# Global Innovation Index 2022

# MALTA

**21st** Malta ranks 21st among the 132 economies featured in the GII 2022.

**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 Malta 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 Malta in the GII 2022 is between ranks 18 and 23.

## Rankings for Malta (2020–2022)

| GIIYR | GII | Innovation inputs | Innovation outputs |
|---|---|---|---|
| **2020** | 27 | 31 | 21 |
| **2021** | 27 | 29 | 22 |
| **2022** | 21 | 27 | 13 |

- Malta performs better in innovation outputs than innovation inputs in 2022.
- This year Malta ranks 27th in innovation inputs, higher than both 2021 and 2020.
- As for innovation outputs, Malta ranks 13th. This position is higher than both 2021 and 2020.

**20th** Malta ranks 20th among the 48 high-income group economies.

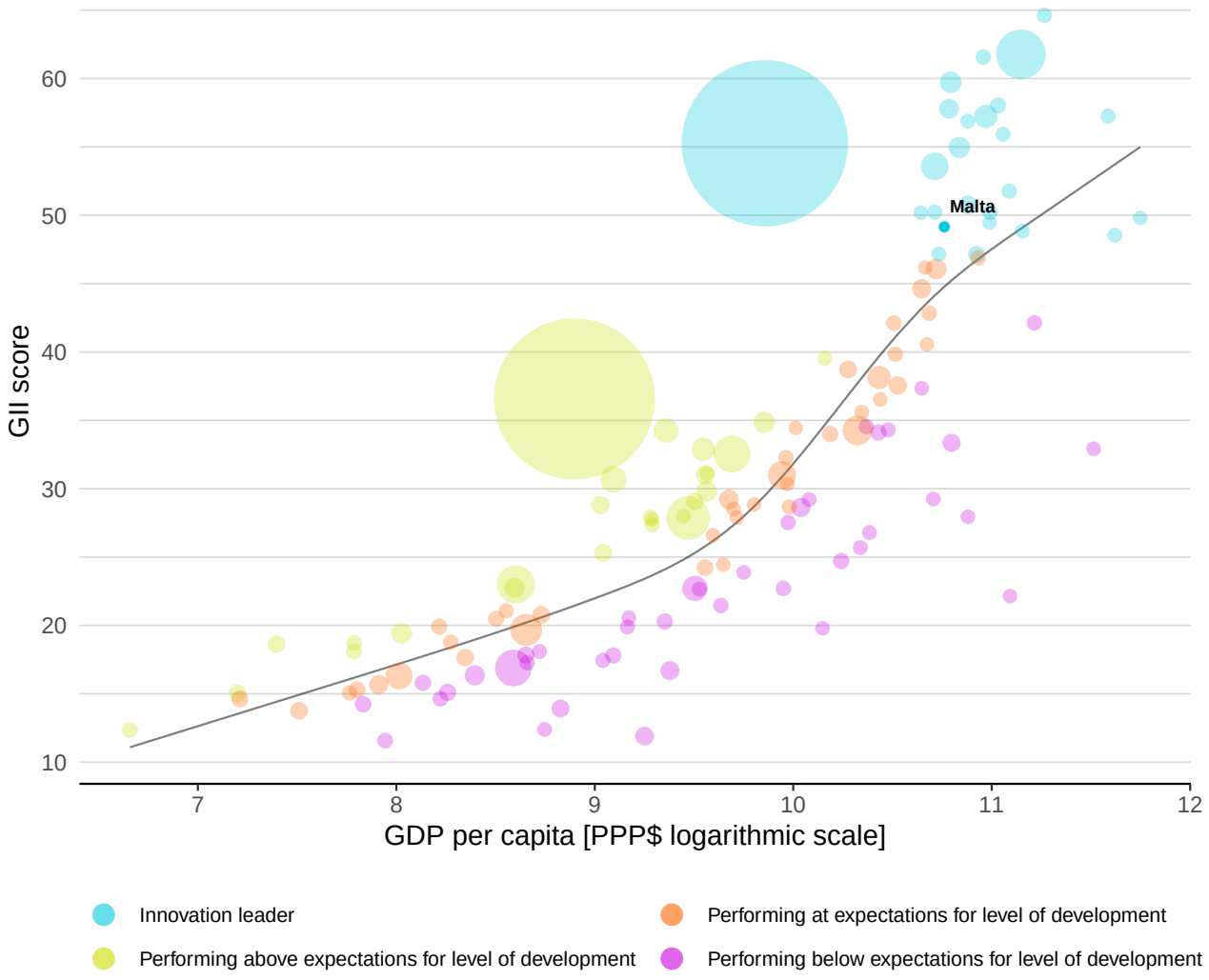
**13th** Malta ranks 13th among the 39 economies in Europe.

# 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, Malta's performance is above expectations for its level of development.

