



Benchmarking

The World's Digital
Transformation

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Benchmarking The World's Digital Transformation,

a PYMNTS and Stripe collaboration, provides an overview of the current state of the global digital transformation, according to the ConnectedEconomy™ Index. The CE Index provides an objective benchmark for how and at what pace the digital transformation of countries and their economies are progressing and illustrates why some countries and economies are leading or lagging. It provides the framework and the metrics for this exciting journey and the progression of the global (digital-inclusive) GDP.

The
ConnectedEconomy™ Index
Q1 2022

APRIL 2022 ■

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The PYMNTS ConnectedEconomy™ Index (CE Index) will benchmark the progress of the world's digital transformation quarterly across the 11 countries in our study and individually within the countries we are tracking.

This first-of-its-kind global research endeavor uses in-depth surveys to examine consumer engagement in each of 40 key activities across the 10 broad categories — the pillars of the connected economy — that represent their daily routine and consistently measure the progress of consumer engagement over time.

The CE Index uses data collected from 15,109 individuals across 11 countries between January 13 and February 16, 2022, and includes how and how often consumers engage in each of the 40 activities, the purchases they made and the payments methods they used. The countries are the United States, the EU-5 (France, Germany, Italy, the Netherlands and Spain), the United Kingdom, Brazil, Australia, Japan and Singapore, which together account for 50% of global GDP.



PYMNTS' analysis of the roughly 2.4 million data points resulting from this survey creates a unique CE Index score for each country and an average CE Index ranking across all 11 countries in our study. The CE Index measures how much progress each country has made in their digital transformation journey. A 100 is a perfect score — meaning that every person in a country uses digital methods to engage in each of the 40 activities we measure, daily — and can be thought of as the culmination of the global digital transformation.

Our work is done with the support of Stripe.

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The digital transformation of the global economy: How far have we traveled?

The lockdown of the physical world caused by the global pandemic in March of 2020 forced a massive shift to digital for people everywhere. The digital transformation we have witnessed ever since has touched many of the activities in which people engage, based on our survey of more than 15,000 consumers in 11 countries that account for 50% of global gross domestic product (GDP). By many measures, the digital transformation of the global economy has come a long way over the last two years.

Yet, even with this forced shift to digital, the journey to a fully-realized digital transformation of people and the economies of the countries in which they live is in its early days.

That's not bad news — it shows there's enormous upside for entrepreneurs, investors and consumers in the 11 countries we studied, including the most advanced economies. According to the PYMNTS ConnectedEconomy™ Index (CE Index), the digital transformation is only 27% of the way to its full potential across the 11 economies we studied.



Singapore and Spain top the list with the United States in fourth place, just slightly behind the United Kingdom. Despite being the birthplace of mobile payments with Docomo's iMode, Japan is only 14% of the way to the realization of a fully digitally connected economy.

In fact, even though 87% of the people in all 11 countries are connected to the internet, only 19% of the populations are highly engaged in the 40 activities across the 10 categories we used to define and measure the digital transformation of the global economy.

Right now, age, not income, is digital transformation's missing link.

The countries whose populations across all age groups — particularly older ones — are more digitally engaged show more progress. Singapore's elderly are engaged, and Japan's are less so, which goes a long way toward explaining the big difference between the digital engagement of the populations in those two countries. Digital transformation has to include all age groups, not just millennials and members of Generation Z.

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The lack of effective digital substitutes for physical experiences, such as in health-care, keep more people from going online, as does the friction associated with more traditional online or mobile transactional activities such as shopping and paying bills. The lack of compelling digital alternatives is a greater drag on the digital transformation of developed economies where existing physical solutions for many activities, including healthcare, are pretty good. To drive digital progress, more and better digital solutions that add value, not friction, are needed. This is where entrepreneurs and business leaders have tremendous opportunities and, of course, great challenges, to devise more and better solutions for consumers.

We observe that consumers do not find many existing digital activities very engaging at this point. Consumers are 40% more engaged in the digital activities that don't involve making a purchase, such as

streaming videos and hanging out with friends on social networks, than those that are only about transacting, such as shopping and paying bills. Embedding payments into high-engagement activities and making transactional activities more efficient and less of a chore are ways that innovators can improve digital engagement and monetize the digital transformation.

In doing so, innovators must recognize that consumers want a choice in how they pay for the purchases they make in the digital world. Ubiquity is now defined by the user and not by what the platform is able to accept as payment. Paying directly with cards is the most common payment method across the 11 countries we studied, in addition to digital wallets where the consumer has often registered a card. Some consumers also want to be able

to use domestic solutions, such as carrier billing and iDEAL in the Netherlands. These platforms must support each of these options if they wish to keep users engaged and transacting.

Digital engagement is contagious, with consumers naturally expanding their personal digital footprint to activities that share similar characteristics and natural adjacencies, based on our survey. Sixty percent of consumers who frequently stream videos and music also talk with their friends and relatives on social media or chat apps just as often. Fifty-three percent of consumers who frequently place restaurant orders online also tend to buy their groceries online — with buying food being the goal in both instances.

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This expansion creates powerful network effects. For example, given the progress of digital transformation today across the 11 countries in our study, a 10% growth in the number of consumers who use digital channels to purchase goods and services would increase the CE Index score across the 11 study countries by 5.8%.

Economic historians tell us that it usually takes decades for disruptive fundamental innovations to work their way through the economy. Nearly three decades after the launch of the commercial internet, some may think that the digital transformation of the global economy should be farther along.

Instead, we should be excited for the enormous untapped potential for entrepreneurs, incumbents and investors to build on the digital foundations that now exist and to lay new digital tracks to support the innovations yet to come.

The CE Index provides an objective benchmark for how and at what pace the digital transformation of countries and their economies are progressing and illustrates why some countries and economies are leading or lagging. It provides the framework and the metrics for this exciting journey and the progression of the global (digital-inclusive) GDP.¹

The speed at which individuals shift to digital for any of the 40 activities within each of these 10 pillars that we are tracking is how we will gauge that progress and that pace.

The global impact of the digital transformation will be measured by the new experiences that will blend the digital and physical worlds in new and powerful ways — accessible to anyone, anywhere in the world. Connected economies, digitally transformed, on demand and on consumers' terms.

¹ The methodology by which the World Bank currently calculates GDP does not necessarily account for the full dollar value that the internet contributes to the global economy. Google's contribution, for example, is currently measured in terms of ad and sales revenue rather than by the value of the services it provides as a search engine and allowing users to access those services for free. The result is an analytical blind spot which prevents the world from knowing the true economic value of the internet — at least in terms of its impact on global GDP. This analysis is based on information found at <https://databank.worldbank.org/source/world-development-indicators>.

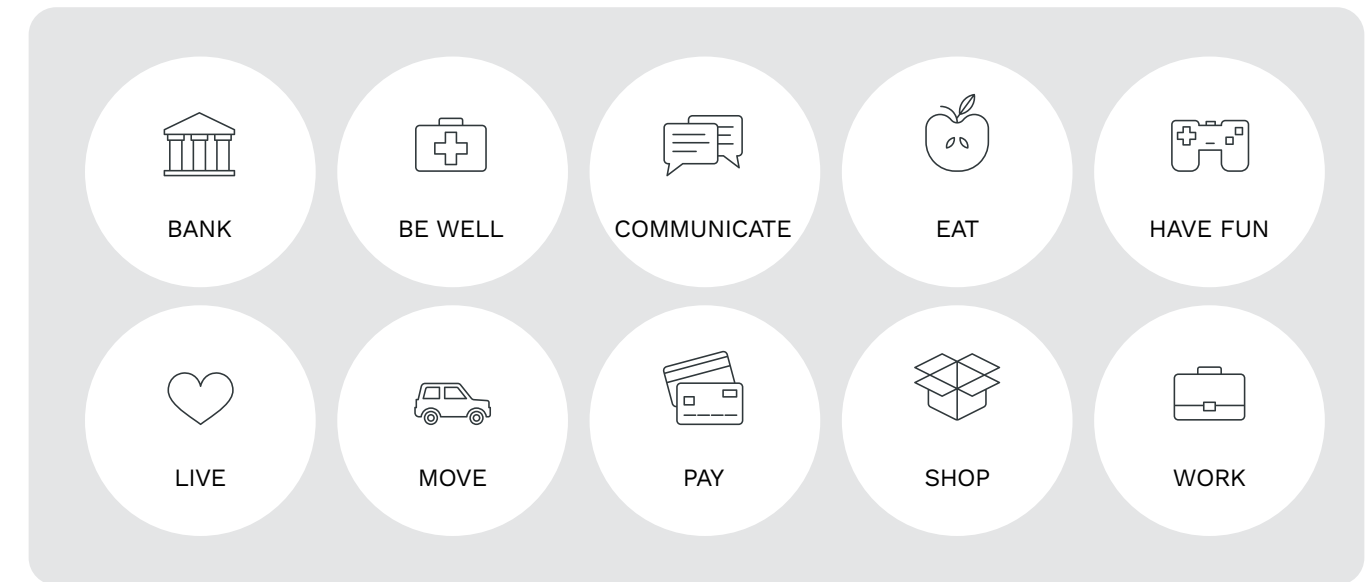
The here and now of the digital transformation

On March 1, 2022, Uber launched Uber Explore, an in-app feature that adds a new dimension to the rideshare experience. Uber users can receive personalized recommendations for restaurants, live events and entertainment venues and then book and pay for those experiences directly from their Uber account.² On March 9, Uber Eats announced that users can make group orders and split the check.³

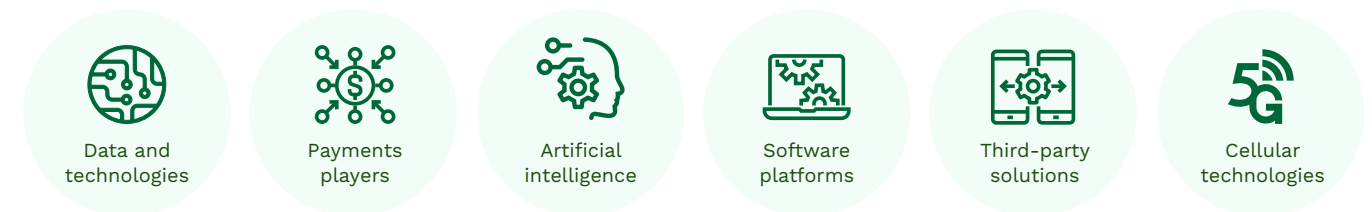
Uber's gambit to expand and monetize its ridesharing platform is the latest example of how digital platforms are aggregating and monetizing the natural synergies between once separate but related online activities. Uber Explore is just the latest example of what PYMNTS calls the ConnectedEconomy™ — a framework for defining and measuring the digital transformation of the global economy over time.

This framework organizes a consumer's daily routine into 10 categories — we call them “pillars” — and the 40 activities they perform to complete them. How people all over the world use connected devices, payments and new technologies to work, live, bank, pay and be paid, have fun, shop, eat, stay healthy, connect with others and move from point A to point B will determine the depth, breadth and speed of the world's digital transformation.

THE 10 PILLARS of the ConnectedEconomy™



ConnectedEconomy™ Enablers



Innovators use a combination of technology, payments and connected devices to simplify how people and businesses engage within each of these 10 pillars and, more importantly, consolidate multiple activities across separate pillars into one. Together, this becomes the blueprint for the digital transformation of the connected economy.

The Uber Explore experience connects three of the ConnectedEconomy's 10 pillars: have fun (tickets for events), eat (restaurant reservations) and move (getting from point A to B). Uber's hypothesis is that consumers will start their search for what to do and where to go inside an ecosystem that can also get them to and from their desired destination.

² New Uber Explore Feature Marks Trend in Monetizing Rideshare by Adding Value for Users. PYMNTS.com. 2022. <https://www.pymnts.com/mobile-applications/2022/new-uber-explore-feature-marks-trend-monetizing-rideshare-adding-value-users/>. Accessed April 2022.

