# GLOBAL INNOVATION INDEX 2019

# FRANCE

**16th** France ranks 16th among the 129 economies featured in the GII 2019.

The Global Innovation Index (GII) is a ranking of world economies based on 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 France over the past three years, noting that data availability and the GII model influence year-on-year comparisons of the GII ranks. The confidence interval for France's ranking in the GII 2019 is between 14 and 16.

**France's Rankings, 2017 - 2019**

| | GII | Innovation Inputs | Innovation Outputs |
|---|---|---|---|
| **2019** | 16 | 16 | 14 |
| **2018** | 16 | 16 | 16 |
| **2017** | 15 | 15 | 18 |

- France performs better in Innovation Outputs than Inputs in 2019.
- This year France ranks 16th in Innovation Inputs, the same as last year and worse compared to 2017.
- As for Innovation Outputs, France ranks 14th. This position is better than last year and compared to 2017.

**15th** France ranks 15th among the 50 high-income economies.

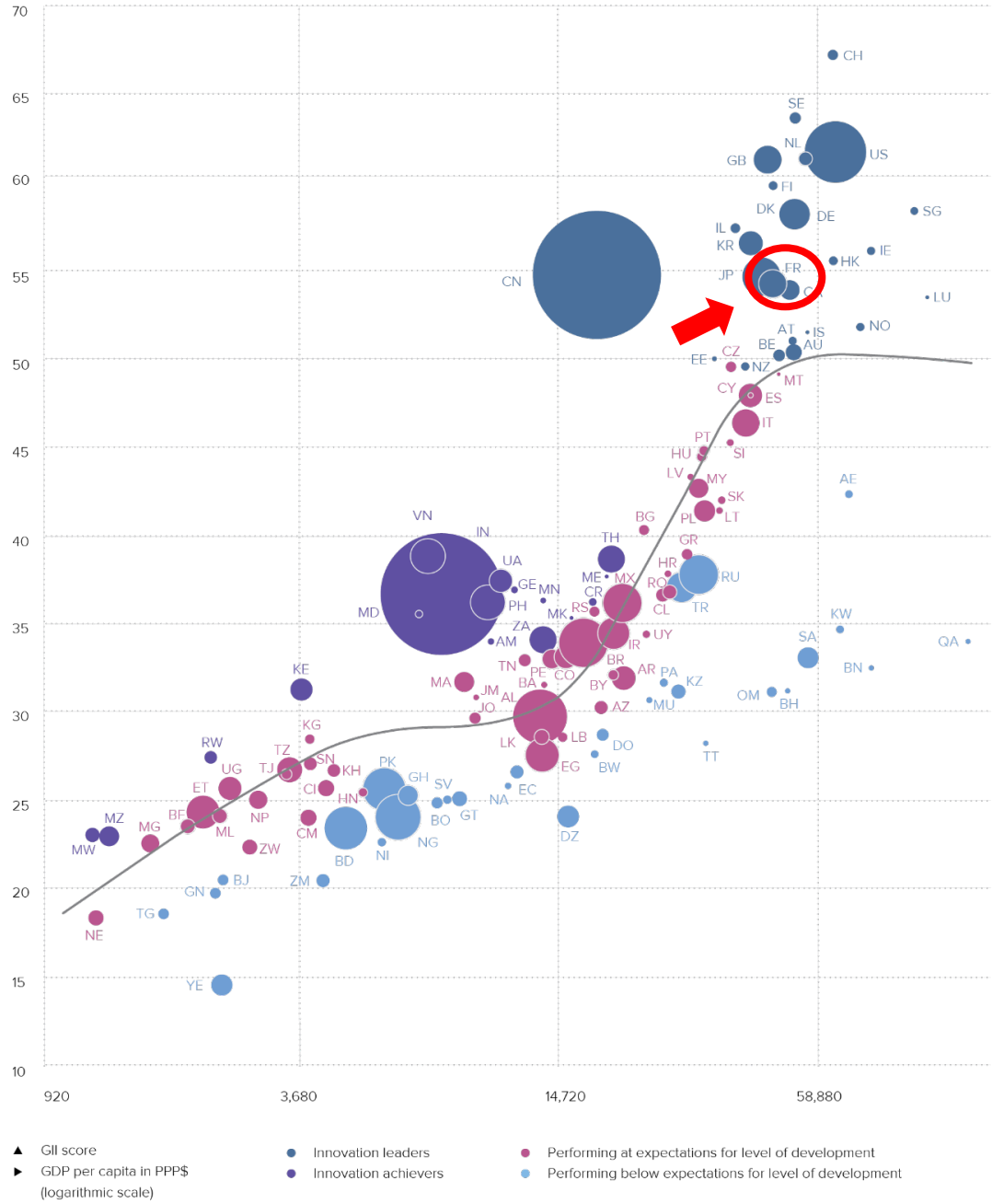
**9th** France ranks 9th among the 39 economies in Europe.

