Global Innovation Index 2021

IRELAND

19th Ireland ranks 19th among the 132 economies featured in the GII 2021.

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.

The following table shows the rankings of Ireland over the past three years, noting that 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 Ireland in the GII 2021 is between ranks 16 and 20.

Rankings for Ireland (2019–2021)

	GII	Innovation inputs	Innovation outputs
2021	19	22	19
2020	15	20	11
2019	12	20	10

- Ireland performs better in innovation outputs than innovation inputs in 2021.
- This year Ireland ranks 22nd in innovation inputs, lower than both 2020 and 2019.
- As for innovation outputs, Ireland ranks 19th. This position is lower than both 2020 and 2019.

18th Ireland ranks 18th among the 51 high-income group economies.

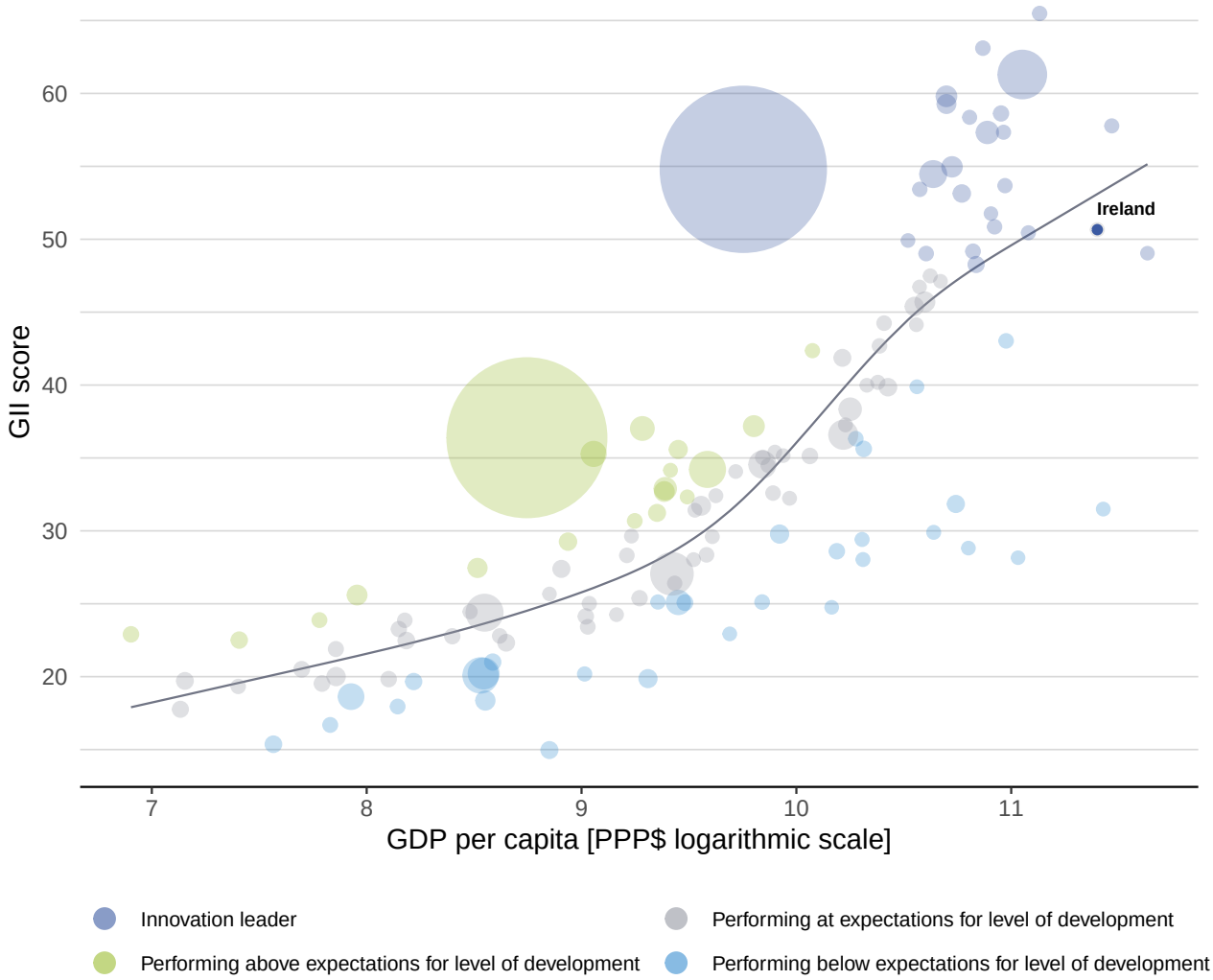
11th Ireland ranks 11th among the 39 economies in Europe.

