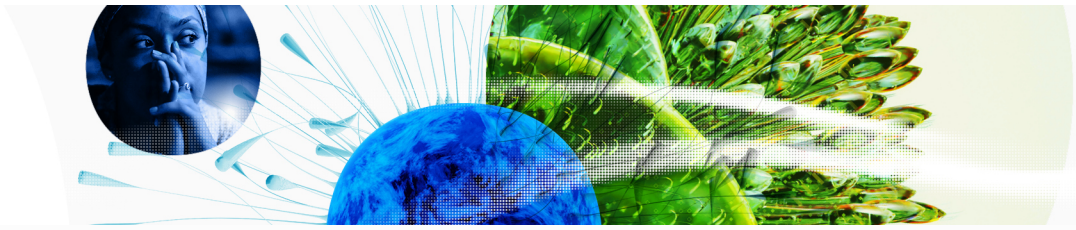
Global Innovation Index 2023



The Global Innovation Index (GII) **ranks world economies according to their innovation capabilities.**

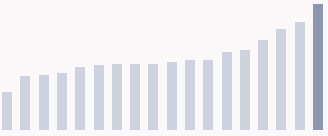
Consisting of **roughly 80 indicators**, grouped into innovation inputs and outputs, the GII **aims to capture the multi-dimensional facets of innovation**.

Israel ranking in the Global Innovation Index 2023

> Israel ranks 14th among the 132 economies featured in the GII 2023.

> Israel ranks 13th among the 50 high-income group economies.

> Israel ranks 1st among the 18 economies in Northern Africa and Western Asia.



> Israel GII Ranking (2020-2023)

The table shows the rankings of Israel over the past four years. Data availability and changes to the GII model framework influence year-on-year comparisons of the GII rankings. The statistical confidence interval for the ranking of Israel in the GII 2023 is between ranks 12 and 18.

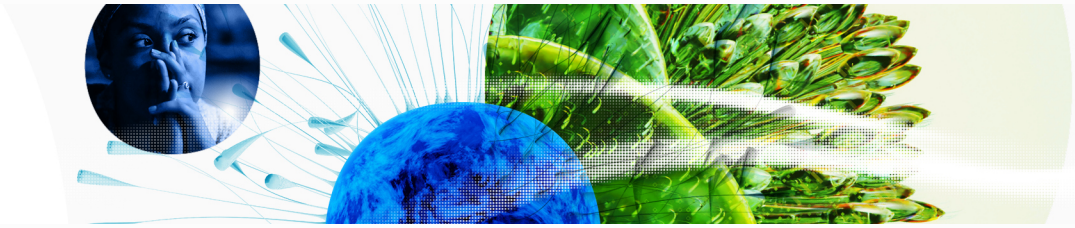
	GII Position	Innovation Inputs	Innovation Outputs
2020	13th	17th	13th
2021	15th	18th	12th
2022	16th	22nd	16th
2023	14th	21st	13th

Israel performs better in innovation outputs than innovation inputs in 2023.

This year Israel ranks 21st in innovation inputs. This position is higher than last year.

Israel ranks 13th in innovation outputs. This position is higher than last year.

Global Innovation Index 2023

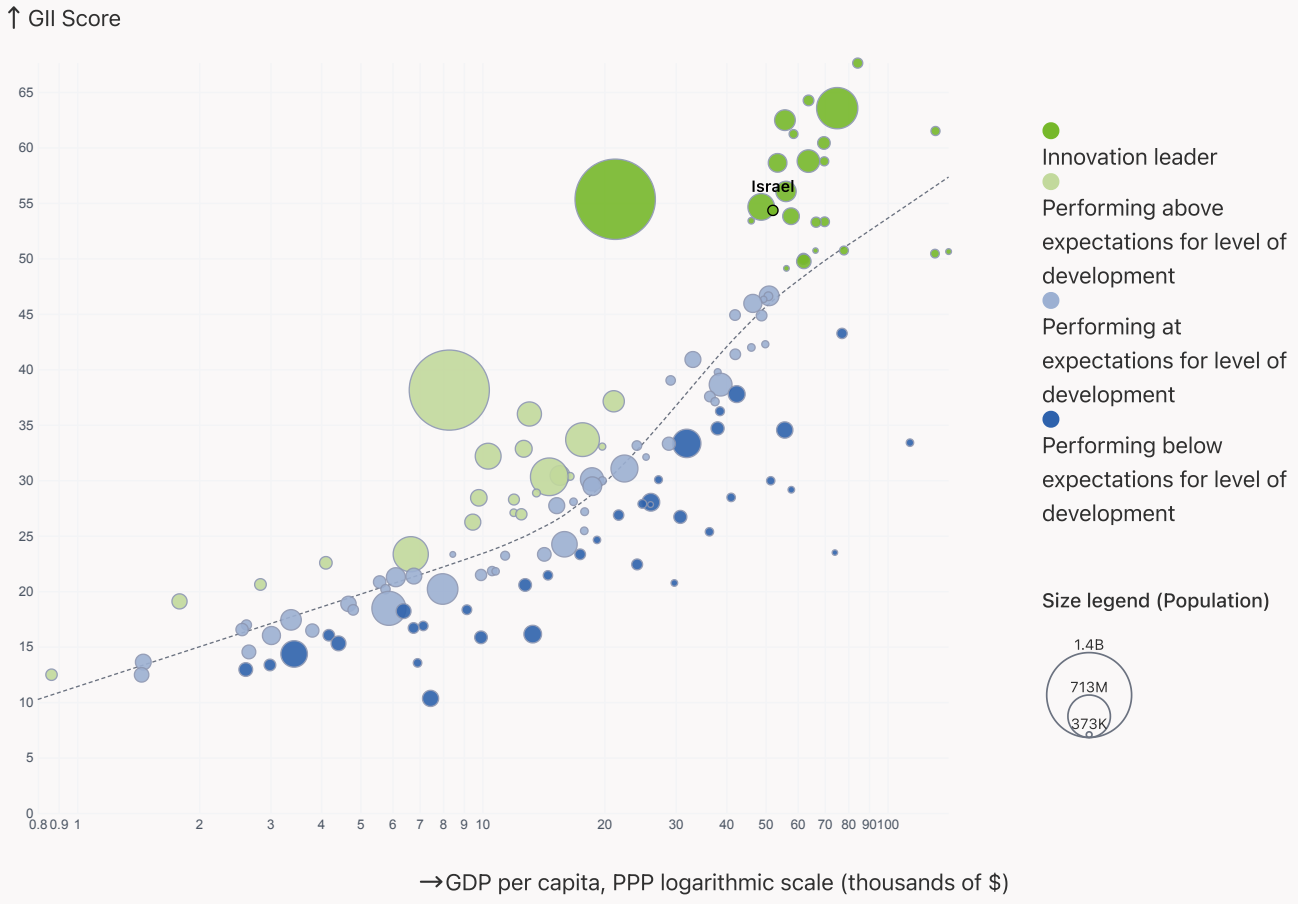


→ Expected vs. observed innovation performance

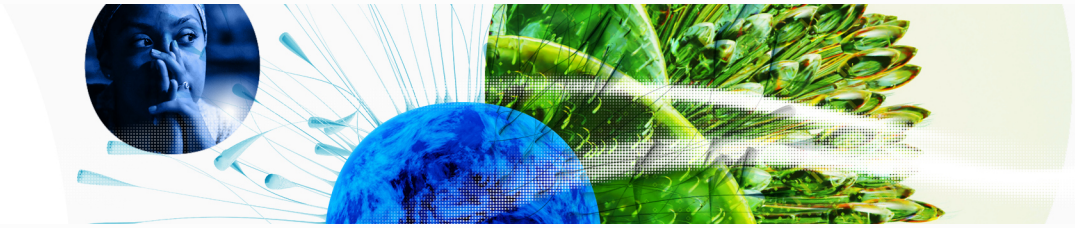
The bubble chart below shows the relationship between income levels (GDP per capita) and innovation performance (GII score). The trend line gives an indication of the expected innovation performance according to income level. Economies appearing above the trend line are performing better than expected and those below are performing below expectations.