# 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 considered Innovation under-performers relative to GDP.

Relative to GDP, France performs above its expected level of development.

**GII scores and GDP per capita in PPP US$**
**(bubbles sized by population)**

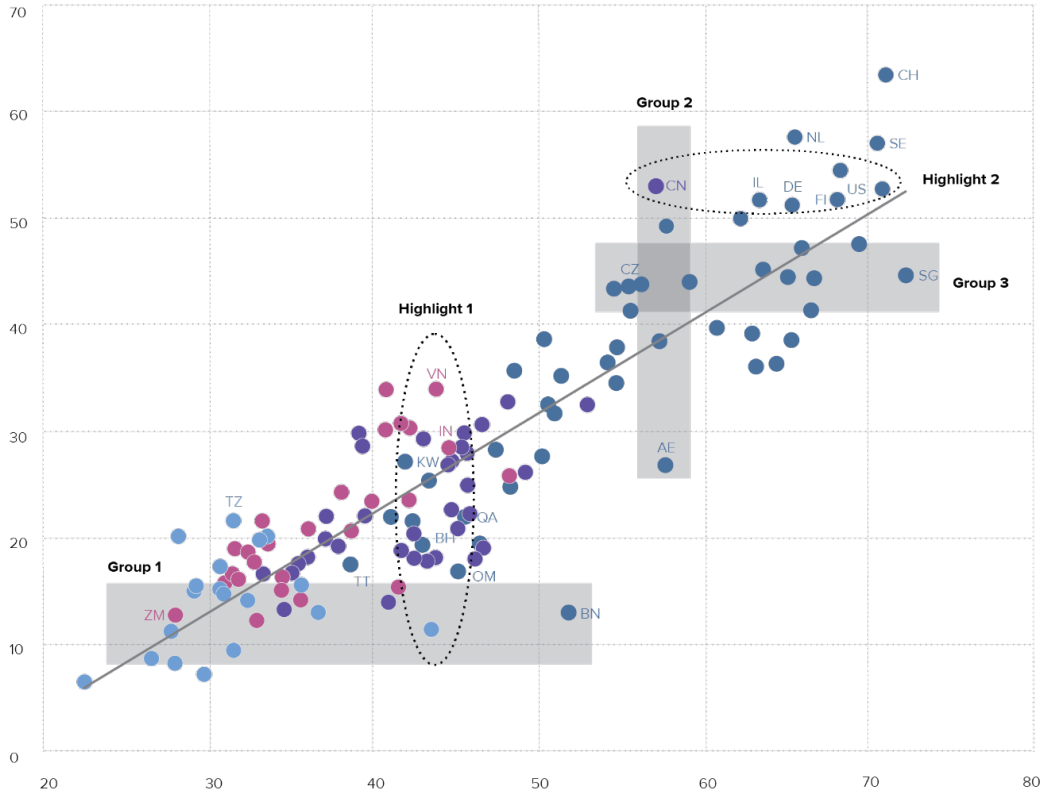


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

The chart below shows the relationship between innovation inputs and innovation outputs, indicating which economies best translate innovation inputs into innovation outputs. Economies appearing above the line are effectively translating their costly innovation investments into more and higher-quality outputs. In contrast, those below the line are not effectively translating innovation inputs into outputs.

France produces slightly more innovation outputs relative to its level of innovation investments.