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.

Relative to GDP, Ireland's performance is above expectations for its level of development.

The positive relationship between innovation and development

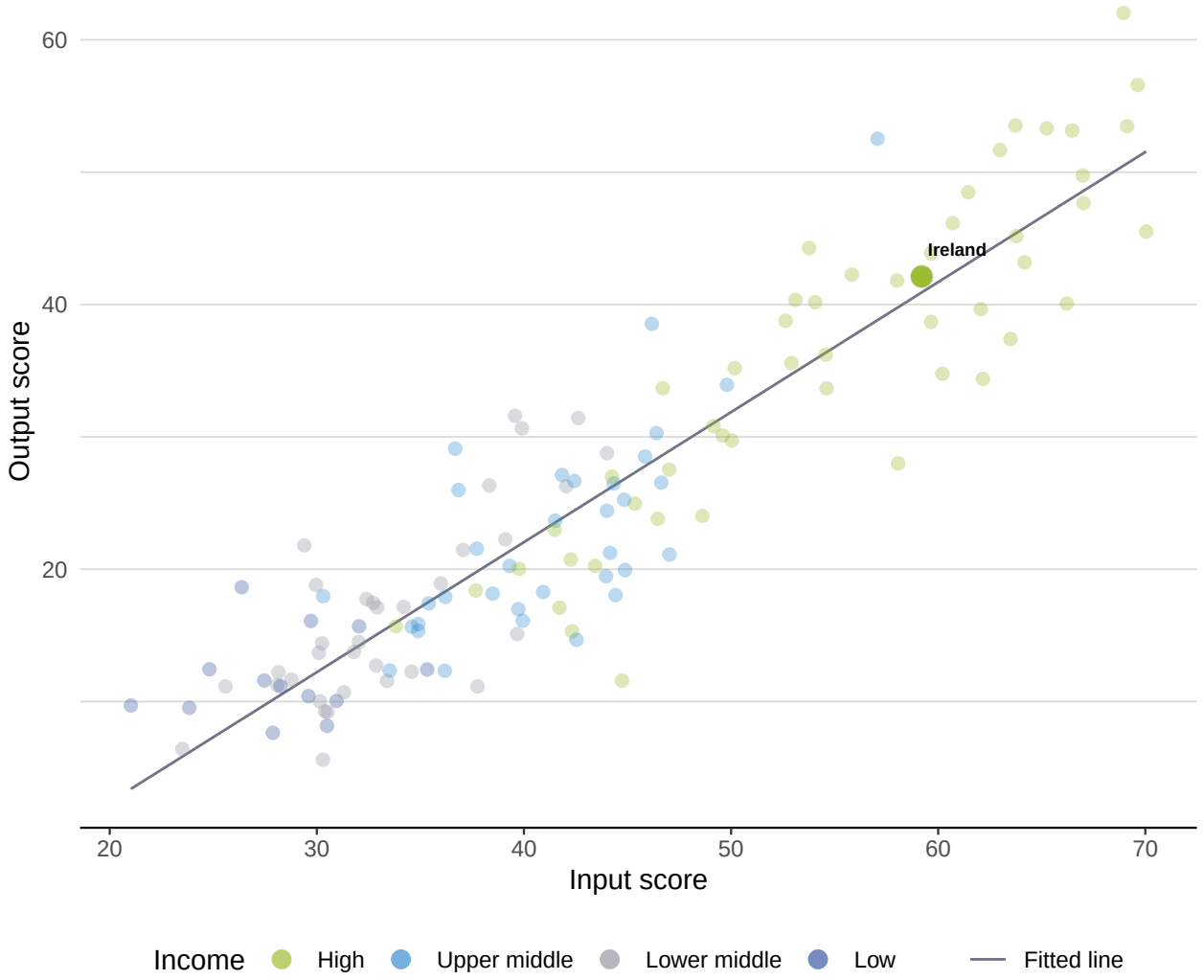


EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

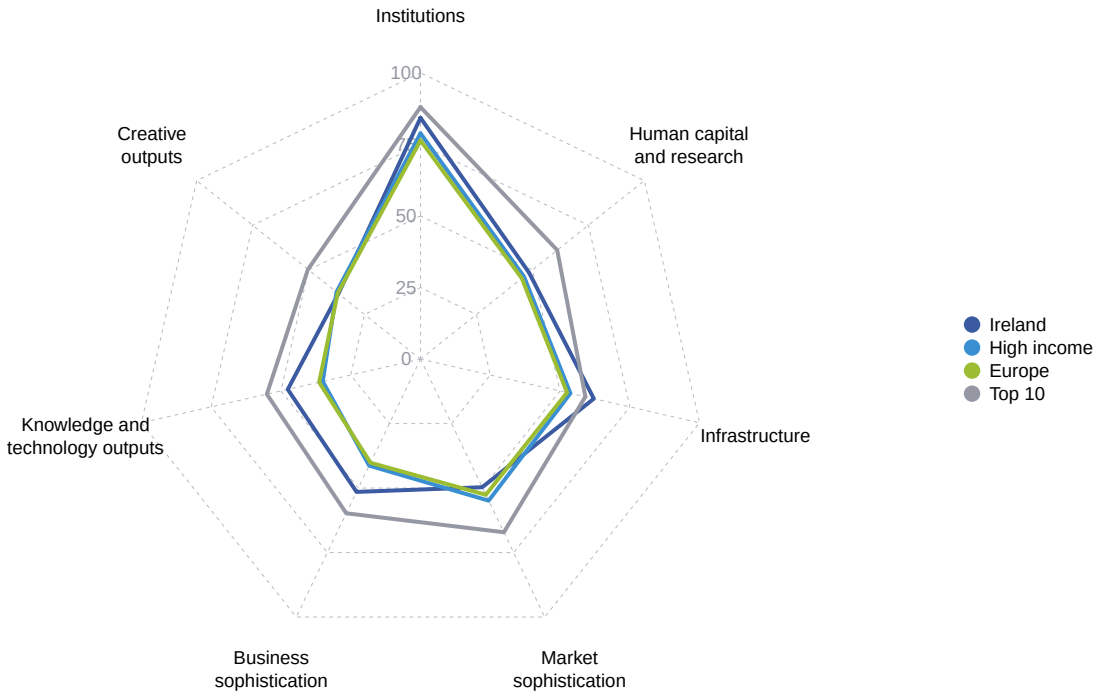
Ireland produces more innovation outputs relative to its level of innovation investments.

Innovation input to output performance



BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

