CTA™

Consumer Technology Association, producer of CES®

2025 CTA Global Innovation Scorecard

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About the Consumer Technology Association:

As North America's largest technology trade association, CTA® is the tech sector. Our members are the world's leading innovators — from dynamic start-ups to established global brands. CTA's mission focuses on promoting innovation beneficial to the human condition. CTA advocates pro-innovation policies, provides market research, promotes technology innovation and develops standards, and creates opportunities to foster business and strategic relationships. CTA also owns and produces CES® — the world's most powerful tech event. Find us at CTA.tech and follow us @CTAtech and @CES.

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1 Welcome

Welcome

The Global Innovation Scorecard measures and thus encourages innovation improving the human condition. As CTA is an American association, the criteria selected admittedly reflect a United States viewpoint. We recognize that bias, but counter it with transparency, reliance on third-party sources and an eagerness to accept input on the criteria for future editions. For example, the 2027 edition may add measurements reflecting the nascent trend of restricting technology and even use of artificial intelligence to preserve jobs. We need your input!

In the 2025 edition of the Global Innovation Scorecard, CTA measures countries on the basis of the political, economic and demographic realities that make them better places to invent the future. Does a country welcome diversity and create opportunities for all types of people in its workforce? Does it respect freedom of speech? Does it afford people access to justice and a transparent legal system? Does it enforce laws fairly on companies large and small?

At no time since World War II have these questions been more meaningful or more urgent. As the challenges of war, disease, rising nationalism, trade restrictions and aging populations reshape the world, innovators have more problems than ever to solve. Increasingly, widespread high-speed internet allows revolutionary new technologies such as telehealth and the safety and freedom of self-driving cars. The availability of broadband has also made workers more mobile than ever, making remote offices a reality for millions, and spawning vibrant start-up environments in unexpected corners of countries and the globe.

Steve Jobs told engineers that computers will save time for all humans. Today, advances in AI save users whole lifetimes every day. The ongoing advancement of AI requires government to establish the guardrails, but ensure that they allow entrepreneurs market entry and experimentation, and don't demand government approval at every turn.

The same spirit of innovation has brought the distributed nature of the internet to the mechanism of payments, introducing faster and cheaper means of settlement and driving the greatest revolution in finance in 400 years. As always, innovation thrives in moments of adversity, upending the winners of earlier eras and creating new ones more quickly than we would have imagined possible.

The 2025 Global Innovation scores 74 countries plus the European Union in 16 categories, with 56 indicators. Where legislators and regulators make countries open for business and create fair rules that allow everyone to compete on a level playing field, innovation thrives.

As always, the countries that rank highest demonstrate the best of collaboration between government and industry, producing new technologies that enrich lives and raise living standards across the world. Governments must allow domestic innovators to sprout and foreign innovators to compete.

Technological innovation always chases the most challenging human problems in health, our environment, food and water availability, mobility and communities. But governments need to encourage innovators by providing them an environment in which to experiment, fail, pivot and succeed. As I share in CTA's latest book, *Pivot or Die*, government, business and our personal decisions make the difference on our path to success. Success, for us, means ensuring that humanity continues to benefit from the innovations that solve our biggest problems.

The future belongs to those who embrace it, and the 2025 Global Innovation Scorecard offers a glimpse of which countries they might be.

Gary Shapiro

CEO & Vice Chair
Consumer Technology Association (CTA)®

2 Executive Summary

Executive Summary

In its 2025 Global Innovation Scorecard, CTA evaluates more countries on more metrics than ever before. We compare 74 countries, including the entire European Union and each of its individual members, on a grand total of 56 distinct indicators across 16 categories.

This year, we introduce new categories and raise standards in some existing ones, making it more challenging than ever to earn our highest honor — Innovation Champion status. Congratulations to the 2025 Innovation Champions:

Australia, Austria, Canada, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Iceland, Ireland, Israel, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States.

For the first time, the European Union as a whole has fallen off the winners' platform, primarily as a result of policies that impose arbitrary restrictions on where data is routed and stored, and that limit freedom on social media platforms. Other vibrant countries have also slid in the rankings.

This dynamic reflects trends around the world: The 2025 Global Scorecard comes at a historical inflection point, when philosophies on innovation have once again come into conflict. Does a government allow people to apply technology freely to solve their problems on their own terms, or does it impose top-down standards on them to favor or disfavor specific technologies?

Meanwhile, as a highly counterproductive trade war escalates, countries have raised tariffs. In doing so, they have hurt the buying power of people in many nations, and destroyed jobs by cutting off businesses from global markets when trading partners retaliate with new tariffs. We consider these issues in our Global Tech Trade category.

We have not witnessed a trade war on this scale in almost a century, and it challenges leaders to preserve the institutions that produced a global tech boom and the greatest prosperity in world history.

Yet we also see causes for hope. Soviet republics during the Great Depression have since become sovereign nations. Freed from the yoke of oppression and central planning, they continue to make great strides, becoming some of the most dynamic innovation economies.

Georgia makes its Scorecard debut as an Innovation Leader, joining Latvia and Lithuania in that tier, along with healthy Eastern European tech economies such as Slovakia and Poland.

Meanwhile, the EU's fall from the Innovation Champion tier results from policies that impose arbitrary restrictions on where data is routed and stored (Cross-Border Data Flows), and freedom on social media platforms (Digital Platform Friendliness).