## The positive relationship between innovation and development

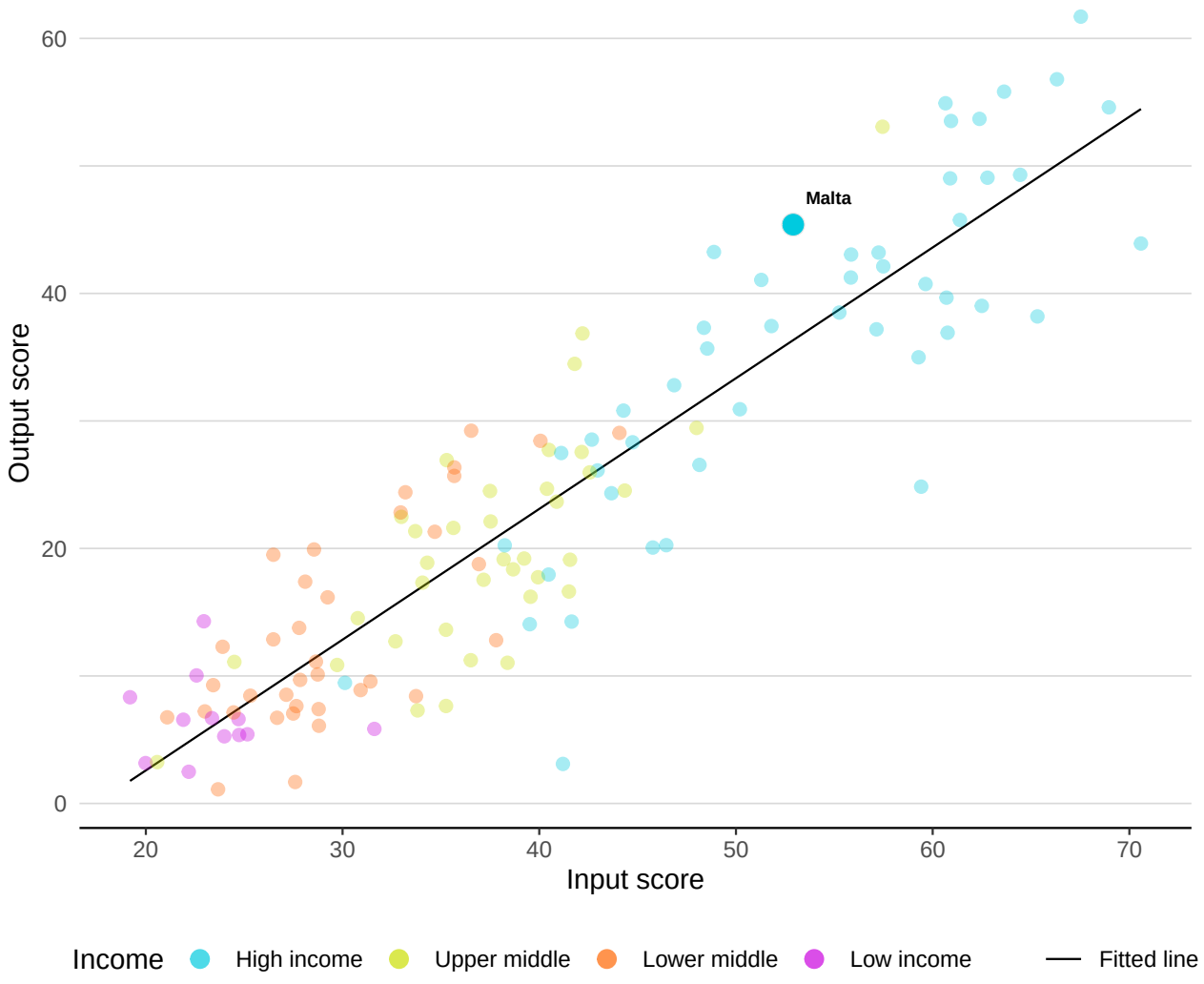


# EFFECTIVELY TRANSLATING INNOVATION INVESTMENTS INTO INNOVATION OUTPUTS

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.

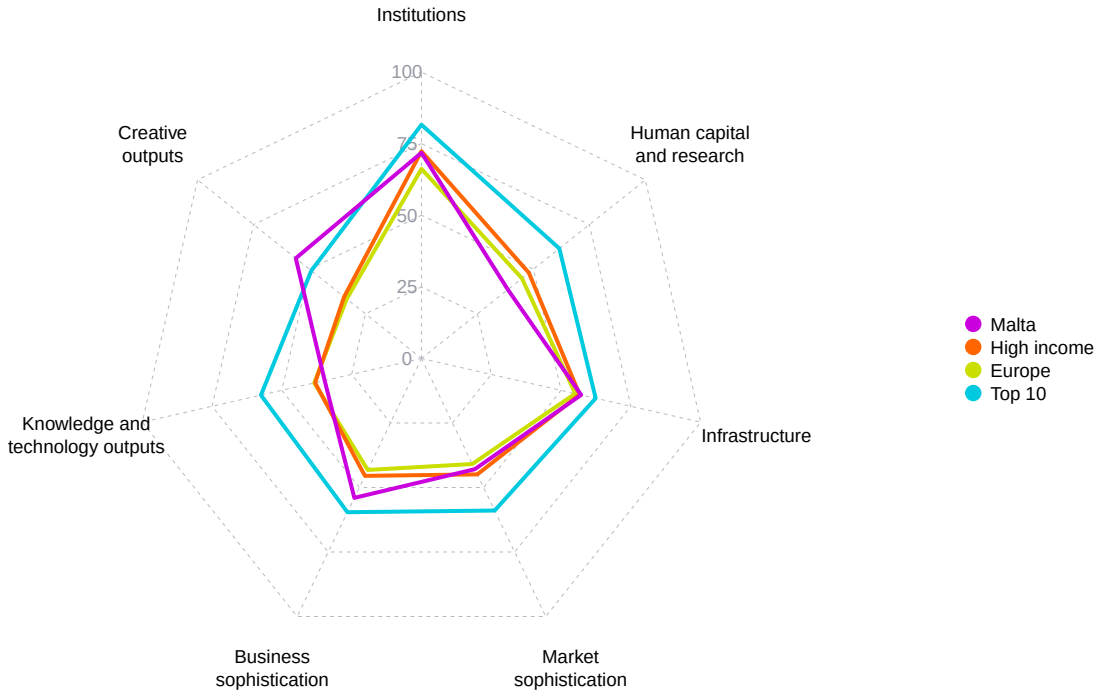
Malta produces more innovation outputs relative to its level of innovation investments.