The seven GII pillar scores for Ireland



High-income group economies

Ireland performs above the high-income group average in five pillars, namely: Institutions; Human capital and research; Infrastructure; Business sophistication; and, Knowledge and technology outputs.

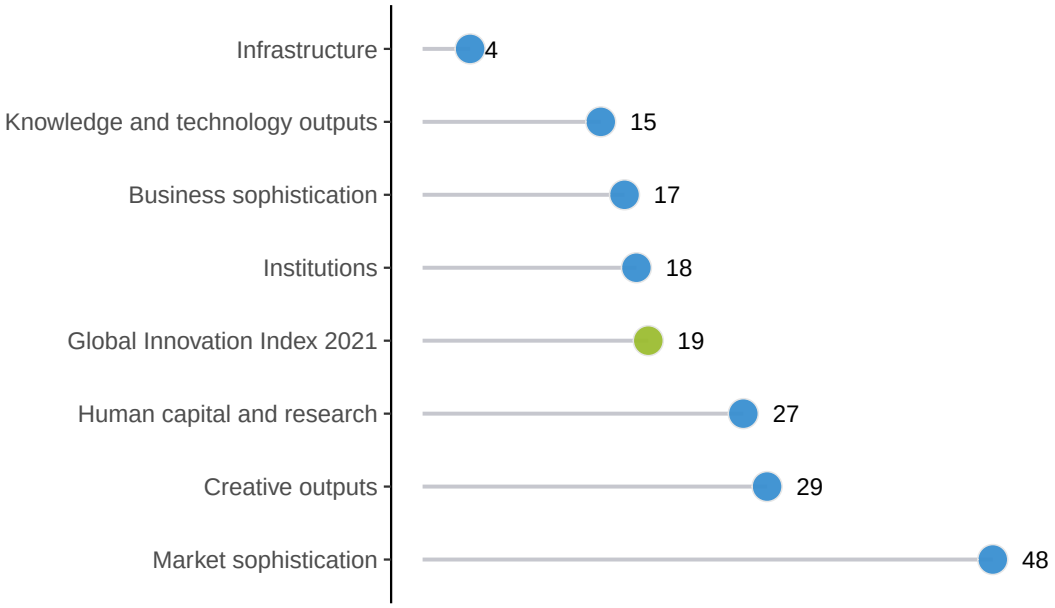
Europe

Ireland performs above the regional average in five pillars, namely: Institutions; Human capital and research; Infrastructure; Business sophistication; and, Knowledge and technology outputs.