This year we also added a category to address one of the most exciting emerging technologies today: Blockchain Friendly. The proliferation of blockchain technologies brings the democratizing forces of the internet to new corners of the world.

In large industrialized economies, blockchain enables businesses to gain new insights and secure supply chains. In the developing world, blockchain gives property owners a way to document title to their land for perhaps the first time. And across the globe, artists and musicians can use blockchain to find new ways to market their works.

Countries which rely on the rule of law, freedom of expression, and diverse populations and workforces perform better than those that do not. Governments that make it easier for their people to start new businesses drive greater innovation.

Each of the 74 countries in the 2025 Scorecard makes unique, often fascinating contributions to our collective technological progress. As a result of its huge land area and sparse population, Kazakhstan has been making strides in telemedicine for decades? That Portugal boasts a flourishing blockchain start-up environment? That large financial institutions in several countries are exploring smart contracts as a cheaper means of foreign exchange to promote global trade?

In looking over this latest Scorecard, we hope leaders will learn from both the mistakes and the successes of others. As every start-up founder appreciates, whatever problem you're trying to solve, the chances are that someone, somewhere else is also working on it. The greatest achievement of our internetworked societies is providing instantaneous access to one another's ideas, anywhere on the planet.

That combination of freedom, risk and reward has produced real progress in the human condition by building on that foundation; innovation will only take us further.

3 Looking Ahead

Looking Ahead

We stand at the gates of real breakthroughs in health, mobility and sustainability. Though none of us knows what tomorrow will bring, we are seeing the rise of new and transformative technologies. Large language models (LLMs) and generative AI are helping developers to code, doctors analyze medical imagery, serving customers and acting as digital assistants. Quantum computing can revolutionize logistics, secure communications, sensors, and more.

We need data to realize the full benefits of AI. That demands robust approaches on issues such as cybersecurity and privacy. Cyber risks pose a great and growing threat. Innovators take these threats seriously, and created and use tools to improve product security and protect consumers.

In the United States, CTA has helped lead a public-private effort to inform consumers about the cybersecurity of their connected devices. The EU, Finland, Germany and Singapore have already implemented cybersecurity labeling programs, and other nations plan to institute their own or negotiate them on the basis of bilateral or multilateral agreements. CTA believes such programs should be voluntary, based on established technical standards, and supported by mutual recognition agreements. CTA will continue to monitor these efforts closely, and will consider scoring them in a new category in the next edition of our Global Innovation Scorecard.

4 Overview

Overview

INNOVATION CHAMPIONS

The 2025 Global Innovation Champions are the top-scoring countries in the world, earning high marks for diverse and highly skilled workforces, fast broadband connections, a friendly climate for entrepreneurs, and an openness to new technologies and business models. They welcome Web 3.0 technologies, boasting vibrant blockchain startup environments, and place no undue restrictions on cryptocurrencies. They allow the testing and operation of increasingly advanced self-driving cars. The 25 Innovation Champions include longtime global leaders such as the United States and United Kingdom, economic heavyweights such as Germany and Japan, South Korea, and smaller economies including Estonia, Ireland and Israel.

Australia
Austria
Canada
Czech Republic
Denmark
Estonia
Finland
France
Germany
Iceland
Ireland
Israel
Japan
Luxembourg
Netherlands
New Zealand
Norway
Portugal
Singapore
South Korea
Spain
Sweden
Switzerland
United Kingdom
United States

INNOVATION LEADERS

The 21 Innovation Leaders earn high grades in most of the 16 categories on the Scorecard. Most of these countries have relatively high degrees of economic and personal freedom, enjoy well-educated workforces, and have high levels of entrepreneurial activity and R&D investment. This group includes industrialized economies such as Belgium and Italy, growing Pacific economies such as Malaysia and the Philippines — which continues to champion free trade — and advancing Eastern European economies including Bulgaria, Latvia, Poland, Slovakia and Slovenia.

Belgium
Brazil
Bulgaria
Chile
Costa Rica
Croatia
Cyprus
European Union
Georgia
Greece
Hungary
Italy
Latvia
Lithuania
Malaysia
Malta
Philippines
Poland
Romania
Slovakia
Slovenia

Overview

INNOVATION ADOPTERS

The 20 Innovation Adopters show strong pro-innovation policies and trends in some categories, but not most. Bright spots include the diversity of the workforce in Mexico, the business-friendly tax policies of Kazakhstan, and growing tech giants such as India. Some Innovation Adopters could create greater opportunities for technical education, and most could take steps to make it easier to establish and operate businesses.

Argentina
China
Colombia
Ghana
India
Indonesia
Jordan
Kazakhstan
Mexico
Morocco
Panama
Peru
Russian Federation
Saudi Arabia
South Africa
Thailand
Turkey
Ukraine
Uruguay
Vietnam

MODEST INNOVATORS

The lowest tier on the Scorecard also has the fewest members. The nine Modest Innovators have the greatest room for improvement. Whether that means increasing the ethnic and gender diversity of their workforces, loosening restrictions on the ownership and use of digital assets or eliminating barriers to entrepreneurship and innovation in one or more other areas. And while our Modest Innovators have more to do to deliver the benefits of vibrant technology industries, we see encouraging signs in fields including telemedicine.