³ Uber Unveils Bill Splitting, Other Group Dining Features. PYMNTS.com. 2022. <https://www.pymnts.com/news/delivery/2022/uber-unveils-bill-splitting-other-group-dining-features/>. Accessed April 2022.

The PYMNTS ConnectedEconomy™ Index: The six trendlines

This first report is the baseline for how we will measure the evolution of the global economy's digital transformation quarter after quarter in the years to come. These are the six trendlines we will be tracking over time and where they stand right now.

01

The digital transformation of the global economy shows vast untapped potential — for business leaders, entrepreneurs, investors, and consumers — despite having started almost three decades ago.

Eighty-four percent of the world's population owns a smartphone, and more than 80% of the world's population has access to a 4G mobile broadband network.⁴ There are more than 14 billion mobile devices worldwide connected to the internet.⁵ Although access to the internet continues to improve, the groundwork for the digital foundation is already very well established.

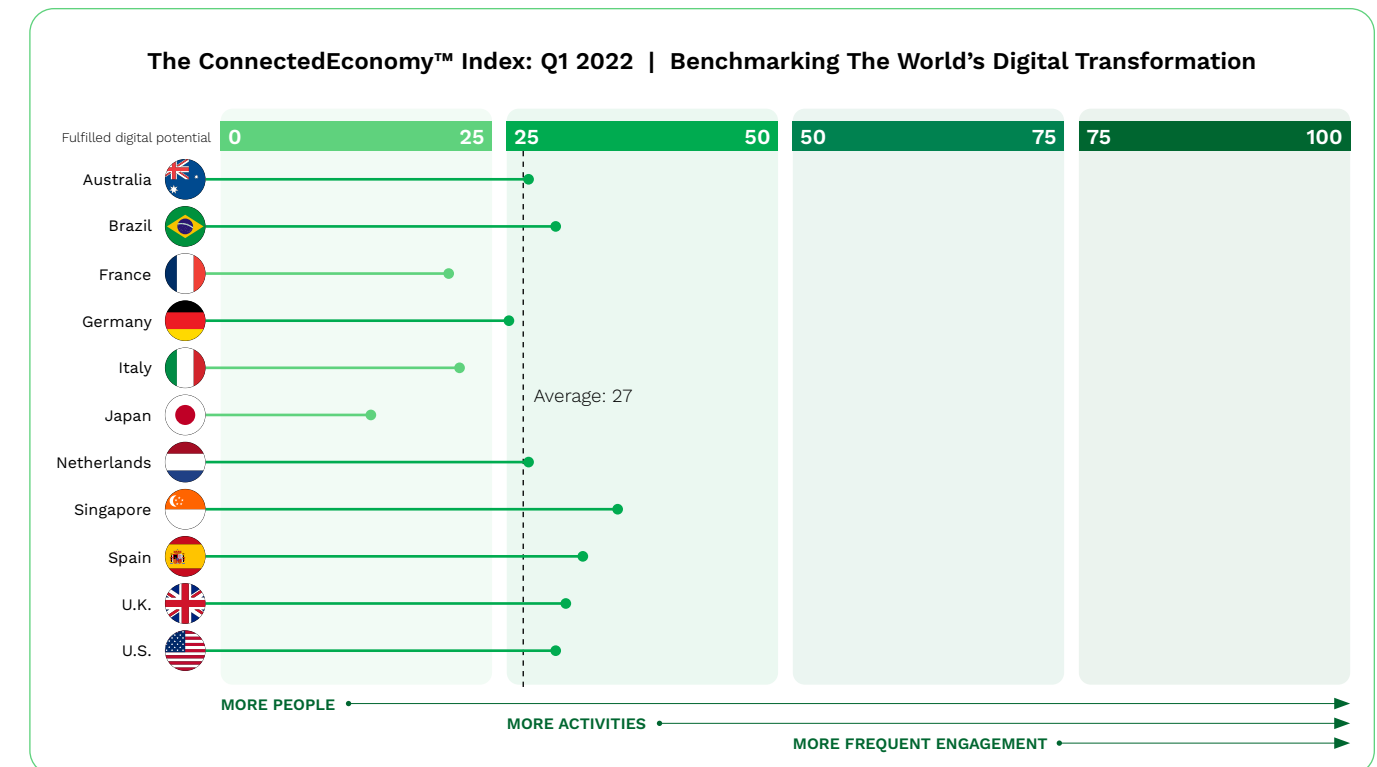
Yet, collectively, the digital transformation of the 11 countries that represent half of the world's GDP has barely reached more than a quarter of its potential.

The CE Index score for these 11 countries shows that digital engagement worldwide has reached 27% of its full potential across the 10 pillars that represent digital transformation, revealing substantial progress but also a massive upside for the decades to come.

The U.S. ranks in fourth place at 30, slightly below the U.K., which is in third. Singapore is furthest along, with a score of 35, followed by

⁴ O'Dea, S. Number of smartphone subscriptions worldwide from 2016 to 2027. Statista. 2022. <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>. Accessed April 2022.

⁵ O'Dea, S. Forecast number of mobile devices worldwide from 2020 to 2025 (in billions). Statista. 2022. <https://www.statista.com/statistics/245501/multiple-mobile-device-ownership-worldwide/>. Accessed April 2022.



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Spain (32) and the U.K. (31). Japan, at 14, is a laggard at the very beginning of its digital transformation journey.

These developments are not surprising, especially since much of the effort over the last three decades has been to put critical digital infrastructure in place to connect more of the world to the internet and to put cheaper and better smartphones in the hands of consumers to access it. The diffusion of innovation in the economy almost always takes a long time.

Progress to date reflects those efforts, as we begin to see large swaths of the population coming online and engaging digitally in several of the 10 pillars. But there is more ground to cover. We expect to see digital transformation progress as more people engage digitally in more activities more often and as innovators create more, better, relevant and valuable digital solutions that leapfrog physical substitutions or create new ways to access products or services.

02

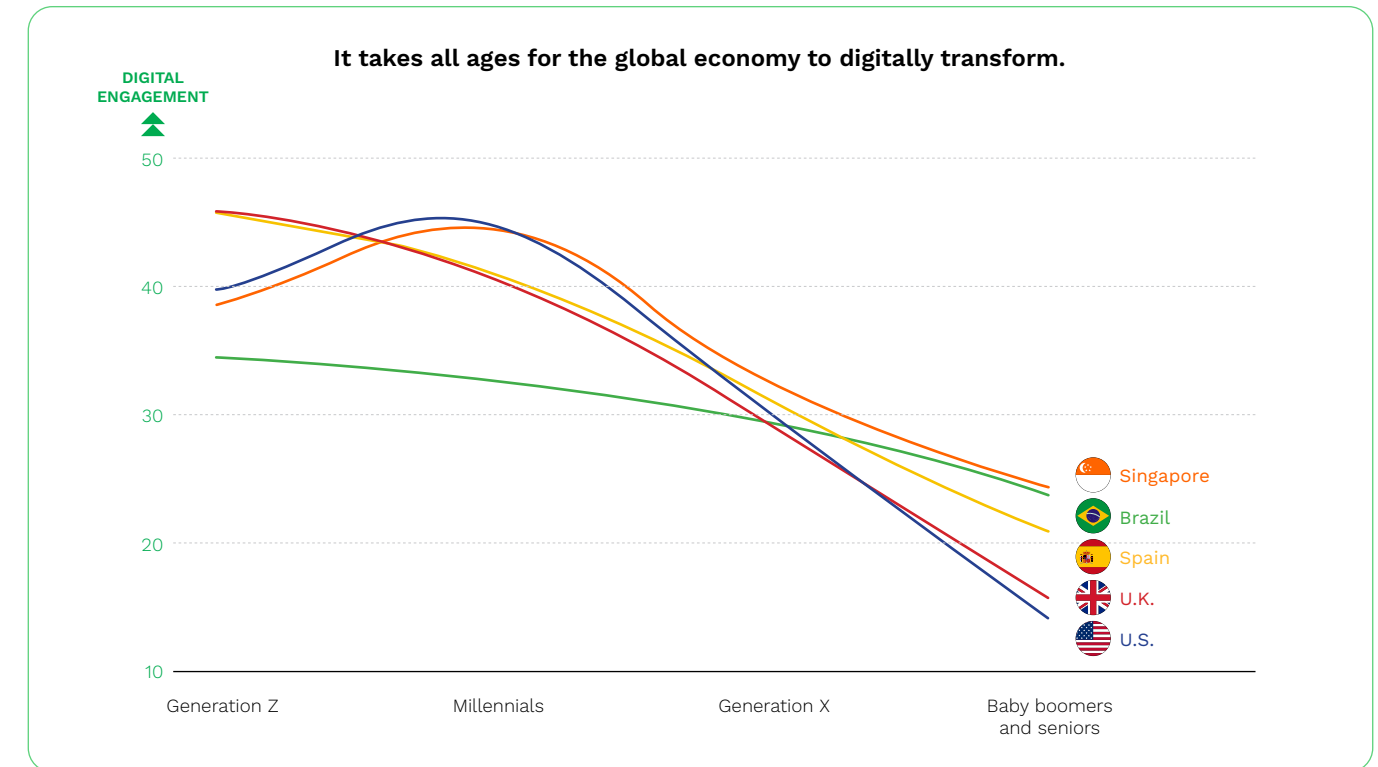
The digital transformation has to engage people of all ages to reach its full potential.

One of the greatest myths of digital transformation is that it is the economy of millennials, those with many connected devices and the income to support transacting in a digital economy.⁶ Our research finds that millennials, while important early adopters of online commerce, are not enough to bring about digital transformation; it requires the engagement of older generations to fully take hold.

The biggest impediment to a country's digital transformation is that there are too few people engaged in digital activities. Only 19% (152 million) of the people in the countries we studied, on average, are highly engaged in digital activities, even though nearly everyone has the tools to do so. The more that all age groups in a population engage with digital activities, the more progress a country will make, and the higher the country's CE Index ranking overall.

⁶ The generations shown in Table 1 and throughout Benchmarking The World's Digital Transformation are defined as follows:

- **Generation Z:** Born between 1997 and 2004, they are approximately 18 to 25 years old.
- **Millennials:** Born between 1981 and 1996, they are approximately 26 to 41 years old.
- **Bridge millennials:** Born between 1979 and 1988, they are approximately 34 to 43 years old.
- **Generation X:** Born between 1965 and 1980, they are approximately 42 to 57 years old.
- **Baby boomers and seniors:** Born in or before 1964, they are approximately 58 or older.



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By contrast, the countries that have made the most progress are those where consumer digital engagement is age agnostic. One of the reasons Singapore's progress is much higher than that of other nations is because more of its baby boomer and Gen X populations engage in digital activities than those of the other countries in our study.



The most digitally advanced economies are where cross-generational engagement is the highest.

03

The digital transformation is driven by people engaging in one activity and then expanding to related ones.

The relationships between the different activities people do and how often people do them tells us a lot about how the digital transformation will accelerate in the coming years.

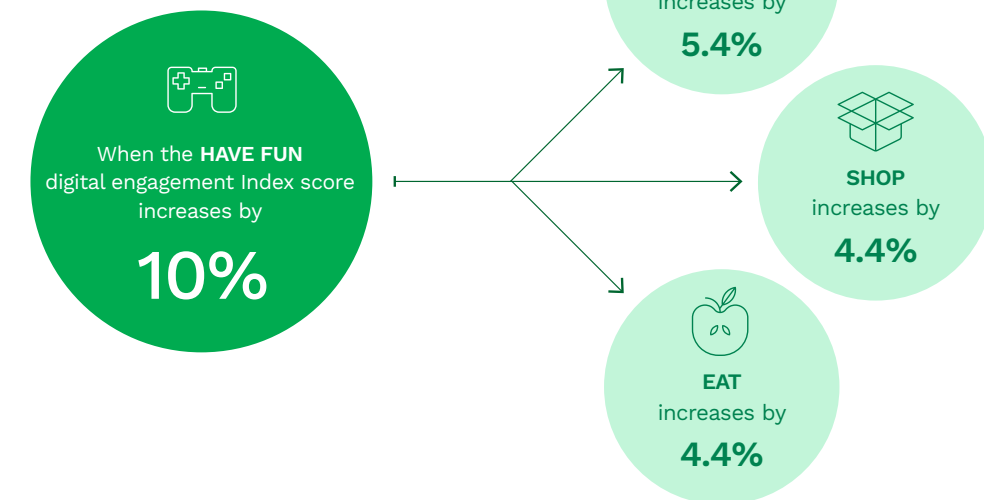
We find that consumers are engaged digitally in 14 of the 40 activities (slightly more than one-third) across the 11 countries, on average. We also find that people who engage digitally in one activity for one specific reason tend to expand their digital footprint to other activities with similar characteristics, such as shopping, socializing, even banking. Network effects will accelerate the digital transformation of countries and economies as more consumers engage in one activity, then others with a similar look, feel, purpose and functionality.