**Innovation input/output performance by income group, 2019**




▲ Output score
▶ Input score

● High income
● Upper-middle income

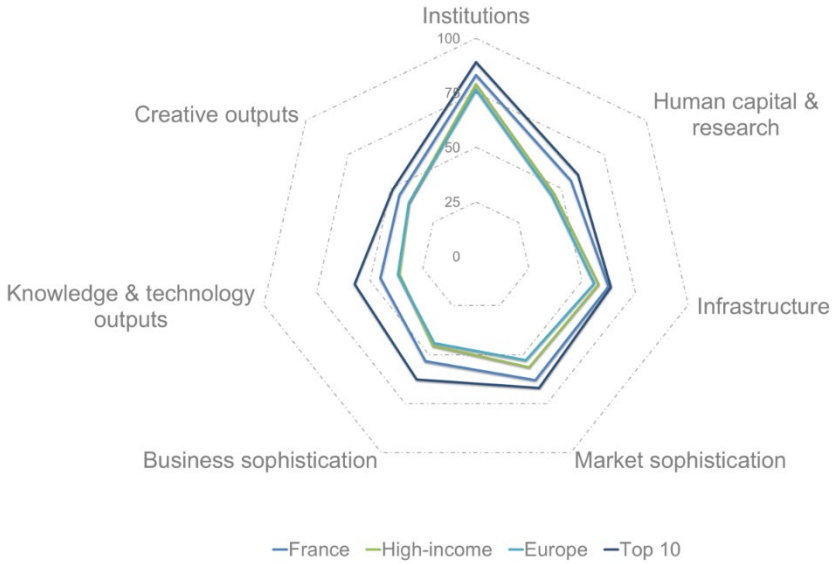
● Lower-middle income
● Low income

— Fitted values

| | | | |
|---|---|---|---|
| AE United Arab Emirates | CZ Czech Republic | NL Netherlands | TZ United Republic of Tanzania |
| BH Bahrain | DE Germany | OM Oman | US United States of America |
| BN Brunei Darussalam | FI Finland | QA Qatar | VN Viet Nam |
| CH Switzerland | IL Israel | SE Sweden | ZM Zambia |
| CN China | IN India | SG Singapore | |
| | KW Kuwait | TT Trinidad and Tobago | |

# BENCHMARKING FRANCE TO OTHER HIGH-INCOME ECONOMIES AND THE EUROPE REGION

**France's scores in the seven GII pillars**




**High-income economies**

France has high scores in all the seven GII pillars, which are above the average of the high-income group.

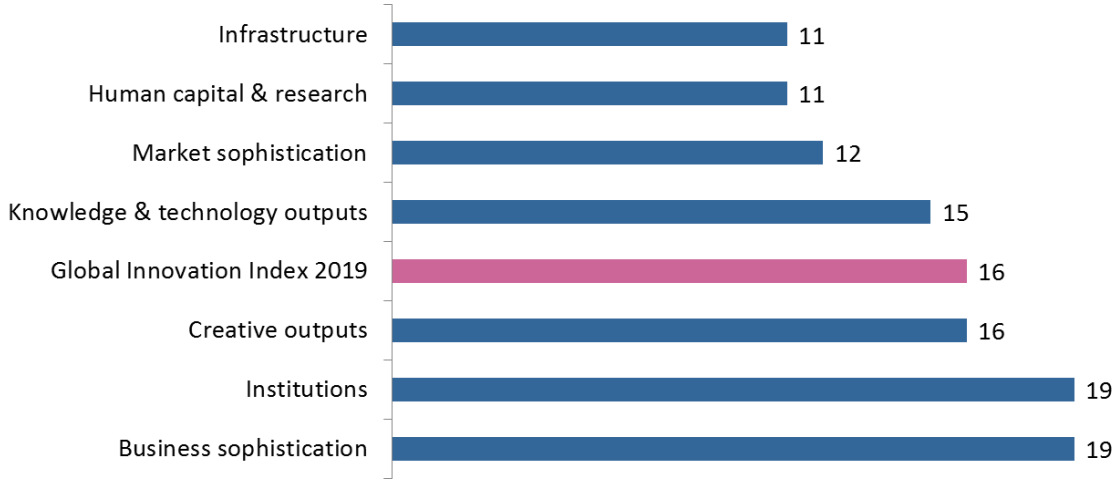
**Europe Region**

Compared to other economies in the Europe region, France performs above average in all the seven GII pillars.

Top ranks are found in sub-pillars Research and development (R&D), Information & communication technologies (ICTs), Trade, competition, & market scale, Knowledge workers, Knowledge diffusion, and Intangible assets where the country ranks in the top 15 worldwide.

## OVERVIEW OF FRANCE'S RANKINGS IN THE 7 GII AREAS

France performs the best in Infrastructure and Human capital & research while its weakest performance is in Institutions and Business sophistication.




*The highest possible ranking in each pillar is 1.

