Глобальный индекс инноваций

The Global Innovation Index

The GII adopts a broad notion of innovation, originally elaborated in the *Oslo Manual* developed by the European Communities and the Organization for Economic Co-operation and Development (OECD):

An innovation

is the implementation of a new or significantly improved product (good or service), a new process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations.

This definition reflects the evolution of the way innovation has been perceived and understood over the last two decades.

Previously economists and policy makers focused on R&D-based technological product innovation, largely produced in-house and mostly in manufacturing industries.

This type of innovation was performed by a highly educated labour force in R&D-intensive companies.

The process leading to such innovation was conceptualized as closed, internal, and localized.

Technological breakthroughs were necessarily ‘radical’ and took place at the ‘global knowledge frontier’.

This characterization implied the existence of leading and lagging countries, with low- or middle-income economies only catching up.

This definition reflects the evolution of the way innovation has been perceived and understood over the last two decades.

Today innovation capability is seen more as the ability to exploit new technological combinations; it embraces the notion of incremental innovation and ‘innovation without research’. Non-R&D innovative expenditure is an important component of reaping the rewards of technological innovation.

Interest in understanding how innovation takes place in low- and middle-income countries is increasing, along with an awareness that incremental forms of innovation can impact development.

Furthermore, the process of innovation itself has changed significantly.

Investment in innovation-related activity has consistently intensified at the firm, country, and global levels, adding both new innovation actors from outside high-income economies and nonprofit actors.

The structure of knowledge production activity is more complex and geographically dispersed than ever.

Глобальный индекс инноваций (The Global Innovation Index)

- это глобальное исследование и сопровождающий его рейтинг стран мира по показателю уровня развития инноваций. Рассчитан по методике международной бизнес-школы INSEAD, Франция. Исследование проводится с 2007 года и на данный момент представляет наиболее полный комплекс показателей инновационного развития по различным странам мира.
- составлен из **80 различных переменных**, которые детально характеризуют инновационное развитие стран мира, находящихся на разных уровнях экономического развития.

Авторы исследования: успешность экономики связана с наличием:

- **инновационного потенциала**
- **условий для его воплощения.**

GII

- рассчитывается как взвешенная сумма оценок двух групп показателей.
- представляет собой соотношение затрат и эффекта, что позволяет объективно оценить эффективность усилий по развитию инноваций в той или иной стране

1. Располагаемые ресурсы и условия для проведения инноваций (*Innovation Input*):

- **Институты;**
- **Человеческий капитал и исследования;**
- **Инфраструктура;**
- **Развитие внутреннего рынка;**
- **Развитие бизнеса.**

2. Достигнутые практические результаты осуществления инноваций (Innovation Output):

- **Развитие технологий и экономики знаний;**
- **Результаты креативной деятельности.**