For example, we see many similarities in how consumers use digital methods to transact — to shop for retail products as well as how they buy food from grocery stores and restaurants and food delivery aggregators.⁷ Seventy percent of consumers who are highly engaged digitally in the “shop” pillar (retail shopping) are also highly digitally engaged in the “eat” pillar (purchasing food from restaurants and grocery stores). Sixty-four percent of those highly engaged shoppers also show high digital engagement in grocery purchases, and 75% show high usage of digital methods to buy food from restaurants.

⁷ The term “aggregator” may refer to any of a variety of third-party platforms that connect consumers to a broad network of merchants, providers or other businesses and facilitate the purchase of their products and/or services. Some well-known examples include DoorDash, GrubHub, Uber Eats and Postmates.

How the network effect can accelerate the global economy's digital transformation

An example of connected synergy:



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These network effects will increase the overall CE Index ranking of individual countries as well as the collective ranking of the 11 countries in the study. If the number of consumers who use digital channels to shop across the 11 countries we studied increased by 10%, the CE Index score across those 11 countries could increase from 27 to 29.2 (an increase of 5.8%), moving digital transformation closer to its ultimate goal.

We observe similar correlations in how consumers use digital channels to socialize with others, specifically how consumers

communicate and have fun. Sixty percent of the consumers who frequently engage in digital activities across the “have fun” pillar (video streaming, music streaming) are also highly digitally engaged in the “communicate” pillar (messaging and social media, mainly), with 52% and 38% of consumers globally exhibiting high engagement in those pillars, respectively.

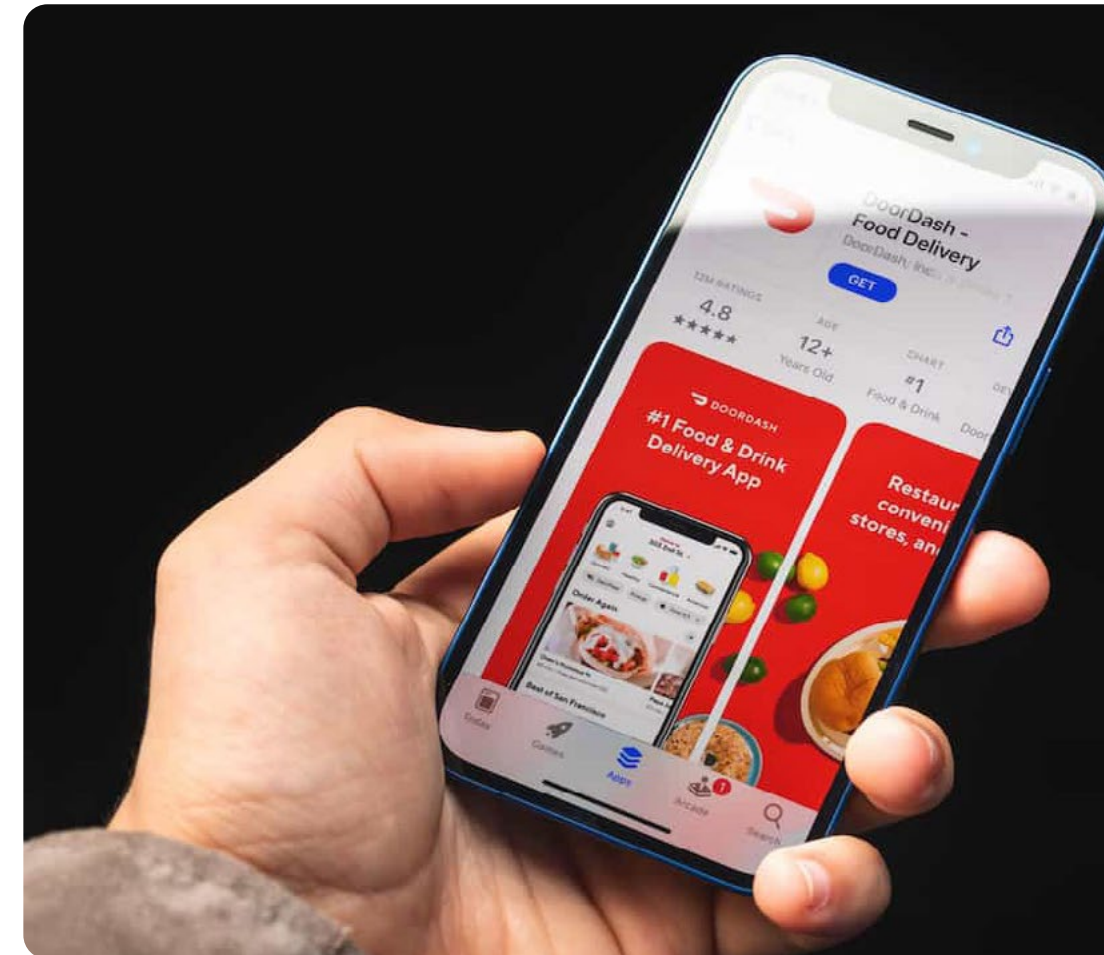
Similarly, if the number of consumers who use digital channels to engage socially increased by 10%, the CE Index score across the 11 countries in our study would increase by 5.4% to 29.

Digital Transformation's Network Effects

Increasing the number of people using digital methods to engage in any particular activity also influences how often they engage in those digital behaviors. That, too, has a multiplier effect and may even accelerate the progress of the digital transformation across all 11 economies we studied.

DoorDash was founded in 2013 as an app that brought diners and restaurants together for online ordering and delivery. The platform has expanded to deliver retail products and prescriptions, and more recently, DoorDash launched a digital convenience store — all in an effort to keep its customers transacting more on its platform and using digital methods instead of physical channels to transact — and to create a preference for shopping with those that are part of the DoorDash ecosystem. The more DoorDash users who do that, the more often they are likely

to use DoorDash to order and pay for retail, restaurant and grocery products. As more place more orders with DoorDash merchants, more retailers and restaurants will want to become part of the DoorDash ecosystem, and the more grocery products DoorDash will likely add to its convenience store offering. Increased usage and frequency will shift more similar transacting behaviors from analog to digital, which will have a positive impact on a country's CE Index ranking as well as the collective ranking of the 11 countries and economies in our study.



The network effect

drives the organic growth
of the global ConnectedEconomy™.



04

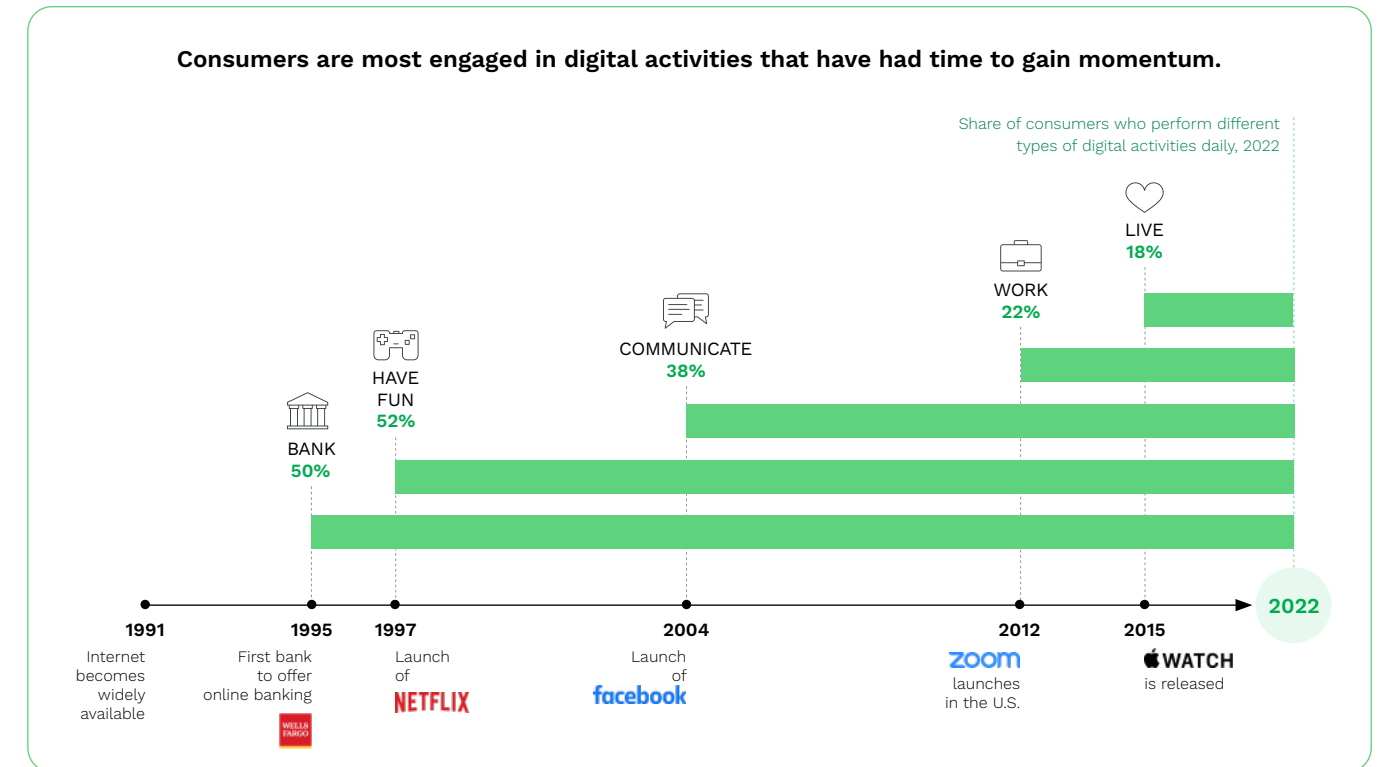
Consumers are the most engaged in the activities that are purpose-built for digital and have been around the longest – and least engaged in new activities that have better physical alternatives.

Despite the illusions of overnight success just by “going online,” it takes time for digital solutions to gain traction, especially if there are good physical alternatives.

Facebook was founded in 2004, Netflix transitioned to streaming in 2007, and Spotify launched in 2008. Even online banking has existed in some form or fashion since the 1990s, as has mobile banking since the early 2000s. It is hardly surprising, then, that consumers in the 11 countries we studied are most digitally engaged in using social networks and digital platforms for entertainment and digital banking channels for managing banking activities.

As part of the CE Index methodology, we also rank the digital engagement of each of the 40 activities we use to define digital transformation. These activity scores are a measure of frequency — how often consumers engage digitally with a single activity.

Here we see those activities built for digital capturing a high level of consumer engagement, with video streaming and social media activities among the two top-ranking of all those we studied. Sixty-one percent and 56% of the populations across the 11 countries we studied engage in those activities; 31% and 25% do so on a daily basis.



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The same is true for mobile and online banking, with 59% of consumers across all 11 countries engaging in mobile banking activities. For banking specifically in countries such as Singapore, Spain and the U.K., the availability of attractive mobile banking alternatives to brick-and-mortar banking — coupled with the widespread availability of smartphones — drives both adoption and usage, and an increase in their overall CE Index ranking.

