Newsweek VANTAGE

NAVIGATING THE DIGITAL ECONOMY

INSIGHTS FROM THE REAL WORLD

CONTENTS

PREFACE

Navigating the Digital Economy: Insights from the Real World offers readers some exciting and practical applications of the analysis contained in the Digital Economy Navigator (DEN), developed by the Digital Cooperation Organization (DCO) in collaboration with global experts. *Navigating the Digital Economy: Insights from the Real World*, published by Newsweek Vantage in cooperation with the DCO, reports on examples of digitalization in action. This paper was written by Lucy Hurst and Nigel Holloway

One example is a company offering patients the ability to screen the health of their own lungs and heart. There is a profile of a social enterprise that uses the Internet to provide job and training opportunities for less advantaged young people around the world. Elsewhere, there is a report on a Dubai fintech company that facilitates cross-border transactions to serve migrant workers. And a venture in sub-Saharan Africa digitalizes the delivery of affordable healthcare in the region.

These examples vividly illustrate how technology and connectivity can benefit the global economy by enabling entrepreneurs and socially minded civic leaders around the world to create user applications that will transform lives. These ventures, and hundreds like them, are possible in places where Internet access and a culture of innovation merge to create new, more efficient ways of doing things. They are pursuing a vision enshrined in the DCO's mission to work toward "a world in which every country, business, and person has a fair opportunity to prosper in the digital economy." We hope this report will inspire others to navigate the digital economy, by undertaking a journey that will do good by doing well.

EXECUTIVE SUMMARY

This report presents a series of case studies that give insights into the importance of entrepreneurs and innovators in creating solutions and innovations that drive digital transformation, based on the Digital Economy Navigator (DEN) developed by the Digital Cooperation Organization (DCO) in collaboration with global experts. New digital solutions address market needs and increase access to resources, services, and opportunities for all. This underscores the importance of promoting a culture of innovation and new product / service testing that leads to increased economic and social opportunity. These activities are central to the sustainable and inclusive growth of the digital economy and are becoming more mature.

These insights include:

New digital products, services, and innovations are driving access in many areas that are basic to the health and welfare of citizens. They significantly transform not just the provision of services, but the platforms through which they can be expanded.

Case studies in this paper demonstrate how readiness of the digital infrastructure combined with the right innovations, policies, and solutions can exponentially expand access to opportunity, especially in areas that provide benefits for people. Areas where there is readiness for quick advancement include healthcare and education, social inclusion, access to employment opportunities that were previously not possible, as well as increased access to the Internet for all.

Local solutions can be scaled up and implemented in a wide range of contexts and geographic locations. Rapid progress can be made in key areas of social and economic welfare with solutions to problems encountered on a local or regional scale, and in countries where large-scale investment is not an option.

Combining the right policy strategy with private sector development is an essential process to prioritize and facilitate. Government policies that support digital economy growth across all sectors, combined with the right investments by companies and a solid digital infrastructure, is a formula for success globally.

Supporting the entrepreneurship and technology innovation ecosystem is critical to solving key problems with day-to-day issues for all people. Countries and sectors that support these activities find rapid expansion opportunities across a range of sectors with new products, services, and technological innovations.

INTRODUCTION

Technology is rapidly changing the world and vice versa. This can be seen in the increased use of the Internet. There are approximately 1 million new Internet users every day, according to the International Telecommunication Union[1]. Seventy percent of the world's population now accesses the internet, transforming human life on our planet. The Internet enables users to start a business selling to customers on the other side of the world, remotely monitor patients' vital signs, interact with governments, and infinitely more. The Internet's impact is now magnified by the rapid proliferation in artificial intelligence (AI) use, dramatically increasing the productivity of each user. One of the biggest concerns is how to manage AI's impact, which entails handling commercial risks, mitigating malicious use, and developing good policy.

This and other innovations — such as 5G technology, blockchain and cryptocurrency, edge and quantum computing, and augmented and virtual realities — are the defining features of the digital economy. These innovations are rapidly changing our world and creating a digital economy that has a comprehensive and profound impact on business, government, and society. Staying informed and adapting to changes in the digital ecosystem, while supporting entrepreneurs, is essential for all stakeholders.

This report, *Navigating the Digital Economy: Insights from the Real World*, builds on the Digital Economy Navigator (DEN) which was developed by the Digital Cooperation Organization (DCO) in 2024 and examines where countries are in their digital economy journey through a framework for assessing a wide range of progress areas, along with the level of policy activity. This report builds on the assessment process from different dimensions of digital society, Digital Businesses, and Digital enablers. It also highlights a series of case studies that showcase how different countries are navigating the challenges and opportunities of a rapidly changing digital economy. By studying entrepreneurs, problem solvers, and different segments of the society in a range of markets, locations, and economies, it is hoped that countries, businesses and organizations will understand how they can play a more effective role in promoting progress. These efforts will be highly effective in driving the changes that foster inclusive economic growth, improved living standards, global competitiveness, and faster innovation.

To transform a country's operational environment, significant investments in digital infrastructure are essential, particularly in areas like broadband networks, cloud computing, and data storage. Frontier countries lead the way, understanding that these foundational elements are crucial for building a strong digital economy that fosters a supportive environment for industries. Other countries, while progressing at their own pace, can focus on developing diverse technological ecosystems. These might include establishing innovation hubs, digital government platforms that enhance people interaction with public services, promoting networks to reduce greenhouse gas emissions, and developing policies to strengthen cybersecurity, privacy, and digital inclusion.

