Tool: Customize the Digital Citizen Equity Index for Different Infrastructure, Skills and Trust Applications

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Local digital infrastructure, skills and trust affect the success of digital programs. Use the tool to evaluate the digital factors affecting your application by customizing the Digital Citizen Equity Index. As a result, CIOs can tailor their geographic digital strategy and investment opportunities.

Overview

CIOs find that the lack of digital skills and culture in the organization is a major — and often unexpected — obstacle to the adoption of digital programs. A common practice for CIOs across industries developing digital business transformation strategies is to benchmark business enablement to understand the level of training and persuasion that will be needed to deploy digital tools among employees. Digital dexterity, which affects the motivation and knowledge to fully exploit IT-supplied technology, can have a profound impact on the organization. However the importance of IT’s and HR’s role in enabling this is often underestimated (see “Enablement Mindset Is the Missing IT Ingredient to Improve Workforce Digital Dexterity and the Employee Experience”).

COVID-19 has shown companies that the speed of adapting to new digital practices is key to social and economic resilience. In late April 2020, 50% of surveyed business and IT leaders reported some form of reduced or restricted operations due to COVID-19 (40% reduced, 9% severely restricted and 1% cannot continue). Respondents commonly explained that this impact is related to more remote work. 1 In a March 2020 webinar poll of HR leaders, 70% of respondents reported they plan to make more effective use of technology to manage costs during the pandemic. 2 Deployment of digital contact tracing in Singapore and South Korea has enabled those countries to track the spread of the virus. Meanwhile organizations that have the appropriate infrastructure and skills for home working have been able to continue work despite the crisis.

CIOs across industries and government have to address the social and organizational discourse about digital trust and digital acceptance as they are building strategies toward returning to the workplace. Every member of society is a citizen. This means citizens are employees, customers and key stakeholders, and their digital perception and trust affect the takeup of technology.

As digital features heavily in roadmaps for returning to daily operations, CIOs need to understand the digital mentality to see if employees will use or reject the technology. The “health check” of the
digital mentality should start by understanding the digital perception and trust of the individual employee or citizen who needs to interact with the digital programs and needs to “buy into” them.

The Digital Citizen Equity Index supports CIOs in any organization with determining the digital mentality of their teams, by asking the critical questions below:

How well do you, Employee X or Citizen X, feel included in the digital benefits of technology and digital strategies that are being proposed? Does the company meet your personal needs for learning about digital technology? Are you worried that the digital program will impact your data privacy or perception of digital “pollution”? Are you supported with all the right skills development so you can do digital jobs right?

This tool helps CIOs understand the current digital mentality of citizens and the ability to engage with them digitally. It will also show the digital environment that the organization is operating in and the acceptance of digital solutions. In the recovery phase after the pandemic, being able to tailor an empathetic talk track is necessary to address questions about the design and execution of technology and solution migration and implementation.

Gartner recognizes that there is a pressing need for CIOs to address digital culture and change management capabilities in their operational environment, even taking a thought leadership position as an interpreter for “digital.” Some CIOs will see this as a responsibility of the HR and executive leadership roles.

CIOs who want to lead in the recovery and transformation of their enterprise, however, have to build awareness of their employees’ digital mentality into their strategic execution. In particular, digital understanding and empowerment of users and customers are important for implementing data analytics and artificial intelligence (AI) in the digital workplace, business processes, and products on the customer and citizen side. Identifying the current level of digital mentality and maturity will enable the appropriate use of tools, application design and benefit communication, whether the audience is employees, customers or stakeholders.

Gartner has identified three different digital maturity levels of citizen types in a given country:

- Digitally Present: Citizen generally partakes in society and is digitally active in basic ways.
- Digitally Active: Citizen demonstrates good participation in digital societies — consuming a wide range of available services and technologies.
In 2020, Gartner is providing two versions of the tool (see Figure 1). One shows Gartner’s view of the Digital Citizen Equity Index, and the other offers the opportunity to customize your own Digital Citizen Equity Index for different applications and situations. This version provides the customizable view so CIOs can tailor the index to their specific application and understand the most relevant factors that affect the success of their digital deployment. Use cases could include:

- Pivoting to remote work
- Deploying new collaboration software for employees
- Launching digital services for smart city products

For example, when pivoting to remote working within an organization, the availability of home broadband access and percentage of employees that already work from home will be highly important and so should have higher weightings. This helps CIOs understand the starting point and opportunities by country, so they can implement measures, such as additional training, that mitigate the situation.