Conversely, activities with strong, entrenched physical components across all 11 countries, where digital substitutes are still very new and digital use cases are still emerging, show low engagement.

For example, telehealth (an activity in which only 25% of consumers across all 11 countries are digitally engaged) and virtual therapy (21% of consumers) each have low digital engagement, as do online grocery subscriptions (23% of the consumer population) and voice-enabled shopping (23% of the consumer population).

05

Embedding transactions into high-engagement activities will accelerate the digital transformation.

More than 1 billion people worldwide go to TikTok every day to watch videos. Brands ranging from Walmart to Daily Harvest to Guess Jeans use the platform to promote products and their brands. The intent of TikTok users is to be entertained, to be informed and then to sometimes buy.

More than 223 million people in the U.S. go to Amazon every month to make a purchase, driving 56% of the online sales in the U.S. and 3.6% of overall consumer spend, according to PYMNTS' latest study on the topic.⁸ The intent of the Amazon user is to transact — to visit the site to find a product and then buy it.

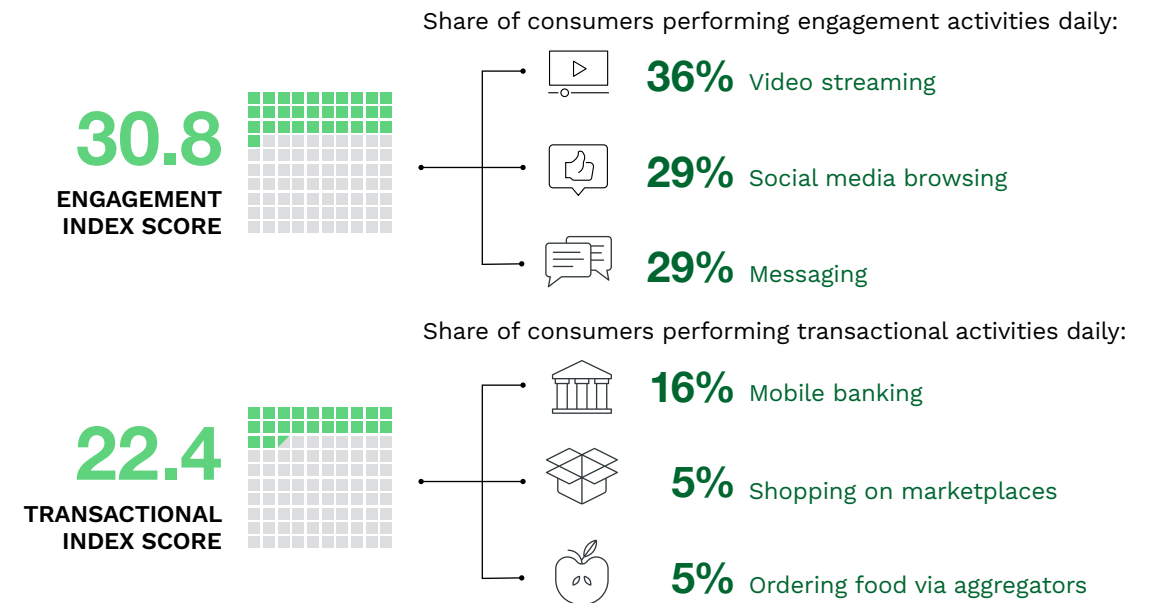
We find that consumers across all 11 countries use digital channels to engage in activities that are intended to be transactional and those that are not, and the level of consumer engagement for both types of activities varies dramatically.

Consumers are nearly 40% more engaged, overall, in the channels that are not purpose-built for transacting. Embedding payments into those high-engagement but low-transactional activities will both accelerate digital transformation and contribute to the growth of the digital-inclusive GDP over time.⁹

⁸ Clement, J. Most popular multi-platform web properties in the United States in January 2022, based on number of unique visitors. Statista. 2022. <https://www.statista.com/statistics/271412/most-visited-us-web-properties-based-on-number-of-visitors/>. Accessed April 2022.

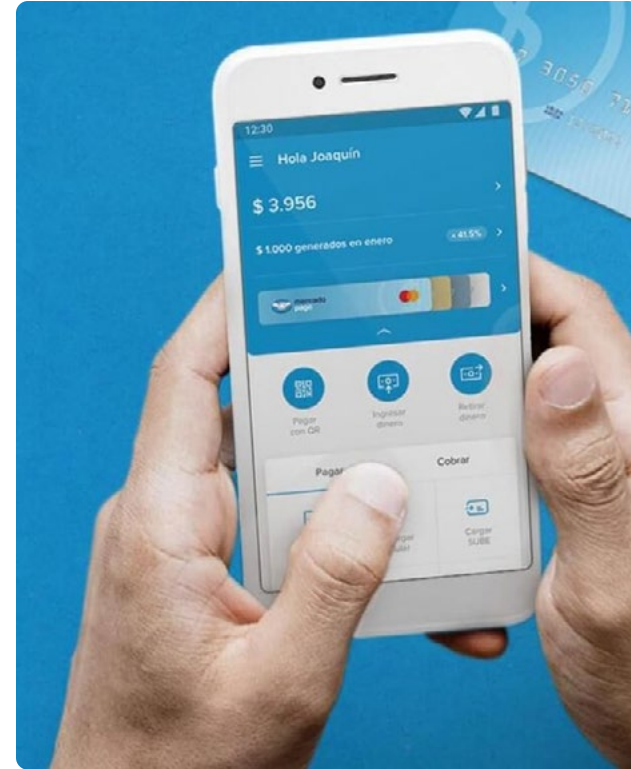
⁹ World Development Indicators. The World Bank. 2022. <https://databank.worldbank.org/source/world-development-indicators>. Accessed April 2022.

Consumers are more digitally engaged than their online shopping activity might suggest.



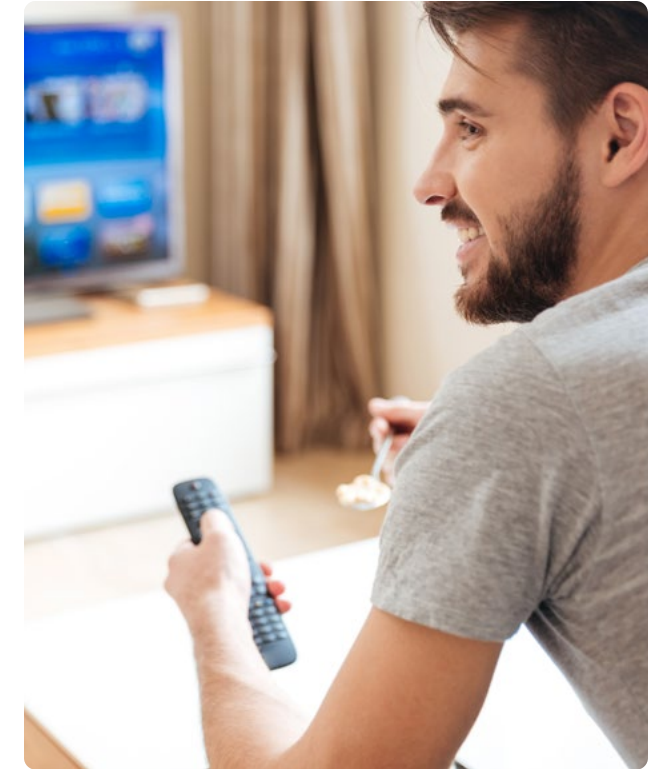
Monetizing the digital transformation will rely on innovators' ability to transform casual engagement into intentional transactions.





ENGAGEMENT ACTIVITIES

Consumers are more highly engaged in activities that are more social or more for fun, and they engage more frequently in those activities. For instance, seven times more consumers are engaged daily in watching videos than shopping on a marketplace, and five times more consumers check their social media feeds daily than order food from delivery aggregators. This social context has the potential to become highly transactional as these social platforms monetize the consumer's attention by payment-enabling those experiences.



TRANSACTIONAL ACTIVITIES

FinTechs and the third-party providers that power their apps and platforms have spent the last 15 years laying the tracks to move buying and banking to digital channels globally.

As consumers across the globe use more digital methods to buy things, we predict more opportunities will emerge to digitally shop and pay for products. For example, half of the population in Latin America lacks a bank account, and FinTechs like Mercado Pago and unicorns Ualá and Nubank have enabled millions of consumers to access banking products and services through their phones. The efforts of innovators to create new commerce ecosystems that streamline and simplify how people shop, pay and bank will improve access and save people time that they can put to better use, an important input into measuring the impact of digital transformation on the GDP of the global economy.



06

Cards power the digital economy today, but consumers are warming to alternatives.

There are nearly 29 billion debit and credit cards in circulation worldwide,¹⁰ yet there are also more than 200 other payment methods — domestic schemes, mobile wallets, carrier billing vouchers — that consumers like and use.¹¹ Although we find that global and domestic cards are the most used payment method for global consumers, online and in the store, payments preferences vary across the 11 countries we studied and include strong preferences for local payments methods, account-to-account transfers, digital wallets, carrier billing and new flows such as installment payments.

Digital wallets are an important payment method for consumers, accounting for as many online transactions as cash accounts for in-store transactions. For example, 27% of online transactions in Australia are made via digital wallets and 21% of the country's in-store purchases are made with cash. The payment credentials in many of these wallets are often cards.

Consumers in different countries use different digital wallets to different extents. PayPal is the most commonly used digital wallet in

¹⁰ De Best, R. Number of credit, debit and prepaid cards in circulation worldwide from 2017 to 2019, with forecasts for 2023 and 2025. 2022. <https://www.statista.com/statistics/1080756/number-payment-cards-in-circulation-worldwide/>. Accessed April 2022.

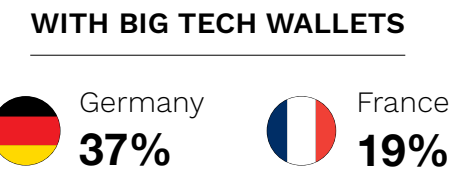
¹¹ PYMNTS proprietary research.

Where digital wallets represent the biggest share of online transactions

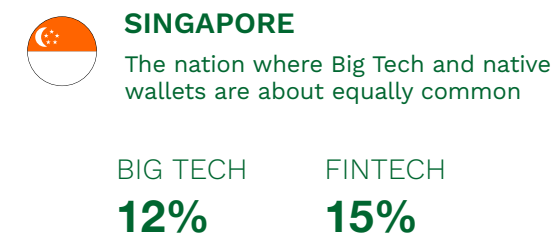
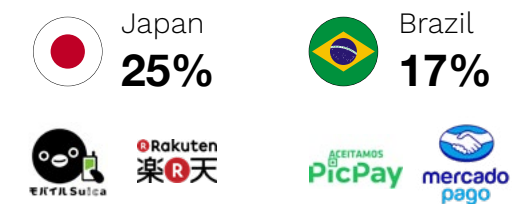
Share of all transactions are made via mobile wallets



Share of mobile wallet payments made with



NATIVE WALLETS



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Germany, where it accounts for 37% of all online transactions. Germany is also the most digital wallet-centric nation, with 44% of all domestic online transactions using digital wallets and 84% using PayPal.

This contrasts sharply with Japan, where consumers pay with digital wallets that are used primarily or exclusively in Japan. These native wallets include PicPay, Suica or Rakuten, to name a few, and they account for 25% of all domestic digital transactions and 17% of all in-store transactions.