This paper will focus on the benefits of digital economy maturity, including examples that illustrate some of the ways in which enterprises and countries around the world have used digital platforms, innovations, and technological solutions to solve social and economic problems. The examples share common themes:

- A digital innovation does not have to originate in a developed country to be scalable.
- The Internet is the gateway from almost anywhere in the world to a market of millions.
- Digital solutions often must be developed in-house, with customized models and software to address what is often a very specific need.
- The people with the skills to develop the technology for that purpose can usually be found inside the country if companies look hard enough.

These examples illustrate how quickly digital technologies can drive change, unlocking access to services and opportunities that were once out of reach. Whether through a hackathon (see box on Korion Health below) or other forms of innovation, transforming an idea into a successful Internet-based product demands perseverance, dedication, and hard work.

Korion Health: Digital healthcare at an early stage

It is easy to generate ideas; far harder to put them into effect. The venture Korion Health (US) emerged from a hackathon, which is typically a 24- to 48-hour event that brings together interdisciplinary teams to collaborate on identifying novel digital solutions for world problems. Most ideas generated at hackathons never see the light of day, but University of Pittsburgh–Carnegie Mellon University MD-PhD student Anna Li decided her hackathon solution for empowering patients to conduct their own heart and lung screenings was too good to drop. Thus, Korion Health was founded to develop a product that can save patients' lives.

Cardiovascular disease kills 18 million people annually and is the leading cause of death globally, according to the World Health Organization[2]. Many of those lives could have been saved by screening people before they ended up in the ER. Korion Health is developing a simple screening process that enables patients to use an affordable, at-home electronic stethoscope to record their heartbeat and lung sounds. This is done with the help of a computer interface Korion Health developed that teaches the patient exactly where to place the stethoscope.

The sound is saved as an audio file that can be sent to a doctor for analysis. Korion Health has also created a computerized dashboard that enables patients (and the doctors) to track the sound of a heartbeat over time through multiple screenings. The Korion Health program will also be used to screen lung sounds for abnormalities.

Li and her team originally thought of creating an open-source platform that anybody could download, but established entrepreneurs advised them that to make a real impact in healthcare, it would be better to create a company, patent the technology, and then take the idea to market. Korion Health, which incorporated in June 2022, will seek approval from the US Food and Drug Administration before it can sell the product in the US and elsewhere.

Akshaya Anand, Korion Health's chief technology officer who completed a master's degree in machine learning at the University of Maryland in 2024, says: "The key is to look for a problem first and then work out the solution, not the other way around." In the case of Korion Health, the problem was that high costs, as well as logistical and psychological barriers, inhibit healthcare access and early health screening. After analyzing the problem thoroughly, the team envisioned and then built the relevant technology.

Korion Health hopes that once the stethoscope and screening program are available to patients, they can move beyond stethoscopes to other areas of preventive care. Future models will include machine learning-based diagnostics and educational tools so that patients can receive immediate feedback on their overall health, including the heart and lungs, in an engaging and humanistic way. Thanks to the prevalence of personal technology devices and the advancement of AI techniques, a wide array of opportunities is open to them.

Thanks to the prevalence of personal technology devices and the advancement of artificial intelligence techniques, a wide array of opportunities is open to them. To date, Korion Health has received support from several prestigious organizations, including the American Heart Association, BNY Mellon, and The Richard King Mellon Foundation. Additionally, Korion Health was awarded $1 million as the 2024 winner of the global Hult Prize, an annual competition for young people's solutions to social issues, such as food security, water access, healthcare, and education."

DIGITAL ECONOMY NAVIGATOR OVERVIEW

Before considering the results of the research and the implications for governments and business, it is important to understand the context from which the research conclusions were drawn. The DEN provides a robust framework for understanding the structure, function and capacity of a country's digital economy (see https://den.dco.org/). This benchmarking approach assesses economic opportunities and a country's ability to enable more equitable access to, and distribution of services, thereby improving health and well-being. The annual DEN, thus, helps countries to understand the drivers of their digital economy and the stages that will support digital transformation. Best practices can be seen in each maturity level, creating a system for identifying gaps in digital economy maturity that can be bridged through enlightened policymaking and strong capacity building.

***Definition of digital economy**:*
An economic activity that is reliant on, significantly enhanced, or enabled by digital technologies and their applications. This includes activities that increase human well-being or lead to social or environmental benefits.

The data, analysis, and information from the DEN provide policymakers, businesspeople, and other stakeholders with an evidence-based approach to strategic decision-making and policy formation.

The DEN also answers some key questions:

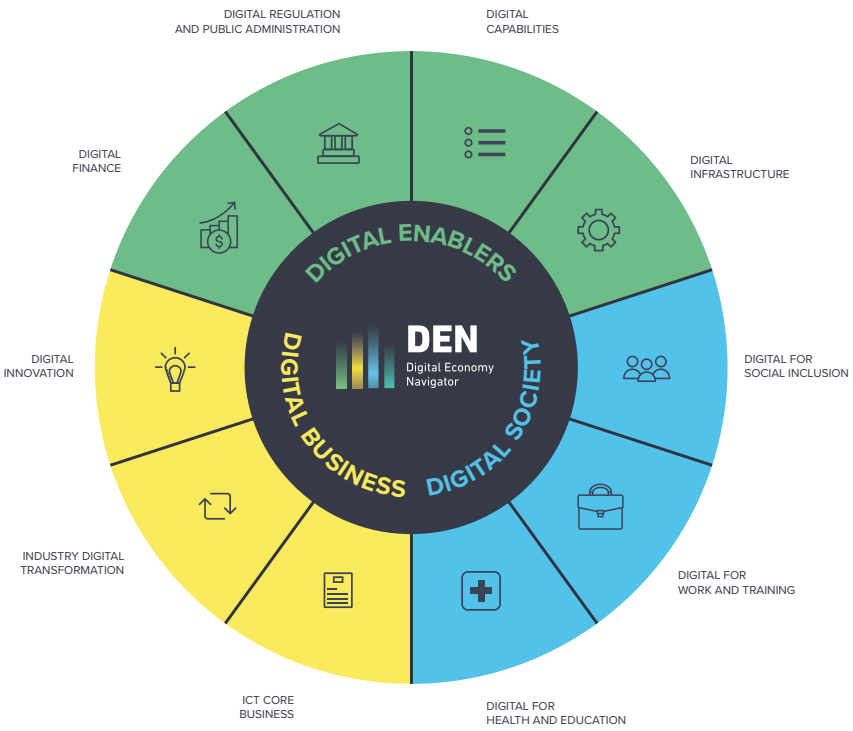
- What are the most important foundational elements of an environment that enables a digital economy inclusive growth?
- How can countries foster the development of a core digital business environment?
- How can countries use their digital ecosystem to provide inclusive, accessible, and affordable social services to their people?

The DEN framework consists of three main dimensions that encompass 10 pillars of the digital economy. The three dimensions, and the pillars they include, are:

- **Digital Enablers** (Digital Infrastructure, Digital Capabilities, Digital Regulation and Public Administration, and Digital Finance)
- **Digital Business** (ICT Core Business, Industry Digital Transformation, Digital Innovation)
- **Digital Society** (Digital for Health and Education, Digital for Work and Training, and Digital for Social Inclusion)

Each pillar consists of several measures or indicators that define an activity or aspect of the digital economy or digital technology and its application. The DEN uses these indicators as an assessment tool to determine the country's maturity level within each pillar. This information helps policymakers to define priorities and to develop strategic roadmaps at the national and regional levels. The result explains a country's current location on its digital journey and where improvements can increase digital maturity. There are five levels of maturity within each pillar: Frontier, Advancing, Transitioning, Emerging, and Nascent.

The DEN evaluative framework is described in the diagram below, which includes three dimensions and 10 pillars of assessment:



"This Navigator not only examines how digital technologies drive economic performance, but also places a strong emphasis on the human element—how these technologies enrich lives and improve societal well-being. By addressing both economic and social aspects, the Navigator showcases its unique ability to foster sustainable progress and mutual benefit."

— Alaa Abdulaal, Chief of the Digital Economy Foresight at the Digital Cooperation Organization[3]

KEY FINDINGS AND RESULTS

Overall results

Based on the assessment of 50 countries in the DEN across the 10 pillars, some aspects of the digital economy are more advanced than others. This creates varying levels of strength and development, which can be observed through the maturity of each pillar. On average, the pillars with **Advanced** maturity are in three areas of digital society dimension: First, an ecosystem for providing digital health and education, second, the capacity for digital solutions to address social inclusion, and third, digital regulation and public administration, underscoring the crucial role of policy in driving overall progress.

Globally, four areas stand out as a **Transitioning** maturity: the ecosystem supporting and resulting in digital for work and training (which assesses the scope and scale of digitally-enabled access to employment information, training, and addressing gender-gap issues); digital capabilities (which encompasses digital literacy and ICT skills); digital infrastructure's coverage, broadband bandwidth, affordability, and data infrastructure; and digital finance sector maturity, support, and attainment.

Pillars with **Emerging** maturity are industry digital transformation and ICT core business capabilities. Progress with these is less developed and will need to improve over the longer term if countries are to become more advanced. ICT core business shows particularly strong geographic disparities.

Finally, the Digital Innovation pillar shows a **Nascent** level of maturity, underscoring the critical need for further development. In this pillar, it is essential to strike a balance between enhancing consumer capabilities and fostering entrepreneurship and creativity.

Key takeaways

Sub-par investment in digital infrastructure hinders countries from reaching digital economic maturity. An underdeveloped digital infrastructure constrains capacity to deliver wider digital benefits for society overall. Most countries have a long way to go to build a stronger infrastructure: Less than 20% of the countries assessed by the DEN are at the Frontier level of maturity of their digital infrastructure. Transitioning countries constitute the largest group in digital infrastructure maturity (28%), mirroring the Transitioning aspect of digital finance. With 20% of the countries Emerging and 16% Nascent in digital infrastructure maturity, and digital finance at a higher level (Transitioning), there is a need for a coordinated global effort to increase investment in digital infrastructure to ensure that digital benefits reach as many people as possible.

The most important enabling factors for a mature digital economy are:

- A robust digital infrastructure characterized by extensive digital coverage among the population, as well as affordability and access to comprehensive, high-quality data
- A high degree of digital capabilities. To develop these capabilities, policy makers should aim to expand the training of targeted groups that lack the necessary skills. Countries with strong digital capabilities also tend to prioritize data privacy, digital-risk awareness, and cybersecurity
- Government policies and regulations that aim to remove economic and social barriers to Internet usage and ensure efficient governance of digital activities. Mature financial markets provide wide access to mobile payments, digital banking, and finance.

