Global Connectivity Index (GCI) 2019 FAQ

About the GCI and methodology

Q1: Why does Huawei compile the GCI?

Countries around the world are coming to recognize that the era of the digital economy is here. If they do not embrace digitization and seize its opportunities, then they will miss out on the boost to growth that the digital economy makes possible. For each country, the key to these opportunities is understanding the logic of global digital development, and identifying where their own digital economies are falling behind.   Huawei began researching digital development in 2014, and has released a Global Connectivity Index report every year since. Huawei engages in ongoing research into how ICT innovation and ICT applications can grow national economies, and conducts open research into the digital economy with top universities, think tanks, and industry associations. The goal is to provide countries and industries with authoritative, objective, quantified assessments and recommendations on digital transformation.

Q2: What is unique about the GCI?

Huawei has developed a unique research model for the GCI, comprising 40 indicators that reflect both economic pillars and enabling technologies. Based on these 40 indicators, the GCI fully and objectively measures, analyzes, and forecasts the tracked economies; quantifies the digital transformation journey they're undergoing; and provides a reference tool for policymakers. In addition, the GCI also provides the following value to policymakers:

(1) Based on broad datasets, the GCI assesses the progress of national digital economies against their objectives for 2025. This forward-looking analysis helps the countries at the leading edge of digitalization to map out their space for future development.

(2) The GCI indicators include not just basic broadband technologies, but also cloud, big data, the Internet of Things (IoT), and artificial intelligence (AI). These insights support policy recommendations beyond the immediate term, with suggestions for mid- to long-term investment portfolios.

(3) There is no agreed definition for the digital economy, which makes measuring its exact size very difficult. The GCI helps countries to see clearly their digital strengths and weaknesses, and how well their digital economy is developing relative to other countries. It paints a picture of each country's digital progress by analyzing indicators for digital technologies and for digital applications. The 79 economies are ranked and divided into three groups based on their GCI scores and GDP per capita: Starters, Adopters, and Frontrunners.

The GCI report is now a widely recognized, authoritative benchmark for digital transformation, and has been cited by more than 30 major development organizations, including global third-party bodies such as the G20, Asia-Pacific Economic Cooperation (APEC), and GSMA. It has served as a reference for countries such as Sweden, Singapore, Russia, and Saudi Arabia as they developed their digitalization strategies.

Q3: What changes have been made in the GCI 2019 in terms of models, methods, and scope?

The GCI methodology is revised from time to time to better capture how technology evolves and how ICT investment relates to economic growth. In 2019, we officially added AI to the GCI analysis, replacing and incorporating the big data dimension. The new AI indicators include AI investment, AI-enabled robotics, data creation, and AI potential.

We also merged the Data Centers parameter into Cloud, turning the five enabling technologies for intelligent connectivity into four: Broadband, Cloud, IoT, and AI. Research on this new model shows that in terms of AI applications, even the most advanced digital economies are just starters. But it has also highlighted how intelligent connectivity technologies, including AI, are kick starting a new burst of growth for many countries, wherever they are on the GCI S-curve.

GCI 2019 continued to assess the same list of 79 countries as in 2018. These countries account for 95% of global GDP and 84% of the world's population. We also reassessed all of these countries by applying the new methodology. This gives readers a like-for-like history going back to 2015. Users of the GCI report can identify differences among the countries to help guide their own national ICT planning.

Key findings of the GCI 2019

Finding 1: Countries are encountering a new tipping point to tap into growth with Intelligent Connectivity

The effects of the digital inflection point reach far beyond the Starters. The GCI 2019 survey found that the stimulus effect of the inflection point was giving a boost to countries at the top of the GCI S-curve as well. For countries with a GCI score over 65, the S-curve starts to steepen once again. These countries are moving into a new growth cycle.