OVERVIEW OF RANKINGS IN THE SEVEN GII 2021 AREAS

Ireland performs best in Infrastructure and its weakest performance is in Market sophistication.

The seven GII pillar ranks for Ireland



Note: The highest possible ranking in each pillar is one.

INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the strengths and weaknesses of Ireland in the GII 2021.

Strengths and weaknesses for Ireland

Strengths			Weaknesses		
Code	**Indicator name**	**Rank**	**Code**	**Indicator name**	**Rank**
2.1.3	School life expectancy, years	2	2.1	Education	69
2.3.3	Global corporate R&D investors, top 3, mn US$	12	2.1.1	Expenditure on education, % GDP	86
3.3	Ecological sustainability	1	2.1.2	Government funding/pupil, secondary, % GDP/cap	89
3.3.1	GDP/unit of energy use	2	4.1	Credit	62
5.1.5	Females employed w/advanced degrees, %	9	4.1.2	Domestic credit to private sector, % GDP	85
5.3	Knowledge absorption	5	4.2.2	Market capitalization, % GDP	39
5.3.1	Intellectual property payments, % total trade	1	4.3	Trade, diversification, and market scale	81
5.3.4	FDI net inflows, % GDP	12	4.3.2	Domestic industry diversification	106
6.2	Knowledge impact	10	5.3.3	ICT services imports, % total trade	61
6.2.3	Software spending, % GDP	3	6.1.3	Utility models by origin/bn PPP$ GDP	48
6.2.5	High-tech manufacturing, %	6	6.2.1	Labor productivity growth, %	92
6.3	Knowledge diffusion	1	7.1.3	Industrial designs by origin/bn PPP$ GDP	63
6.3.1	Intellectual property receipts, % total trade	7	7.2.4	Printing and other media, % manufacturing	95
6.3.4	ICT services exports, % total trade	1			
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	12			

Ireland

GII 2021 rank **19**

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
19	22	High	EUR	4.9	447.7	89,383	15

		Score/ Value	Rank	
Institutions		**84.3**	**18**	
1.1	**Political environment**	**80.1**	**20**	
1.1.1	Political and operational stability*	82.1	24	
1.1.2	Government effectiveness*	79.1	24	
1.2	**Regulatory environment**	**85.9**	**18**	
1.2.1	Regulatory quality*	85.4	14	
1.2.2	Rule of law*	83.5	20	
1.2.3	Cost of redundancy dismissal	14.3	54	
1.3	**Business environment**	**86.8**	**13**	
1.3.1	Ease of starting a business*	94.4	21	
1.3.2	Ease of resolving insolvency*	79.2	18	
Human capital and research		**48.5**	**27**	
2.1	**Education**	**49.2**	**69**	○ ◇
2.1.1	Expenditure on education, % GDP	3.5	86	○ ◇
2.1.2	Government funding/pupil, secondary, % GDP/cap	11.0	89	○ ◇
2.1.3	School life expectancy, years	19.8	2	● ◆
2.1.4	PISA scales in reading, maths and science	504.6	10	
2.1.5	Pupil-teacher ratio, secondary	n/a	n/a	
2.2	**Tertiary education**	**43.7**	**27**	
2.2.1	Tertiary enrolment, % gross	77.3	23	
2.2.2	Graduates in science and engineering, %	24.1	45	
2.2.3	Tertiary inbound mobility, %	9.6	23	
2.3	**Research and development (R&D)**	**52.5**	**20**	
2.3.1	Researchers, FTE/mn pop.	5,282.4	15	
2.3.2	Gross expenditure on R&D, % GDP	1.2	32	◇
2.3.3	Global corporate R&D investors, top 3, mn US$	75.0	12	●
2.3.4	QS university ranking, top 3*	47.5	22	
Infrastructure		**62.1**	**4**	● ◆
3.1	**Information and communication technologies (ICTs)**	**81.1**	**28**	
3.1.1	ICT access*	83.3	24	
3.1.2	ICT use*	78.1	27	
3.1.3	Government's online service*	77.1	47	◇
3.1.4	E-participation*	85.7	29	
3.2	**General infrastructure**	**44.8**	**19**	
3.2.1	Electricity output, GWh/mn pop.	6,226.4	33	
3.2.2	Logistics performance*	67.9	28	◇
3.2.3	Gross capital formation, % GDP	32.9	18	◆
3.3	**Ecological sustainability**	**60.4**	**1**	● ◆
3.3.1	GDP/unit of energy use	30.8	2	● ◆
3.3.2	Environmental performance*	72.8	16	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	2.2	37	
Market sophistication		**49.7**	**48**	◇
4.1	**Credit**	**41.8**	**62**	○ ◇
4.1.1	Ease of getting credit*	70.0	44	
4.1.2	Domestic credit to private sector, % GDP	37.0	85	○ ◇
4.1.3	Microfinance gross loans, % GDP	n/a	n/a	
4.2	**Investment**	**43.7**	**27**	
4.2.1	Ease of protecting minority investors*	80.0	13	◆
4.2.2	Market capitalization, % GDP	37.4	39	○ ◇
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.2	15	
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.1	13	
4.3	**Trade, diversification, and market scale**	**63.5**	**81**	○ ◇
4.3.1	Applied tariff rate, weighted avg., %	1.8	25	
4.3.2	Domestic industry diversification	53.6	106	○ ◇
4.3.3	Domestic market scale, bn PPP$	447.7	44	