Algeria
Ecuador
Egypt
Ethiopia
Kenya
Nigeria
Pakistan
Rwanda
Tunisia

5 Rankings by Category

Rankings by Category

The following pages present the leading countries in every area of evaluation. The Scorecard categories — 16 in all, based on 56 qualitative and quantitative metrics — span a broad range of sectors and activities that fuel the development of new ideas. Ranking our results by category reveals the sheer diversity of global innovation. Some countries have dynamic startup economies but stifling regulations restrain them. Others may lack broadband access and mature R&D ecosystems, but have been quick to embrace technologies such as self-driving vehicles, telehealth and blockchain.

Categories

INNOVATION ENHANCERS

- Acts Green
- Actual Diversity
- Fundamental Freedoms
- Invests in Skilled Workforce
- Promotes Resilience & Digital Transparency
- Encourages Telehealth

POSITIVE REGULATORY ENVIRONMENT

- Allows Cross-Border Data Flows
- Friendly to Digital Platforms
- Maintains Pro-Innovation Legal Environment

Categories

POSITIVE ECONOMIC ENVIRONMENT

- Encourages Broadband
- Encourages Global Tech Trade
- R&D Friendly
- Start-Up & Small Business Friendly
- Tax Friendly

TECHNOLOGIES OF THE FUTURE

- Blockchain Friendly
- Welcomes Self-Driving Vehicles

Innovation Enhancers
Top 10 Grades by Category

Acts Green

Australia
Canada
Denmark
Estonia
Finland
Iceland
Luxembourg
New Zealand
Norway
Portugal
Spain
Sweden
Switzerland
United Kingdom
United States
Uruguay

Actual Diversity

Luxembourg
Australia
Canada
New Zealand
Singapore
Iceland
Switzerland
Philippines
Norway
Sweden

Encourages Telehealth

Algeria, Argentina, Brazil, Bulgaria, Chile, China, Colombia, Costa Rica, Croatia, Estonia, Finland, Georgia, India, Indonesia, Ireland, Israel, Jordan, Kazakhstan, Kenya, Latvia, Lithuania, Malaysia, Mexico, Morocco, New Zealand, Nigeria, Norway, Panama, Peru, The Philippines, Portugal, Romania, Saudi Arabia, Singapore, Slovenia, Sweden, Switzerland, Thailand, Ukraine, United Kingdom, Uruguay, European Union

Fundamental Freedoms

New Zealand
Switzerland
Finland
Sweden
Denmark
Ireland
Luxembourg
Estonia
Norway
Iceland

Invests in Skilled Workforce

Saudi Arabia
Canada
Israel
Singapore
Kazakhstan
Malaysia
Morocco
Denmark
United States
Australia

Promotes Resilience & Digital Transparency

Denmark
Iceland
Finland
Singapore
Sweden
Luxembourg
Switzerland
Australia
Germany
United States

NOTE: When sufficient data are not publicly available for a country, it receives a null grade in a category. Although null grades do not affect a country's overall standing on the Scorecard, a country cannot qualify as a Top 10 Performer in a category for which it receives a null grade.

Positive Regulatory Environment

Top 10 Grades by Category

Allows Cross-Border Data Flows

Singapore
Canada
Mexico
United States
Pakistan
Ukraine
United Kingdom
Australia
Costa Rica
Ethiopia
India
Indonesia
Japan
Morocco
New Zealand

Friendly to Digital Platforms

Japan, Rwanda,
United States,
Argentina, Canada,
Czech Republic,
Georgia, Iceland, Ireland,
Luxembourg, The Netherlands,
New Zealand. Norway,
The Philippines, Poland,
Portugal, Singapore, Spain,
Sweden, Switzerland,
Ukraine, United Kingdom

Maintains Pro-Innovation Legal Environment

Denmark
Norway
Finland
Netherlands
Singapore
Sweden
New Zealand
Luxembourg
Germany
Estonia

Positive Economic Environment

Top 10 Grades by Category

Encourages Broadband

1. Japan
2. Iceland
3. Denmark
4. United States
5. Netherlands
6. France
7. South Korea
8. Estonia
9. Switzerland
10. Singapore

Encourages Global Tech Trade

1. Singapore
2. Philippines
3. Malaysia
4. China
5. Czech Republic
6. Malta
7. United States
8. Thailand
9. Hungary
10. Japan

R&D Friendly

1. Israel
2. South Korea
3. United States
4. Japan
5. Sweden
6. Austria
7. Belgium
8. Switzerland
9. Germany
10. Finland

Start-Up & Small Business Friendly

1. Singapore
2. United States
3. United Kingdom
4. Sweden
5. Israel
6. Switzerland
7. New Zealand
8. Norway
9. Estonia
10. Finland

Tax Friendly

1. Bulgaria
2. Hungary
3. Saudi Arabia
4. Romania
5. Georgia
6. Kazakhstan
7. Switzerland
8. Ukraine
9. Russian Federation
10. Singapore

Techologies of the Future

Top 10 Grades by Category

Blockchain Friendly

Australia, Austria, Brazil, Canada, Costa Rica, France, Georgia, Japan, Luxembourg, Malta, Mexico, New Zealand, Portugal, Singapore, Slovenia, Spain, Switzerland, United Kingdom, United States

Welcomes Self-Driving Vehicles

France, Germany, Japan, The Netherlands, Norway, South Korea, United Kingdom, United States, Czech Republic, Denmark, Egypt, Estonia, Finland, Greece, Israel, Italy, Luxembourg, Mexico, New Zealand, Russian Federation, Saudi Arabia, Singapore, Spain, Sweden, Vietnam