Many Frontrunner countries that have invested extensively in ICT infrastructure were recently struggling with sluggish growth, because their current infrastructure is already fully utilized. But as these countries start to embrace intelligent connectivity, their economies are once again showing signs of vitality. The US, Switzerland, Singapore, Japan, and other Frontrunner countries have also started this new growth cycle. Starters and Adopters lack the ICT infrastructure necessary to develop their own AI solutions, but policymakers should make AI part of their long-term growth agenda.

Finding 2: The upside potential of AI can stimulate economic growth.

Frontrunner countries with a GCI score of 65 or more can effectively deploy AI solutions. Our research predicts that growth will be 1% higher for countries with GCI scores over 65. And those countries with GCI scores above 65 and GDP growth of at least 1% that leverage Intelligent Connectivity could grow their economies 2.4X faster than other nations for each point of GCI improvement.

Even for countries like Japan and the US that have leading ICT infrastructure, the potential of AI has only just begun to be tapped. It will emerge as much more of a stimulus. In the US, for example, AI's current impact on growth is just a third or a quarter of what it could potentially become.

Adopters and Starters like China, Malaysia, India, the Philippines, and Spain aren't spinning their wheels, either. They're rolling out AI technologies as fast as they can. Although China is just an Adopter in the GCI survey, it's one of the world's leaders in AI. Policymakers and corporate managers in these countries are learning AI use cases, and seeking new models for AI with an increasing sensitivity to niche markets and new business opportunities.

Finding 3: Growth using Intelligent Connectivity requires a global ecosystem.

Intelligent Connectivity is an effective generator of economic value when they're backed by a global ecosystem working collaboratively. These ecosystem stakeholders comprise five roles: Decision Makers (countries, organizations or enterprises), Data Scientists, ICT Companies, Data Collectors, and End Users.

Whatever a country's level of digital development, policymakers need to look objectively at the strengths of their national economy and determine how they can fit into and profit from the Intelligent Connectivity ecosystem.

For policymakers and industry leaders who want to lead their country or company to sustained growth, understanding how to participate in and use a collaborative ecosystem is key. All participants in the Intelligent Connectivity ecosystem can expand their own capacity in many ways: inter-disciplinary, multi-sector collaboration; breaking down organizational boundaries; creating value and delivering the results that customers need fast, to generate more business opportunities. In principle, stakeholders in the Intelligent Connectivity ecosystem can generate value and achieve success on a sustained, iterative basis. Each of the five types of stakeholders plays their own role, both generating   and receiving value.

Finding 4: 5G's rapid rollout will create new economic growth.

GCI shows that when the next generation of mobile networks achieves 10% market penetration, it will spark an explosion of new growth. The time it takes for a mobile technology to hit that 10% turning point has varied in the past. 3G networks got there after seven years of build-out in 2009. For 4G networks, it took six years. The GCI report predicts that 5G will reach the 10% tipping point in four years.

Finding 5: Cloud and IoT investment set the stage for AI to takeoff.

Cloud computing provides the platform and algorithm foundation necessary for AI; IoT delivers the massive datasets required for AI training and insights. GCI 2019 finds that when a country's cloud readiness score reaches 50 and its IoT readiness score is 45, AI starts to play a bigger role in the country's economy.

To quantify that relationship: When a country's IT investment reaches 3–4% of GDP, it will spark an inflection point in cloud and AI, taking AI onto a faster growth path. To achieve sustained returns from AI, policymakers and industry leaders should understand that cloud and IoT are the key to unleashing the potential of AI.

Finding 6: The three top countries on the GCI 2019 rankings are the US, Switzerland, and Sweden. The four countries that advanced the most up the rankings over 2018 are

Switzerland Bulgaria, Ukraine, and Vietnam.

Finding 7: Four Adopters and Starters have made particularly impressive gains compared with GCI 2015: Ukraine, South Africa, Bangladesh, and Algeria.

Where can I find more information?

For more information about the GCI, please visit:
http://www.huawei.com/minisite/gci/en/

You can download the full GCI report, browse by country, or run historical comparisons of up to three benchmark countries to assess their strengths and weaknesses.