Figure 1. Two Versions of the Digital Citizen Equity Index Tool
Gartner Digital Citizen Equity Index

Gartner has developed the Digital Citizen Equity Index to show the relative level of digital citizen equity to the digital environment established in individual countries. This interpretation of digital equity looks at how citizens perceive their ability to empower themselves in the digital economy. CIOs can use multiple views and interpretation sheets to extract insights on digital citizen equity by region and country and by citizen characteristics.

This tool does not benchmark countries against each other, and CIOs should resist comparing the numbers between countries or using them to make judgements. Instead, CIOs should use the index to assess the digital situation of different countries and tailor their technology deployment for each country. Moreover, they should look at the different citizen categories’ relation to one another, and the main factors that contribute to the level of citizen characteristics. It shows the digital environment that the country and its consumers, businesses and government have built, and the relative digital equity trust by citizens and businesses.
The 2020 Digital Citizen Equity Index contains updated values and incorporates additional countries. As data values are normalized and scaled from minimum to maximum, the overall index values have changed due to the introduction of new countries in the index. This again demonstrates that this tool will give valuable information about the trust and empowerment in a country and region, and does not benchmark trustworthiness in actual numbers.

In this tool, the highest digital citizen equity is in Denmark (60.78), and the lowest digital equity is in Pakistan (16.12). The numbers show the relative score based on different weights and associations of datasets with one another, based on Gartner's analysis. Therefore, the index will navigate you through different ranges relative to digital perception and availability and access to digital business opportunities. To provide some guidance on the ranges of the indexes, we divided the scores into three percentiles:

- **Low** — Digital Citizen Equity Index score is below 33.27. In many instances, connectivity in urban regions is available, and smartphones are available to some citizens. But the interaction of citizens with the digital economy and digital learning opportunities are lower than average.

- **Medium** — Digital Citizen Equity Index score is between 33.27 and 45.2. In this range, there can be a higher number of digital innovations, often funded through governments, strong and connected ecosystems, and higher levels of robotics or automation.

- **High** — Digital Citizen Equity Index score is above 45.2. In this range, digital citizen perception and engagement are high, with frequent citizen engagement with digital tools, shopping, commerce and so on. Also, digital degrees and innovation patents are higher in those countries.

The high-level recommendations for the Digital Citizen Equity Index ranges enable the reader to obtain a single view of the country-based digital potential, as well as citizen and business attitude.

Further to the 2019 index, the Digital Citizen Equity Index in 2020 has expanded to include 66 countries. As a result, the range criteria for high, medium and low scores have adjusted due to the new range of relative data for each metric. Each individual country’s index score has also changed as we measure progress toward digital equity with updated data.

**How to Create Your Custom Digital Citizen Equity Index**

The custom DCEI file allows you to customize the index to create your own insights, depending on the application that you are interested in and the importance that your organization places on each factor.

**Step 1 — Choose which index you wish to view/edit**

To get started, click the “Choose Your Index Tool” tab. There are three scenarios that you can look at in the file by clicking the relevant button (see Figure 2):
When you select the “Custom Community Resilience Digital Citizen Equity Index” option or the “Blank Custom Digital Citizen Equity Index” option, there are two tabs that will appear to customize the index: “Customize Weighting” and “Custom Metric Data.”

**Step 2 — Customize the index weightings**

If you are using a custom index, select the “Customize Weighting” tab. The index weightings shown in Figure 3 enable you to work with the model by changing the weightings in the mid-blue boxes to apply to your own digital mentality settings. For example, if you felt that household broadband access is very important to disease resilience because it provides the essential underlying infrastructure for citizens to shelter in place, you could increase the weighting to 20% within the digitally present citizen category. You would then adjust the other metrics so the total for digitally present citizen was still 100%.
Gartner’s overall DCEI weightings are included for comparison purposes. Be aware that, by applying your own weightings, you will see the impact in terms of digital citizen segmentation, as well as the impact on business or consumer confidence in digital opportunities by country. This affects the viability of different countries for deploying digital projects.

**Figure 3. Screenshot of Customize Weightings Tab**

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**Figure 3. Screenshot of Customize Weightings Tab**

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**Step 3 (Optional) — Enter additional metrics**

Select the “Customize Metric Data” sheet. You can utilize up to three additional metrics for each of the three citizen types (digitally present, digitally active and digitally contributing).