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Algeria	Modest Innovator	1.283	C+	F	F	F	D+	F	A
Argentina	Innovation Adopter	1.843	A-	C-	F	C	C	D-	A
Australia	Innovation Champion	3.097	A+	A+	A	A	B	B	B
Austria	Innovation Champion	2.765	A-	B	C	A	B-	B	B
Belgium	Innovation Leader	2.726	A-	B+	C	B	B+	B-	B
Brazil	Innovation Leader	2.382	A-	B-	A	A	C+	D-	A
Bulgaria	Innovation Leader	2.373	B	C	C	B	B	B	A
Canada	Innovation Champion	3.275	A+	A	A	A	A-	B	B
Chile	Innovation Leader	2.314	B	C+	C	B	B-	D-	A
China	Innovation Adopter	1.875	D+	D	C	F	B	A-	A
Colombia	Innovation Adopter	1.872	B	C	C	C	C-	C	A

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Algeria	D	D-	B+	C-	D+	D+	F	B	C
Argentina	B	B-	C+	C-	C+	D+	C-	D-	C
Australia	C	A	B+	A	A	B	A-	D	C
Austria	D	A-	B+	A	A-	A-	B+	D	C
Belgium	C	A	B-	A-	A-	A-	B+	D+	D
Brazil	C	C+	C-	D+	B-	B	C+	C	C
Bulgaria	D	B-	C-	C	B-	C	B	A+	D
Canada	B	A	A-	A-	B+	B	A	B	C
Chile	C	A-	B	B	B-	D-	B	C	C
China	F	F	N/A	C	C	B+	A-	C	C
Colombia	C	C+	B-	D+	C	D-	C+	F	C

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Costa Rica	Innovation Leader	2.608	A-	B-	A	A	C	B	A
Croatia	Innovation Leader	2.529	C+	C	C	B	B-	B	A
Cyprus	Innovation Leader	2.432	A-	C-	C	B	B-	B	D
Czechia	Innovation Champion	2.941	A-	B	C	B	B	A-	B
Denmark	Innovation Champion	3.077	A+	B	C	B	A+	B	B
Ecuador	Modest Innovator	1.754	C+	B	C	D	D+	D-	B
Egypt	Modest Innovator	1.294	D+	F	F	F	D	D+	B
Estonia	Innovation Champion	3.156	A+	B+	C	B	A	B	A
Ethiopia	Modest Innovator	1.302	D+	B	A	C	F	D	B
Finland	Innovation Champion	3.136	A+	B	C	B	B+	B	A
France	Innovation Champion	2.961	A-	B	C	A	A	B	B

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Costa Rica	C	A-	C+	B	C+	D	C-	B	C
Croatia	D	B	B	B-	B	B	B	B+	C
Cyprus	D	A-	C+	B	B+	C+	B	A-	C
Czechia	B	A	C+	B+	B+	B	B	A-	B
Denmark	D	A+	B+	A+	A+	B+	A	C	B
Ecuador	C	C+	C+	D	C	D	D	B	C
Egypt	C	F	C-	F	C-	B-	D	B+	B
Estonia	D	A+	B+	A	A-	B	A	A-	B
Ethiopia	D	D-	N/A	D-	F	D-	F	C	C
Finland	D	A+	B+	A+	A+	A-	A	B-	B
France	D	B+	B	A-	A-	B+	A	C-	A

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Georgia	Innovation Leader	2.480	C+	C-	A	A	C+	C	A
Germany	Innovation Champion	2.902	A-	B	C	B	B+	B	B
Ghana	Innovation Adopter	1.863	D-	B	A	B	D-	F	B
Greece	Innovation Leader	2.452	A-	C	C	B	B	B-	C
Hungary	Innovation Leader	2.333	A-	C-	C	B	B	B+	C
Iceland	Innovation Champion	3.165	A+	A	C	B	A+	B	B
India	Innovation Adopter	1.922	D+	C-	A	C	D	C-	A
Indonesia	Innovation Adopter	2.029	C+	B	A	D	D+	C	A
Ireland	Innovation Champion	3.059	A-	B+	C	B	B	B+	A
Israel	Innovation Champion	2.916	B	B	C	B	B+	B+	A
Italy	Innovation Leader	2.471	A-	C-	C	B	B-	B-	B

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Georgia	B	C+	C	B	C+	D-	B-	A	C
Germany	D	A	B	A	A	A-	A-	D	A
Ghana	C	B-	B-	C-	C-	D	D	B	C
Greece	D	B	B-	B-	B	B	C+	B-	B
Hungary	D	C+	C	D+	B-	B	C+	A+	C
Iceland	B	A+	B+	N/A	A+	B+	B+	B+	C
India	F	C	A+	D	C-	C-	B-	C-	C
Indonesia	C	C	C-	C-	C	D-	C	B	C
Ireland	B	A+	B	A	A-	B	A	A-	D
Israel	C	B-	A-	N/A	B+	A+	A	C	B
Italy	D	B+	C+	B	B	B	B	C-	B