> Israel is an innovation leader, ranking in the top 25 of the GII.

> Innovation overperformers relative to their economic development



Global Innovation Index 2023

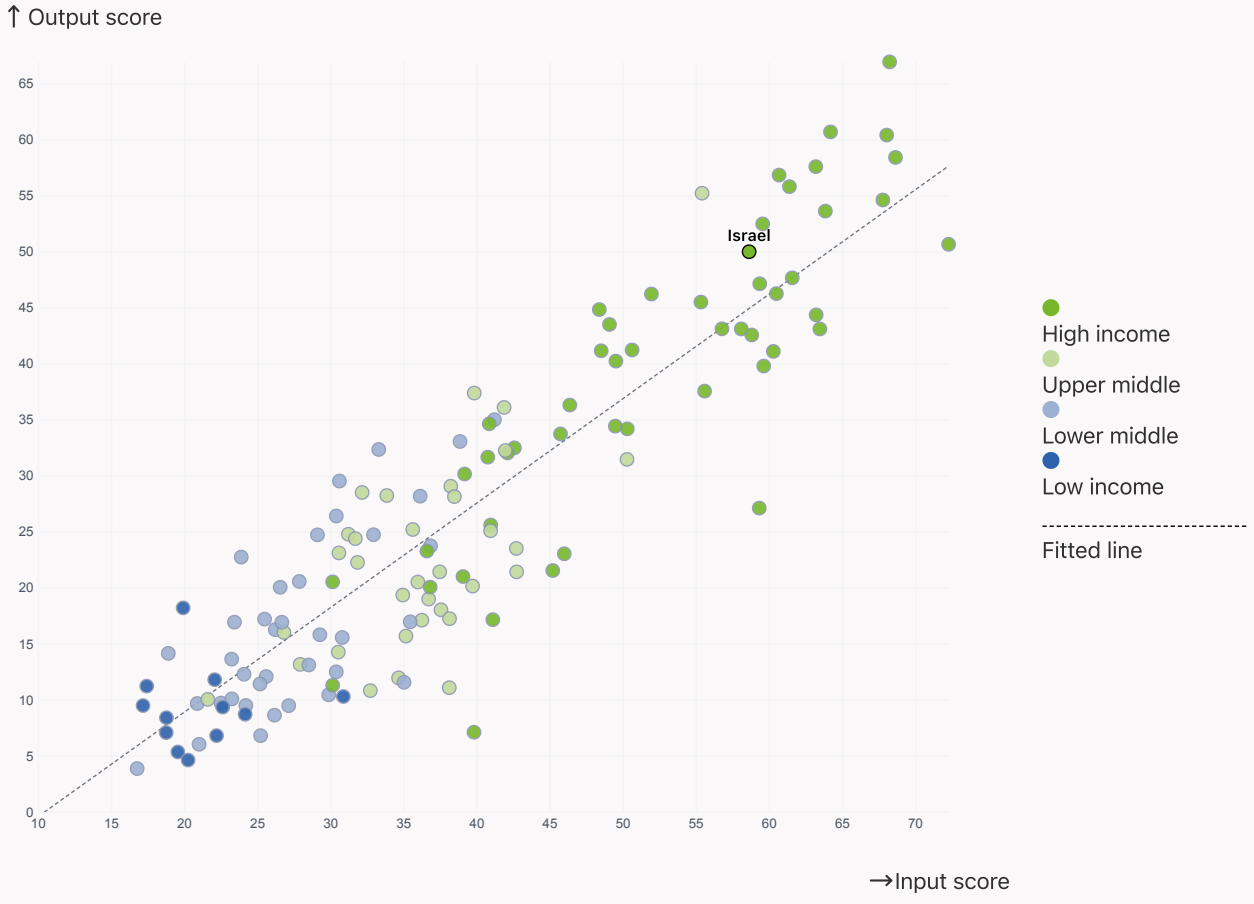


→ Effectively translating innovation investments into innovation outputs

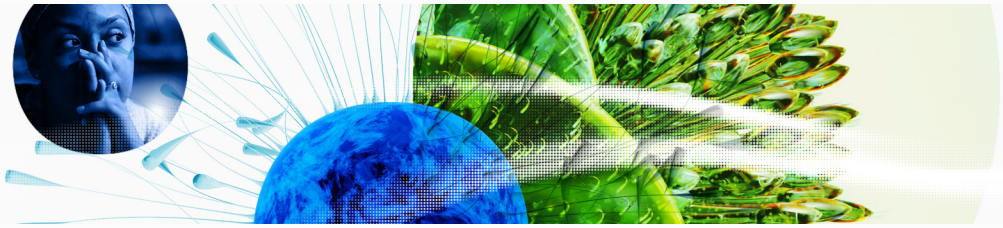
The chart below shows the relationship between innovation inputs and innovation outputs. Economies above the line are effectively translating costly innovation investments into more and higher-quality outputs.

> Israel produces more innovation outputs relative to its level of innovation investments.

> Relationship between innovation inputs and outputs



Global Innovation Index 2023



→ Overview of Israel's rankings in the seven areas of the GII in 2023

The chart shows the ranking for each of the seven areas that the GII comprises. The strongest areas for Israel are those that rank above the GII (shown in blue) and the weakest are those that rank below.

> Highest rankings

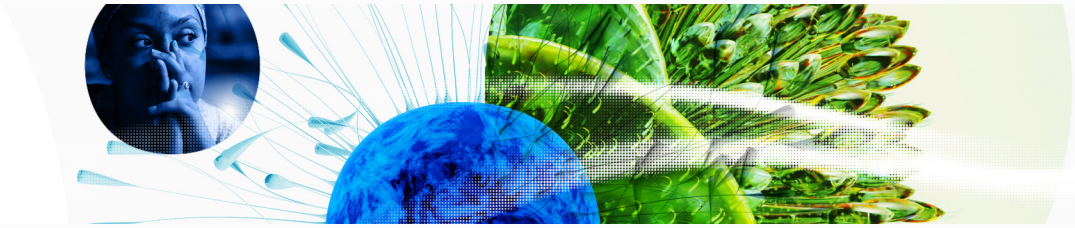
Israel ranks highest in Knowledge and technology outputs (5th), Business sophistication (6th) and Market sophistication (11th).

> Lowest rankings

Israel ranks lowest in Institutions (40th), Infrastructure (36th) and Creative outputs (33rd).