Enter the names of each of your metrics by overtyping the placeholder names in the dark blue boxes, according to the citizen type you wish to add a metric for. In the light blue box below, specify whether the data is a Consumer (C), Business (B), Government (G) or Infrastructure (I) metric. You can then enter the data by country in the light blue rows below.

Where metric data is affected by the country’s size, for example e-commerce spending or information and communication technology (ICT) workers, this data should be entered per capita (which is the metric divided by the country’s population) to ensure that the comparison between different countries is unaffected by the country’s size. Figure 6 shows a screenshot of where to insert data by country for each additional metric.

**Figure 4. Screenshot of the Customize Metric Data tab**
**Step 4 — Review the results**

You can then see the results of your custom index from several perspectives:

- Go to the bottom of the Customize Weightings tab to see the ranked results of the overall Custom DCEI by country and compare this against the Gartner DCEI.

- Click the “View Results” button at the bottom of the “Customize Weightings” sheet. Sheets will appear for Regional Indicators and Country Indicators.
  - On the Regional Indicators tab, you can see the results by region.
  - On the Country Indicators tab, you can see the results for each country and for the Digital Business and Consumer indexes.

Watch the short video below to see a demonstration of how to use the custom Tool.

**How to Use the Custom Tool**

**Methodology and Definitions**

The Methodology and Definitions tab gives a detailed overview and definitions of the digital citizen categories, as well as the data sources and the weighting of the data. We recommend that you use additional data based on the sources indicated in this report, as well as other sources, to gain insights into the digital dynamics. Segment and aggregate data where possible in ways that make it more relevant to your specific objectives and context (for example, by jurisdiction, demographics and type of service). The tab provides guidance on the availability of geographic data. We selected...
the countries on the basis of data availability, to ensure that data in the index was based on actual findings and not proxies as far as possible. For each metric, we distributed data per capita where needed to ensure a fair basis for comparison. We normalized data for inclusion in the index by calculating the difference between the maximum and minimum data points for each metric and assigning a score of 0 to 9 to each country, based on its position on that scale.

We determined the weightings of the metrics by surveying over 25 expert Gartner analysts from across the business. This survey covered the weighting of each metric within each of the three citizen types, as well as the weighting of the three citizen types within the overall index. We cross-referenced the index with other publicly available indexes like the Edelman Trust Barometer.

**Digital Citizen Equity Index: Frequently Asked Questions 2020**

**What is the Digital Citizen Equity Index?**

The Digital Citizen Equity Index is research at Gartner that describes people's perceptions and experiences when dealing with the digital environment. That environment is based on the availability of networks and services through a variety of different devices. The engagement level and the usability of digital in services, applications and use cases increase when society finds those useful and beneficial.

We can all experience that benefit when we buy a book online, instead of going to the library to read it or to the bookstore to buy it. Here, the benefit to society could be convenience, greater choice of books online or speed in getting the book home. Our decision to trust telemedicine service offerings to ensure our well-being will determine how frequently we visit physician’s offices. As we move from activities of *using digital to collaborating digitally* through applications, virtual communities and interactive contributions through data exchanges, convenience and trust in virtual and digital services increase. On the other hand, there are also the risks of, for example, cybersecurity intrusions, cyberbullying or social isolation through excessive use of digital media.

People with access to digital media, devices and infrastructure have the advantage of access. However, their understanding of the digital economy and benefits may be weak. Businesses may face this as much as people in rural areas do, who have connectivity but may lack digital skills and understanding.

The Digital Citizen Equity Index is designed to show the equity, or the perceived empowerment, of the individual citizen, business or resident in a given location. We chose geographic allocation as many societies identify themselves through tradition, societal values, current environment, the number of expatriates and so on.

**What methodology is leveraged to calculate the index?**

We based the methodology of the assessment on allocation of different Gartner and external data sources, assessing their significance in describing perception and trust toward digital economy and environments. We assigned weights to the data and normalized it, calculating an average
index across 26 different metrics. Some metrics were indexes in themselves, and we weighed the differences in those dynamically against other metrics. We took cross-references in a stress test approach, using the Edelman Trust Barometer, the Digital Economy and Society Index (DESI), GINI Index, World Economic Forum's Global Competitiveness Index 4.0 and the ITU Digital Inclusion work. We also asked four public interest organizations to review the tool to understand possible variations in the data’s interpretation.