The successful development of the digital enabling environment helps to create a strong digital business environment. A robust ICT infrastructure will nurture digital business, hosting new transformational industry platforms across all sectors. Alongside this, a digitally literate population with access to broadband Internet drives the growth of these new platforms and participates in digital innovation. At the same time, a successful digital business environment makes it easier to provide digital services for health, education, work, and training, as well as offering greater social inclusion.

The education system should prioritize the teaching of digital and technical skills. As a result, digital capabilities will strengthen in both developed and developing countries, enabling their populations to thrive online.

Digital leapfrogging paves a path to digital economy maturity for developing countries. The DEN highlights the importance of strategic efforts that are people-centric. At this level of focus, both developed and developing countries can make rapid digital progress and fill gaps in traditional services with the help of online capabilities. While developing nations may not always have a mature enabling environment, they are often effective at bringing digital services to their online populations by taking a people-centric approach to digital economy maturity.

Developed digital economies often have the physical infrastructure to provide essential services to their people, while other countries are embracing emerging technologies to address needs in the fields of health, education, and employment. By promoting digital solutions to societal challenges, these latter nations can build a competitive advantage and catch up with more advanced economies. Their inclusive growth strategy allows them to bridge digital divides rapidly, leveraging digital inclusion as a driver of economic and social progress and positioning their populations for a brighter digital future. An example of digital inclusivity is Goodwall, a social enterprise that uses the Internet to provide job and training opportunities for less advantaged young people around the world (see box below).

Goodwall: TikTok meets LinkedIn

The world's elite schools tend to supply the leaders of tomorrow, but what about all the talent that goes untapped because people don't have the best social background or connections? Goodwall aims to help those who did not go to the right school in the right country with the right network. Its founders, two brothers, Taha and Omar Bawa, are helping young people maximize their potential and have a positive impact on society.

Taha Bawa, the CEO of Goodwall, says: "We thought if we could help young people build up their skills through experiential learning at scale, that would be the most meaningful thing we could do. That is the problem we were trying to solve: To build up their skills and then connect them to opportunities, regardless of their backgrounds."

Goodwall does this by leveraging proprietary technology and partnerships with corporations. A few years ago, the company developed a mobile app that is often described as "TikTok meets LinkedIn," designed for those aged 16 to 24. "To make it work for the next generation, you need a very clear hook and a reason to stay on the platform," he said. Goodwall's network offers young talent opportunities in the form of scholarships, internships, training provided by large organizations, and access to a community of like-minded people.

Gen Z is the largest generation in history with a population of more than 2 billion, but employers and brands struggle to engage with them authentically and at scale. Goodwall offers Fortune 500 companies from Microsoft to Accenture, governments, and the United Nations a platform to attract, impact, and engage Gen Z and build talent and consumer pipelines at scale, reaching more than 100 million youth over the past 12 months.

"Our unique approach was we thought globally from day one and in terms of scale," said Bawa. "We focus on partnerships with large organizations, as well as on technology to connect young people to opportunities."

The Bawas started with a minimal viable product and, as it gained traction, they kept on adding features based on continuous feedback from users. In 2022, Goodwall added a payment feature, enabling it to distribute funding in 100 countries, based on a customized disbursement mechanism. Now it gives out micro funding in installments.

"We engage with young people systematically, with quantitative and qualitative surveys and focus groups," said Bawa. The conclusions drawn from the data are then shared with Goodwall's users and are funneled in a way that drives value to the young person. "You do not get it done by knowing answers, but by discovering you are wrong fastest. We have stuck true to our vision, by getting things done every day in small steps."

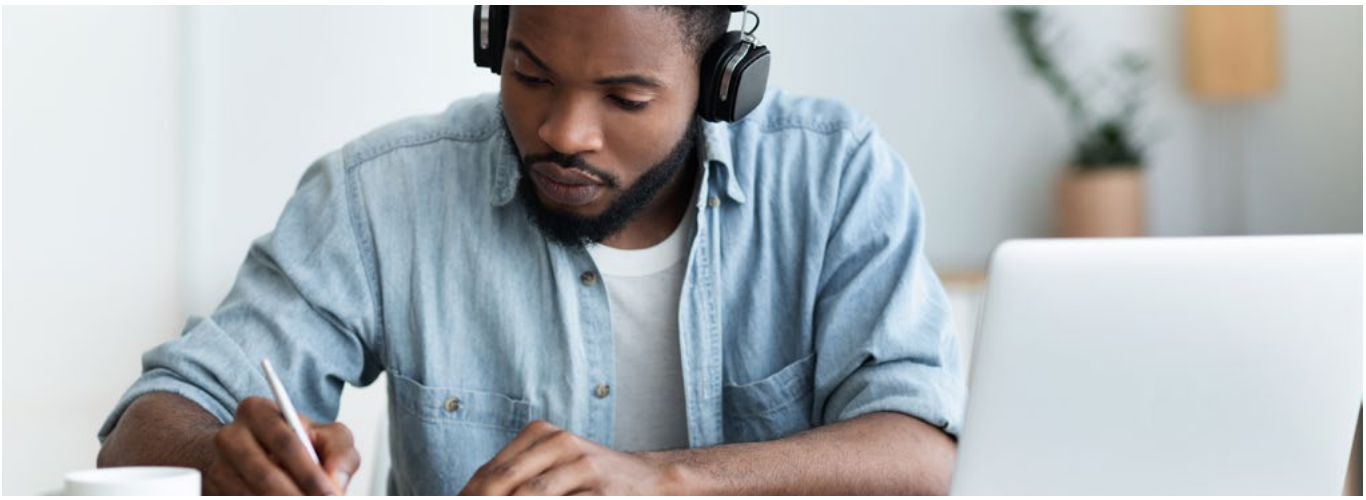
Rapid advances

Digital leapfrogging is not only a route to digital maturity, but also a path to progress. In situations with less developed digital maturity, the DEN demonstrates that economic progress using digital means can be swift and significant. With strategic investments in infrastructure, capabilities, and digital business, countries can improve quickly in overall digital maturity. Innovation can be a significant accelerator for digital evolution.