The full WIPO Intellectual Property Statistics profile for Israel can be found on this link.

Global Innovation Index 2023



→ Benchmark of Israel against other country groupings for each of the seven areas of the GII Index

The charts shows the relative position of Israel (blue bar) against other country groupings (grey bars), for each of the seven areas of the GII Index.

> High-Income economies

Israel performs above the high-income group average in Knowledge and technology outputs, Business sophistication, Market sophistication, Human capital and research.

> Northern Africa And Western Asia

Israel performs above the regional average in all the pillars.

Knowledge and technology outputs

- Israel | Score: 61.61
- Top 10 | Score: 58.96
- High income | Score: 38.62
- NAWA | Score: 24.01

Creative outputs

- Top 10 | 56.09
- High income | 40.27
- Israel | 38.32
- NAWA | 24.51

Business sophistication

- Israel | 65.09
- Top 10 | 64.39
- High income | 46.38
- NAWA | 29.44

Market sophistication

- Top 10 | 61.93
- Israel | 59.00
- High income | 46.42
- NAWA | 36.12

Human capital and research

- Top 10 | 60.28
- Israel | 52.45
- High income | 46.30
- NAWA | 32.72

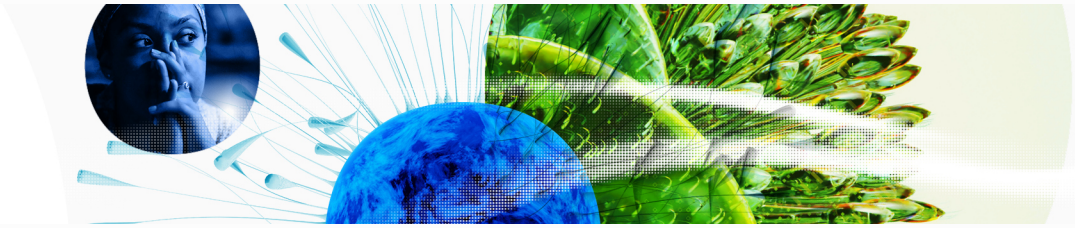
Infrastructure

- Top 10 | 62.83
- High income | 55.85
- Israel | 54.20
- NAWA | 41.60

Institutions

- Top 10 | 79.85
- High income | 68.16
- Israel | 62.55
- NAWA | 53.39

Global Innovation Index 2023



→ Innovation strengths and weaknesses in Israel

The table below gives an overview of the indicator strengths and weaknesses of Israel in the GII 2023.

> Israel's main innovation strengths are **GERD financed by abroad, % GDP** (rank 1), **GERD performed by business, % GDP** (rank 1) and **ICT services exports, % total trade** (rank 1).

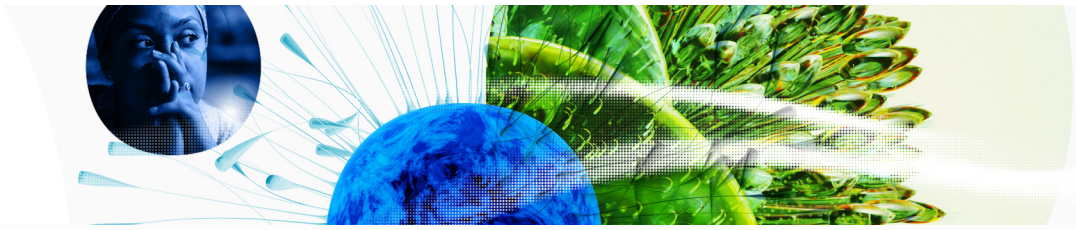
Strengths

Rank	Code	Indicator name
1	5.2.3	GERD financed by abroad, % GDP
1	5.1.3	GERD performed by business, % GDP
1	6.3.4	ICT services exports, % total trade
1	6.1.2	PCT patents by origin/bn PPP$ GDP
1	2.3.2	Gross expenditure on R&D, % GDP
1	6.2.2	Unicorn valuation, % GDP
1	5.2.1	University-industry R&D collaboration
1	4.2.4	VC received, value, % GDP
1	4.2.3	VC recipients, deals/bn PPP$ GDP
3	7.3.4	Mobile app creation/bn PPP$ GDP
3	5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP
5	7.2.1	Cultural and creative services exports, % total trade

Weaknesses

Rank	Code	Indicator name
114	1.2.3	Cost of redundancy dismissal
107	7.1.2	Trademarks by origin/bn PPP$ GDP
71	2.1.5	Pupil-teacher ratio, secondary
68	6.2.3	Software spending, % GDP
61	1.1.1	Operational stability for businesses
61	2.2.3	Tertiary inbound mobility, %
58	4.3.1	Applied tariff rate, weighted avg., %
58	3.1.1	ICT access
56	2.1.2	Government funding/pupil, secondary, % GDP/cap
39	2.1.4	PISA scales in reading, maths and science

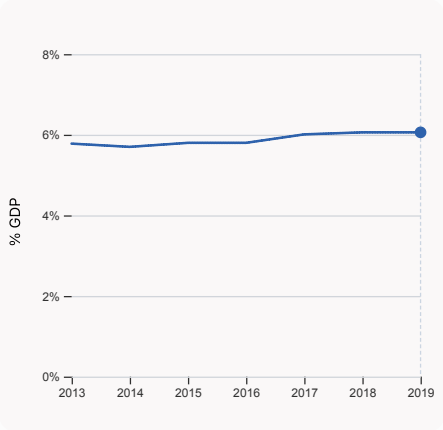
Global Innovation Index 2023



→ Israel's innovation system

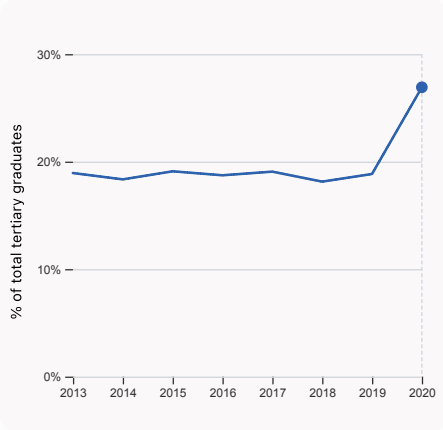
As far as practicable, the plots below present unscaled indicator data.

> Innovation inputs in Israel



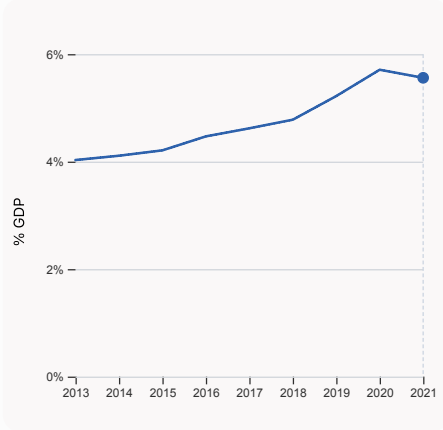
2.1.1 Expenditure on education, % GDP

was equal to 6.06% GDP in 2019, with no change from the year prior – and equivalent to an indicator rank of 17.