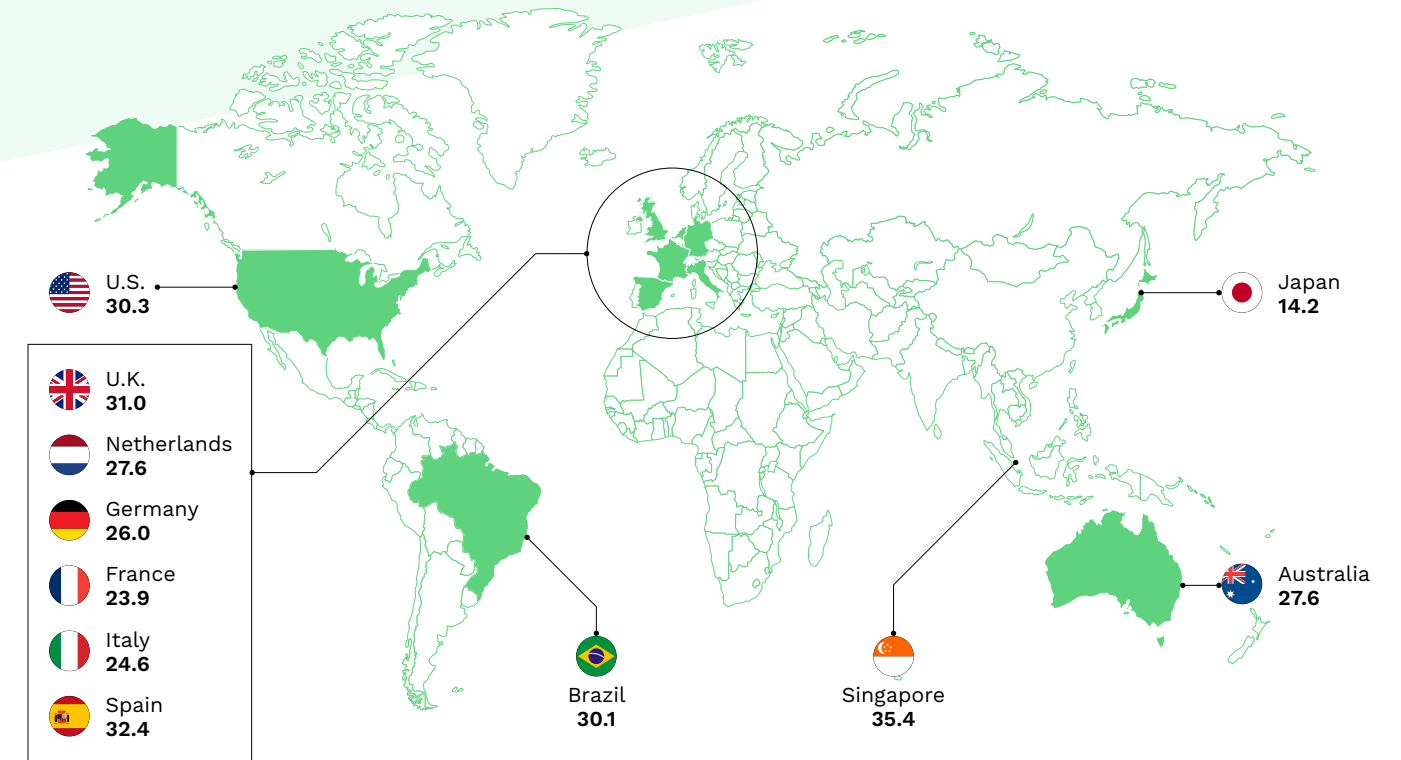
This is also true in Singapore, where consumers who use digital wallets to pay use local wallets more frequently than either PayPal or the Big Tech wallets, both online and in the physical store.

Increasing the reach of those payments preferences is the expectation of the consumer and a requirement for the companies that want their business. Further, the ability to monetize high-engagement channels, such as social networks and messaging, will require it.

A global view of digital engagement

The digital transformation of the world's economy holds tremendous untapped potential. Although the 11 countries of our study that account for 50% of the world's GDP are home to 700 million consumers with internet access, their respective economies are very much in the early stages of digital transformation. The average CE Index score of 27.1 means that these countries collectively are a little more than a quarter of the way to complete digital transformation and a fully connected global economy.

TABLE 1:
DIGITAL TRANSFORMATION'S PROGRESS AMONG COUNTRIES
CE Index scores, by country

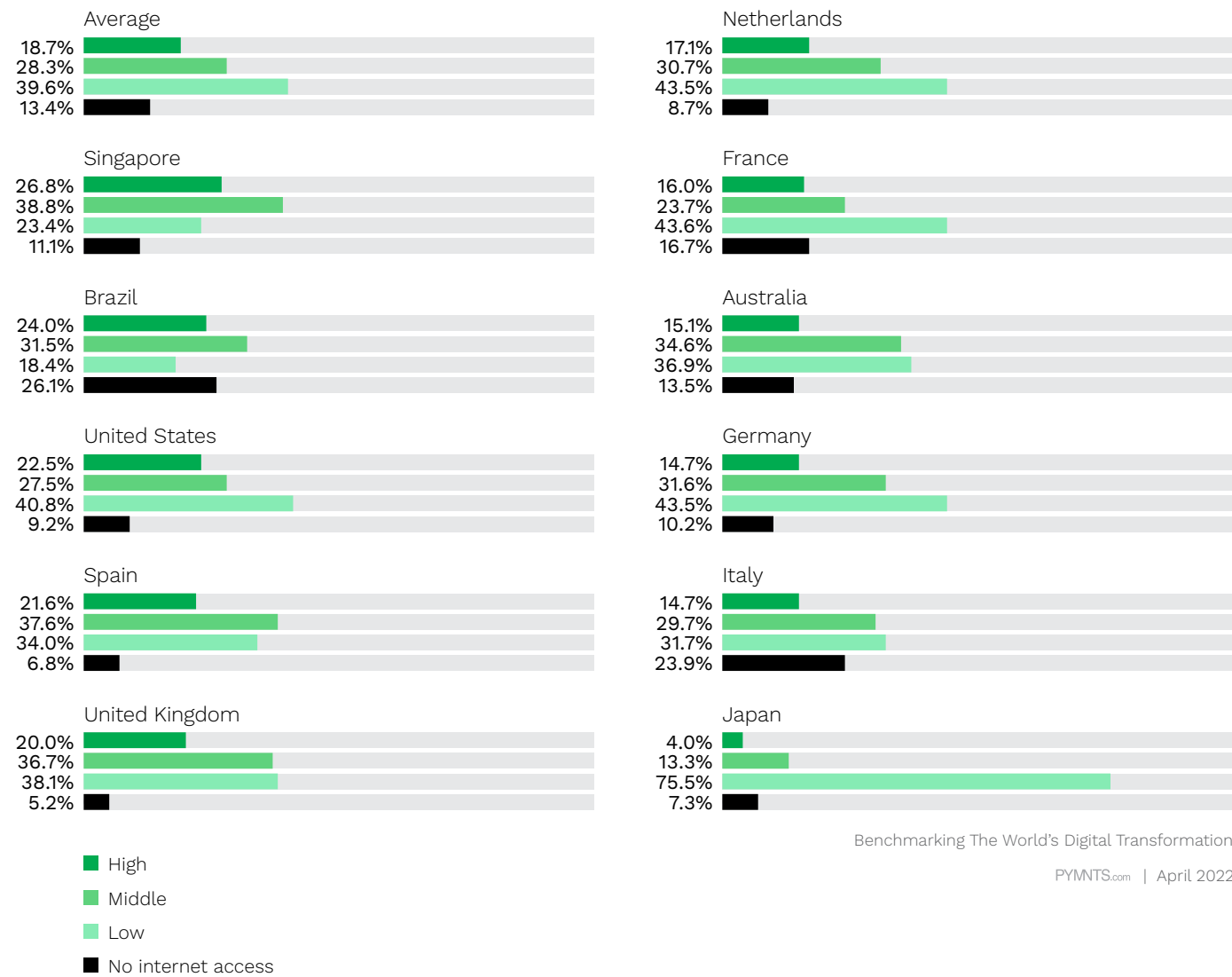


	Adult population (in millions)	Share connected to the internet	Share owning a smartphone	Index score
• Singapore	3.06	88.9%	82%	35.4
• Spain	40.7	93.2%	87%	32.4
• United Kingdom	48.4	94.8%	83%	31.1
• United States	258	90.8%	77%	30.3
• Brazil	156.4	73.9%	65%	30.1
• Netherlands	14.1	91.3%	77%	27.6
• Australia	14.1	86.5%	75%	27.6
• Germany	68.1	89.8%	81%	26.0
• Italy	50.3	76.1%	70%	24.6
• France	53.0	83.3%	73%	23.9
• Japan	107.8	92.7%	78%	14.2

FIGURE 1:

HOW DIGITAL ENGAGEMENT VARIES ACROSS COUNTRIES

Share of consumers with a "high," "middle" or "low" level of digital engagement, by country¹²



¹² Index scores between 0 and 25 indicate "low" levels of engagement, scores between 25 and 50 indicate "middle" levels of engagement and scores above 50 indicate "high" levels of engagement.

Remarkably, 87% of the consumers in the 11 countries we studied are connected to the internet, yet only 19% (152 million) of the populations in those countries, on average, are highly engaged in digital activities. Our research finds that, for as much digital progress as has been made over the last two years, not enough consumers are engaged, much less highly engaged in many of the 40 daily activities across the 10 pillars of the connected economy that we track as part of the CE Index.

The full transformation of the digital economy, a CE Index score of 100, will hinge upon more consumers engaging more frequently in more digital activities, particularly in those countries where engagement is very low today — among them Japan, Germany, France, the Netherlands and the U.S. — as well as expanding internet access to countries in which large segments of the population lack access.

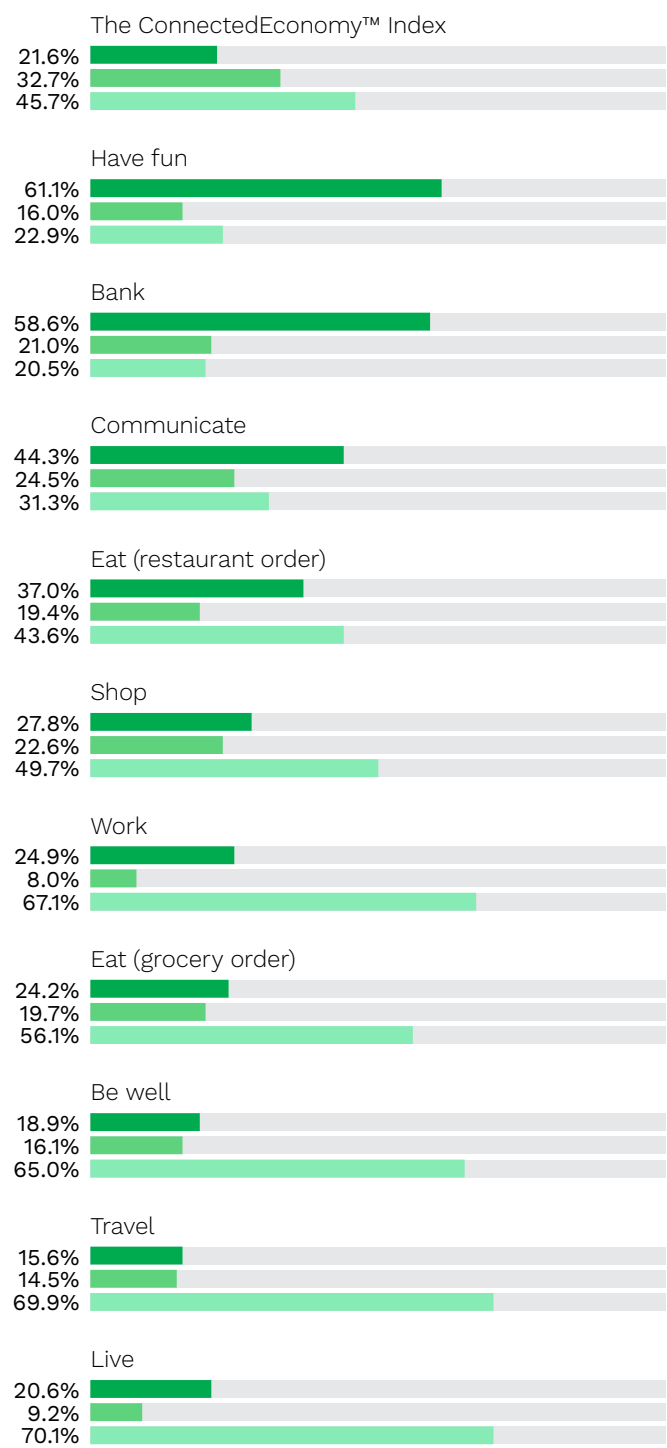
3 factors that comprise the CE Index score for any given country

- How many people in a country engage in any digital activity
- How many of the 40 activities, across the 10 connected economy pillars, in which people use digital methods for engagement
- How often people engage in any or all of the 40 activities

FIGURE 2:

LEVELS OF DIGITAL ENGAGEMENT, BY CONNECTEDECONOMY PILLAR

Share of respondents who have a “high,” “middle” or “low” level of digital engagement, by pillar



Today, the digital activities of consumers are highly concentrated across a few key categories and activities: “have fun” (entertainment), “bank” (managing finances), and “communicate” (engage with social networks).