**What does the index show in the radar chart?**

The radar chart shows the multiple digital citizen equity variables by country or by region (see the geographic discussion below).

The variables of digital citizen equity demonstrate the depth of engagement and trust through “digitally present,” “digitally active” and “digitally contributing” citizen levels. In addition, the Digital Citizen Equity Index can be represented in a “digital consumer” index and “digital business” index. This is significant because it can show, on the one hand, the trust and perception level to leverage digital opportunities by businesses versus the consumer or user markets overall. The dotted line represents the overall navigation average of the variables aggregated across all countries. This is not a benchmark line. Rather, this should be used as the swim lanes to understand the significance of the different subcategory indexes.

Readers should draw their own conclusions based on the perception, purpose and significance of the interpretation of digital citizen equity and the implications on business decisions. The factual index component numbers for “digitally present,” “digitally active” and “digitally collaborating” citizens only give guidance on citizen perception and trust. Those numbers do not represent final benchmarks for getting a better index number. On the contrary, the numbers indicate the current digital trust gap between the individual and digital enablement and empowerment that people will recognize.

**When we analyze a society, why is the index developed by region or country?**

Societies define how we engage with one another in different forms of engagement and patterns. According to common definitions, society in the broadest form could represent:

- According to Wikipedia: “A society is a group of individuals involved in persistent social interaction, or a large social group sharing the same geographical or social territory, typically subject to the same political authority and dominant cultural expectations.”

- According to Merriam-Webster, a “society” is: “a.: an enduring and cooperating social group whose members have developed organized patterns of relationships through interaction with one another; b. a community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests.”

The index offers some boundaries on the society engagement level. A regional or national component brings some structure to the evaluation of trust and enablement across cultural and
societal boundaries, and across the varying levels of engagement. While e-government stops at
country borders, the ability to do e-commerce, people moving and living across borders, and so on
do not.

**Is there a rural versus urban digital disparity?**

Based on national data points that were used in developing the index, the Digital Citizen Equity
Index reflects an average trust index across the society in a country. In the analysis of the
conclusions of the index, the reader should note that it is critical to understand that there can be
inequality in the access to broadband and digital tools between the urban population and rural
areas.

As an example, China has a medium index of 38.92. Analyzing the distribution of equity between
digitally present, digitally active and digital contributing citizen, it becomes evident there is an
average level of citizens with basic digital access. In addition, a lot of citizens display engagement
and inclusion in digital services and high usage of advanced digital technology and innovation.
Let’s compare this to population density and the national broadband roll outs. According to the
**World Bank database** in 2018, 40% of the Chinese population lived in rural areas. Overall
broadband coverage in rural areas and administrative villages has reached 98% according to the
Chinese Ministry of Industry and Information Technology through fiber and 4G networks, while in
urban centers 5G roll out has commenced. However, lack of digital equity means that not all rural
citizens feel able to use the internet, mainly due to lack of skills and education. As a result, in 2018,
the proportion of noninternet users in rural areas was **63.2%**, versus **36.8%** in urban areas.

**What is the difference between digital divide, digital inclusion, digital dexterity and digital equity?**

The Digital Citizen Equity Index describes an individual’s perception of empowerment through the
access or use of digital technology. This sense of empowerment and facilitation is related to
physical and virtual access to digital tools, applications and environment:

- **Digital divide** is the gap between the availability of IT and the ability to socially, demographically
  and environmentally access it (see “*Bridging the Digital Divide*”, from the OECD).

- **Digital inclusion** refers to policies and activities to support society and people to use IT to
  partake in the digital economy (see “*Digital Inclusion*” from the ITU-D). It defines strategies, for
  instance, for girls in IT, indigenous people, people with disabilities, electrification for IT rollout in
  emerging countries and so on.

- **Digital dexterity**: As business operations become more digital, the digital aspect of most jobs is
  accelerating. And, as with our consumer lives, it’s a safe bet that the importance of having the
  ambition and ability to use technology in our work lives will continue to grow. We use the term
  “digital dexterity” to describe this dynamic. Digital dexterity is the ambition and ability to live and
  work digitally (see “*Building Employees’ Digital Dexterity: A Key Capability for Future Business
  Success*”). Digital dexterity is a competency that applies to individuals, teams and the
  organization as a whole. As society and business increasingly consume and produce digital
How were countries selected?

