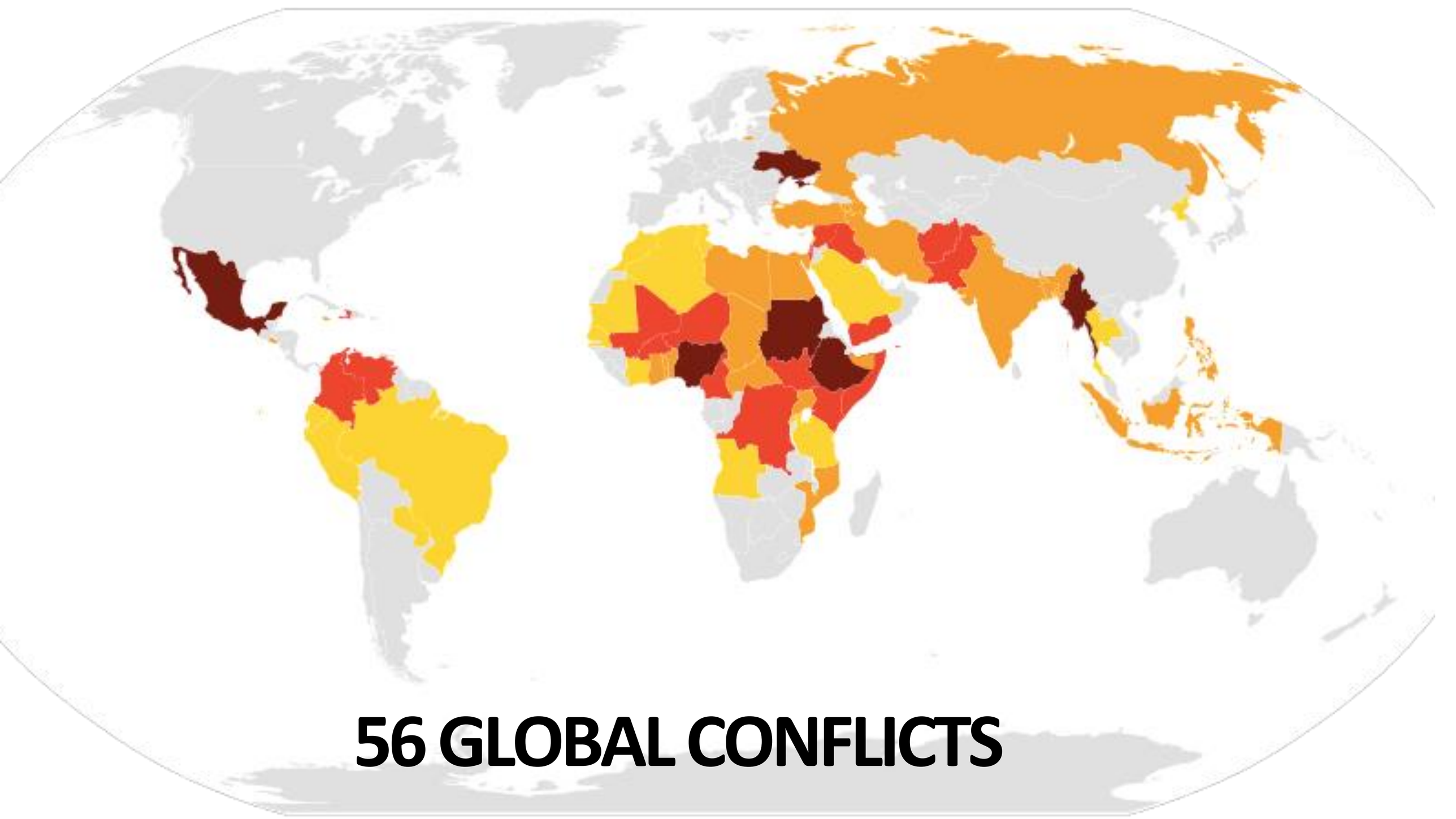
STUPID CREATIVITY & SMALL SCALE

INNOVATION STARTER



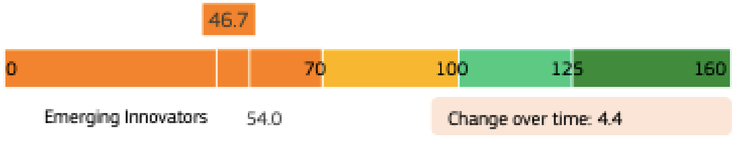
56 GLOBAL CONFLICTS

European Commission

European Innovation Scoreboard **2023** Country profile **Bulgaria**

GII 2023 at a glance

The Global Innovation Index 2023 captures the innovation ecosystem performance of 132 economies and tracks the most recent global innovation trends.