## Innovation input to output performance



# BENCHMARKING AGAINST OTHER HIGH-INCOME GROUP ECONOMIES AND EUROPE

## The seven GII pillar scores for Malta




### High-income group economies

Malta performs above the high-income group average in three pillars, namely: Infrastructure; Business sophistication; and, Creative outputs.

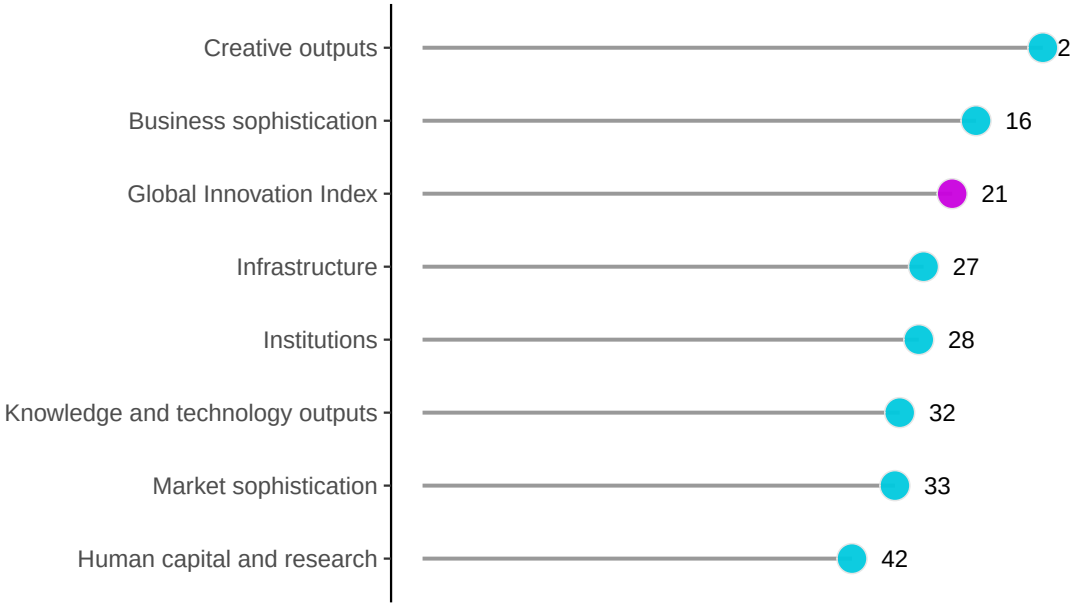
### Europe

Malta performs above the regional average in five pillars, namely: Institutions; Infrastructure; Market sophistication; Business sophistication; and, Creative outputs.

# OVERVIEW OF RANKINGS IN THE SEVEN GII 2022 AREAS

Malta performs best in Creative outputs and its weakest performance is in Human capital and research.

## The seven GII pillar ranks for Malta




Note: The highest possible ranking in each pillar is 1.

**The full WIPO Intellectual Property Statistics profile for Malta can be found at:**

https://www.wipo.int/ipstats/en/statistics/country_profile/profile.jsp?code=MT.

# INNOVATION STRENGTHS AND WEAKNESSES

The table below gives an overview of the indicator strengths and weaknesses of Malta in the GII 2022.

## Strengths and weaknesses for Malta

| Strengths | | | Weaknesses | | |
|---|---|---|---|---|---|
| **Code** | **Indicator name** | **Rank** | **Code** | **Indicator name** | **Rank** |
| 1.2.3 | Cost of redundancy dismissal | 1 | 2.2.2 | Graduates in science and engineering, % | 87 |
| 2.1.5 | Pupil-teacher ratio, secondary | 3 | 2.3.4 | QS university ranking, top 3 | 72 |
| 3.3.1 | GDP/unit of energy use | 4 | 3.2.3 | Gross capital formation, % GDP | 72 |
| 3.3.2 | Environmental performance | 4 | 4.3.3 | Domestic market scale, bn PPP$ | 128 |
| 5.2.4 | Joint venture/strategic alliance deals/bn PPP$ GDP | 1 | 5.3.2 | High-tech imports, % total trade | 106 |
| 5.3.1 | Intellectual property payments, % total trade | 1 | 6.1.5 | Citable documents H-index | 87 |
| 5.3.4 | FDI net inflows, % GDP | 1 | 6.2.1 | Labor productivity growth, % | 90 |
| 7.1.2 | Trademarks by origin/bn PPP$ GDP | 1 | 6.3.4 | ICT services exports, % total trade | 99 |
| 7.2.1 | Cultural and creative services exports, % total trade | 1 | 7.2.3 | Entertainment and media market/th pop. 15–69 | 36 |
| 7.2.4 | Printing and other media, % manufacturing | 1 | 7.2.5 | Creative goods exports, % total trade | 87 |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69 | 1 | | | |