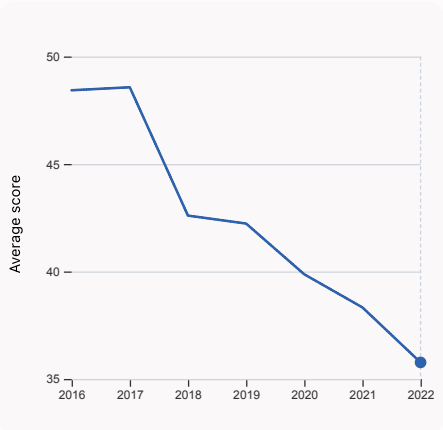
2.2.2 Graduates in science and engineering, %

was equal to 26.92% of total tertiary graduates in 2020, up by 8.07 percentage points from the year prior – and equivalent to an indicator rank of 34.



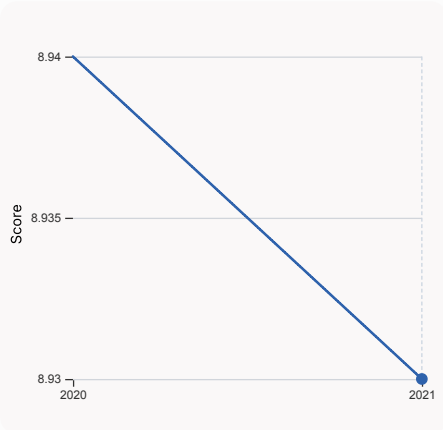
2.3.2 Gross expenditure on R&D, % GDP

was equal to 5.56% GDP in 2021, down by 0.15 percentage points from the year prior – and equivalent to an indicator rank of 1.



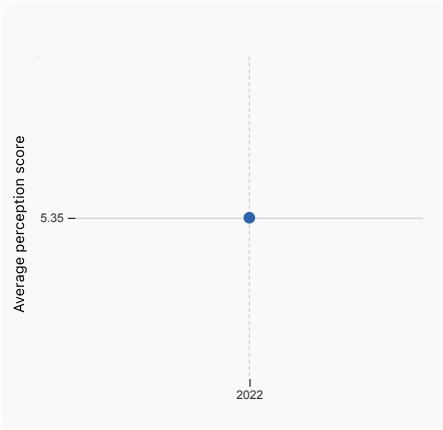
2.3.4 QS university ranking, top 3

was equal to an average score of 35.77 for the top 3 universities in 2022, down by 6.68% from the year prior – and equivalent to an indicator rank of 36.



3.1.1 ICT access

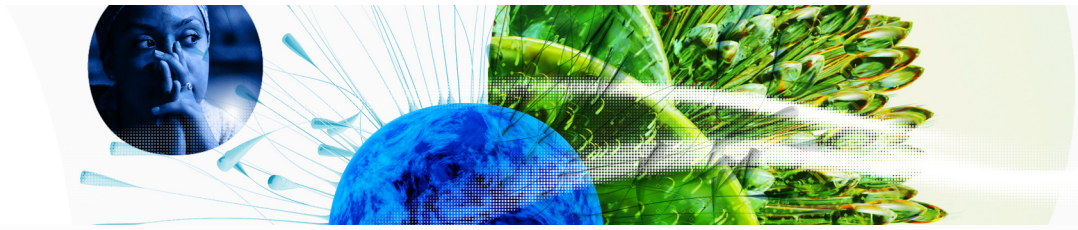
was equal to a score of 8.93 in 2021, down by 0.11% from the year prior – and equivalent to an indicator rank of 58.

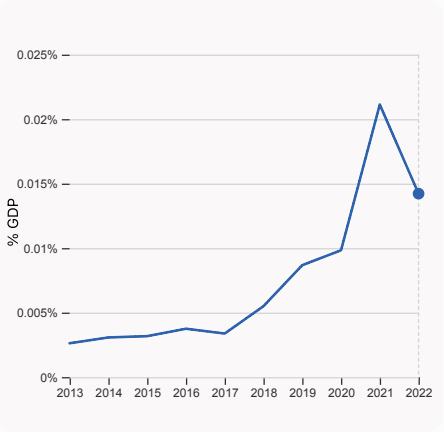


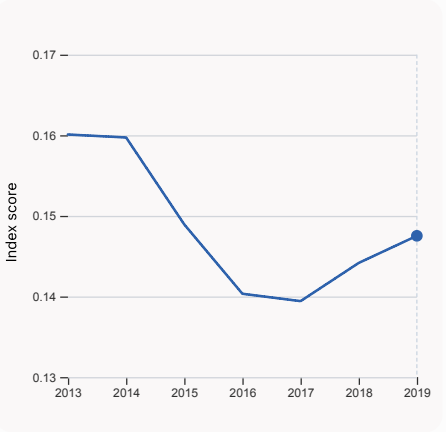
4.1.1 Finance for startups and scaleups

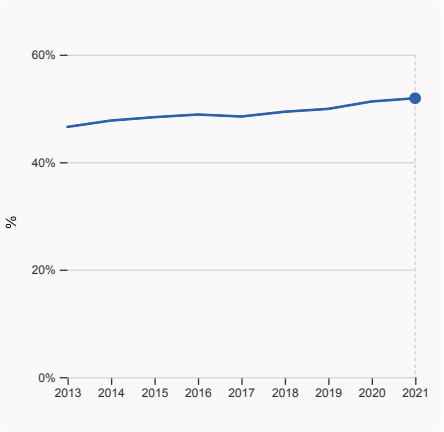
was equal to an average perception score of 5.35 in 2022, equivalent to an indicator rank of 22.

Global Innovation Index 2023









4.2.4 VC received, value, % GDP

was equal to 0.01422% GDP in 2022, down by 0.0069 percentage points from the year prior – and equivalent to an indicator rank of 1.

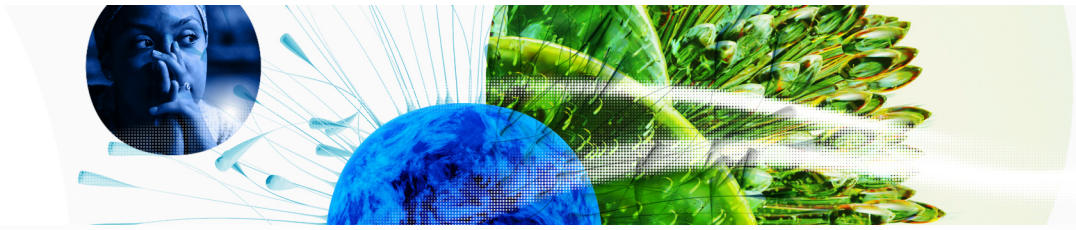
4.3.2 Domestic industry diversification

was equal to an index score of 0.148 in 2019, up by 2.33% from the year prior – and equivalent to an indicator rank of 46.

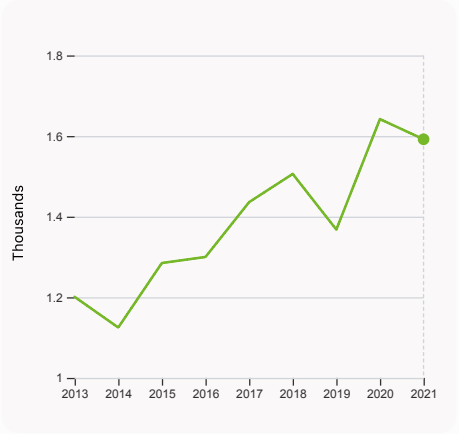
5.1.1 Knowledge-intensive employment, %

was equal to 51.89% in 2021, up by 0.6 percentage points from the year prior – and equivalent to an indicator rank of 7.