		Score/ Value	Rank	
Business sophistication		**51.5**	**17**	
5.1	**Knowledge workers**	**55.8**	**22**	
5.1.1	Knowledge-intensive employment, %	43.8	20	
5.1.2	Firms offering formal training, %	n/a	n/a	
5.1.3	GERD performed by business, % GDP	0.9	23	
5.1.4	GERD financed by business, %	51.7	26	
5.1.5	Females employed w/advanced degrees, %	26.2	9	●
5.2	**Innovation linkages**	**42.0**	**22**	
5.2.1	University-industry R&D collaboration†	64.8	15	
5.2.2	State of cluster development and depth†	57.3	31	
5.2.3	GERD financed by abroad, % GDP	0.3	11	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	21	
5.2.5	Patent families/bn PPP$ GDP	2.0	22	
5.3	**Knowledge absorption**	**56.7**	**5**	●
5.3.1	Intellectual property payments, % total trade	20.6	1	● ◆
5.3.2	High-tech imports, % total trade	7.9	60	
5.3.3	ICT services imports, % total trade	1.2	61	○
5.3.4	FDI net inflows, % GDP	7.7	12	●
5.3.5	Research talent, % in businesses	50.0	24	
Knowledge and technology outputs		**47.6**	**15**	
6.1	**Knowledge creation**	**23.3**	**43**	◇
6.1.1	Patents by origin/bn PPP$ GDP	2.1	35	◇
6.1.2	PCT patents by origin/bn PPP$ GDP	1.8	21	
6.1.3	Utility models by origin/bn PPP$ GDP	0.2	48	○
6.1.4	Scientific and technical articles/bn PPP$ GDP	21.4	41	◇
6.1.5	Citable documents H-index	34.9	27	
6.2	**Knowledge impact**	**46.8**	**10**	●
6.2.1	Labor productivity growth, %	–1.3	92	○
6.2.2	New businesses/th pop. 15–64	7.1	23	
6.2.3	Software spending, % GDP	0.6	3	●
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	5.7	50	
6.2.5	High-tech manufacturing, %	58.5	6	●
6.3	**Knowledge diffusion**	**72.6**	**1**	● ◆
6.3.1	Intellectual property receipts, % total trade	2.9	7	● ◆
6.3.2	Production and export complexity	75.3	17	
6.3.3	High-tech exports, % total trade	8.5	20	
6.3.4	ICT services exports, % total trade	27.3	1	● ◆
Creative outputs		**36.7**	**29**	◇
7.1	**Intangible assets**	**37.2**	**46**	◇
7.1.1	Trademarks by origin/bn PPP$ GDP	n/a	n/a	
7.1.2	Global brand value, top 5,000, % GDP	59.3	32	
7.1.3	Industrial designs by origin/bn PPP$ GDP	1.2	63	○
7.1.4	ICTs and organizational model creation†	70.8	20	
7.2	**Creative goods and services**	**22.2**	**44**	◇
7.2.1	Cultural and creative services exports, % total trade	0.5	51	
7.2.2	National feature films/mn pop. 15–69	8.9	23	
7.2.3	Entertainment and media market/th pop. 15–69	52.1	14	
7.2.4	Printing and other media, % manufacturing	0.4	95	○
7.2.5	Creative goods exports, % total trade	1.4	38	
7.3	**Online creativity**	**50.0**	**22**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	58.8	12	●
7.3.2	Country-code TLDs/th pop. 15–69	27.0	25	
7.3.3	Wikipedia edits/mn pop. 15–69	75.9	20	
7.3.4	Mobile app creation/bn PPP$ GDP	34.9	13	