## FRANCE'S INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of France's strengths and weaknesses in the GII 2019.

### Strengths

| Code | Indicator name | Rank |
|---|---|---|
| 2.3.3 | Global R&D companies, top 3, in mn US$ | 7 |
| 2.3.4 | QS university ranking, average score top 3* | 10 |
| 3.1 | Information & communication technologies (ICTs) | 10 |
| 3.1.3 | Government's online service* | 4 |
| 3.3.2 | Environmental performance* | 2 |
| 4.2.3 | Venture capital deals/bn PPP$ GDP | 5 |
| 4.3 | Trade, competition, & market scale | 6 |
| 4.3.2 | Intensity of local competition† | 8 |
| 4.3.3 | Domestic market scale, bn PPP$ | 10 |
| 6.1.5 | Citable documents H index | 5 |
| 6.2.3 | Computer software spending, % GDP | 10 |
| 6.3.2 | High-tech net exports, % total trade | 10 |
| 7.1 | Intangible assets | 10 |

### Weaknesses

| Code | Indicator name | Rank |
|---|---|---|
| 2.1.5 | Pupil-teacher ratio, secondary | 57 |
| 3.2.3 | Gross capital formation, % GDP | 59 |
| 4.1.1 | Ease of getting credit* | 87 |
| 5.2.3 | GERD financed by abroad, % | 51 |
| 5.3.4 | FDI net inflows, % GDP, 3-year average | 85 |
| 6.1.3 | Utility models by origin/bn PPP$ GDP | 57 |
| 6.2.1 | Growth rate of PPP$ GDP/worker, %, 3-year average | 69 |
| 6.2.2 | New businesses/th pop. 15–64 | 52 |
| 6.3.3 | ICT services exports, % total trade | 51 |
| 7.2.4 | Printing & other media, % manufacturing | 61 |

## STRENGTHS

- GII strengths for France are found in five of the seven GII pillars.
- In Human capital & research (11), France's strengths are indicators Global R&D companies (7) and Quality of universities (10).
- In Infrastructure (11), relative strengths of the country are sub-pillar Information & communication technologies (ICTs) (10) and indicators Government's online service (4) and Environmental performance (2).
- In Market sophistication (12), France shows strengths in sub-pillar Trade, competition, & market scale (6) and two of its three indicators - Intensity of local competition (8) and Domestic market scale (10). In this pillar, indicator Venture capital deals (5) is also a relative strength for the country.
- In Knowledge & technology outputs (15), France's strengths are indicators Quality of scientific publications (5), Computer software spending (10), and High-tech exports (10).
- In Creative outputs (16), the sub-pillar Intangible assets (10) is a GII strength for France.

## WEAKNESSES

- France's weaknesses in the GII are found in six of the seven GII pillars.
- In Human capital & research (11), France's weakness is indicator Pupil-teacher ratio (57).
- In Infrastructure (11), a relative weakness is found in indicator Gross capital formation (59).
- In Market sophistication (12), indicator Ease of getting credit (87) is a GII weakness of France.
- In Business sophistication (19), GII weaknesses are found in two indicators: R&D financed by abroad (51) and FDI inflows (85).
- In Knowledge & technology outputs (15), four weaknesses are found in indicators Utility models by origin (57), Productivity growth (69), New businesses (52), and ICT services exports (51).
- In Creative outputs (16), France's only weakness is indicator Printing & other media (61).

# FRANCE

GII 2019 rank

**16**

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP$ | GDP per capita, PPP$ | GII 2018 rank |
|---|---|---|---|---|---|---|---|
| **14** | **16** | **High** | **EUR** | **65.2** | **2,968.5** | **45,775.1** | **16** |