Global Innovation Index 2023

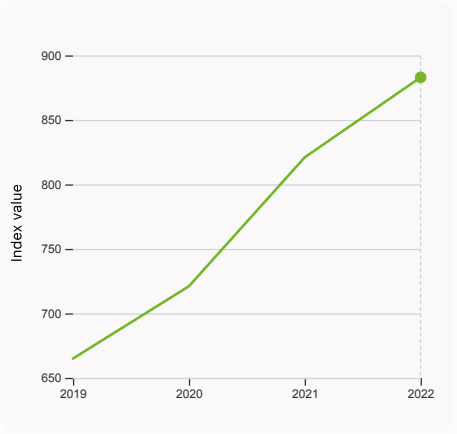


> Innovation outputs in Israel



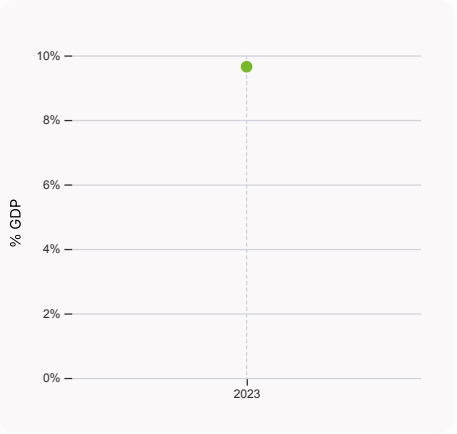
6.1.1 Patents by origin

was equal to 1.59 Thousands in 2021, down by 3.045% from the year prior – and equivalent to an indicator rank of 22.



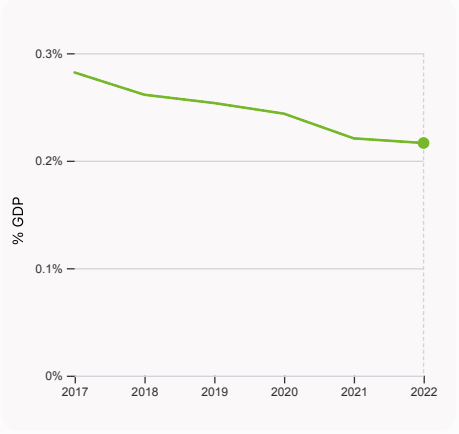
6.1.5 Citable documents H-index

was equal to an index value of 883 in 2022, up by 7.55% from the year prior – and equivalent to an indicator rank of 16.



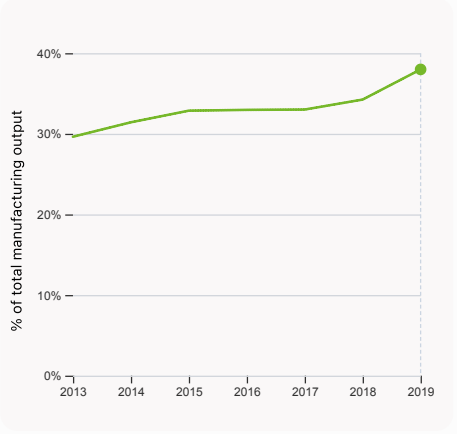
6.2.2 Unicorn valuation, % GDP

was equal to 9.65 % GDP in 2023 – and equivalent to an indicator rank of 1.



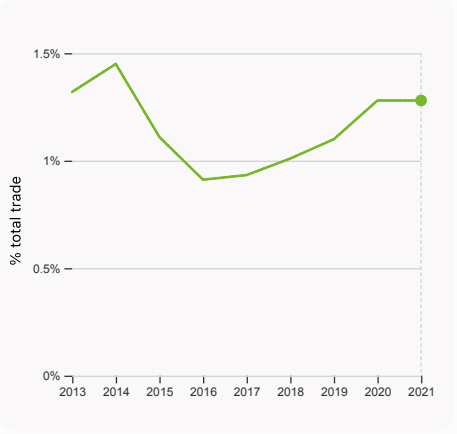
6.2.3 Software spending, % GDP

was equal to 0.216% GDP in 2022, down by 0.0043 percentage points from the year prior – and equivalent to an indicator rank of 68.



6.2.4 High-tech manufacturing, %

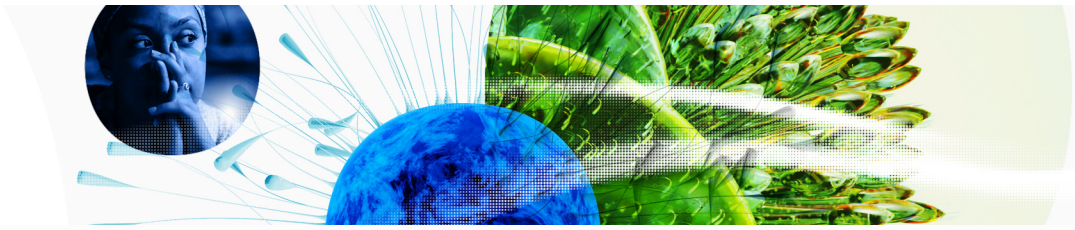
was equal to 37.99% of total manufacturing output in 2019, up by 3.74 percentage points from the year prior – and equivalent to an indicator rank of 29.

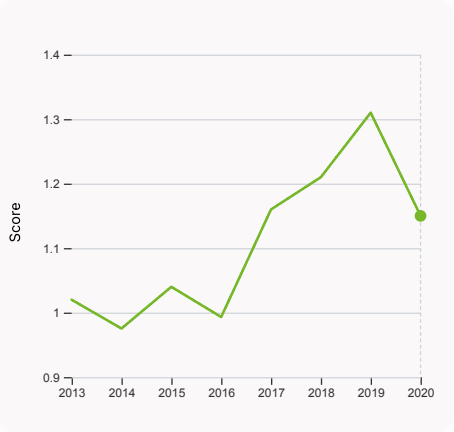


6.3.1 Intellectual property receipts, % total trade

was equal to 1.28% total trade in 2021, up by with no change from the year prior – and equivalent to an indicator rank of 19.

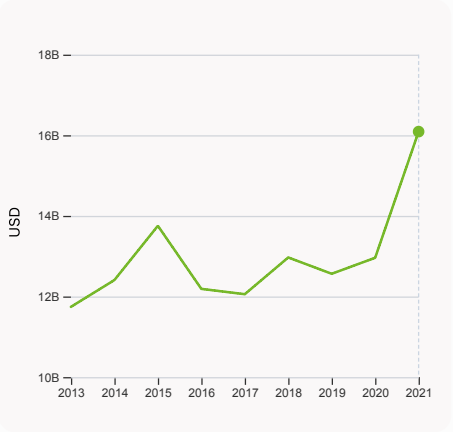
Global Innovation Index 2023





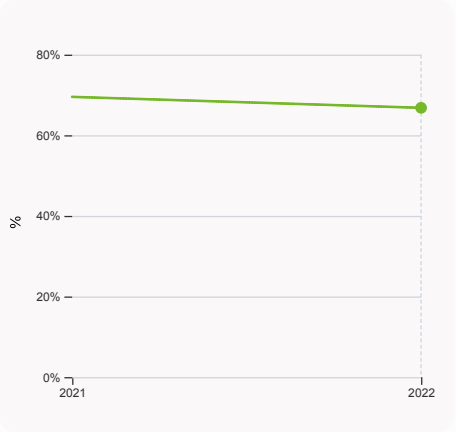
6.3.2 Production and export complexity

was equal to a score of 1.15 in 2020, down by 12.21% from the year prior – and equivalent to an indicator rank of 21.