Innovation is still concentrated in high-income countries in North America, Asia, and Europe that have Frontier and Advancing maturity. These countries have robust R&D ecosystems, world-class universities, good sources of venture capital, and a high rate of innovative startups. Most Emerging economies do not offer these facilities and find it difficult to close the innovation gap. Countries with Nascent and Emerging maturity in the innovation pillar should, therefore, grasp the opportunity to collaborate regionally and exchange knowledge to broaden the innovation base beyond a few top performers. African countries should streamline investment regulations to increase venture capital funding in digital transformation.

Digital services are not always reliant on Internet adoption among computer users. Mobile phones, for example, provide the platform for Kenya's M-Pesa, a virtual banking system that provides transaction services through a SIM card. It also does this for telemedicine services that connect hospitals to rural clinics without the need for Internet access. In addition, distance-learning tools can be valuable even if they initially reach only teachers. Digital services should be introduced in all countries, including low-income ones, in areas of the economy where digital transformation can be achieved by leapfrogging.

The provision of digital health and education is an area of strength in developed and developing countries. Most of the 50 countries in the DEN performed effectively in the digital health and education pillar. This was partly due to the Covid-19 pandemic, which accelerated the need to make healthcare and education rapidly available through digital platforms. High-speed Internet accessibility and affordability are key factors globally. All countries should prioritize investment in reliable high-speed Internet access that is affordable for all segments of the population. Many nations across the income spectrum could learn from the top performers on indicators that comprise the ICT Core Business pillar, such as Singapore for hardware, Finland for software, and South Korea for telecommunications.



Digital services hold great promise to address broad societal challenges, as shown in the use of online services, for instance, banking, healthcare, and education. Labor migration would seem a natural focus for Internet start-ups that can facilitate financial transfers and reduce the cost of cross-border transactions, as exemplified by Xare, a fintech enterprise (see box below).

Xare: Democratizing finance by sharing more

One pathway to success is to choose a big market and then find ways to tap into it. There are few markets larger than the one Xare, a Dubai fintech company, aims to serve. “One third of the world works and two thirds spend what the one third earns,” observes Padmini Gupta, CEO and co-founder of Xare. “The one third has to figure out how to share its income with the other two thirds.” This is where Xare comes in: It enables users to share their spending capacity with others, usually loved ones.

Migrant workers want to share their income with their families back home. There are more than 170 million such workers, many of whom use cumbersome, unreliable, and expensive ways of repatriating their earnings. Instead, the wage earner opens an online account with Xare and then can provide family members with access to the cash in the form of a one-time gift or a regular amount. The transactions are transparent so the account holder can monitor whether the other party or parties are overspending; financial controls are in the hands of the account holder, not a bank.

Since Xare was launched in February 2021, more than USD $3 billion has been shared on the platform by 3.6 million active customers in 180 countries. The top five markets are India, Pakistan, the Philippines, the United Arab Emirates, and the US. Xare does not charge users a fee; its income is derived from fees it charges the retailer. The fee ranges from a quarter of 1 percent to 7 percent.

xare

After downloading the Xare app, a user can create and share cards with people, eliminating the need to move money, saving time and expensive bank fees. The funds come from a user’s credit or debit card. Gupta says the app is easy to use by not only those putting money into the account, but also the ones spending it. The recipients can pay for items using a mobile phone that scans a code provided by a shop; in India these are known as a unified payments interface and can be found throughout the country.

Gupta and her co-founder, Milind Singh, already had a base of 200,000 customers from a fintech called Rise who were then offered the services of Xare, enabling the company to take off. It helps that the fintech firm is in Dubai, where guest workers have families around the world. Xare advertises on social media, but to Gupta’s surprise, there were many countries where no ads were needed; word of mouth did the job.

“I started Xare because I was passionate about solving a problem, and this has carried me through the ups and downs of entrepreneurship,” said Gupta. “You can be anywhere and build for the world. Dubai is well known as an international trading center; you do not have to set up first in a developed market. There is a rising number of start-ups in UAE and venture capital firms to service them.”

Nordic countries lead the way in digital inclusion and other high-income countries follow. Characterized by social democracy, social welfare, and low income-inequality, Nordic countries demonstrate how digital technologies can bridge gaps, foster civic engagement, and support a more egalitarian society. Their best practices can be effective globally, especially in lower-income countries, where governments should try to eliminate gender disparities in access to digital technologies and services.

Digital capabilities, including digital literacy and awareness of online risks, are now an essential skill. While some countries with Nascent and Emerging maturity are already doing well in this field, others should seize the opportunity to harness the full potential of a digital economy. This effort should be based on the foundation of solid basic literacy rates.

Addressing the digital gender divide is an important priority, especially in countries that aim to move up from Nascent and Emerging digital economy maturity. The pillar that evaluates the presence of gender disparities in access to digital technologies and services provides an area of focus for improvement. Governments should prioritize gender-focused initiatives aimed at eliminating this divide. By doing so, they will not only promote digital inclusion, but also harness the capabilities of their female population, enhancing economic growth and societal development.