Figure 1: Framework of the Global Innovation Index 2016

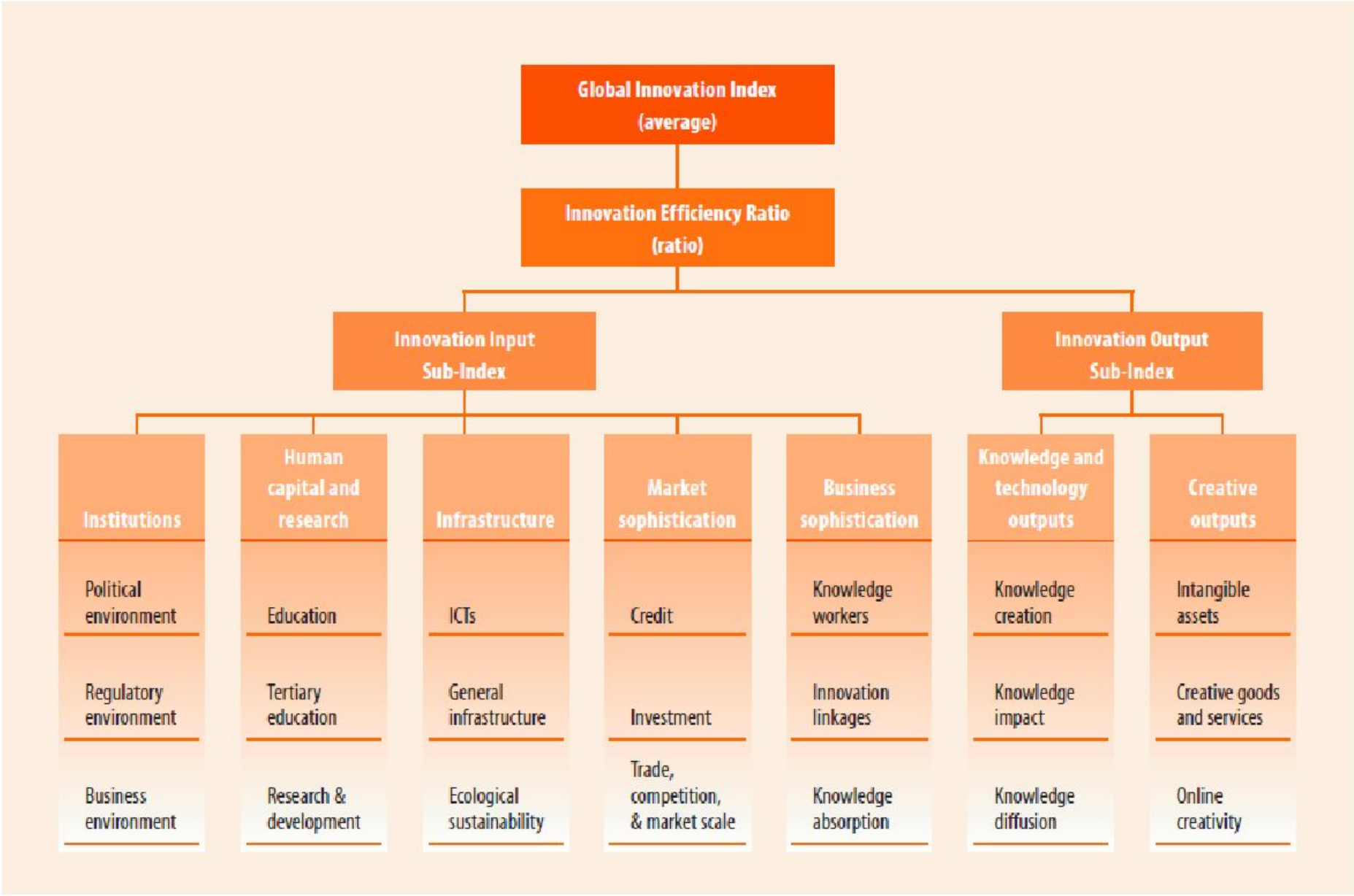

Table 1a: Institutions pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
1	**Institutions**					
1.1	*Political environment*					
1.1.1	Political stability and safety*	0.67	−0.15	−0.69	−0.63	−0.02
1.1.2	Government effectiveness*	1.13	0.01	−0.44	−0.76	0.24
1.2	*Regulatory environment*					
1.2.1	Regulatory quality*[a]	1.07	0.04	−0.39	−0.58	0.26
1.2.2	Rule of law*[a]	1.13	−0.19	−0.51	−0.64	0.18
1.2.3	Cost of redundancy dismissal, salary weeks[b]	16.13	17.25	26.63	15.90	18.78
1.3	*Business environment*					
1.3.1	Ease of starting a business*	88.73	85.18	82.76	76.85	84.95
1.3.2	Ease of resolving insolvency*	67.08	51.74	36.56	38.98	52.58
1.3.3	Ease of paying taxes*	81.69	72.79	59.58	62.56	71.93