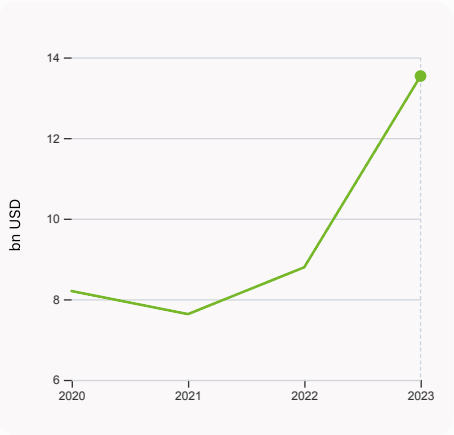
6.3.3 High-tech exports

was equal to 16,090,256,000 USD in 2021, up by 24.15% from the year prior – and equivalent to an indicator rank of 12.



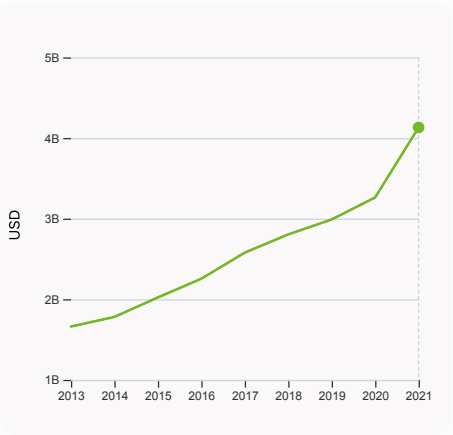
7.1.1 Intangible asset intensity, top 15, %

was equal to 66.81% in 2022, down by 2.72 percentage points from the year prior – and equivalent to an indicator rank of 25.



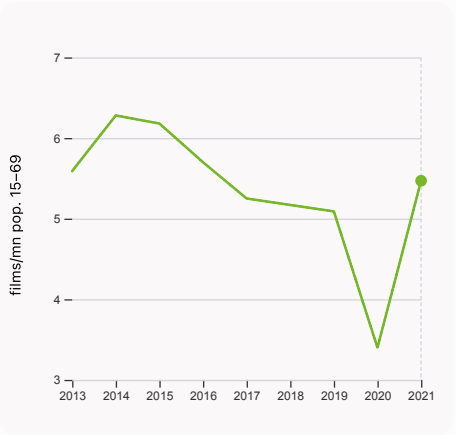
7.1.3 Global brand value, top 5,000

was equal to 13.539 bn USD in 2023, up by 53.96% from the year prior – and equivalent to an indicator rank of 44.



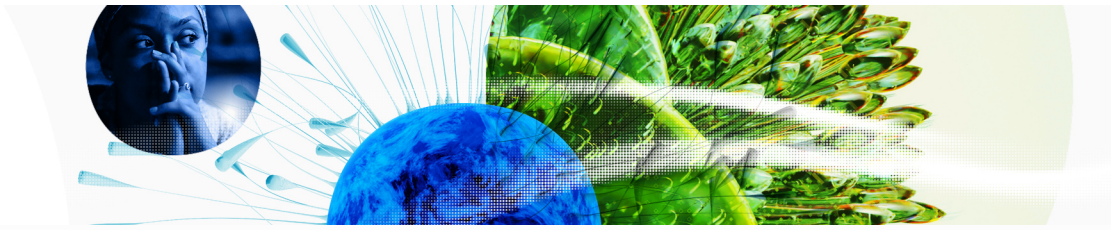
7.2.1 Cultural and creative services exports

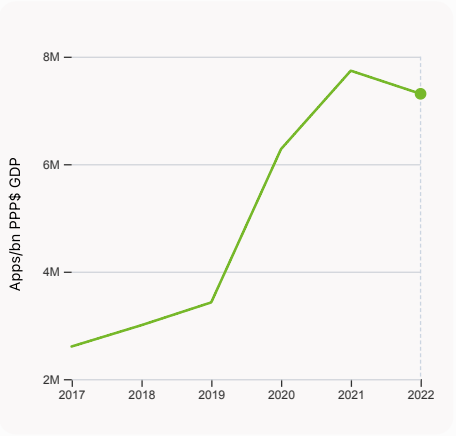
was equal to 4,131,294,000 USD in 2021, up by 26.6% from the year prior – and equivalent to an indicator rank of 5.



7.2.2 National feature films/mn pop. 15-69

was equal to 5.47 films/mn pop. 15–69 in 2021, up by 60.88% from the year prior – and equivalent to an indicator rank of 21.

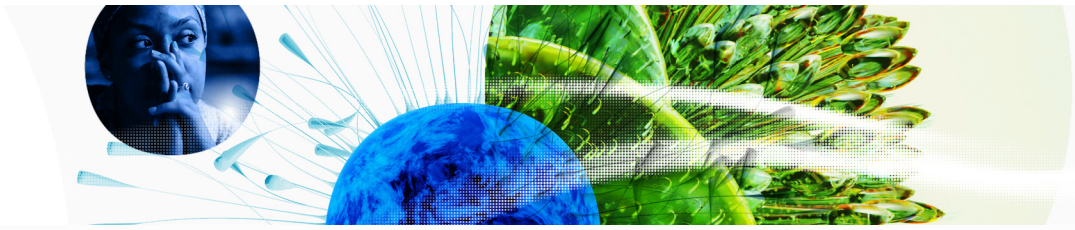




7.3.4 Mobile app creation/bn PPP$ GDP

was equal to 7,308,703.21 Apps/bn PPP$ GDP in 2022, down by 5.56% from the year prior – and equivalent to an indicator rank of 3.

Global Innovation Index 2023



→ Israel's innovation top performers

> 2.3.3 Global corporate R&D investors from Israel

Rank	Firm	Industry	R&D	R&D Growth	R&D Intensity
			[mn EUR]	[%]	[%]
229	TEVA PHARMACEUTICAL INDUSTRIES	Pharmaceuticals & Biotechnology	854	-3	6
300	MARIS-TECH	Technology Hardware & Equipment	623	-10	34
471	WIX.COM	Software & Computer Services	377	33	34
512	ELBIT SYSTEMS	Aerospace & Defence	349	10	7

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2022-eu-industrial-rd-investment-scoreboard).
Note: European Commission's Joint Research Centre ranks the top 2,500 firms by R&D investment annually.