Bulgaria

	Performance relative to EU in 2023	Performance change 2016-2023	Performance change 2022-2023
SUMMARY INNOVATION INDEX	**46.7**	**4.4**	**6.1**
Human resources	**32.7**	**-4.8**	**-4.8**
Doctorate graduates	40.7	-11.4	-11.4
Population with tertiary education	52.6	1.2	1.2
Lifelong learning	0.0	-1.1	-1.1
Attractive research systems	**26.6**	**10.8**	**0.5**
International scientific co-publications	27.4	18.7	1.1
Most cited publications	17.4	-1.1	-2.8
Foreign doctorate students	44.0	30.6	7.4
Digitalisation	**49.8**	**12.3**	**8.8**
Broadband penetration	73.8	24.2	17.4
People with above basic overall digital skills	17.0	0.0	0.0
Finance and support	**22.1**	**0.8**	**2.0**
R&D expenditures in the public sector	21.9	-1.6	-1.6
Venture capital expenditures	36.8	5.3	9.6
Government support for business R&D	3.2	-0.7	-1.0
Firm investments	**35.0**	**-13.2**	**-0.3**
R&D expenditure in the business sector	31.9	-0.8	-4.6
Non-R&D Innovation expenditures	62.5	-34.2	1.1
Innovation expenditures per employee	15.6	-6.4	2.7
Use of information technologies	**48.1**	**8.4**	**12.8**
Enterprises providing ICT training	23.6	6.4	15.3
Employed ICT specialists	73.3	10.3	10.3
Innovators	**56.0**	**56.7**	**27.8**
Product innovators (SMEs)	78.8	67.4	25.4
Business process innovators (SMEs)	36.0	45.4	30.4
Linkages	**35.4**	**24.6**	**15.1**
Innovative SMEs collaborating with others	56.9	51.8	37.7
Public-private co-publications	37.6	24.1	3.3
Job-to-job mobility of HRST	16.7	0.0	0.0
Intellectual assets	**92.5**	**-14.4**	**18.2**
PCT patent applications	33.5	-4.9	1.3
Trademark applications	118.9	21.7	5.7
Design applications	149.2	-54.7	49.5
Employment impacts	**56.7**	**21.0**	**9.5**
Employment in knowledge-intensive activities	65.1	0.0	0.0
Employment in innovative enterprises	49.8	40.9	18.5
Sales impacts	**59.7**	**21.4**	**0.9**
Medium and high-tech goods exports	44.3	9.3	-3.0
Knowledge-intensive services exports	85.9	34.9	-1.4
Sales of innovative products	54.1	23.1	9.6
Environmental sustainability	**46.2**	**-24.7**	**-0.2**
Resource productivity	12.3	11.8	1.2
Air emissions by fine particulate matter	32.7	-25.4	0.5
Environment-related technologies	99.2	-48.3	-1.9

The second column shows performance relative to that of the EU in 2023. Colours next to the column show matching colour codes: dark green: above 125% of the performance of the EU in 2023; light green: between 100% and 125%; light orange: between 70% and 100%; dark orange: below 70%. The next columns show performance change over time between 2016 and 2023 and between 2022 and 2023, with scores relative to those of the EU in 2016. Positive (negative) performance changes are shown in green (red).

BULGARIA is an **Emerging Innovator** with performance at 46.7% of the EU average. Performance is below the average of the Emerging Innovators. Performance is increasing at a rate lower than that of the EU (8.5%-points). The country's performance gap to the EU is becoming larger.