GII 2022 rank

# Malta

**21**

| Output rank | Input rank | Income | Region | Population (mn) | GDP, PPP$ (bn) | GDP per capita, PPP$ |
|---|---|---|---|---|---|---|
| 13 | 27 | High | EUR | 0.4 | 24.6 | 47,152 |

| | | Score/ Value | Rank | |
|---|---|---|---|---|
| | **Institutions** | **71.8** | **28** | ◇ |
| **1.1** | **Political environment** | **76.0** | **31** | ◇ |
| 1.1.1 | Political and operational stability* | 80.0 | 30 | |
| 1.1.2 | Government effectiveness* | 72.1 | 30 | ◇ |
| **1.2** | **Regulatory environment** | **86.3** | **17** | |
| 1.2.1 | Regulatory quality* | 75.4 | 24 | |
| 1.2.2 | Rule of law* | 69.8 | 35 | ◇ |
| 1.2.3 | Cost of redundancy dismissal | 8.0 | 1 | ● |
| **1.3** | **Business environment** | **53.1** | **[52]** | |
| 1.3.1 | Policies for doing business† | 53.1 | 56 | ◇ |
| 1.3.2 | Entrepreneurship policies and culture* | n/a | n/a | |
| | **Human capital and research** | **38.6** | **42** | ◇ |
| **2.1** | **Education** | **62.4** | **21** | |
| 2.1.1 | Expenditure on education, % GDP | 4.7 | 54 | |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 28.1 | 14 | ◆ |
| 2.1.3 | School life expectancy, years | 16.8 | 20 | |
| 2.1.4 | PISA scales in reading, maths and science | 458.8 | 42 | ◇ |
| 2.1.5 | Pupil-teacher ratio, secondary | 7.0 | 3 | ● ◆ |
| **2.2** | **Tertiary education** | **33.8** | **55** | |
| 2.2.1 | Tertiary enrolment, % gross | 64.9 | 46 | |
| 2.2.2 | Graduates in science and engineering, % | 17.2 | 87 | ○ ◇ |
| 2.2.3 | Tertiary inbound mobility, % | 12.4 | 17 | |
| **2.3** | **Research and development (R&D)** | **19.6** | **41** | ◇ |
| 2.3.1 | Researchers, FTE/mn pop. | 2,296.5 | 36 | ◇ |
| 2.3.2 | Gross expenditure on R&D, % GDP | 0.7 | 52 | ◇ |
| 2.3.3 | Global corporate R&D investors, top 3, mn USD | 39.4 | 37 | ◇ |
| 2.3.4 | QS university ranking, top 3* | 0.0 | 72 | ○ ◇ |
| | **Infrastructure** | **57.2** | **27** | |
| **3.1** | **Information and communication technologies (ICTs)** | **86.0** | **24** | |
| 3.1.1 | ICT access* | 95.1 | 10 | |
| 3.1.2 | ICT use* | 84.3 | 10 | |
| 3.1.3 | Government's online service* | 81.2 | 40 | |
| 3.1.4 | E-participation* | 83.3 | 38 | |
| **3.2** | **General infrastructure** | **28.4** | **70** | ◇ |
| 3.2.1 | Electricity output, GWh/mn pop. | 4,037.7 | 52 | ◇ |
| 3.2.2 | Logistics performance* | 35.3 | 67 | ◇ |
| 3.2.3 | Gross capital formation, % GDP | 22.6 | 72 | ○ |
| **3.3** | **Ecological sustainability** | **57.3** | **1** | ● ◆ |
| 3.3.1 | GDP/unit of energy use | 27.8 | 4 | ● ◆ |
| 3.3.2 | Environmental performance* | 75.2 | 4 | ● ◆ |
| 3.3.3 | ISO 14001 environmental certificates/bn PPP$ GDP | 2.1 | 45 | |
| | **Market sophistication** | **42.9** | **33** | ◇ |
| **4.1** | **Credit** | **30.9** | **[53]** | |
| 4.1.1 | Finance for startups and scaleups* | n/a | n/a | |
| 4.1.2 | Domestic credit to private sector, % GDP | 83.6 | 37 | |
| 4.1.3 | Loans from microfinance institutions, % GDP | n/a | n/a | |
| **4.2** | **Investment** | **39.5** | **16** | |
| 4.2.1 | Market capitalization, % GDP | 34.5 | 45 | ◇ |
| 4.2.2 | Venture capital investors, deals/bn PPP$ GDP | 0.6 | 8 | |
| 4.2.3 | Venture capital recipients, deals/bn PPP$ GDP | 0.1 | 26 | |
| 4.2.4 | Venture capital received, value, % GDP | 0.0 | 18 | |
| **4.3** | **Trade, diversification, and market scale** | **58.4** | **60** | |
| 4.3.1 | Applied tariff rate, weighted avg., % | 1.5 | 20 | |
| 4.3.2 | Domestic industry diversification | 84.5 | 63 | |
| 4.3.3 | Domestic market scale, bn PPP$ | 24.6 | 128 | ○ |