> 2.3.4 QS university ranking of Israel's top universities

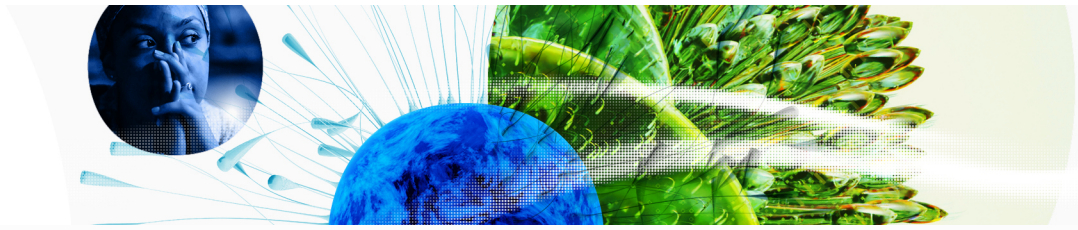
Rank	University	Score
222	HEBREW UNIVERSITY OF JERUSALEM	41.50
260	TEL AVIV UNIVERSITY	37.90
408	TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY	27.90

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2023).
Note: QS Quacquarelli Symonds Ltd annually assesses over 1,200 universities across the globe and scores them between [0,100]. Ranks can represent a single value "x", a tie "x=" or a range "x-y".

> 6.2.2 Top Unicorn Companies in Israel

Rank	Unicorn Company	Industry	City	Valuation, bn USD
1	WIZ	Cybersecurity	Tel Aviv	10
2	STARKWARE	Cybersecurity	Netanya	8
3	MOON ACTIVE	Mobile & telecommunications	Tel Aviv	5

Source: CBInsights, Tracker – The Complete List of Unicorn Companies: https://www.cbinsights.com/research-unicorn-companies



> 7.1.1 Top 15 intangible-asset intensive companies in Israel

Rank	Firm	Intensity, %
1	TEVA PHARMACEUTICAL INDUSTRIES LTD	87.19
2	CHECK POINT SOFTWARE TECHNOLOGIES LTD	65.79
3	SOLAREDGE TECHNOLOGIES INC	84.05

Source: Brand Finance (https://brandirectory.com/reports/gift-2022).
Note: Brand Finance only provides within economy ranks.

> 7.1.3 Top 5,000 companies in Israel with highest global brand value

Rank	Brand	Industry	Brand Value, mn USD
1	BANK LEUMI	Banking	1,738.7
2	BANK HAPOALIM	Banking	1,675.6
3	MIZRAHI-TEFAHOT BANK	Banking	1,156.2

Source: Brand Finance (https://brandirectory.com).
Note: Rank corresponds to within economy ranks.

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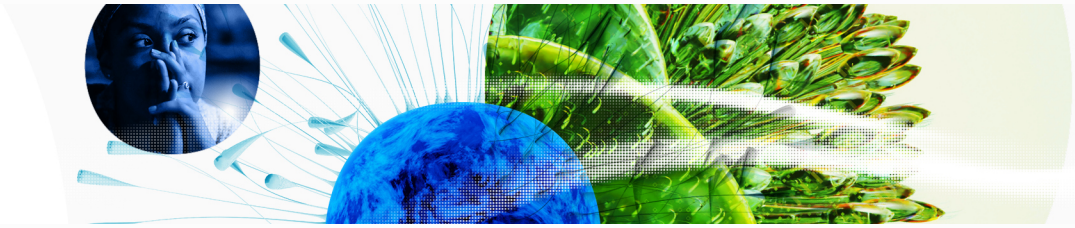

Israel

GII 2023 rank **14**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
13	21	High	NAWA	9.0	496.8	52,173.1

	Score / Value	Rank	
Institutions	**62.6**	**40**	◇
1.1 Institutional environment	**63.6**	**36**	◇
1.1.1 Operational stability for businesses*	54.9	61	○ ◇
1.1.2 Government effectiveness*	72.4	23	
1.2 Regulatory environment	**65.9**	**57**	◇
1.2.1 Regulatory quality*	73.5	26	
1.2.2 Rule of law*	67.3	29	◇
1.2.3 Cost of redundancy dismissal	27.4	114	○ ◇
1.3 Business environment	**58.1**	**38**	
1.3.1 Policies for doing business†	59.9	39	◇
1.3.2 Entrepreneurship policies and culture†	56.2	26	
Human capital and research	**52.5**	**20**	
2.1 Education	**57.3**	**48**	◇
2.1.1 Expenditure on education, % GDP	6.1	17	
2.1.2 Government funding/pupil, secondary, % GDP/cap	19.6	56	○
2.1.3 School life expectancy, years	16.1	35	
2.1.4 PISA scales in reading, maths and science	465.2	39	○ ◇
2.1.5 Pupil-teacher ratio, secondary	14.1	71	○ ◇
2.2 Tertiary education	**33.2**	**57**	
2.2.1 Tertiary enrolment, % gross	61.1	52	
2.2.2 Graduates in science and engineering, %	26.9	34	
2.2.3 Tertiary inbound mobility, %	3.4	61	○ ◇
2.3 Research and development (R&D)	**66.9**	**8**	
2.3.1 Researchers, FTE/mn pop.	n/a	n/a	
2.3.2 Gross expenditure on R&D, % GDP	5.6	1	●
2.3.3 Global corporate R&D investors, top 3, mn US$	64.4	21	
2.3.4 QS university ranking, top 3*	36.2	36	
Infrastructure	**54.2**	**36**	◇
3.1 Information and communication technologies (ICTs)	**82.6**	**30**	
3.1.1 ICT access*	84.1	58	○
3.1.2 ICT use*	89.5	23	
3.1.3 Government's online service*	86.1	21	
3.1.4 E-participation*	70.9	37	
3.2 General infrastructure	**43.9**	**27**	
3.2.1 Electricity output, GWh/mn pop.	7,896.6	21	
3.2.2 Logistics performance*	68.2	25	◇
3.2.3 Gross capital formation, % GDP	26.1	44	
3.3 Ecological sustainability	**36.1**	**39**	
3.3.1 GDP/unit of energy use	17.0	16	
3.3.2 Environmental performance*	49.7	46	◇
3.3.3 ISO 14001 environment/bn PPP$ GDP	2.0	46	
Market sophistication	**59.0**	**11**	
4.1 Credit	**45.7**	**33**	
4.1.1 Finance for startups and scaleups†	66.8	22	
4.1.2 Domestic credit to private sector, % GDP	67.6	54	◇
4.1.3 Loans from microfinance institutions, % GDP	n/a	n/a	
4.2 Investment	**68.3**	**5**	
4.2.1 Market capitalization, % GDP	57.4	31	
4.2.2 Venture capital (VC) investors, deals/bn PPP$ GDP	0.9	8	
4.2.3 VC recipients, deals/bn PPP$ GDP	0.7	1	●
4.2.4 VC received, value, % GDP	0.0	1	●
4.3 Trade, diversification, and market scale	**63.1**	**42**	
4.3.1 Applied tariff rate, weighted avg., %	1.9	58	○
4.3.2 Domestic industry diversification	90.6	46	
4.3.3 Domestic market scale, bn PPP$	496.8	48	