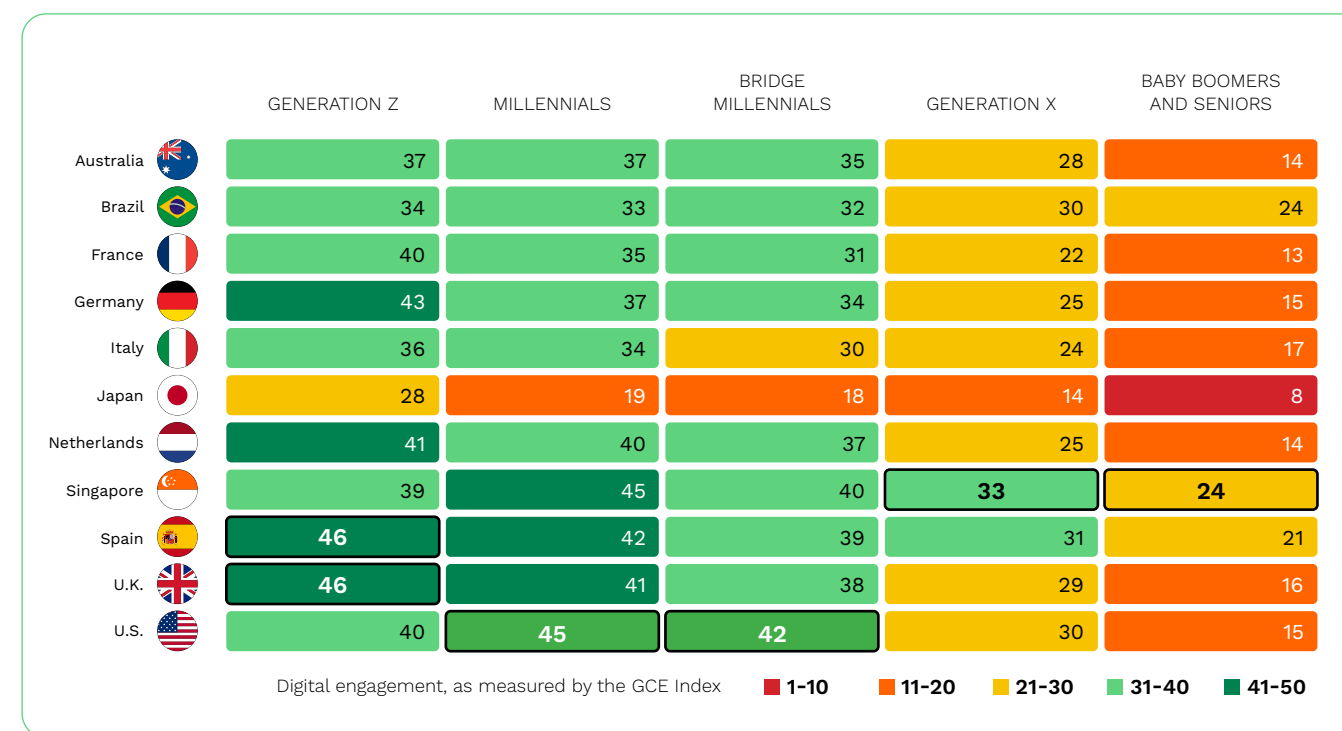
Sixty-one percent of respondents across all of the 11 countries we studied frequently go online to have fun, specifically to stream music and videos. Fifty-nine percent frequently use digital channels to bank, specifically to check transaction activity and pay bills. Forty-four percent of respondents communicate digitally, specifically using social networks and messaging apps to stay in touch with friends and family.

We also observe an inconsistency in the digital engagement of the population across the 11 countries we studied.

TABLE 2:

CE INDEX SCORE BY AGE GROUP

Digital transformation's progress by country, by age group



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Countries that are farther down the digital transformation path, such as Singapore and Spain, see higher levels of digital engagement among all age groups, including baby boomers and seniors. The situation is flipped in both the U.S. and Japan, where baby boomers and seniors are far less engaged digitally in any of the 40 activities than millennials and Gen Z. Baby boomers and seniors in Japan are the least digitally engaged of any country.



Patterns of digital engagement

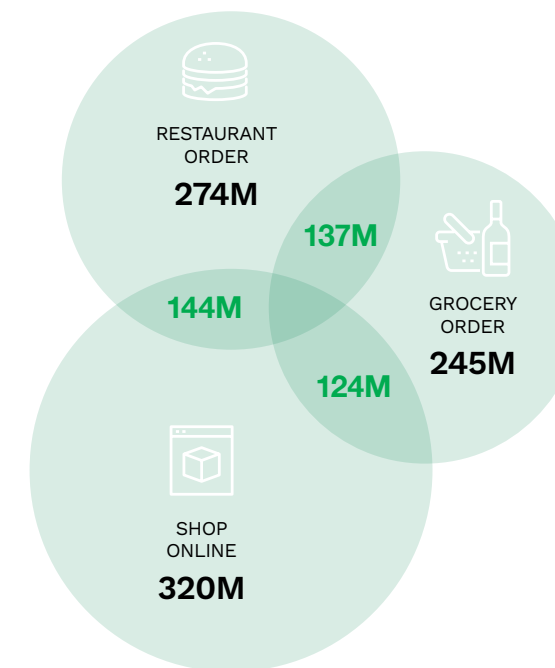
No digital activity occurs in a vacuum. As consumers grow more comfortable with digital experiences in one area, they are naturally eager to try others with similar characteristics — booking travel and booking restaurant reservations or buying retail products online and shopping for groceries online. For that reason, each digital activity has the potential to lead to another similar activity; those inherent synergies will accelerate digital engagement and digital transformation.

The 10 pillars of the ConnectedEconomy™



FIGURE 3:
THE SYNERGIES BETWEEN TRANSACTIONAL DIGITAL ACTIVITIES

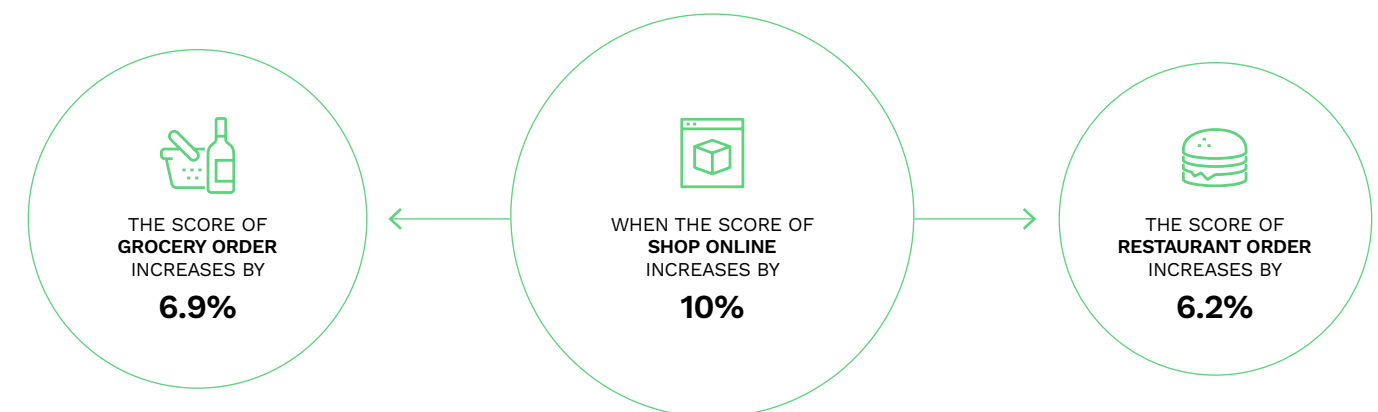
Number of consumers across all 11 countries who engage in multiple transactional activities



We observe the synergies between activities with social characteristics to be especially strong. Across the 11 countries we studied, half of the consumers who engage digitally in social channels also stream music or videos, activities likely influenced by family and friends and shared through social channels.

Digital activities that are transactional in nature also show strong synergies, even though far fewer consumers use digital methods to perform those activities. Of the projected 274 million consumers in the 11 countries we studied who currently use delivery aggregators to order food from restaurants, 67% also currently buy some of their groceries online, and 71% buy some of their retail products online.

The correlation between how the CE Index score for the “shop” pillar varies according to the “eat” pillar, both by ordering groceries and from restaurants



If the number of consumers who use digital channels to engage socially were to increase by 10%,

the CE Index score across these 11 countries could increase by **5.4%**

We also find that these synergies become the drivers of digital transformation.

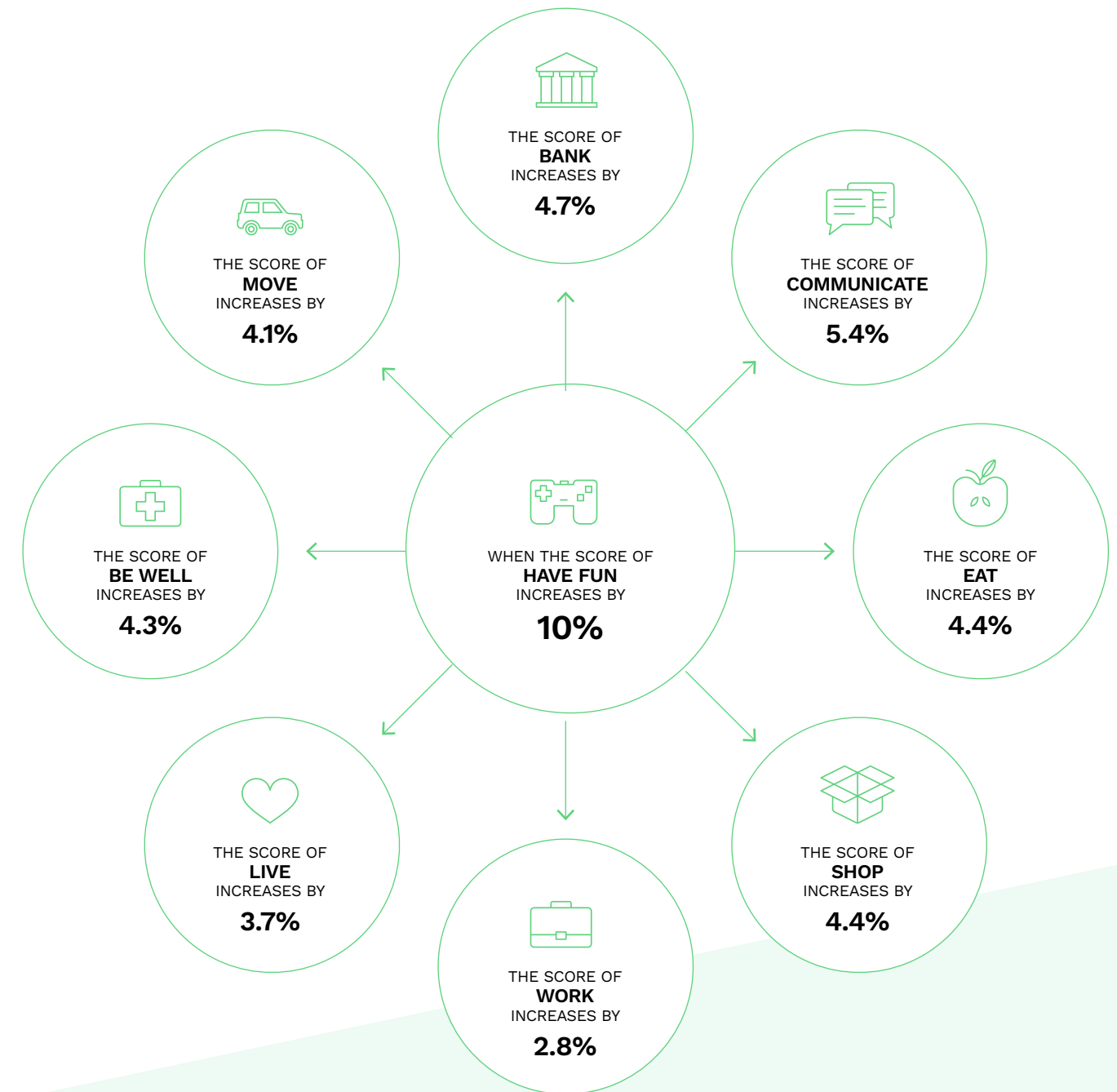
For example, based on the global connected economy's current degree of digital transformation, for every 10% growth in the number of consumers globally who use digital channels to engage socially, the CE Index score across these 11 countries could increase by 5.4%.

