland (23.04) 2. Netherlands (22.44) 3. Luxemburg (22.2) 4. New Zealand (21.97) 5. Estonia (21.86)

Scimago Journal & Country Rank

An open-access portal based on data from the Scopus database (Elsevier B.V.), ranking countries and journals across 27 broad subject areas and 309 specific subfields.

In the **AI domain for 1996–2023**:

- **Israel ranks 1st in the world in average citations per paper** (30.5 citations, or 27.4 excluding self-citations)
- **18th globally in H-index** with a score of 186

Summary

Artificial intelligence is a strategic asset for both the Israeli and global economies and societies, as it enables innovation, growth, and social impact across various sectors and fields. Israel has a strong AI ecosystem combining scientific excellence, entrepreneurial spirit, industry collaboration, and government support. Israel's academic institutions, research centers, pioneering startups, and robust funding ecosystem have propelled the country to the forefront of AI research and development.

However, Israel also faces challenges, which are not necessarily unique to it but could limit its potential and competitiveness in this field. International comparisons suggest that Israel has the potential to reach the pinnacle of global AI leadership in this field and improve its performance in international metrics by improving the infrastructure required for AI development, promoting and implementing government strategy in the field, improving data availability, and more.

Key focus areas include:

1. Expanding and enhancing the AI-skilled workforce
2. Improving access to high-quality data and advancing Hebrew language capabilities in AI systems
3. Upgrading computational infrastructure to support AI development
4. Promoting the ethical and responsible use of AI technologies

As artificial intelligence becomes more prevalent and influential globally, Israel must act swiftly to close existing gaps in order to preserve its competitive edge and solidify its global leadership in AI.