| | | Score/ Value | Rank | |
|---|---|---|---|---|
| | **Business sophistication** | **54.0** | **16** | |
| **5.1** | **Knowledge workers** | **53.9** | **25** | ◇ |
| 5.1.1 | Knowledge-intensive employment, % | 46.2 | 19 | |
| 5.1.2 | Firms offering formal training, % | 49.9 | 21 | |
| 5.1.3 | GERD performed by business, % GDP | 0.4 | 42 | ◇ |
| 5.1.4 | GERD financed by business, % | 58.7 | 15 | |
| 5.1.5 | Females employed w/advanced degrees, % | 17.2 | 42 | ◇ |
| **5.2** | **Innovation linkages** | **47.0** | **21** | |
| 5.2.1 | University-industry R&D collaboration† | 43.0 | 69 | ◇ |
| 5.2.2 | State of cluster development and depth† | 49.0 | 56 | ◇ |
| 5.2.3 | GERD financed by abroad, % GDP | 0.0 | 48 | |
| 5.2.4 | Joint venture/strategic alliance deals/bn PPP$ GDP | 0.4 | 1 | ● ◆ |
| 5.2.5 | Patent families/bn PPP$ GDP | 1.6 | 22 | |
| **5.3** | **Knowledge absorption** | **61.2** | **4** | ● ◆ |
| 5.3.1 | Intellectual property payments, % total trade | 6.1 | 1 | ● ◆ |
| 5.3.2 | High-tech imports, % total trade | 6.2 | 106 | ○ |
| 5.3.3 | ICT services imports, % total trade | 1.4 | 70 | |
| 5.3.4 | FDI net inflows, % GDP | 29.3 | 1 | ● ◆ |
| 5.3.5 | Research talent, % in businesses | 53.3 | 20 | |
| | **Knowledge and technology outputs** | **34.7** | **32** | ◇ |
| **6.1** | **Knowledge creation** | **26.0** | **35** | ◇ |
| 6.1.1 | Patents by origin/bn PPP$ GDP | 3.1 | 26 | |
| 6.1.2 | PCT patents by origin/bn PPP$ GDP | 1.9 | 18 | |
| 6.1.3 | Utility models by origin/bn PPP$ GDP | n/a | n/a | |
| 6.1.4 | Scientific and technical articles/bn PPP$ GDP | 24.8 | 37 | |
| 6.1.5 | Citable documents H-index | 6.9 | 87 | ○ ◇ |
| **6.2** | **Knowledge impact** | **38.2** | **29** | |
| 6.2.1 | Labor productivity growth, % | −0.0 | 90 | ○ |
| 6.2.2 | New businesses/th pop. 15–64 | 10.1 | 12 | |
| 6.2.3 | Software spending, % GDP | 0.3 | 29 | |
| 6.2.4 | ISO 9001 quality certificates/bn PPP$ GDP | 9.8 | 29 | |
| 6.2.5 | High-tech manufacturing, % | 36.2 | 35 | |
| **6.3** | **Knowledge diffusion** | **39.8** | **28** | |
| 6.3.1 | Intellectual property receipts, % total trade | 3.9 | 5 | |
| 6.3.2 | Production and export complexity | n/a | n/a | |
| 6.3.3 | High-tech exports, % total trade | 4.3 | 41 | |
| 6.3.4 | ICT services exports, % total trade | 0.5 | 99 | ○ |
| | **Creative outputs** | **56.1** | **2** | ● ◆ |
| **7.1** | **Intangible assets** | **69.6** | **5** | ◆ |
| 7.1.1 | Intangible asset intensity, top 15, % | 77.5 | 12 | |
| 7.1.2 | Trademarks by origin/bn PPP$ GDP | 133.0 | 1 | ● ◆ |
| 7.1.3 | Global brand value, top 5,000, % GDP | 75.6 | 28 | |
| 7.1.4 | Industrial designs by origin/bn PPP$ GDP | 10.1 | 10 | ◆ |
| **7.2** | **Creative goods and services** | **45.1** | **3** | ● ◆ |
| 7.2.1 | Cultural and creative services exports, % total trade | 13.9 | 1 | ● ◆ |
| 7.2.2 | National feature films/mn pop. 15–69 | 3.2 | 37 | |
| 7.2.3 | Entertainment and media market/th pop. 15–69 | 9.3 | 36 | ○ ◇ |
| 7.2.4 | Printing and other media, % manufacturing | 8.0 | 1 | ● ◆ |
| 7.2.5 | Creative goods exports, % total trade | 0.1 | 87 | ○ |
| **7.3** | **Online creativity** | **40.2** | **15** | |
| 7.3.1 | Generic top-level domains (TLDs)/th pop. 15–69 | 100.0 | 1 | ● ◆ |
| 7.3.2 | Country-code TLDs/th pop. 15–69 | 15.5 | 32 | |
| 7.3.3 | GitHub commit pushes received/mn pop. 15–69 | 31.8 | 22 | |
| 7.3.4 | Mobile app creation/bn PPP$ GDP | 13.4 | 27 | |

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/global_innovation_index/en/2022. 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 indicators that are either missing or outdated for Malta.