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1b: Human capital & research pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
2	**Human capital and research**					
2.1	*Education*					
2.1.1	Expenditure on education, % GDP	5.44	4.59	4.32	4.53	4.85
2.1.2	Gov't expend. on edu./pupil, secondary[1]	24.41	17.49	19.82	26.64	22.12
2.1.3	School life expectancy, years	16.50	14.03	11.71	9.69	13.89
2.1.4	PISA scales in reading, maths & science[a]	491.87	427.08	360.19	n/a	469.85
2.1.5	Pupil-teacher ratio, secondary[a,b]	11.06	15.44	20.50	29.33	16.90
2.2	*Tertiary education*					
2.2.1	Tertiary enrolment, % gross[a]	66.10	45.19	26.06	7.43	44.21
2.2.2	Graduates in science & engineering, %	22.43	21.96	21.31	12.75	21.13
2.2.3	Tertiary inbound mobility, %[a]	9.22	2.84	1.64	2.51	5.26
2.3	*Research and development (R&D)*					
2.3.1	Researchers, FTE/mn pop	3,568.87	678.68	328.77	36.47	1,921.76
2.3.2	Gross expenditure on R&D, % GDP	1.64	0.51	0.32	0.37	0.95
2.3.3	Global R&D firms, avg. exp. top 3, mn $US	997.76	84.74	14.96	0.00	407.85
2.3.4	QS university ranking, average score top 3*	44.53	16.92	7.45	0.16	23.25

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. FTE = full-time equivalence.

[1] Scaled by percent of GDP per capita.

Table 1c: Infrastructure pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
3	**Infrastructure**					
3.1	*Information and communication technologies (ICTs)*					
3.1.1	ICT access*	7.99	5.67	4.26	2.62	5.96
3.1.2	ICT use*	6.66	3.63	1.99	0.56	4.15
3.1.3	Government's online service*	0.72	0.46	0.37	0.20	0.50
3.1.4	E-participation*	0.68	0.47	0.41	0.22	0.51
3.2	*General infrastructure*					
3.2.1	Electricity output, kWh/cap[a]	9,111.92	3,109.95	1,082.22	136.12	4,904.32
3.2.2	Logistics performance*[a]	3.51	2.87	2.69	2.52	3.04
3.2.3	Gross capital formation, % GDP	21.13	25.51	23.33	26.32	23.43
3.3	*Ecological sustainability*					
3.3.1	GDP/unit of energy use, 2005 PPP$/kg oil eq.	8.71	8.72	7.90	4.03	8.21
3.3.2	Environmental performance*	82.50	73.74	65.49	47.08	71.91
3.3.3	ISO 14001 environ. certificates/bn PPP$ GDP[a]	4.37	2.77	0.52	0.16	2.56

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. KwH = kilowatt hours.

Table 1d: Market sophistication pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
4	**Market sophistication**					
4.1	*Credit*					
4.1.1	Ease of getting credit*	58.57	57.94	54.14	35.31	54.49
4.1.2	Domestic credit to private sector, % GDP	95.39	61.42	37.19	24.79	64.69
4.1.3	Microfinance gross loans, % GDP	0.14	1.58	2.02	2.97	1.86
4.2	*Investment*					
4.2.1	Ease of protecting minority investors*	61.76	57.79	51.44	44.48	56.21
4.2.2	Market capitalization, % GDP[a]	84.90	45.49	32.97	23.74	60.74
4.2.3	Total value of stocks traded, % GDP[a]	44.32	19.40	5.99	0.19	28.55
4.2.4	Venture capital deals/bn PPP$ GDP[a]	0.13	0.03	0.02	0.03	0.08
4.3	*Trade, competition, and market scale*					
4.3.1	Applied tariff rate, weighted mean, %[a,b]	1.91	4.42	5.60	8.94	4.29
4.3.2	Intensity of local competition†[a]	5.37	4.97	4.89	4.65	5.07
4.3.3	Domestic market scale, bn PPP$	1,131.15	968.62	571.97	43.62	825.35