These network effects are not only the catalyst for digital transformation. They represent an untapped potential to monetize the global digital transformation and expand the GDP of the connected economy, as PYMNTS has defined it.

FIGURE 4:

THE CORRELATIONS BETWEEN ENGAGEMENT IN ADJACENT DIGITAL ACTIVITIES

The correlation between how the Index score of different activities varies according to the "have fun" pillar



Monetizing the world's digital transformation

A digitally transformed global economy requires that consumers have access to a variety of digital devices and use those devices to engage in everyday activities — how they pay, work, bank, shop, eat, have fun, be well, live, move and communicate. Monetizing the digital transformation of this connected economy hinges on two factors.

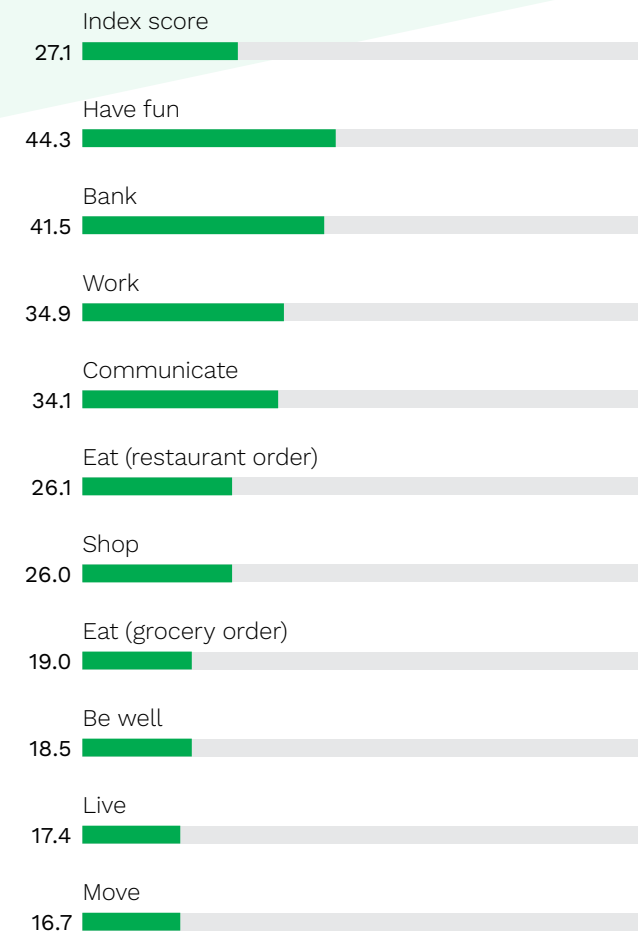
Getting more consumers engaged in the activities that are already wired for digital commerce but have low digital engagement today

More consumers will need to go online to buy products and services, pay bills, buy and finance their homes and cars, see a doctor and pay for healthcare, and purchase smart appliances that connect to the internet and that are capable of making a digital payment.

Here we observe that the overall level of digital engagement is low. Buying things online remains a friction-filled experience for many consumers, owing to inconsistent checkout experiences, lack of payment choice and a lack of features that consumers find valuable while shopping online, whether it is tracking their online purchases, real-time inventory updates or the ability to buy online and pick up in-store.

FIGURE 5:
CE INDEX SCORE ACROSS PILLARS AND ACTIVITIES

Average measure of digital transformation across all 11 countries, by category or pillar



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Average measure of digital transformation of the top five and bottom five activities

PILLAR	ACTIVITY	SCORE
Have fun	Video streaming	51.06
Communicate	Social media (passive) ¹³	45.20
Communicate	Messaging	44.05
Bank	Mobile banking	42.68
Have fun	Watching a livestream	42.15
Be well	Virtual therapy	14.00
Communicate	Online dating	13.48
Move	Online airfare	12.22
Move	Homesharing	11.33
Move	Using bike/scooter app	10.70

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For many categories, like buying highly considered purchases such as cars or jewelry or buying items that shoppers want to hand select, such as groceries, consumers today still prefer a physical store experience. That will change over time as digital experiences and consumers' trust in those digital experiences improve.

¹³ "Passive" social media activity refers to the action of checking for updates on the social media accounts of family members and friends, while "active" social media activity refers to uploading content to social media accounts.



Embedding payments and commerce into the activities that consumers engage in frequently: streaming movies and music, and utilizing social networks

Nearly half of the 40 activities that comprise the CE Index are not tied to commerce. They are also the digital activities that consumers have been engaged with the longest — those they have the most history with and use regularly.

For example, the pillar with the highest CE Index score is “have fun” and consists of activities like video and music streaming and livestreaming, all things that consumers have been doing for more than 15 years. Banking has evolved digitally around the globe for more than two decades, particularly in developing economies where mobile apps have leapfrogged physical banking options and brought more consumers online for more of their banking and banking-like services. Embedding payments and finance into those high-engagement experiences is one of the digital economy’s greatest sources of untapped potential.

TABLE 3: BREAKDOWN OF THE CE INDEX: TRANSACTIONAL AND ENGAGEMENT ACTIVITIES

Average measure of the digital transformation for various transactional activities

Average measure of the digital transformation for various engagement activities

PILLAR	TRANSACTIONAL ACTIVITIES	SCORE	PILLAR	ENGAGEMENT ACTIVITIES	SCORE
Bank	Mobile banking	42.68	Have fun	Video streaming	51.06
Bank	Online banking	41.39	Have fun	Social media browsing	45.20
Shop	Marketplace shopping	32.63	Communicate	Communicate via app	44.05
Shop	Online shopping	28.33	Have fun	Livestreaming	42.15
Eat	Restaurant app/website	27.08	Have fun	Music streaming	41.23
Eat	Aggregator order	26.04	Communicate	Social media post	35.31
Eat	Grocery order	22.66	Work	Work from home	34.96
Be well	Access health data	19.54	Work	Off-the-clock work	34.50
Shop	Online subscription	17.29	Move	Traffic app/website	31.16
Move	Ridesharing app	16.70	Live	Wearable technology	23.10
Shop	Voice-enabled shopping	16.58	Be well	Health-related video/podcast	21.86
Be well	Telemedicine	16.19	Move	Travel information	21.55
Shop	Online subscription	15.84	Be well	Track health data	21.12
Live	Voice-enabled payments	15.32	Live	Home security app/site	20.30
Move	Transportation app/site	14.54	Live	Smart home features	19.26
Be well	Virtual therapy	14.00	Live	Automated chores	16.79
Move	Airfare app/site	12.22	Be well	Mental health app/site	15.73
Live	Homesharing	11.33	Communicate	Dating app/site	13.48
Move	Bike/scooter app/site	10.70			

Payments as the engine of digital transformation

To say that payments is an important contributor to the digital transformation of the global economy is stating the obvious. What we learned when looking at consumer payments behavior across the 11 countries we studied is how important choice is for consumers purchasing goods or services in their home country or across borders.

Here we find that card-based payments are the most widely used by consumers across all 11 countries, with 55% of in-store and 49% of digital transactions paid for with network-branded cards, e.g., Visa and Mastercard.

Yet businesses would miss out on serving more than half of their online customers if they only offered card products at the physical or digital checkout. Digital wallets represent nearly two-thirds (61%) of the 51% of all digital transactions that are not made using cards.

We also find strong regional differences.

German consumers have a strong preference for digital wallets when transacting digitally, using them to make 44% of all online transactions. Eighty-three percent of all wallet transactions in Germany use PayPal. In Italy, digital wallets (42% of all online transactions) are used as frequently as card payments (45% of all online transactions). Bank transfers dominate online payments in the Netherlands.

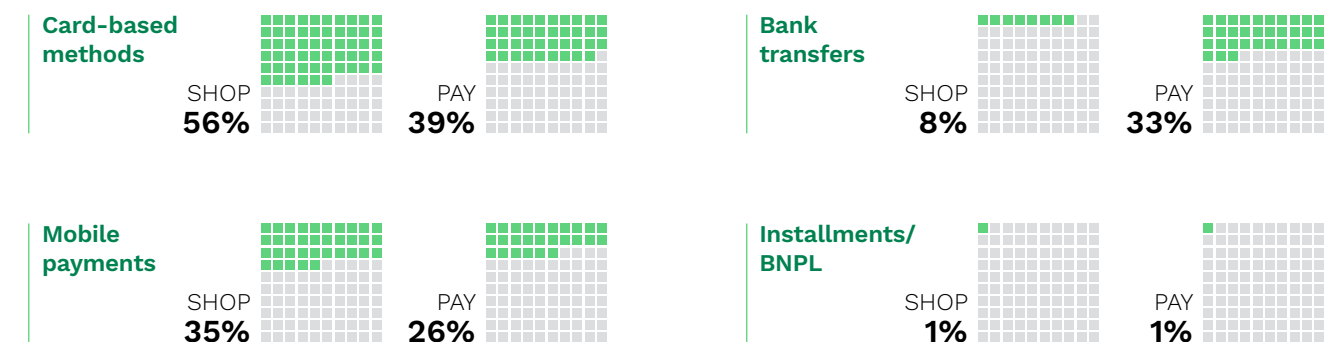
TABLE 4:

COMMONLY USED ONLINE PAYMENT METHODS

Share of digital transactions made using select payment methods, by country

COUNTRY	CARD-BASED METHODS	MOBILE PAYMENTS	BANK TRANSFERS	INSTALLMENTS/BNPL
Australia	44.6%	26.6%	25.7%	2.6%
Brazil	49.7%	25.8%	22.8%	1.1%
France	65.4%	25.6%	8.4%	0.4%
Germany	26.7%	43.9%	26.1%	1.9%
Italy	45.5%	42.1%	11.1%	1.0%
Japan	53.6%	28.4%	16.3%	0.7%
Netherlands	36.1%	19.2%	41.1%	2.9%
Singapore	49.6%	33.5%	15.3%	0.6%
Spain	55.6%	29.3%	13.2%	0.5%
U.K.	47.3%	33.8%	17.5%	0.9%
U.S.	50.4%	32.2%	14.8%	1.0%

Share of digital transactions made using select payment methods, by type¹⁴



¹⁴ In Table 4, "shop" refers to retail transactions, while "pay" refers to both P2P transactions and bill payments.

Bank transfers are also an important part of the global payment ecosystem, though they are far more commonly used for making peer-to-peer (P2P) and bill payments than for retail payments. Thirty-three percent of all online P2P and bill payments utilize bank transfers, which only account for 8% of all retail payments.

More striking still is the percentage of in-store payments that are made in cash, particularly in certain economies in the EU. Consumers more often use cash to pay for in-store purchases in Germany, Italy and Spain than consumers in Brazil. The in-store use of digital wallets lags behind online use by a significant margin in each of the 11 countries we studied.