| | | Score/Value | Rank | |
|---|---|---|---|---|
| **INSTITUTIONS** | | **83.2** | **19** | |
| **1.1** | **Political environment** | **80.4** | **22** | |
| 1.1.1 | Political and operational stability* | 82.5 | 32 | ◇ |
| 1.1.2 | Government effectiveness* | 79.3 | 21 | |
| **1.2** | **Regulatory environment** | **85.5** | **20** | |
| 1.2.1 | Regulatory quality* | 73.0 | 26 | |
| 1.2.2 | Rule of law* | 84.4 | 19 | |
| 1.2.3 | Cost of redundancy dismissal, salary weeks | 13.0 | 41 | |
| **1.3** | **Business environment** | **83.7** | **21** | |
| 1.3.1 | Ease of starting a business* | 93.3 | 27 | |
| 1.3.2 | Ease of resolving insolvency* | 74.1 | 26 | |
| **HUMAN CAPITAL & RESEARCH** | | **55.8** | **11** | |
| **2.1** | **Education** | **57.8** | **32** | |
| 2.1.1 | Expenditure on education, % GDP | 5.5 | 27 | |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 26.5 | 19 | ◆ |
| 2.1.3 | School life expectancy, years | 15.5 | 38 | |
| 2.1.4 | PISA scales in reading, maths, & science | 495.7 | 24 | |
| 2.1.5 | Pupil-teacher ratio, secondary 🕘 | 12.9 | 57 | ○ |
| **2.2** | **Tertiary education** | **44.8** | **25** | |
| 2.2.1 | Tertiary enrolment, % gross 🕘 | 64.4 | 37 | |
| 2.2.2 | Graduates in science & engineering, % | 25.6 | 26 | |
| 2.2.3 | Tertiary inbound mobility, % | 9.9 | 20 | |
| **2.3** | **Research & development (R&D)** | **64.6** | **11** | |
| 2.3.1 | Researchers, FTE/mn pop | 4,441.1 | 18 | |
| 2.3.2 | Gross expenditure on R&D, % GDP | 2.2 | 12 | |
| 2.3.3 | Global R&D companies, avg. exp. top 3, mn US$ | 87.8 | 7 | ● |
| 2.3.4 | QS university ranking, average score top 3* | 69.3 | 10 | ● |
| **INFRASTRUCTURE** | | **62.3** | **11** | |
| **3.1** | **Information & communication technologies(ICTs)** | **89.6** | **10** | ● |
| 3.1.1 | ICT access* | 83.4 | 16 | |
| 3.1.2 | ICT use* | 80.3 | 14 | |
| 3.1.3 | Government's online service* | 97.9 | 4 | ● |
| 3.1.4 | E-participation* | 96.6 | 13 | |
| **3.2** | **General infrastructure** | **47.5** | **29** | |
| 3.2.1 | Electricity output, kWh/mn pop | 8,177.3 | 20 | |
| 3.2.2 | Logistics performance* | 83.3 | 16 | |
| 3.2.3 | Gross capital formation, % GDP | 23.7 | 59 | ○ |
| **3.3** | **Ecological sustainability** | **49.9** | **31** | |
| 3.3.1 | GDP/unit of energy use | 10.3 | 46 | |
| 3.3.2 | Environmental performance* | 84.0 | 2 | ● ◆ |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP | 2.2 | 46 | |
| **MARKET SOPHISTICATION** | | **62.9** | **12** | |
| **4.1** | **Credit** | **49.2** | **33** | |
| 4.1.1 | Ease of getting credit* | 50.0 | 87 | ○ |
| 4.1.2 | Domestic credit to private sector, % GDP | 101.6 | 26 | |
| 4.1.3 | Microfinance gross loans, % GDP | n/a | n/a | |
| **4.2** | **Investment** | **57.5** | **25** | |
| 4.2.1 | Ease of protecting minority investors* | 66.7 | 35 | |
| 4.2.2 | Market capitalization, % GDP | 93.2 | 14 | |
| 4.2.3 | Venture capital deals/bn PPP$ GDP | 0.2 | 5 | ● |
| **4.3** | **Trade, competition, & market scale** | **81.9** | **6** | ● |
| 4.3.1 | Applied tariff rate, weighted avg., % | 1.8 | 23 | |
| 4.3.2 | Intensity of local competition† | 80.0 | 8 | ● |
| 4.3.3 | Domestic market scale, bn PPP$ | 2,968.5 | 10 | ● |