## Missing data for Malta

| Code | Indicator name | Economy year | Model year | Source |
|---|---|---|---|---|
| 1.3.2 | Entrepreneurship policies and culture | n/a | 2021 | Global Entrepreneurship Monitor |
| 4.1.1 | Finance for startups and scaleups | n/a | 2021 | Global Entrepreneurship Monitor |
| 4.1.3 | Loans from microfinance institutions, % GDP | n/a | 2020 | International Monetary Fund, Financial Access Survey (FAS) |
| 6.1.3 | Utility models by origin/bn PPP$ GDP | n/a | 2020 | World Intellectual Property Organization |
| 6.3.2 | Production and export complexity | n/a | 2019 | Harvard University, Growth Lab |

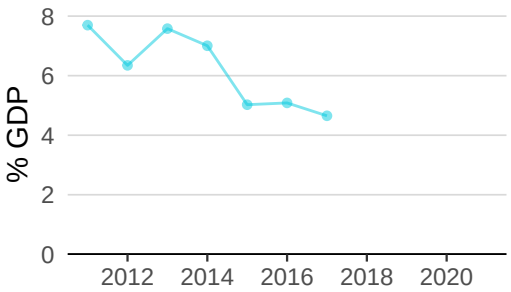
## Outdated data for Malta

| Code | Indicator name | Economy year | Model year | Source |
|---|---|---|---|---|
| 2.1.1 | Expenditure on education, % GDP | 2017 | 2020 | UNESCO Institute for Statistics |
| 2.1.2 | Government funding/pupil, secondary, % GDP/cap | 2017 | 2018 | UNESCO Institute for Statistics |
| 4.3.2 | Domestic industry diversification | 2015 | 2019 | United Nations Industrial Development Organization |
| 6.2.5 | High-tech manufacturing, % | 2015 | 2019 | United Nations Industrial Development Organization |

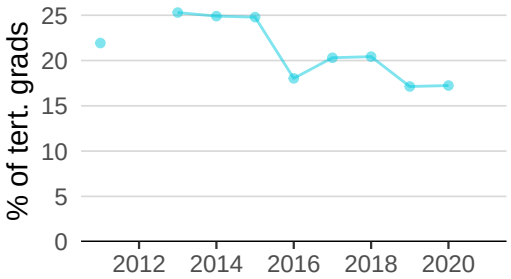
# MALTA'S INNOVATION SYSTEM

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

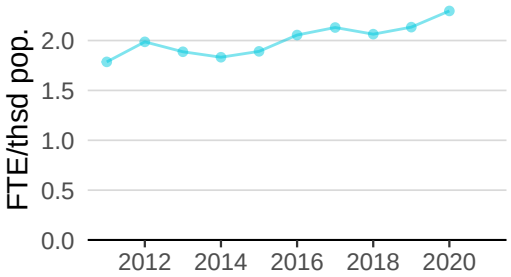
## Innovation inputs



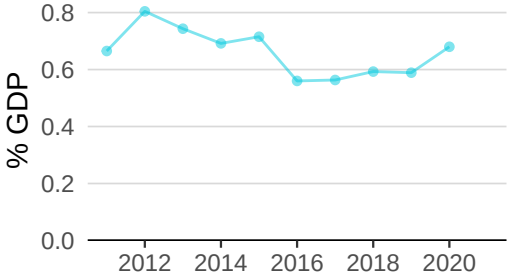

**2.1.1 Expenditure on education** was equal to 4.7% GDP in 2017–down by 9 percentage points from the year prior–and equivalent to an indicator rank of 54.



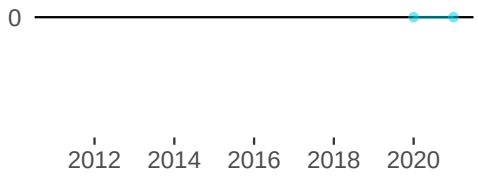

**2.2.2 Graduates in science and engineering** was equal to 17.2% of tert. grads in 2020–up by 1 percentage point from the year prior–and equivalent to an indicator rank of 87.



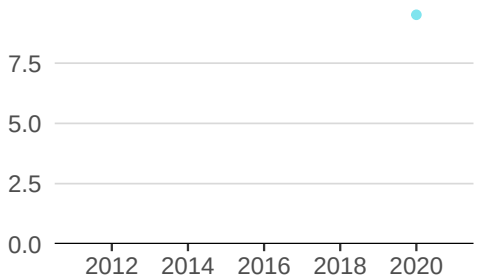

**2.3.1 Researchers** was equal to 2.3 FTE/thsd pop. in 2020–up by 8 percentage points from the year prior–and equivalent to an indicator rank of 36.



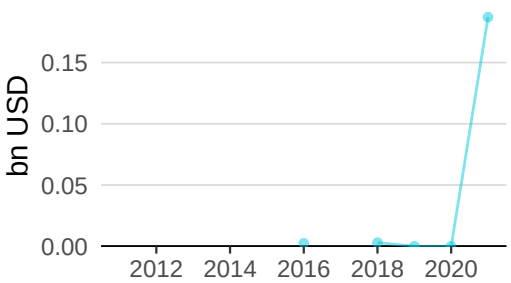

**2.3.2 Gross expenditure on R&D** was equal to 0.7% GDP in 2020–up by 15 percentage points from the year prior–and equivalent to an indicator rank of 52.



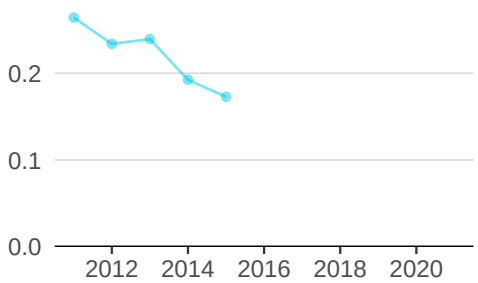

**2.3.4 QS university ranking** was equal to 0.0 in 2021–effectively unchanged from the year prior–and equivalent to an indicator rank of 72.