Relative strengths

Design applications
Trademark applications
Environment-related technologies
Knowledge-intensive services exports
Product innovators

Relative weaknesses

Lifelong learning
Government support for business R&D
Resource productivity
Innovation expenditures per employee
Job-to-job mobility of HRST

Strong increases since 2016

Product innovators
Innovative SMEs collaborating with others
Business process innovators

Strong decreases since 2016

Design applications
Environment-related technologies
Non-R&D Innovation expenditures

Strong increases since 2022

Design applications
Innovative SMEs collaborating with others
Business process innovators

Strong decreases since 2022

Doctorate graduates
R&D expenditure in the business sector
Medium and high-tech goods exports

GII 2023 rank

Bulgaria

38

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$
34	45	Upper middle	EUR	6.8	198.3	29,178

		Score/ Value	Rank	
Institutions		**49.5**	**66**	
1.1	**Institutional environment**	**43.2**	**73**	
1.1.1	Operational stability for businesses*	53.5	64	
1.1.2	Government effectiveness*	32.9	80	
1.2	**Regulatory environment**	**72.4**	**39**	◆
1.2.1	Regulatory quality*	53.7	49	
1.2.2	Rule of law*	38.4	63	
1.2.3	Cost of redundancy dismissal	8.6	16	●◆
1.3	**Business environment**	**33.0**	**94**	○
1.3.1	Policies for doing business'	38.5	90	○
1.3.2	Entrepreneurship policies and culture'	27.5	63	○
Human capital and research		**31.1**	**66**	
2.1	**Education**	**48.8**	**71**	
2.1.1	Expenditure on education, % GDP	4.2	65	
2.1.2	Government funding/pupil, secondary, % GDP/cap	23.2	30	
2.1.3	School life expectancy, years	13.6	73	
2.1.4	PISA scales in reading, maths and science	426.7	50	
2.1.5	Pupil–teacher ratio, secondary	11.7	51	
2.2	**Tertiary education**	**33.2**	**58**	
2.2.1	Tertiary enrollment, % gross	75.4	27	
2.2.2	Graduates in science and engineering, %	19.5	76	○
2.2.3	Tertiary inbound mobility, %	7.8	34	◆
2.3	**Research and development (R&D)**	**11.3**	**57**	
2.3.1	Researchers, FTE/mn pop.	2,346.5	37	◆
2.3.2	Gross expenditure on R&D, % GDP	0.8	47	
2.3.3	Global corporate R&D investors, top 3, mn USD	0.0	40	○◇
2.3.4	QS university ranking, top 3*	7.4	69	
Infrastructure		**56.2**	**28**	◆
3.1	**Information and communication technologies (ICTs)**	**78.1**	**43**	
3.1.1	ICT access*	89.5	24	●
3.1.2	ICT use*	82.0	53	
3.1.3	Government's online service*	67.9	64	
3.1.4	E-participation*	73.3	29	
3.2	**General infrastructure**	**32.5**	**48**	
3.2.1	Electricity output, GWh/mn pop.	6,856.1	29	◆
3.2.2	Logistics performance*	50.0	50	
3.2.3	Gross capital formation, % GDP	19.6	101	○
3.3	**Ecological sustainability**	**57.8**	**8**	●◆
3.3.1	GDP/unit of energy use	8.2	86	○
3.3.2	Environmental performance*	55.9	35	◆
3.3.3	ISO 14001 environment/bn PPP$ GDP	12.7	1	●◆
Market sophistication		**36.7**	**60**	
4.1	**Credit**	**40.0**	**42**	
4.1.1	Finance for startups and scaleups'	61.8	29	
4.1.2	Domestic credit to private sector, % GDP	51.5	72	
4.1.3	Loans from microfinance institutions, % GDP	n/a	n/a	
4.2	**Investment**	**6.4**	**68**	
4.2.1	Market capitalization, % GDP	24.2	53	○
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	0.1	43	
4.2.3	VC recipients, deals/bn PPP$ GDP	0.0	56	
4.2.4	VC received, value, % GDP	0.0	75	○
4.3	**Trade, diversification and market scale**	**63.8**	**35**	
4.3.1	Applied tariff rate, weighted avg., %	1.5	20	
4.3.2	Domestic industry diversification	96.9	19	●◆
4.3.3	Domestic market scale, bn PPP$	198.3	70	