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1e: Business sophistication pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
5	**Business sophistication**					
5.1	*Knowledge workers*					
5.1.1	Knowledge-intensive employment, %	38.79	22.41	17.82	3.36	27.21
5.1.2	Firms offering formal training, % firms	43.93	41.37	30.74	32.40	37.00
5.1.3	GERD performed by business, % GDP[a]	1.07	0.24	0.08	0.06	0.63
5.1.4	GERD financed by business, %[a]	43.84	25.47	13.74	7.31	31.69
5.1.5	Females emp. w/adv. degrees, % tot. emp.[a]	18.71	12.27	9.78	2.45	14.46
5.2	*Innovation linkages*					
5.2.1	University/industry research collaboration†[a]	4.48	3.55	3.31	3.08	3.82
5.2.2	State of cluster development†	4.30	3.62	3.54	3.35	3.84
5.2.3	GERD financed by abroad, %	12.83	8.66	12.80	34.51	13.74
5.2.4	JV-strategic alliance deals/bn PPP$ GDP[a]	0.02	0.01	0.01	0.01	0.02
5.2.5	Patent families filed in 2+ offices/bn PPP$ GDP[a]	2.40	0.13	0.07	0.06	1.09
5.3	*Knowledge absorption*					
5.3.1	Intellectual property payments, % total trade[a]	1.82	0.53	0.39	0.13	0.91
5.3.2	High-tech imports less re-imports, % tot. trade	9.50	9.59	7.30	7.18	8.74
5.3.3	ICT services imports, % total trade	1.53	0.79	0.97	1.59	1.21
5.3.4	FDI net inflows, % GDP	4.35	3.62	2.91	6.82	4.14
5.3.5	Research talent, % in business enterprise	42.31	23.63	17.96	25.46	33.19

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. GERD = gross domestic expenditure on R&D.

Table 1f: Knowledge & technology outputs pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
6	**Knowledge and technology outputs**					
6.1	*Knowledge creation*					
6.1.1	Patents by origin/bn PPP$ GDP[a]	7.96	2.88	1.37	0.23	4.38
6.1.2	PCT patent applications/bn PPP$ GDP[a]	2.65	0.20	0.12	0.05	1.27
6.1.3	Utility models by origin/bn PPP$ GDP	1.42	3.08	2.93	0.10	2.31
6.1.4	Scientific & technical articles/bn PPP$ GDP[a]	29.22	10.57	6.56	8.43	16.43
6.1.5	Citable documents H index*[a]	393.65	137.53	105.93	69.63	219.93
6.2	*Knowledge impact*					
6.2.1	Growth rate of PPP$ GDP/worker, %	0.47	1.41	2.92	3.14	1.49
6.2.2	New businesses/th pop. 15–64[a]	5.94	3.31	0.90	0.45	3.58
6.2.3	Computer software spending, % GDP[a]	0.46	0.31	0.26	n/a	0.38
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP[a]	14.93	9.96	2.50	0.95	9.05
6.2.5	High- & medium-high-tech manufactures, %[a]	34.65	22.50	16.55	6.75	25.84
6.3	*Knowledge diffusion*					
6.3.1	Intellectual property receipts, % total trade[a]	1.03	0.06	0.11	0.20	0.47
6.3.2	High-tech exports less re-exports, % total trade[a]	6.48	4.92	1.71	0.43	4.26
6.3.3	ICT services exports, % total trade[a]	2.55	1.44	2.46	2.11	2.17
6.3.4	FDI net outflows, % GDP	5.46	6.63	0.12	1.37	4.14

Note: (*) index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes.

Table 1g: Creative outputs pillar

	Indicator	Average value by income group: High income	Upper-middle income	Lower-middle income	Low income	Mean
7	**Creative outputs**					
7.1	*Intangible assets*					
7.1.1	Trademarks by origin/bn PPP$ GDP	59.01	57.49	36.47	17.78	49.08
7.1.2	Industrial designs by origin/bn PPP$ GDP[a]	5.87	3.69	2.59	1.34	4.06
7.1.3	ICTs & business model creation[†]	5.06	4.40	4.22	3.82	4.56
7.1.4	ICTs & organizational model creation[†]	4.81	4.01	3.93	3.43	4.25
7.2	*Creative goods and services*					
7.2.1	Cultural & creative services exp., % total trade[a]	0.75	0.46	0.10	0.09	0.46
7.2.2	National feature films/mn pop. 15–69[a]	7.74	2.44	4.41	0.82	5.15
7.2.3	Global ent. & media market/th pop. 15–69[a]	1.34	0.20	0.05	n/a	0.90
7.2.4	Printing & publishing manufactures, %	2.31	1.56	1.23	1.77	1.85
7.2.5	Creative goods exports, % total trade	1.85	1.82	0.65	0.08	1.36
7.3	*Online creativity*					
7.3.1	Generic TLDs/th pop. 15–69	34.55	6.22	1.51	0.32	15.26
7.3.2	Country-code TLDs/th pop. 15–69	34.96	6.57	0.96	0.97	15.47
7.3.3	Wikipedia monthly edits/mn pop. 15–69	5,295.46	1,644.95	593.80	43.72	2,604.11
7.3.4	Video uploads on YouTube/pop. 15–69	51.13	18.80	7.75	0.19	35.54

Note: (*) Index, (†) survey question, (a) half weight, (b) higher values indicate worse outcomes. Scores rather than values are presented for indicators 7.3.1, 7.3.2, and 7.3.4. TLDs = top-level domains.