GLOBAL POLICY ISSUES AND IMPACT

This section of the report analyzes a few important policy issues and some of the ways they are being addressed. Global and national policy makers have made progress in addressing some of the development gaps, and the DEN serves to point out areas of capacity building by providing fresh information that can inform policy efforts and fundraising.

Government role in driving digital economic maturity

The DEN is designed to be a tool for a range of stakeholders to understand how to prioritize capacity-building efforts. For governments, the data and information from the indicators can be used to help prioritize areas most likely to speed up the development of the digital economy.

"It is important for governments to see where they are standing and what they need to improve to accelerate the digital economy within their countries," said Alaa Abdulaal, Chief of the Digital Economy Foresight at the Digital Cooperation Organization.

The DEN highlights an important dynamic for fostering digital growth: the partnership between government and the private sector. Alaa Abdulaal emphasizes that businesses must consider collaborating with governments, particularly in building an environment that enables digital economic growth. Private sector investment plays a vital role in supporting ICT infrastructure, while partnerships with governments and well-crafted telecommunications policies are essential for establishing the right framework.

National strategy best practices

The DEN denotes wide diversity in the maturity of digital economies around the world. The 10 pillars of evaluation inform a more detailed view of specific aspects of a country's digital maturity. High performing countries have mixed results across the 10 pillars, and at the same time, we see that some developing countries have areas of strength, especially in the digital regulation and public administration pillar, by creating digital solutions to societal challenges and employing inclusive growth strategies. "The best starting point is the policies government implement to improve the lives of their people, especially with a holistic approach to services delivery – public services including health and education, and digital government solutions have transformed this landscape," according to Alaa Abdulaal. In her view, government digital solutions and policies form the foundation for progress, but effective collaboration between governments and the business sector will be essential for further development.

Singapore's recipe for success

Singapore's experience in digital transformation demonstrates several best practices that have been recognized globally. One of the main reasons for its success is the government's Smart Nation plan introduced in 2014, with the aim that technology should be deployed comprehensively and systematically "to affect transformation in health, transport, urban living, government services and businesses." The goal is not only to spur economic productivity, but also to improve people's lives and promote civic mindedness. Some of the plan's features are unique to Singapore, but many of its facets can be applied elsewhere. These include:

- Enabling the public sector to take the lead in digitalization by providing online services for government activities, namely tax collection, healthcare, technical education, and training.
- Incentivizing the private sector to follow the government's lead by investing in IT training and infrastructure. Some technology-based start-ups are also provided with government support.
- Expanding the use of the Internet so that policies to promote e-commerce could succeed.
- Continuously training workers to keep up with digital advances.

Experts point to several overall success factors for Singapore:

- A strong culture of collaboration among government agencies.
- Small geographical size that makes it easier for the public and private sector to work together.
- Well-developed and robust partnerships with multinational companies.
- Evidence-based policy decisions.
- A government that adapts and responds quickly to critical needs.

Governments that develop and implement coherent and comprehensive national plans for a digital strategy, as well as those that address sector- and issue-specific needs, have had a huge impact on digital transformation.

Singapore's smart nation initiative is a good example of a transformative, national digital policy (see box). Alaa Abdulaal states: "The best practices are people-centric and delivered through the digital government platform. This then brings the benefits of digitalization to society."

Helping to build an Internet for everyone

Besides having a comprehensive national policy, there are several pre-requisites for a successful and resilient digital infrastructure, according to the Internet Society (IS), a 31-year-old global non-profit headquartered in the US. Policies should focus on resilience, cybersecurity, and access for all, given the cross-border nature of the Internet. According to Carl Gahnberg, the organization's Director of Policy Development and Research, "Our mission is to promote and protect a global Internet that is open, globally connected, secure, and trustworthy for everyone."

The Internet Society (see box below) aims to address some of the key challenges that prevent a third of the world's population from using the Internet. Its goal is to make sure that the Internet is accessible to all, and it conducts Internet impact assessments to evaluate whether individual government policies promote the use of the Internet or constrain it. By doing so, public services, such as healthcare, can be brought to the wider populace.