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 Appendix IV for details, including the year of the data, at http://globalinnovationindex.org. Square brackets [ ] indicate that the data minimum coverage (DMC) requirements were not met at the sub-pillar or pillar level.

DATA AVAILABILITY

The following tables list data that are either missing or outdated for Ireland.

Missing data for Ireland

Code	Indicator name	Economy year	Model year	Source
2.1.5	Pupil-teacher ratio, secondary	n/a	2019	UNESCO Institute for Statistics
4.1.3	Microfinance gross loans, % GDP	n/a	2018	Microfinance Information Exchange
5.1.2	Firms offering formal training, %	n/a	2019	World Bank
7.1.1	Trademarks by origin/bn PPP$ GDP	n/a	2019	World Intellectual Property Organization

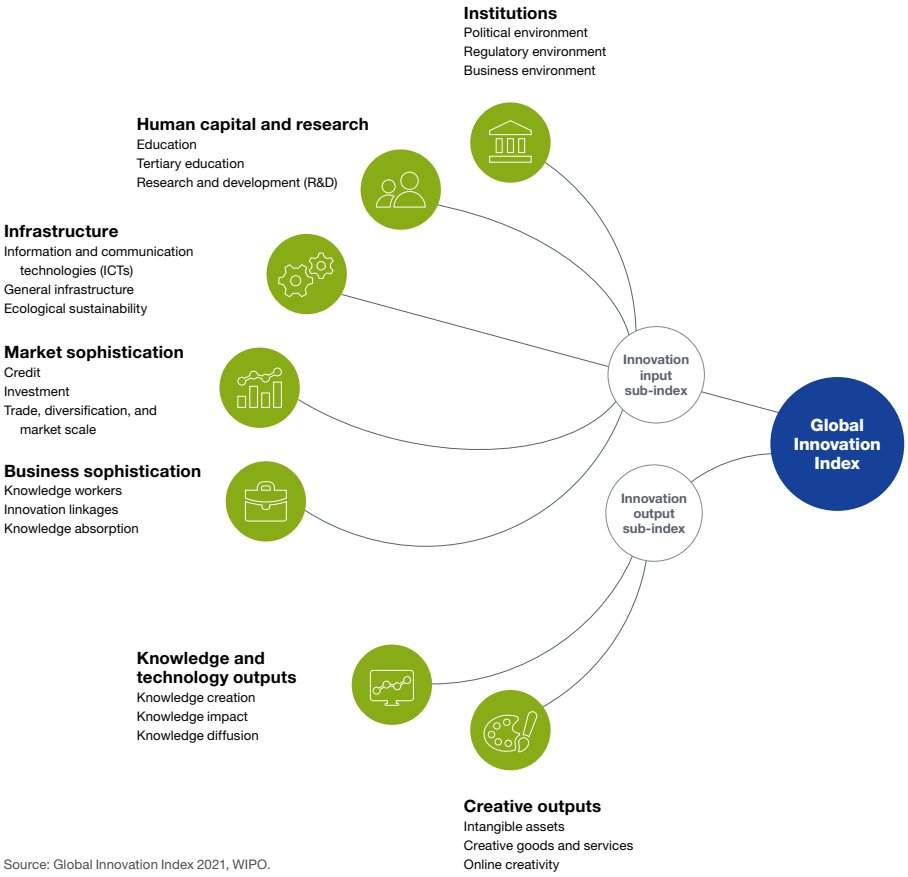
Outdated data for Ireland

Code	Indicator name	Economy year	Model year	Source
4.2.2	Market capitalization, % GDP	2018	2019	World Federation of Exchanges
6.2.5	High-tech manufacturing, %	2014	2018	United Nations Industrial Development Organization
7.2.2	National feature films/mn pop. 15–69	2016	2017	UNESCO Institute for Statistics

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 2021, WIPO.

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.