Table 3: GII economies with the fewest missing values

Economy	Number of missing values
Hungary	0
Mexico	0
Colombia	0
Malaysia	1
Poland	1
Russian Federation	1
Japan	2
France	2
Austria	2
Czech Republic	2
Italy	2
Portugal	2
Turkey	2
Thailand	2
South Africa	2
Ukraine	2
Germany	3
Korea, Rep.	3
Australia	3
Belgium	3
Slovakia	3
Bulgaria	3
Chile	3
Romania	3
Indonesia	3
Switzerland	4
Sweden	4
United Kingdom	4
Finland	4
New Zealand	4
Israel	4
Norway	4
Estonia	4
Slovenia	4
Lithuania	4
Brazil	4
Philippines	4
Kazakhstan	4
Argentina	4
United States of America	5
Ireland	5
Denmark	5
Latvia	5
Greece	5
India	5
Egypt	5

A key challenge is to find metrics that capture innovation as it actually happens in the world today.

Direct official measures that quantify innovation outputs remain extremely scarce.

For example, there are no official statistics on the amount of innovative activity defined as the number of new products, processes, or other innovations for any given innovation actor, let alone for any given country.

Most measures also struggle to appropriately capture the innovation outputs of a wider spectrum of innovation actors, such as the services sector or public entities.

The GII aims to move beyond the mere measurement of such simple innovation metrics.

To do so will require the integration of new variables, with a trade-off between the quality of the variable on the one hand and achieving good country coverage on the other hand.

Global Innovation Index 2016 rankings

Country/Economy	Score (0–100)	Rank	Income	Rank	Region	Rank	Efficiency Ratio	Rank	Median: 0.65
Switzerland	66.28	1	HI	1	EUR	1	0.94	5	
Sweden	63.57	2	HI	2	EUR	2	0.86	10	
United Kingdom	61.93	3	HI	3	EUR	3	0.83	14	
United States of America	61.40	4	HI	4	NAC	1	0.79	25	
Finland	59.90	5	HI	5	EUR	4	0.75	32	
Singapore	59.16	6	HI	6	SEAO	1	0.62	78	
Ireland	59.03	7	HI	7	EUR	5	0.89	8	
Denmark	58.45	8	HI	8	EUR	6	0.74	34	
Netherlands	58.29	9	HI	9	EUR	7	0.82	20	
Germany	57.94	10	HI	10	EUR	8	0.87	9	
Korea, Rep.	57.15	11	HI	11	SEAO	2	0.80	24	
Luxembourg	57.11	12	HI	12	EUR	9	1.02	1	
Iceland	55.99	13	HI	13	EUR	10	0.98	3	
Hong Kong (China)	55.69	14	HI	14	SEAO	3	0.61	83	
Canada	54.71	15	HI	15	NAC	2	0.67	57	
Japan	54.52	16	HI	16	SEAO	4	0.65	65	
New Zealand	54.23	17	HI	17	SEAO	5	0.73	40	
France	54.04	18	HI	18	EUR	11	0.73	44	
Australia	53.07	19	HI	19	SEAO	6	0.64	73	
Austria	52.65	20	HI	20	EUR	12	0.73	43	
Israel	52.28	21	HI	21	NAWA	1	0.81	23	
Norway	52.01	22	HI	22	EUR	13	0.68	55	
Belgium	51.97	23	HI	23	EUR	14	0.78	27	
Estonia	51.73	24	HI	24	EUR	15	0.91	6	
China	50.57	25	UM	1	SEAO	7	0.90	7	
Turkey	39.03	42	UM	4	NAWA	4	0.84	13	
Russian Federation	38.50	43	HI	39	EUR	29	0.65	69	