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Japan	Innovation Champion	2.990	A-	D-	A	A	A+	B+	C
Jordan	Innovation Adopter	1.804	C-	B+	F	C	D	D+	A
Kazakhstan	Innovation Adopter	2.039	C-	B	C	D	C-	C	A
Kenya	Modest Innovator	1.666	C-	B+	C	C	D-	F	A
Latvia	Innovation Leader	2.666	B	B+	C	B	B	B	A
Lithuania	Innovation Leader	2.746	B	B-	C	B	B+	B	A
Luxembourg	Innovation Champion	3.078	A+	A+	C	A	B	B-	C
Malaysia	Innovation Leader	2.589	C+	B-	C	B	C+	A+	A
Malta	Innovation Leader	2.559	A-	B+	C	A	A-	A-	B
Mexico	Innovation Adopter	2.245	B	B	A	A	C	D+	A
Morocco	Innovation Adopter	1.804	C+	F	A	F	D+	C	A

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Japan	A	A	C	A	B+	A-	B	D	A
Jordan	F	D+	B	B-	C-	C-	C-	B+	C
Kazakhstan	D	D+	A-	C+	B-	F	C+	A	C
Kenya	D	C	N/A	D-	D+	C	C+	C	C
Latvia	D	A-	C+	B+	B+	C-	B+	B+	C
Lithuania	D	A-	B-	A-	B+	B	A-	A-	D
Luxembourg	B	A+	B	A	A	B-	A-	C+	B
Malaysia	C	C	A-	B-	B-	B-	B-	B	C
Malta	D	B+	C+	B	B+	C-	B	D-	C
Mexico	C	C	B-	F	C	D-	B-	C	B
Morocco	C	D	A-	C-	C-	C-	C	D+	C

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Netherlands	Innovation Champion	3.078	A-	B	C	B	A	B	B
New Zealand	Innovation Champion	3.352	A+	A	A	A	B+	B	A
Nigeria	Modest Innovator	1.456	D-	B	C	C	D-	F	A
Norway	Innovation Champion	3.273	A+	B+	C	B	A-	B	A
Pakistan	Modest Innovator	1.068	D+	C	A	F	D-	D-	B
Panama	Innovation Adopter	1.999	B	B	F	B	C	C	A
Peru	Innovation Adopter	1.971	C-	B	C	B	C-	C	A
Philippines	Innovation Leader	2.362	C+	B+	A	B	D+	A+	A
Poland	Innovation Leader	2.626	C+	D+	C	B	B+	B	A
Portugal	Innovation Champion	2.803	A+	C+	C	A	B+	B	A
Romania	Innovation Leader	2.471	A-	C-	C	B	B	B	A

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Netherlands	B	A	B	A+	A-	B+	A	D+	A
New Zealand	B	A+	B+	A	A-	B	A	C	B
Nigeria	D	D+	N/A	D-	D	N/A	D	B	C
Norway	B	A+	B+	A+	A	B	A	C+	A
Pakistan	F	D	F	F	D-	F	D	C+	C
Panama	C	B-	C+	D+	C	F	D+	B+	C
Peru	C	C+	B-	D-	C+	F	C-	B-	C
Philippines	B	C	B	D+	C-	D-	D+	B	C
Poland	B	B-	C+	B	B+	B	B	B+	C
Portugal	B	A	B	B	B	B	A-	F	C
Romania	D	B	C	B-	B-	D+	B	A	C

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Russia	Innovation Adopter	2.049	A-	C+	C	D	C+	C	B
Rwanda	Modest Innovator	1.490	F	C	F	F	D-	D-	C
Saudi Arabia	Innovation Adopter	2.229	D+	B	F	B	B+	C	A
Singapore	Innovation Champion	3.529	A-	A	A	A	A	A+	A
Slovakia	Innovation Leader	2.489	B	C	C	B	B+	B+	B
Slovenia	Innovation Leader	2.706	A-	B	C	A	B-	B	A
South Africa	Innovation Adopter	1.805	C+	B-	C	C	C-	D	B
South Korea	Innovation Champion	2.922	B	D	A	B	A	B-	B
Spain	Innovation Champion	2.941	A+	B	C	A	B+	B-	B
Sweden	Innovation Champion	3.352	A+	B+	C	B	A-	B	A
Switzerland	Innovation Champion	3.313	A+	A-	C	A	A	B-	A

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Russia	F	D-	B-	D+	B-	B	C-	A-	B
Rwanda	A	D	B-	B	D+	C	C	C+	C
Saudi Arabia	C	F	A	N/A	B-	D+	C-	A+	B
Singapore	B	C+	A-	A+	A+	B+	A+	A-	B
Slovakia	D	B+	C+	B-	B	C+	B-	B+	C
Slovenia	D	A-	B	B+	B	B+	B-	B-	D
South Africa	D	B-	C	C	C+	C-	C-	C-	D
South Korea	C	B+	B+	A-	A-	A+	A	C-	B
Spain	B	B+	B	B+	A-	B	A-	C-	B
Sweden	B	A+	B+	A+	A	A-	A+	A-	B
Switzerland	B	A+	B+	N/A	A	A-	A	A	C

Data

Country	Grade	Score	Acts Green	Actual Diversity	Allows Cross-Border Data Flows	Blockchain Friendly	Encourages Broadband	Encourages Global Tech Trade	Encourages Telehealth
Thailand	Innovation Adopter	2.195	B	D+	C	D	C+	B+	A
Tunisia	Modest Innovator	1.696	C-	D-	F	D	D+	D	B
Turkey	Innovation Adopter	1.805	C+	C	C	D	C	C-	B
Ukraine	Innovation Adopter	2.128	B	B-	A	F	C	C-	A
United Kingdom	Innovation Champion	3.235	A+	B-	A	A	B+	D+	A
United States	Innovation Champion	3.410	A+	B+	A	A	A+	B+	C
Uruguay	Innovation Adopter	2.265	A+	C-	F	B	B+	D-	A
Vietnam	Innovation Adopter	1.814	B	C-	C	D	C	B	B
EU	Innovation Leader	2.726	A-	B-	C	B	B-	B	A