Internet Society: The Internet is for everyone

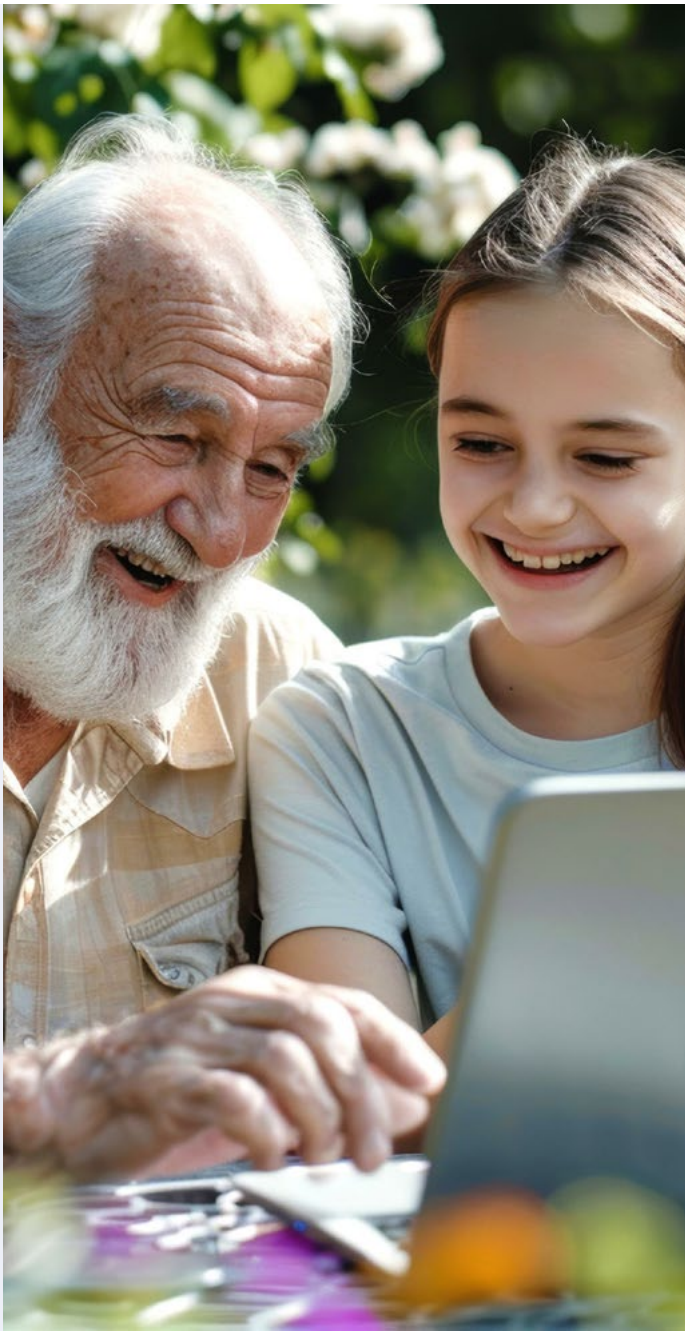
A key aim of the Internet Society is to expand access to people in cities and rural areas that are currently unable to connect to the Internet. "One of the biggest challenges is that it's really hard to connect, not the next billion, but the last billion of users," said Carl Gahnberg, Internet Society's Director of Policy Development and Research. "The larger operators are extremely important in making sure that people get access to the Internet, but in many areas across the world these operators lack the economic incentives to deploy their infrastructure to those that are hardest to reach." In these instances, the Internet Society helps local communities to build their own network that connects to the Internet without relying on big Internet service providers for access.

Another aspect of this capacity building is the development of Internet exchange points (IXPs). In many parts of the world, e-mails sent to a neighbor must travel halfway around the world before returning to a local recipient. These expensive international links can be avoided with voluntary interconnection arrangements set up locally, facilitated by an IXP. This type of network path is not only short, but also cheap for the operators, reducing Internet-access subscription fees, said Gahnberg.

Other benefits of IXPs include more reliable connections in the face of outages, natural disasters, or other forms of disruption. Capacity building of this type establishes a denser interconnection of networks, which provides more connectivity options for the community and increased Internet access points. Designing policies to tackle these issues enhances the digital environment, which then supports digital business activities and industrial transformation, as well as the benefits for digital society.

The Internet Society also monitors government policies to ensure they do not restrict access to the Internet and that they protect users' privacy and security. For example, policies that undermine the use of encryption, or that force data to be stored within a country's borders, prevent individuals and businesses from maximizing the potential of accessing a global network.

Other issues include policies that would require an Internet service provider to enter into regulated payment contracts with other network suppliers, leading to costly fragmentation. Such regulations currently exist in South Korea and are being discussed in India and Brazil. Large telecom operators are lobbying the EU to introduce similar regulations. As Gahnberg explains: "This type of regulation, which conditions whom you can reach according to contracts, are in direct conflict with an open Internet and limit other business's ability to reach customers. The beauty of the Internet is that you really need just one contract to connect to all parts of the network of networks."



Digital literacy and Internet access

Policies that promote social inclusion and address gaps in opportunities to increase digital literacy and skills for underserved and previously unreachable groups are increasingly objectives of many NGOs and government activities around the world. An individual not only needs to have full and free access to the Internet; it also must be digitally literate to take full advantage of it. As the Singapore example shows, the success of e-government and e-commerce requires digital skills among users. It is a symbiotic relationship.

Alaa Abdulaal, Chief of the Digital Economy Foresight, highlights Internet affordability and access as key barriers to digital literacy. “To close the digital literacy gap, we need strong infrastructure, affordable access, and clear guidelines to help people discover the resources they need for educational materials and training,” she says. “Effective strategies for building digital literacy and skills require collaboration between the public and private sectors, along with investment in physical infrastructure, policy frameworks, and digital technology training programs."

In the Gulf Cooperation Council, for example, there is affordable Internet access, as well as a positive mindset for digital skills acquisition developed during the pandemic. People accepted and became willing to learn and receive training via the Internet.

The Internet was launched on January 1, 1983, and most people began to use it when tools to access the world wide web were created in the late 1990s. Over the past 15 years, mobile phones have made access to the Internet not only convenient but affordable and have facilitated access to services for many. Yet, according to the International Telecommunication Union, a third of the world’s population do not have access to the Internet[4]. There is also a digital literacy divide: for those who have either never had access to the Internet or training for workforce skills or who did not acquire digital skills in school.

Access to digital skills and education has become critical for people to improve their quality of life, such as in healthcare. Government policy and initiatives by NGOs and others can have a huge impact on groups for whom access is difficult or has gone unaddressed previously. The Internet can provide an essential pathway for people to gain access to healthcare screening, for example (see box on Prosperity Health Ventures opposite).