		Score/ Value	Rank	
Business sophistication		**36.0**	**42**	◆
5.1	**Knowledge workers**	**37.3**	**54**	
5.1.1	Knowledge-intensive employment, %	32.6	45	◆
5.1.2	Firms offering formal training, %	20.0	81	○
5.1.3	GERD performed by business, % GDP	0.5	39	
5.1.4	GERD financed by business, %	35.4	53	
5.1.5	Females employed w/advanced degrees, %	20.1	33	◆
5.2	**Innovation linkages**	**33.0**	**38**	◆
5.2.1	University–industry R&D collaboration'	48.0	53	
5.2.2	State of cluster development'	47.6	49	
5.2.3	GERD financed by abroad, % GDP	0.3	10	●◆
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.0	47	
5.2.5	Patent families/bn PPP$ GDP	0.3	41	
5.3	**Knowledge absorption**	**37.6**	**52**	
5.3.1	Intellectual property payments, % total trade	0.6	64	
5.3.2	High-tech imports, % total trade	8.0	70	
5.3.3	ICT services imports, % total trade	1.3	67	
5.3.4	FDI net inflows, % GDP	3.6	37	
5.3.5	Research talent, % in businesses	49.8	25	◆
Knowledge and technology outputs		**33.9**	**34**	◆
6.1	**Knowledge creation**	**18.7**	**58**	
6.1.1	Patents by origin/bn PPP$ GDP	1.2	54	
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	47	
6.1.3	Utility models by origin/bn PPP$ GDP	1.2	20	
6.1.4	Scientific and technical articles/bn PPP$ GDP	13.1	59	
6.1.5	Citable documents H-index	16.2	53	
6.2	**Knowledge impact**	**30.0**	**57**	
6.2.1	Labor productivity growth, %	2.9	20	●
6.2.2	Unicorn valuation, % GDP	0.0	48	○◇
6.2.3	Software spending, % GDP	0.2	74	
6.2.4	High-tech manufacturing, %	25.3	49	
6.3	**Knowledge diffusion**	**52.9**	**12**	●◆
6.3.1	Intellectual property receipts, % total trade	0.4	29	◆
6.3.2	Production and export complexity	65.8	39	
6.3.3	High-tech exports, % total trade	5.2	35	
6.3.4	ICT services exports, % total trade	5.4	19	●◆
6.3.5	ISO 9001 quality/bn PPP$ GDP	37.4	1	●◆
Creative outputs		**38.2**	**34**	◆
7.1	**Intangible assets**	**47.6**	**30**	◆
7.1.1	Intangible asset intensity, top 15, %	71.6	17	
7.1.2	Trademarks by origin/bn PPP$ GDP	78.0	19	●
7.1.3	Global brand value, top 5,000, % GDP	0.0	74	○◇
7.1.4	Industrial designs by origin/bn PPP$ GDP	4.7	23	◆
7.2	**Creative goods and services**	**24.7**	**42**	◆
7.2.1	Cultural and creative services exports, % total trade	1.7	16	●◆
7.2.2	National feature films/mn pop. 15–69	4.1	33	◆
7.2.3	Entertainment and media market/th pop. 15–69	n/a	n/a	
7.2.4	Creative goods exports, % total trade	1.0	46	
7.3	**Online creativity**	**33.0**	**36**	◆
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	28.4	24	●◆
7.3.2	Country-code TLDs/th pop. 15–69	4.6	57	
7.3.3	GitHub commits/mn pop. 15–69	27.9	36	◆
7.3.4	Mobile app creation/bn PPP$ GDP	71.2	46	

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

- **BUSINESS ENVIRONMENT**

ENVIRONMENTAL SUSTAINABILITY
HUMAN CAPITAL
R&D AND REAL LIFE SCIENCE APPLICATION
STRONG INSTITUTIONS
MODERN INFRASTRUCTURE
TECHNOLOGICAL IMPACT

STUPID CREATIVITY & SMALL SCALE

INNOVATION STARTER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THANK YOU!