	Score / Value	Rank	
Business sophistication	**65.1**	**6**	
5.1 Knowledge workers	**64.9**	**14**	
5.1.1 Knowledge-intensive employment, %	51.9	7	
5.1.2 Firms offering formal training, %	18.6	84	
5.1.3 GERD performed by business, % GDP	5.1	1	●
5.1.4 GERD financed by business, %	40.0	43	◇
5.1.5 Females employed w/advanced degrees, %	24.2	21	
5.2 Innovation linkages	**89.6**	**1**	
5.2.1 University-industry R&D collaboration†	100.0	1	●
5.2.2 State of cluster development†	56.2	37	◇
5.2.3 GERD financed by abroad, % GDP	2.9	1	●
5.2.4 Joint venture/strategic alliance deals/bn PPP$ GDP	0.3	3	●
5.2.5 Patent families/bn PPP$ GDP	4.9	7	
5.3 Knowledge absorption	**40.8**	**42**	◇
5.3.1 Intellectual property payments, % total trade	0.9	41	
5.3.2 High-tech imports, % total trade	10.2	34	
5.3.3 ICT services imports, % total trade	2.2	28	
5.3.4 FDI net inflows, % GDP	4.8	23	
5.3.5 Research talent, % in businesses	n/a	n/a	
Knowledge and technology outputs	**61.6**	**5**	
6.1 Knowledge creation	**60.0**	**10**	
6.1.1 Patents by origin/bn PPP$ GDP	3.6	22	
6.1.2 PCT patents by origin/bn PPP$ GDP	4.0	1	●
6.1.3 Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4 Scientific and technical articles/bn PPP$ GDP	n/a	n/a	
6.1.5 Citable documents H-index	46.7	16	
6.2 Knowledge impact	**58.4**	**5**	
6.2.1 Labor productivity growth, %	2.4	25	
6.2.2 Unicorn valuation, % GDP	9.6	1	●
6.2.3 Software spending, % GDP	0.2	68	○ ◇
6.2.4 High-tech manufacturing, %	38.0	29	
6.3 Knowledge diffusion	**66.4**	**2**	
6.3.1 Intellectual property receipts, % total trade	1.2	19	
6.3.2 Production and export complexity	76.5	21	
6.3.3 High-tech exports, % total trade	12.3	12	
6.3.4 ICT services exports, % total trade	19.2	1	●
6.3.5 ISO 9001 quality/bn PPP$ GDP	20.5	12	
Creative outputs	**38.3**	**33**	◇
7.1 Intangible assets	**31.9**	**65**	◇
7.1.1 Intangible asset intensity, top 15, %	66.8	25	
7.1.2 Trademarks by origin/bn PPP$ GDP	11.6	107	○ ◇
7.1.3 Global brand value, top 5,000	2.4	44	◇
7.1.4 Industrial designs by origin/bn PPP$ GDP	1.4	54	
7.2 Creative goods and services	**38.5**	**13**	
7.2.1 Cultural and creative services exports, % total trade	3.2	5	●
7.2.2 National feature films/mn pop. 15-69	5.5	21	
7.2.3 Entertainment and media market/th pop. 15-69	37.7	21	
7.2.4 Creative goods exports, % total trade	1.5	37	
7.3 Online creativity	**50.9**	**24**	
7.3.1 Generic top-level domains (TLDs)/th pop. 15-69	23.4	28	◇
7.3.2 Country-code TLDs/th pop. 15-69	14.5	33	◇
7.3.3 GitHub commits/mn pop. 15-69	78.7	6	
7.3.4 Mobile app creation/bn PPP$ GDP	87.2	3	●

NOTES: ● indicates a strength; ○ a weakness; ◆ an income group strength; ◇ an income group weakness; * an index; † a survey question, ◔ indicates that the economy's data are older than the base year; see appendices for details, including the year of the data, at https://www.wipo.int/gii-ranking. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

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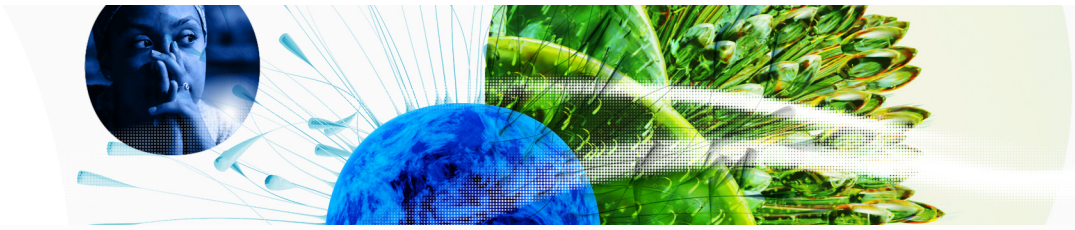

→ Data availability

The following tables list indicators that are either missing or outdated for Israel.

> Israel has missing data for four indicators and outdated data for seven indicators.

> Missing data for Israel

Code	Indicator name	Economy Year	Model Year	Source
2.3.1	Researchers, FTE/mn pop.	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
4.1.3	Loans from microfinance institutions, % GDP	n/a	2021	International Monetary Fund, Financial Access Survey (FAS)
5.3.5	Research talent, % in businesses	n/a	2021	UNESCO Institute for Statistics; Eurostat; OECD; RICYT
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	2021	World Intellectual Property Organization; International Monetary Fund

> Outdated data for Israel

Code	Indicator name	Economy Year	Model Year	Source
2.1.1	Expenditure on education, % GDP	2019	2021	UNESCO Institute for Statistics
4.3.1	Applied tariff rate, weighted avg., %	2017	2020	World Bank
4.3.2	Domestic industry diversification	2019	2020	United Nations Industrial Development Organization
5.1.1	Knowledge-intensive employment, %	2021	2022	International Labour Organization
5.1.2	Firms offering formal training, %	2013	2019	World Bank Enterprise Surveys
5.1.5	Females employed w/advanced degrees, %	2021	2022	International Labour Organization
6.2.4	High-tech manufacturing, %	2019	2020	United Nations Industrial Development Organization

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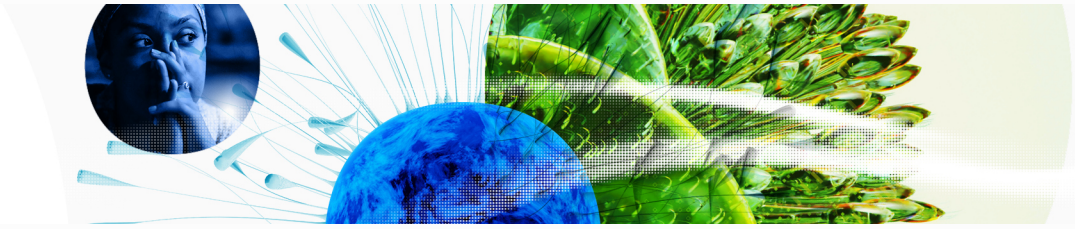

About the Global Innovation Index

- The Global Innovation Index (GII) is published by the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations.
- Recognizing that innovation is a key driver of economic development, the GII aims to provide an innovation ranking and rich analysis referencing around 130 economies. Over the last decade, the GII has established itself as both a leading reference on innovation and a "tool for action" for economies that incorporate the GII into their innovation agendas.

Source: Global Innovation Index Database, WIPO, 2023.

The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that include institutions, human capital and research, infrastructure, credit, investment, linkages; the creation, absorption and diffusion of knowledge; and creative outputs.

The GII has two sub-indices: the Innovation Input Sub-Index and the Innovation Output Sub-Index, and seven pillars, each consisting of three sub-pillars.