Digital literacy has become a skill that everyone must have to be able communicate, find employment, receive education, or socialize in the world today. Acquiring the right digital skills is also essential for learning and workforce participation, as well as fostering a more open, inclusive, and secure society.

While specific solutions vary from region to region, it concerns all nations to some extent. The rapid digitalization over the past 20 years has largely increased living standards and conditions on a global level, but there are still groups of people left outside the current areas of progress and innovation. Filling these gaps to ensure that those with little or no digital literacy are not left further behind, and to prevent a widening gap in economic and lifestyle improvement, international organizations such as the UN, the Internet Society and the DCO, as well as policy makers, private organizations and other stakeholders are focused on programs, initiatives and investments that will bring solutions.

Prosperity Health Ventures: Digital solution for Sub-Saharan Africa

Prosperity Health Ventures (PHV) tackles some of the biggest difficulties people face in accessing medical assistance in Sub-Saharan Africa, which has the lowest ratings for well-being and the lowest satisfaction with healthcare in the world, according to the US-based National Institutes of Health. PHV was established in 2020 to digitalize the delivery of affordable healthcare in the region, starting with Ghana and extending to neighboring Francophone countries in 2024.

Based on deep experience of healthcare in Ghana, PHV saw a need in the market for health testing to be done earlier and conducted at pharmacies rather than big, overcrowded hospitals. “The latter are not the right place to go for somebody who has malaria; they should go to their pharmacy and do a rapid test. If they test positive, then they should go to a general practitioner. Often, they do not know where to go,” said Dennis Wijsmuller, one of the three co-founders.

PHV has created a medical-test platform called besaCare that can be accessed easily by patients and 500 pharmacies in its network. Each day, the pharmacies test 2,000-3,000 patients for health conditions ranging from malaria to diabetes. The organization has designed the software so that younger, more tech-savvy family members can help older relatives access test results and monitor health information.

Digital training of pharmacies on their proprietary software is essential. PHVs teams go to the pharmacies to train employees how to use the software and then they go back later to make sure it is being used correctly. They have also set up a reliable supply chain providing good-quality diagnostic tests. Affordability is an issue: Many Ghanaians struggle to pay for tests and are inclined to buy cheaper ones, even if they are sub-standard.

All PHVs funding has come from private sources outside Ghana, in Europe, the Middle East, the US, and India. A lot of the donors are doctors; PHV has targeted people who might not only donate money but also provide expertise in diagnostics.

Neema Jain, another co-founder (the third co-founder is Edem Kumodzi), said that their business model owes a debt to the fintech sector which has made it easier to transact and save online, opening people’s minds to the potential of the digital economy in other fields, such as healthcare. “We send SMS messages to patients to go to have their blood sugar tested and so we can empower people to take control of their healthcare,” she said.

Its software is custom-built by a team of Ghanaians. Jain studied for a master’s degree in business administration at INSEAD where she met some Togolese software engineers who put her in touch with developers back in Ghana. PHV’s chief technology officer runs online training sessions for various software applications and has 21,000 followers on X (formerly Twitter). “Our team is passionate about solving the problems of access and affordability in healthcare,” says Jain. “We are impressed with the local talent and the team we have built.”

CONCLUSION

Digital economy maturity is both a cause and an effect of prosperity, and the report shows these types of variations among regions and countries. At the same time, it offers opportunities for leapfrogging for many nations. This emphasizes the need for a global commitment to bridge the digital divide and ensure that digital benefits reach all citizens, regardless of the economic status of the countries they live in.

Digital transformation is revolutionizing the delivery of essential services exemplified by healthcare and education, as it holds great promise for addressing broader societal challenges. Across all countries under review, the use of digital services in sectors including healthcare, education, employment, and public services is high. While the COVID-19 pandemic catalyzed the digital transformation of services, other factors are also driving this shift. Nations are embracing digital solutions to enhance accessibility, efficiency, and inclusivity of essential services, creating momentum toward increasingly digital societies. Increasing ease of use of digital technologies and its potential for addressing essential human needs creates new market opportunities, especially in emerging markets.

None of the benefits of the digital economy can be reaped without reliable and affordable high-speed Internet access. Poor infrastructure excludes segments of the population from participation in the digital economy, limits the potential market size for digital solutions, and risks a growing digital divide within countries. Countries should prioritize Internet, data, and electricity infrastructure investment to increase their online population and fully capture the benefits of a digital economy. Leapfrogging offers emerging economies a path to narrow the gap between them and their more developed counterparts.

The true potential of the digital economy lies not just in its capacity to drive innovation, but in its power to transform societies by bridging divides and creating new opportunities for all. To unlock this potential, countries ought to view high-speed Internet and robust digital infrastructure not as optional enhancements, but fundamental pillars of modern development. Those that prioritize these investments will not only accelerate their own progress, but also set the stage for a more inclusive global economy, where digital dividends are shared by everyone; regardless of geographic or economic barriers. Emerging economies have the unique opportunity to leapfrog traditional development stages, closing the gap with their counterparts, thus shaping a future where digital inclusion is the norm rather than the exception.

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1 "Facts and figures 2023," ITU, October 10, 2023

2 World Health Organization, "Cardiovascular diseases" https://www.who.int/health-topics/cardiovascular-diseases

3 The Digital Cooperation Organization (DCO), founded in November 2020, is composed of 16 Member States and is dedicated to achieving digital prosperity and the inclusive and sustainable growth of the digital economy. It is the sponsor of this report.

4 "2.9 billion people still offline," ITU, December 7, 2021

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