Our priority when selecting the countries was to ensure the availability of actual data and to avoid using regional proxies as far as possible, which means that the index results accurately capture individual country-level variations. We selected the countries by initially choosing the top 75 countries by total GDP and carrying out additional research to find individual country-level data points. We then excluded the 11 countries that had four or more data points unavailable across all 26 Digital Citizen Equity Index metrics.

The values for the individual countries provide a score, but the countries should not be benchmarked against one another. Whenever there is a change in any metric, the overall index value of a country will change. Country values should be used to look at the position within the index and where it has strengths and weaknesses.

In this follow-up iteration from the first Digital Citizen Equity Index published September 2019, we have increased the number of countries, based on client feedback. Gartner is using an interactive map that is freely available on the internet to enable all clients to read the chart.

Why is the Digital Citizen Equity Index not a benchmark to compare individual countries against one another?

The depth of the citizen’s perception of empowerment and trust depends on the availability and engagement between virtual and physical digital systems and communities. This perception of community could be, on the one hand, very virtual, but also very analog, so there is a proximity and small circle of trusted partners and ecosystem. There are also location-based aspects in the culture, tradition and local customers, and this is why we chose countries as we wanted to demonstrate cause and effect. Country boundaries here do not demonstrate jurisdictional boundaries, but rather, the political and social confines in which citizens and people live today.

Especially in the European market, you would think that, based on all the talk about industrialization, digital skills and so on, people would have similar thoughts and feelings about societal change through digital; aging demographics; and young science, technology, engineering and math (STEM) graduates. For example, some countries generate a high Digital Citizen Equity Index score from businesses’ ability to leverage great digital infrastructure and good government
transparency. The trust of citizens remains lower, however, due to the high rates of cyberbullying, as well as fears about fake news that make people hesitant to widely engage with digital tools.

In some European countries, people have a traditional distrust of data exchange. So all the discussions about Industrie 4.0 and digitalization everywhere fall on deaf ears in one part of the population, while another part of the population, such as innovators or elites, widely supports that. We can align the likelihood of trust and enablement to the digital environment. This is based on the individual cultural, social and environmental biases and perceptions that are revealed from indexes such as Timbro Sharing Economy Index, the World Bank's Digital Adoption Index and Gartner's connected device forecast.

Emerging economies show a high rate of smartphone penetration. However, broadband services are extremely costly and are not available outside of urban centers. Therefore, Gartner is mapping digital availability of services to the ownership of devices, connected homes and robotics shipments to understand the depth of adoption and the scale for potential services.

**Recommended by the Authors**

“Tool: Digital Citizen Equity Index to Evaluate Digital Infrastructure, Skills and Trust in Countries”

“Digital Citizen Equity Index: How to Operate a Digital Ecosystem Business Within Digital Society”

“Using the Digital Citizen Equity Index to Drive Decision Making in Digital Business”


“Digital Citizen Equity Index: Strategize for the Digitalization Path of Emerging Economies”

“Turning Smart Cities Into Intelligent Urban Ecosystems”

“Hype Cycle for Smart City Technologies and Solutions, 2019”

**Evidence**

1 Gartner’s COVID-19 poll No. 1

This online poll was conducted from 22 through 27 April 2020 among 707 Business and IT Leader Research Circle Members — a Gartner-managed panel. The questions were developed collaboratively by a team of Gartner analysts and reviewed, tested and administered by Gartner’s Research and Data Analytics team. Findings reflect current member sentiment and not the market as a whole. Learn how you can participate in Research Circle surveys and discussions [here](#).

2 Gartner’s COVID-19 webinar poll Results

Results presented are based on Gartner’s COVID-19 webinar poll data to assess business sentiment during the COVID-19 pandemic.
The research was conducted during Gartner’s “Managing Talent During the Coronavirus Outbreak: Lessons from Asia” webinar held 17 March 2020. This webinar was a globally held event for HR executives and focused on talent management during COVID-19. Poll respondents were primarily located in North America (67% U.S., 6% Canada).

The poll questions were developed collaboratively by a team of Gartner analysts that follows these markets, and the data was reviewed, tested and analyzed by Gartner's Primary Research team.

Disclaimer: Results of this study do not represent “global” findings or the market as a whole, but are a simple average of results for the targeted countries, industries and company size segments covered in this survey.

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