Country	Friendly to Digital Platforms	Fundamental Freedoms	Invests in Skilled Workforce	Maintains Pro-Innovation Legal Environment	Promotes Resilience & Digital Transparency	R&D Friendly	Start-Up & Small Business Friendly	Tax Friendly	Welcomes Self-Driving Vehicles
Thailand	C	C-	C	D+	C+	B	B-	B+	C
Tunisia	C	C-	A+	C-	C	C-	C-	B+	C
Turkey	F	D	C-	D	B-	B	B-	B-	C
Ukraine	B	C-	C	D	C+	D-	B-	A-	C
United Kingdom	B	A-	B+	A-	A	B+	A+	C	A
United States	A	B+	B+	B+	A	A-	A+	B-	A
Uruguay	C	A-	C-	A-	B	D	C-	B	C
Vietnam	D	D-	C-	D	C-	D+	C-	B+	B
EU	D	B+	B-	B+	A-	B+	B+	B-	C

6 Methodology

Methodology

In its ambitious fourth edition, CTA expands the Global Innovation Scorecard from 70 countries to evaluate 74 countries, including the entire G-20, all 27 members of the European Union, and the EU as a whole. The Global Scorecard includes large and established trading partners of the United States, and many emerging market countries driving innovations in fields ranging from health and finance to transportation.

In total, the Global Scorecard is a comparative analysis of 56 indicators across 16 categories. Our measurements identify the countries that most strongly encourage tech innovation, economic growth, and social progress, and the policies other countries could emulate to deliver similar benefits to their people.

We consider demographic factors, such as the share of immigrants in a country's population and the gender equality of its workforce, the availability of high-skilled workers, and the ease with which its people can start new businesses. We look at political and cultural dimensions, including the freedom of religion, movement, information and expression. We evaluate the health of a country's environment, including the quality of its air and water. We consider a country's legal climate, the extent of official corruption, and the health of its regulatory enforcement efforts and civil justice institutions.

We evaluate whether governments impose arbitrary restrictions about where data is routed and stored. We consider whether governments place unduly onerous restrictions on or single out widespread Web 2.0 technologies, such as social media platforms, and whether they welcome Web 3.0 technologies, such as cryptocurrencies, dapps and Decentralized Autonomous Organizations (DAOs).

Finally, we consider a country's rules surrounding technological trade, and emerging technologies of great potential benefit, such as telehealth and self-driving vehicles.

All third-party sources and policy inputs reflect the latest information available as of August 23, 2024. **As always, we welcome your comments and feedback by email at** scorecard@cta.tech.

Eligibility of Countries

In the 2025 Global Innovation Scorecard, CTA evaluates countries for which:

- Publicly available, verifiable and independent third-party data exists;
- Comparable data across nations exists; and
- Governments can influence public policy.

European Union

Under the treaties on which the European Economic Community is based, the European Union establishes policies in certain areas but allows its member states to establish policies of their own in others. This presents a challenge when evaluating EU states, as they must be evaluated on their merits, but should not be penalized for policies they themselves have not chosen to enact. As a result, CTA has both graded the EU in its entirety, and evaluated each of its 27 member states individually, on the respective indicators in each category.

Acts Green

evaluates the quality of a country's air and drinking water. Metric A considers air quality, measuring concentrations of fine particulate matter (PM2.5, in µg/m3) using World Health Organization data (Source 1). Countries earn an 'A' for meeting or falling below the WHO Air Quality Guideline, an annual mean of PM2.5 of 10µg/m3, a 'B' for 10-15µg/m3, 'C' for 15-25µg/m3, 'D' for 25-35µg/m3, and 'F' for over 35µg/m3 or data not available.

Metric B measures drinking water by percentage of the population using improved drinking water sources, using the WHO. Countries earn an 'A' for 100% of the population using improved drinking-water sources, a 'B' for 91-99%, a 'C' for 76-90%, a 'D' for 50-75%, and an 'F' for less than 50% or data not available.

For each measure, the letter grades are converted to numeric scores, with 'A' equaling 4 points, 'B' equaling 3 points, 'C' equaling 2 points, 'D' equaling 1 point, and 'F' equaling 0 points. The resulting scores are averaged into a composite score for the category, and converted back into letter grades according to the following table:

Grade Min		Grade Max
0.000	F	0.337
0.338	D-	0.681
0.682	D	1.026
1.027	D+	1.371
1.372	C-	1.715
1.716	C	2.060
2.061	C+	2.404
2.405	B-	2.749
2.750	B	3.000
3.001	B+	3.251
3.252	A-	3.502
3.503	A	3.753
3.754	A+	4.000

Actual Diversity

measures the concentration of various ethnic groups within a country and the gender gap in its workforce. Metric A assesses the country's ethnic diversity based on immigration data, using an adaptation of the Herfindahl-Hirschman Index, a method most commonly used to measure corporate concentration within a given industry, relying on the CIA World Factbook, and Michele Tribalat (France) Istituto Nazionale di Statistica (Italy), Britannica (Malta), and minorityrights.org (Rwanda). Metric B assesses the share of immigrants as a percentage of a country's population, using the United Nations Department of Economic and Social Affairs, Population Division, International Migrant Stock 2020. Metric C assesses the ratio of female-to-male participation in the country's labor force among people ages 25-54, drawing on the World Economic Forum: Global Gender Gap Report, 2024. The scores in each metric are normalized, and then averaged, producing a letter grade.