| | | Score/Value | Rank | |
|---|---|---|---|---|
| **BUSINESS SOPHISTICATION** | | **53.3** | **19** | |
| **5.1** | **Knowledge workers** | **66.2** | **15** | |
| 5.1.1 | Knowledge-intensive employment, % | 45.1 | 16 | |
| 5.1.2 | Firms offering formal training, % firms | n/a | n/a | |
| 5.1.3 | GERD performed by business, % GDP | 1.4 | 13 | |
| 5.1.4 | GERD financed by business, % 🕘 | 54.0 | 20 | |
| 5.1.5 | Females employed w/advanced degrees, % | 21.6 | 21 | |
| **5.2** | **Innovation linkages** | **41.6** | **26** | |
| 5.2.1 | University/industry research collaboration† | 54.6 | 30 | ◇ |
| 5.2.2 | State of cluster development† | 63.2 | 20 | |
| 5.2.3 | GERD financed by abroad, % 🕘 | 7.6 | 51 | ○ |
| 5.2.4 | JV-strategic alliance deals/bn PPP$ GDP | 0.0 | 30 | |
| 5.2.5 | Patent families 2+ offices/bn PPP$ GDP | 3.5 | 14 | |
| **5.3** | **Knowledge absorption** | **52.1** | **17** | |
| 5.3.1 | Intellectual property payments, % total trade | 1.9 | 14 | |
| 5.3.2 | High-tech imports, % total trade | 10.8 | 23 | |
| 5.3.3 | ICT services imports, % total trade | 2.2 | 22 | |
| 5.3.4 | FDI net inflows, % GDP | 1.8 | 85 | ○ |
| 5.3.5 | Research talent, % in business enterprise | 60.3 | 14 | |
| **KNOWLEDGE & TECHNOLOGY OUTPUTS** | | **45.0** | **15** | |
| **6.1** | **Knowledge creation** | **42.7** | **16** | |
| 6.1.1 | Patents by origin/bn PPP$ GDP | 8.8 | 15 | |
| 6.1.2 | PCT patents by origin/bn PPP$ GDP | 2.7 | 13 | |
| 6.1.3 | Utility models by origin/bn PPP$ GDP | 0.1 | 57 | ○ |
| 6.1.4 | Scientific & technical articles/bn PPP$ GDP | 15.8 | 33 | |
| 6.1.5 | Citable documents H-index | 79.2 | 5 | ● ◆ |
| **6.2** | **Knowledge impact** | **44.7** | **29** | |
| 6.2.1 | Growth rate of PPP$ GDP/worker, % | 0.7 | 69 | ○ |
| 6.2.2 | New businesses/th pop. 15-64 | 1.8 | 52 | ○ |
| 6.2.3 | Computer software spending, % GDP | 0.6 | 10 | ● |
| 6.2.4 | ISO 9001 quality certificates/bn PPP$ GDP | 7.6 | 41 | |
| 6.2.5 | High- & medium-high-tech manufactures, % | 0.5 | 13 | |
| **6.3** | **Knowledge diffusion** | **47.7** | **13** | |
| 6.3.1 | Intellectual property receipts, % total trade | 2.0 | 12 | |
| 6.3.2 | High-tech net exports, % total trade | 12.8 | 10 | ● |
| 6.3.3 | ICT services exports, % total trade | 2.2 | 51 | ○ |
| 6.3.4 | FDI net outflows, % GDP | 2.4 | 27 | |
| **CREATIVE OUTPUTS** | | **45.0** | **16** | |
| **7.1** | **Intangible assets** | **58.8** | **10** | ● |
| 7.1.1 | Trademarks by origin/bn PPP$ GDP | 97.9 | 16 | |
| 7.1.2 | Industrial designs by origin/bn PPP$ GDP | 6.3 | 24 | |
| 7.1.3 | ICTs & business model creation† | 77.2 | 13 | |
| 7.1.4 | ICTs & organizational model creation† | 70.9 | 19 | |
| **7.2** | **Creative goods & services** | **26.6** | **39** | |
| 7.2.1 | Cultural & creative services exports, % total trade | 1.3 | 20 | |
| 7.2.2 | National feature films/mn pop. 15-69 | 6.8 | 31 | |
| 7.2.3 | Entertainment & Media market/th pop. 15-69 | 52.3 | 15 | |
| 7.2.4 | Printing & other media, % manufacturing | 1.0 | 61 | ○ |
| 7.2.5 | Creative goods exports, % total trade | 1.7 | 32 | |
| **7.3** | **Online creativity** | **35.7** | **23** | |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15-69 | 40.9 | 18 | |
| 7.3.2 | Country-code TLDs/th pop. 15-69 | 20.7 | 28 | |
| 7.3.3 | Wikipedia edits/mn pop. 15-69 | 64.7 | 15 | |
| 7.3.4 | Mobile app creation/bn PPP$ GDP | 37.7 | 14 | |

NOTES: ● indicates a strength; ○ a weakness; ◆ a strength relative to the other top 25-ranked GII economies; ◇ a weakness relative to the other top 25-ranked GII economies; * an index; † a survey question. 🕘 indicates that the economy's data are older than the base year; see Appendix II 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 missing or are outdated for France.