For those transactions made using digital wallets, we find that PayPal is the mobile wallet used most consistently in each of the 11 countries we studied. PayPal accounts for 15% of overall transactions made online and 5% of all transactions in store. Big Tech wallets — Apple Pay, Google Pay and Samsung Pay — account for 6% of transactions online and 4% of transactions in store. Apple Pay accounts for 3.4% of transactions made online.

Native wallets are more commonly used in Japan, Brazil and Singapore.¹⁵ Native wallets are also common in Italy and the Netherlands, though to a far lesser extent.

Twenty-five percent of online and 17% of in-store transactions made by Japanese consumers are with native wallets like Suica or Rakuten. Brazil is not far behind, with 17% of online and 9% of in-store transactions made with local wallets like PicPay and Mercado Pago.

TABLE 5:
THE MOST COMMON METHODS USED WHEN MAKING PAYMENTS IN STORE
Share of in-store transactions using select payment methods, by country

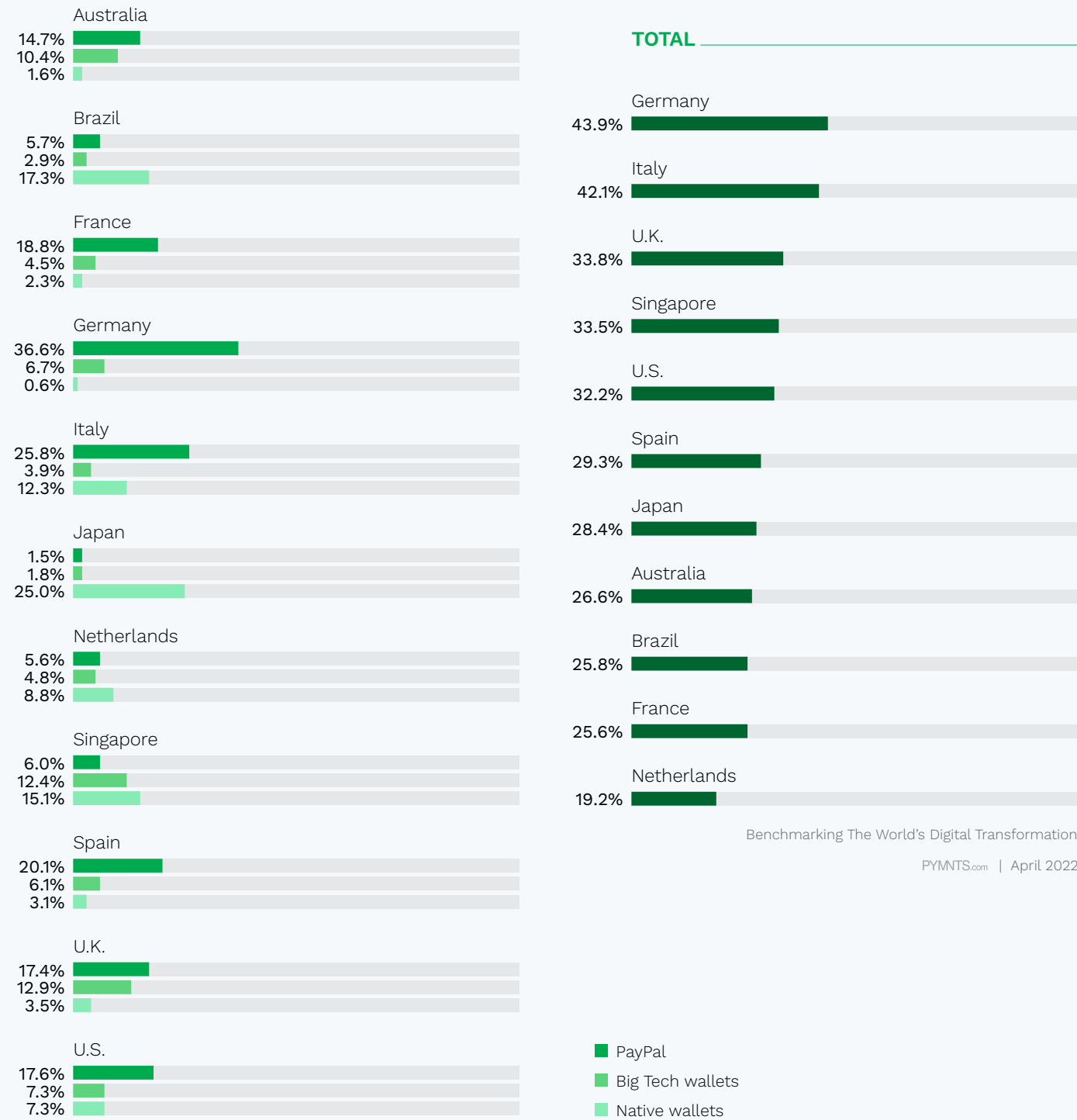
COUNTRY	CARD-BASED METHODS	CASH/CHECK	MOBILE PAYMENTS	BANK TRANSFERS	INSTALLMENTS/BNPL	PAYMENT POINTS	OTHER
Australia	59.8%	21.6%	14.3%	3.0%	1.3%	—	0.1%
Brazil	57.1%	16.0%	14.6%	10.6%	0.8%	—	0.9%
France	74.9%	12.6%	10.3%	1.4%	0.4%	—	0.3%
Germany	29.1%	37.9%	20.0%	11.6%	0.7%	—	0.5%
Italy	46.9%	31.7%	18.7%	1.9%	0.5%	—	0.3%
Japan	42.1%	25.8%	18.6%	11.7%	0.4%	0.6%	0.7%
Netherlands	57.9%	18.1%	11.3%	10.9%	0.8%	—	1.1%
Singapore	46.5%	21.3%	22.0%	9.1%	0.4%	—	0.7%
Spain	58.1%	27.0%	11.9%	2.2%	0.7%	—	0.0%
U.K.	59.8%	19.1%	18.0%	2.3%	0.5%	—	0.3%
U.S.	62.2%	20.1%	14.3%	1.9%	0.5%	—	1.0%

22%
of all in-store transactions that take place in Singapore are made using mobile devices.

¹⁵ The term "native wallets," as it appears in Figure 10, may refer to a variety of digital wallets that are principally used in specific national markets, such as Rakuten, which is available globally but used primarily within Japanese national borders.

FIGURE 6:

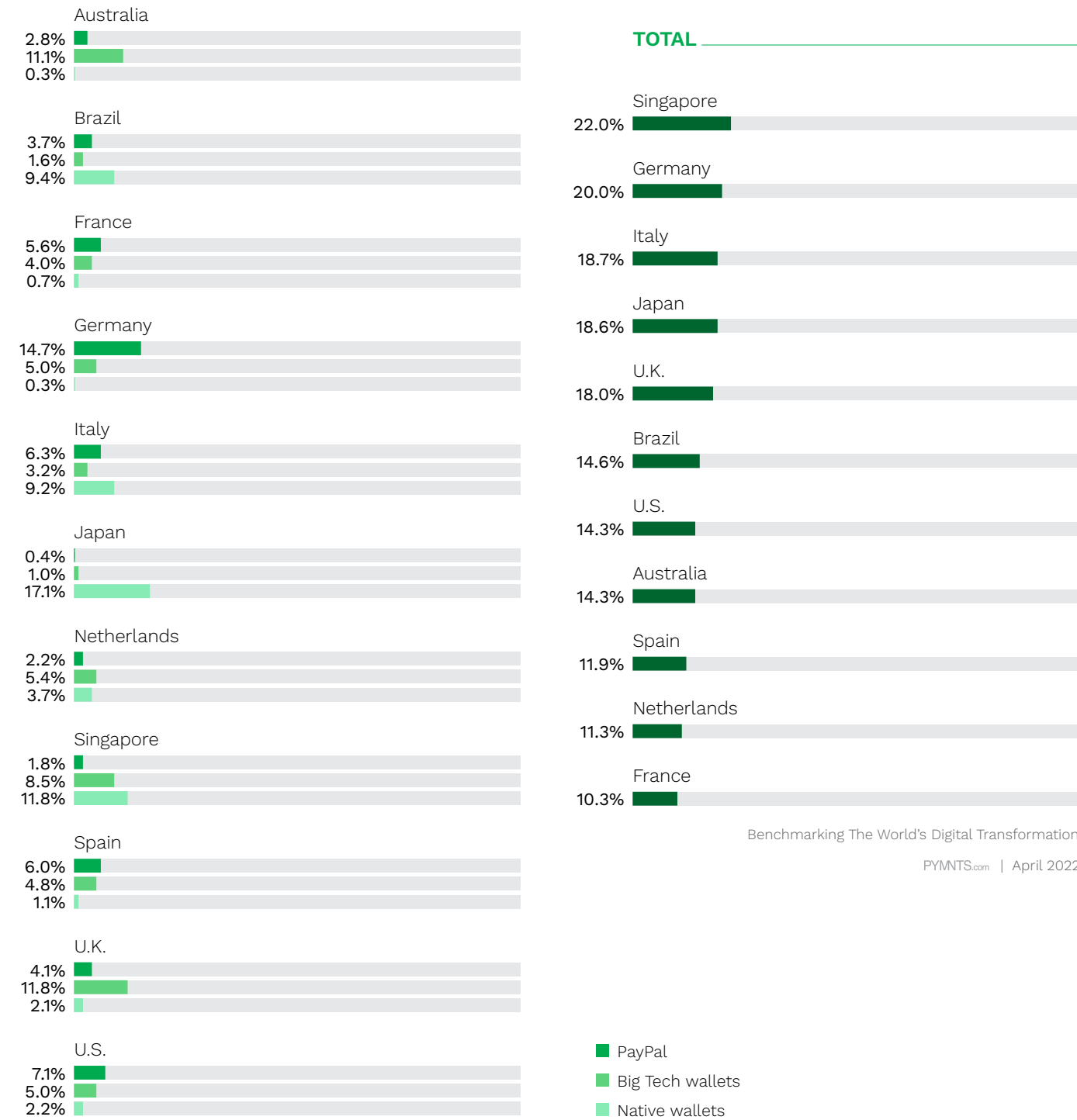
THE MOST COMMONLY USED DIGITAL WALLETS, BY COUNTRY
Share of online digital wallet payments made using select wallets



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FIGURE 7:

THE MOST COMMONLY USED DIGITAL WALLETS, BY COUNTRY
Share of in-store digital wallet payments made using select wallets



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Conclusion

Measuring the world's digital transformation is more than just tallying how many people are doing which activities online. It is critical to identifying where innovators must focus efforts to make more of the day-to-day activities more digitally accessible to more consumers, delivering a digitally transformed, connected economy across borders and within countries.

In many countries, making progress is largely about getting people connected to the internet so that they can fully participate in the digital economy. For all of the countries we studied, it is about getting consumers comfortable with the idea that doing the things they used to do only in the physical world can now be done easily and securely using digital methods.

For consumers, this transformation is about simplifying their interactions within and across the pillars of the connected economy and making those interactions transactional by embedding payments and finance into those digital experiences.

For the world, it is about unleashing the power of technology and the creative energies of innovators to reduce the friction of daily life, increase access to conducting business online and build a stable, global connected economy.

Methodology

The PYMNTS ConnectedEconomy™ Index was built using data collected from over 15,000 consumers across 11 countries between Jan. 13 and Feb. 16, 2022. Benchmarking The World's Digital Transformation is the inaugural edition to a continuing series of studies examining global consumers' shift from an analog to digital-first lifestyle.

The Global ConnectedEconomy™ Index measures consumer engagement across each of 40 key activities across the 10 broad categories — the 10 pillars of the connected economy — that represent the key parts of their daily routines to track the progress of consumer engagement over time. The countries in our study include the United States, the EU-5 (France, Germany, Italy, the Netherlands and Spain), the United Kingdom, Brazil, Australia, Japan and Singapore, which together account for 50% of global GDP. Each national sample subset was census-balanced to mirror the current population in key demographic characteristics, allowing us to gauge the progress of digital transformation both within and between countries.

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