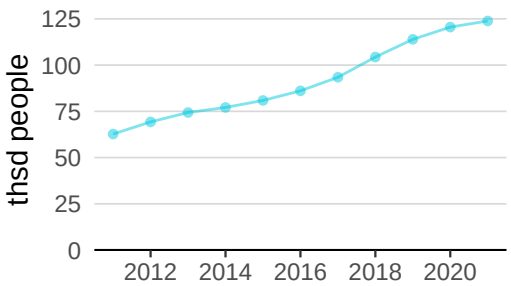

**3.1.1 ICT access** was equal to 9.5 in 2020 and equivalent to an indicator rank of 10.




**4.2.4 Venture capital received** was equal to 0.2 bn USD in 2021–up by Inf percentage points from the year prior–and equivalent to an indicator rank of 18.

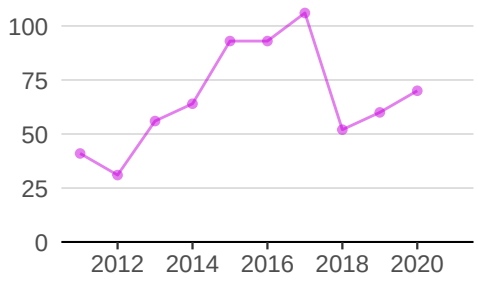



**4.3.2 Domestic industry diversification** was equal to 0.2 in 2015–down by 10 percentage points from the year prior–and equivalent to an indicator rank of 63.

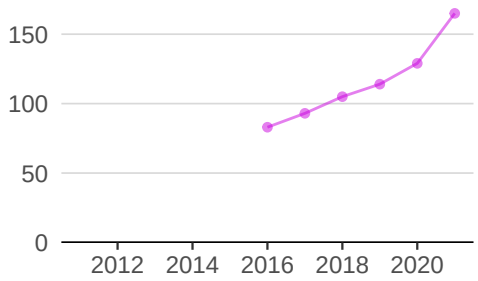



**5.1.1 Knowledge-intensive employment** was equal to 123.9 thsd people in 2021–up by 3 percentage points from the year prior–and equivalent to an indicator rank of 19.

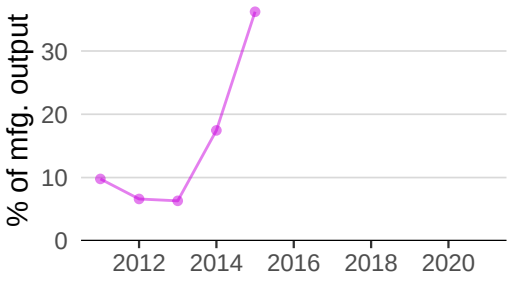
## Innovation outputs



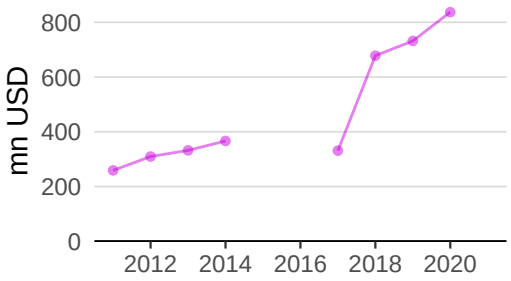

**6.1.1 Patents by origin** was equal to 70.0 in 2020–up by 17 percentage points from the year prior–and equivalent to an indicator rank of 26.



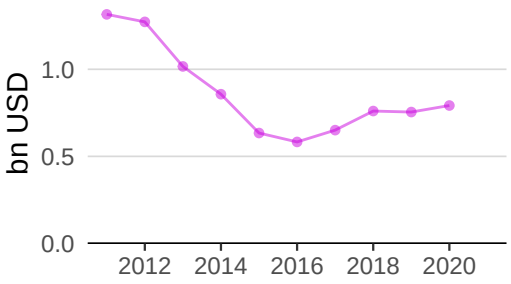

**6.1.5 Citable documents H-index** was equal to 165.0 in 2021–up by 28 percentage points from the year prior–and equivalent to an indicator rank of 87.



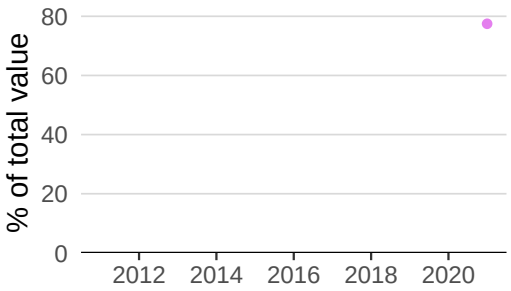

**6.2.5 High-tech manufacturing** was equal to 36.2% of mfg. output in 2015–up by 107 percentage points from the year prior–and equivalent to an indicator rank of 35.



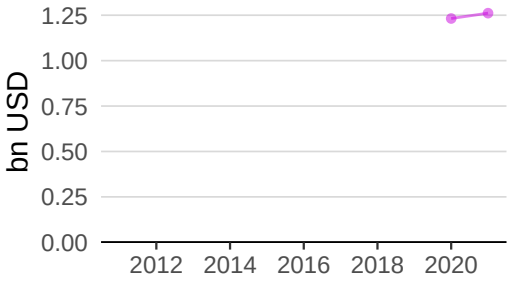

**6.3.1 Intellectual property receipts** was equal to 837.1 mn USD in 2020–up by 14 percentage points from the year prior–and equivalent to an indicator rank of 5.