Allows Cross-Border Data Flows

evaluates the extent to which a country permits the flow of data without onerous and/or arbitrary requirements that create hindrances for end users or operators of online systems including, but not limited to, cloud storage and streaming media.

A country earns -1 point if it has a data localization law, requiring online services such as cloud storage providers to store data within its borders.

A country earns -1 point if it has a data transfer law, requiring online services such as cloud storage providers to route data flows according to strict directives.

A country earns -1 point if it has a data mirroring law, requiring online services such as cloud storage providers to store data within its borders.

A country earns +1 point if it has engaged in bilateral or multilateral discussions to allow for easier flow of data, and/or taken steps to promote international interoperability among different privacy systems.

A country earns +2 points if it has not passed data localization, transfer, or mirroring regulations.

A country earns +1 point if it data flows are determined by an individual's consent to platform terms and services.

A country earns +2 points if it participates in the Asia-Pacific Economic Cooperation (APEC) Cross-Border Privacy Rules.

A = a country earns ≥ 1 point.

C = a country earns -1 to 0 points.

F = a country earns -3 to -2 points.

Blockchain Friendly

evaluates the degree to which a country allows people to use Web 3.0 technologies without onerous requirements or unnecessary hindrances.

A — The country allows its nationals to exchange hard currency for cryptocurrency and vice versa without significant restrictions. Does the country possess a variety of crypto-friendly banking and financial services, such as Binance, Bitsmart, Coinbase, Crypto.com, Gemini, etc.

B — A country has no law or regulation prohibiting the use of cryptocurrency. It may have some restrictions on the exchange of cryptocurrency (e.g., EU MiCA stablecoin laws). The country also has an active blockchain startup environment, characterized by the operation of multiple blockchain companies there, though these companies need not be incorporated in the country.

C — The country allows its nationals to exchange hard currency for cryptocurrency and vice versa, but with significant restrictions, such as unique taxes assessed at the point of conversion (rather than simply the standard applicable income taxes under existing national law). It may restrict banks from processing cryptocurrency transactions.

D — The country allows its nationals to exchange hard currency for cryptocurrency and vice versa, but places substantial restrictions on them. Such restrictions might include unique taxes assessed at the point of conversion between cryptocurrency and hard currency (rather than simply the standard applicable income taxes under existing national law). It may not recognize cryptocurrencies as legal tender, restrict banks from processing cryptocurrency transactions, or impose onerous registration processes requiring users to obtain permission from the government prior to using cryptocurrencies, thus discouraging the use of cryptocurrencies.

F — A country does not allow its nationals to exchange hard currency for cryptocurrency and vice versa.

Encourages Broadband

measures a country's number of mobile broadband subscriptions per 100 inhabitants (Metric A, using International Telecommunications Union Data indicator i911w), number of fixed broadband subscriptions per 100 inhabitants (Metric B, using International Telecommunications Data indicator i992b) and the mean download speeds of its internet connections (Metric C, using cable.co.uk's Worldwide broadband speed league). The three metrics are each weighted equally, and the combined scores are normalized.

Encourages Global Tech Trade

considers five factors: Metric A, based on a country's participation in the Information Technology Agreement of 1997, according to the World Trade Organization information; Metric B, a country's participation in the Information Technology Agreement of 2015, based on the World Trade Organization Declaration on the Expansion of Trade in Information Technology Products; Metric C, the share of Information and Communication Technologies (ICT) as a percentage of a country's total exports and as a percentage of total imports (Metric D), both derived from the United Nations Conference on Trade and Development (UNCTADSTAT). Metrics C and D are normalized, and then all four measures are averaged and normalized again, producing letter grades. Metric E is based on the average applied most favored nation tariff rate for ICT products and is derived from World Trade Organization tariff database.

Encourages Telehealth

evaluates the extent to which a country permits care for its population by Telemedicine.

A — A country allows telehealth visits for a wide range of healthcare services to occur via videoconference or telephone, without requiring specific equipment to comply with telehealth regulations. In addition, the country must have no sunset clauses limiting how long telehealth services can remain operational.

B — A country allows telehealth visits, but places restrictions on the types of services allowed. It does not require specific equipment to comply with regulations (i.e. allows visits to occur over video call or phone). There are no sunset clauses limiting how long telehealth services can remain operational.

C — A country allows telehealth visits, but places restrictions on the types of services allowed and requires specific equipment to comply with regulations (i.e. physicians or patients cannot widely available videoconference services or phone calls for visits). The country may have a sunset clause limiting how long telehealth service can remain operational.

D — A country allows limited telehealth services and requires specific equipment to carry out visits. It also has sunset clauses limiting how long telehealth services can remain operational.

F — A country does not allow telehealth services.

Friendly to Digital Platforms

evaluates the degree to which a country enables people to use Web 2.0 technologies such as social media.

A — A country has enacted explicit rules indemnifying digital platforms such as social media and similar businesses against any potential liabilities introduced by individual users posting on them, and does not single out Very Large Online Platforms (VLOPs) or Very Large Online Search Engines (VLOSEs) for special regulation and/or enforcement.