### Missing data

| Code | Indicator name | Country year | Model year | Source |
|---|---|---|---|---|
| 4.1.3 | Microfinance gross loans, % GDP | n/a | 2017 | Microfinance Information Exchange |
| 5.1.2 | Firms offering formal training, % firms | n/a | 2013 | World Bank |

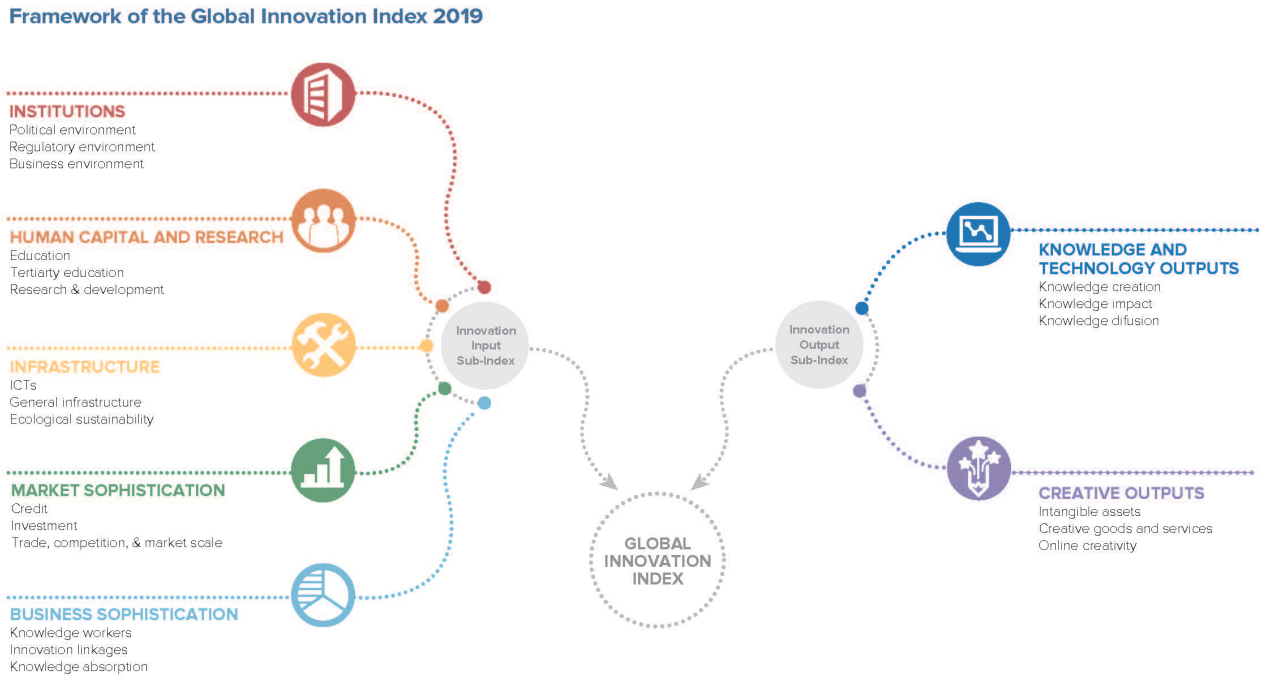
### Outdated data

| Code | Indicator name | Country year | Model year | Source |
|---|---|---|---|---|
| 2.1.5 | Pupil-teacher ratio, secondary | 2013 | 2017 | UNESCO Institute for Statistics |
| 2.2.1 | Tertiary enrolment, % gross | 2016 | 2017 | UNESCO Institute for Statistics |
| 5.1.4 | GERD financed by business, % | 2015 | 2016 | UNESCO Institute for Statistics; Eurostat; OECD - Main Science and Technology Indicators |
| 5.2.3 | GERD financed by abroad, % | 2015 | 2016 | UNESCO Institute for Statistics |

# ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index (GII) is co-published by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO), a specialized agency of the United Nations. In 2019, the GII presents its 12th edition devoted to the theme **Creating Healthy Lives—The Future of Medical Innovation**.

Recognizing that innovation is a key driver of economic development, the GII aims to provide a rich innovation ranking and 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 countries that incorporate the GII into their innovation agendas.




The Index is a ranking of the innovation capabilities and results of world economies. It measures innovation based on criteria that includes 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 containing three sub-pillars.