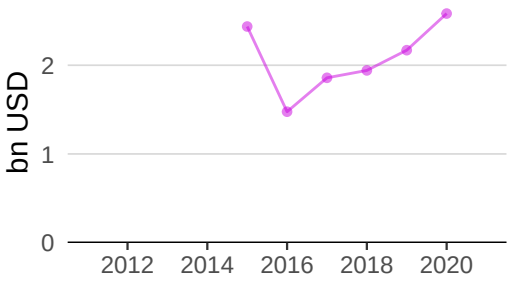

**6.3.3 High-tech exports** was equal to 0.8 bn USD in 2020–up by 5 percentage points from the year prior–and equivalent to an indicator rank of 41.




**7.1.1 Intangible asset intensity** was equal to 77.5% of total value in 2021 and equivalent to an indicator rank of 12.




**7.1.3 Global brand value** was equal to 1.3 bn USD in 2021–up by 2 percentage points from the year prior–and equivalent to an indicator rank of 28.




**7.2.1 Cultural and creative services exports** was equal to 2.6 bn USD in 2020–up by 19 percentage points from the year prior–and equivalent to an indicator rank of 1.

# MALTA'S INNOVATION TOP PERFORMERS

## 2.3.3 Global corporate R&D investors

| Firm | Industry | R&D | R&D Growth | R&D Intensity | Rank |
|---|---|---|---|---|---|
| | | [mn EUR] | [%] | [%] | |
| KINDRED GROUP | Travel & Leisure | 43 | -1.8 | 3.5 | 2,217 |

Source: European Commission's Joint Research Centre (https://iri.jrc.ec.europa.eu/scoreboard/2021-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

| University | Score | Rank |
|---|---|---|
| No observations | | |

Source: QS Quacquarelli Symonds Ltd (https://www.topuniversities.com/university-rankings/world-university-rankings/2022).

## 7.1.1 Intangible asset intensity, top 15

| Firm | Rank |
|---|---|
| KINDRED GROUP | 1 |
| KAMBI GROUP | 2 |
| CATENA MEDIA | 3 |

Source: Brand Finance (https://brandirectory.com/reports/gift-2021).
Note: Brand Finance only provides within economy ranks.

## 7.1.3 Global brand value, top 5,000

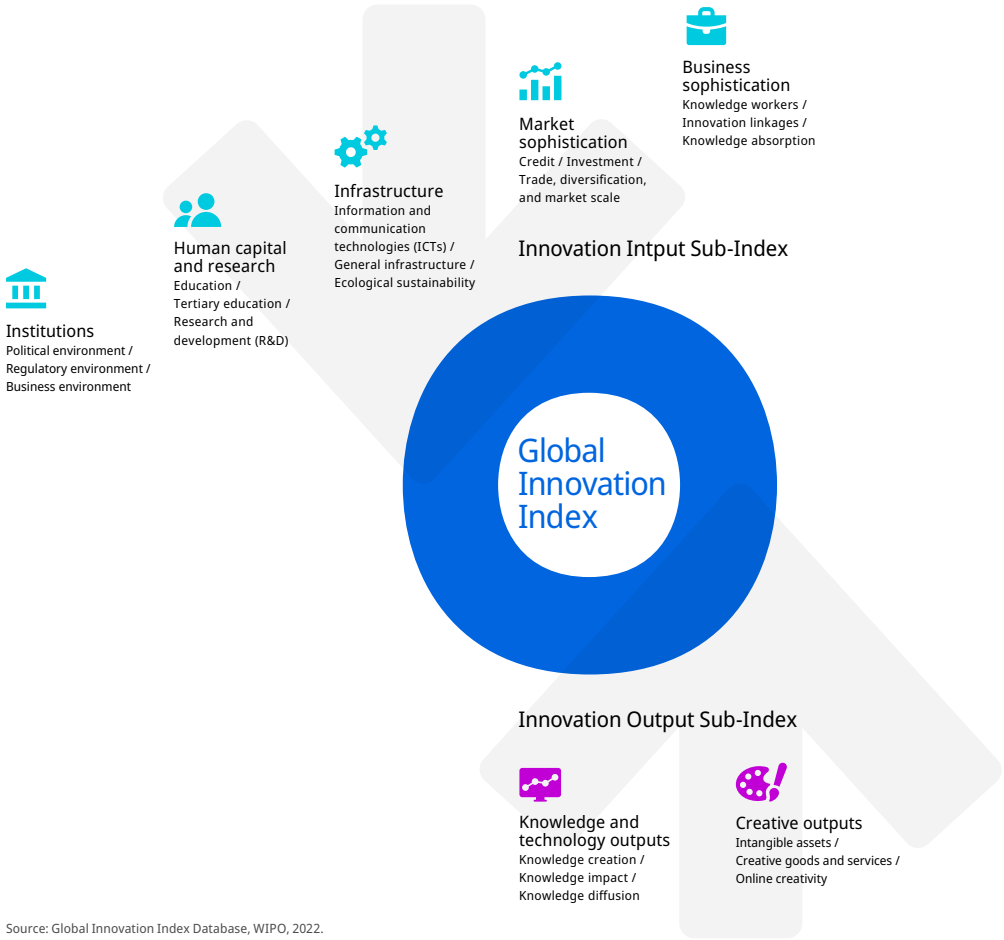
| Brand | Industry | Rank |
|---|---|---|
| KINDRED | Leisure & Tourism | 1 |

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

# 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, 2022.

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.