B — A country indemnifies digital platforms and website operators by default from any liability resulting from content posted by individual users, though upon notice, they may be required to remove certain categories of content (e.g., content that constitutes defamation in the United Kingdom, expressions of Nazi ideology in Germany, etc.).

C — A country requires digital media platforms and website operators to cooperate with arbitrary government requests to remove content. The terms of such censorship are not explicitly or transparently defined, nor is such censorship limited by law, and the rules

are subject to change even in the absence of new legislation. Failure to comply with these regulations exposes companies operating digital platforms to liability.

D — A country singles out Very Large Online Platforms (VLOPs) and/or Very Large Online Search Engines (VLOSEs) for special regulation and/or enforcement.

F — A country bans certain digital platforms altogether.

Fundamental Freedoms

evaluates the degree to which a country grants its citizens certain civil and political liberties. The grades are derived by equally weighting select components of CATO Institute's Human Freedom Index (to include freedom of movement; religious freedom; the freedoms of association, assembly and civil society; freedom of expression and information; and freedom of relationships), and scores from Freedom House's Freedom in the World 2024. The combined scores are then normalized.

Invests in Skilled Workforce

evaluates a country's population on the basis of educational attainment, availability of high-skilled workers, and the share of ICT-related advanced degrees. Metric A assesses the percentage of a country's population possessing a tertiary degree based on the INSEAD Global Talent Competitiveness Index 2023. Metric B assesses the availability of scientists and engineers, based on an average score of a survey of business leaders, also using the INSEAD Global Talent Competitiveness Index 2023. Metric C assesses the percentage of overall degrees institutions of higher learning confer in STEM-related disciplines, using the WIPO Global Innovation Index. Each of these three metrics is normalized, and the scores are then combined into a composite, yielding a letter grade.

Maintains Pro-Innovation Legal Environment

evaluates the health and fairness of a country's judicial institutions. This category draws on three metrics in the World Justice Project's Rule of Law Index: Absence of Corruption (Metric A), gauging absence of corruption in government; Regulatory Enforcement (Metric B), gauging the fairness and effectiveness with which a government implements and enforces regulations; and Civil Justice (Metric C), gauging whether ordinary people can resolve their grievances peacefully and effectively through the civil justice system. All three measures are then averaged and normalized, producing letter grades. Please note that Iceland, Israel, Saudi Arabia and Switzerland are not included in the WJP Index, so they consequently receive null grades in this category, which does not affect their overall performance on the Scorecard.

Promotes Resilience & Digital Transparency

evaluates the extent to which a country's government provides services on the internet, enabling it to withstand shocks. The category encompasses a Resilience Score (Metric A, based on the FM Global Resilience Index) and an E-Government Development Score (Metric B, from the UN E-Government Development Index, 2022). The combined score is normalized.

R&D Friendly

measures a country's gross expenditure on research and development, as a percentage of its GDP, using data from the WIPO 2023 Global Innovation Index. The score is normalized and converted to a letter grade.

Start-Up & Small Business Friendly

evaluates how easy it is to start a new business in a country. Metric A assigns quintile scores to Total Score from StartupBlink's Global Startup Ecosystem Index 2024, which assesses countries on their ability to support new businesses. Metric B applies a normailzed score based on the World Bank's "Doing Business: Ease of Starting a Business" 2020 Corrected Data. Metric C grades nations on the number of unicorn companies (companies that have achieved an actual or implied valuation of at least US $1 billion) founded domestically in the past 10 years per 10 million people in population, drawing on data from Pitchbook, CBInsights, Crunchbase and Hurun Global Unicorn List. The unicorn metric is then converted into quintiles. Metrics A-C are then averaged, normalized and converted to a letter grade.

Tax Friendly

evaluates the competitiveness of a country's tax system, based on its top federal corporate tax rate, and its top individual marginal tax rate. Metric A is based on Tax Foundation Corporate Tax Rates 2023. Metric B is based on PwC Personal Income Tax Rates 2024 and Reuters (Russia). The scores in each metric are normalized, combined into a composite, and converted to a letter grade.

Welcomes Self-Driving Vehicles

evaluates the extent to which a country permits the testing and operation of self-driving vehicles on its public roads.

A — A country permits the operation of Level 4 SDVs, at least in some cases without a human driver, though it may impose restrictions, including restrictions on what zones SDVs may enter and what speeds they may reach.

B — A country permits the testing of Level 4 SDVs.

C — A country may or may not currently be testing any approved technologies at Level 4, but it either permits testing of such vehicles to a limited extent, or at minimum, does not explicitly prohibit them.

D — A country permits the testing of some partial self-driving technologies, but these technologies are below Level 4.

F — A country does not permit SDV testing.

Finally, a country loses two letter grades if it imposes serious restrictions and/or anti-competitive policies on the collection and use of data for the commercial development of SDVs, to include prohibitions on offshoring data.

CTA™

Consumer Technology Association, producer of CES®

As North America's largest technology trade association, CTA® is the tech sector. Our members are the world's leading innovators — from dynamic startups to established global brands. CTA's mission focuses on promoting innovation beneficial to the human condition. It advocates pro-innovation policies, provides market research, promotes technology innovation and develops standards, and creates opportunities to foster business and strategic relationships. CTA also owns and produces CES® — the world's most powerful tech event. Find us at CTA.tech and follow us @CTAtech and @CES.

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