How the World Does Digital: Daily Digital Engagement Hits New Heights offers 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 presents the framework and the metrics for this exciting journey and the progression of the global — digital-inclusive — GDP.

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#### Daily Digital Engagement Hits New Heights

#### How the World Does Digital

The PYMNTS ConnectedEconomy<sup>™</sup> Index (CE Index) benchmarks the ongoing digital transformation of the world's economy. Our quarterly surveys cover 11 bellwether countries, which together account for approximately 800 million consumers and 50% of global gross domestic product (GDP): United States, France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Brazil, Australia, Japan and Singapore. The methodology creates a statistically significant picture of the digital engagement of consumers in these countries.

This first-of-its-kind global research endeavor surveys consumers about their engagement in 37 key activities across 10 broad categories — the pillars of the ConnectedEconomy<sup>™</sup> — that represent their daily routines. Digital engagement is defined as the number of consumers who use digital methods to conduct one of the 37 activities tracked, the total number of activities consumers use digital methods to access and the frequency with which they use digital methods to conduct those activities.

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For the Q1 2023 report, the CE Index uses 3 million data points collected from 17,571 individuals from Feb. 1 to Feb. 24 across the 11 countries to analyze how consumers engage in the 37 activities tracked and the payment methods they used. The resulting data reveals the big picture of global and country-level digital transformation, plus a host of more granular insights.

The PYMNTS CE Index score for each country and an average CE Index ranking across the 11 countries measures progress toward digital transformation. A perfect score is 100, meaning that every person in a country uses digital methods to engage daily in each of the 37 activities.

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#### THE DIGITAL ECONOMY IN Q1 2023

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# The State of the Digital Economy in Q1 2023

igital transformation is more than an industry buzzword — it shapes everyday life for consumers all over the world. This quarter's look at nearly 1 billion people living in 11 countries that represent half of global GDP finds that 83% of these consumers regularly conduct nearly half the digital activities we track. Moreover, every single age and income group has increased their digital engagement over the last year, with outsized gains among older consumers, who narrowed the still sizeable gap with their more digital-savvy younger peers.



The heart of digital transformation is daily engagement. Here we find that two-thirds of consumers, some 622 million individuals, conduct at least one of the 37 activities we study each day. Over the last year, the share of consumers engaging in daily digital activities climbed a robust 6.5%, underscoring the increasingly vital role digital channels play in consumers' everyday routines.

Increasingly, we also find that digital engagement in one activity boosts participation in others, particularly those with similar digital characteristics. These positive network effects climbed 4.4% between Q1 2022 and Q1 2023, with digital travel and shopping activities as the biggest cornerstones of this increased digital engagement.

#### **O1 2023 HIGHLIGHTS**

Two-thirds of surveyed consumers now use digital channels to complete activities every single day — an increase of 6.5% year over year.

PYMNTS recorded a 2.4% yearover-year rise in global digital engagement in Q1 2023, driven in large part by digital travel, home management and health activities. Daily engagement jumped 6.5% — much faster than weekly or monthly engagement. The most notable trends include a 27% surge in daily engagement with local transport apps and a 26% rise in digitally accessing health data daily.

Older consumers ramped up digital engagement at over twice the rate of their younger peers, and high-income consumers substantially increased digital activities versus other income brackets.

The year-over-year increase in engagement spreads across every age and income group we study, without exception. Generation X and baby boomers and seniors posted outsized gains, with their average increase in digital engagement at least double that of their younger peers. Higher income consumers showed robust growth of 4% in digital engagement in the last year, while those who earn less upped their engagement only slightly.

# 

#### Consumers who shop online more also manage more of their healthcare and banking needs online.

Higher engagement in one digital activity creates the network effects that drive the growth of the digital economy. To cite just one example of a strong network effect, a 10% rise in digital shopping activities is now linked to a 7% climb in digital health-related activities and a 6.9% increase in digital grocery orders as well as smaller increases across all other categories, including banking and work. Entertainment, work and travel have similarly profound links with other areas. Overall, these feedback loops between digital activities increased by 4.4% over the last year, supporting the organic growth of the digital economy.



04

The digital progress in France and the U.S. outpaced that of other countries, mainly because of increased use of digital in the areas of home management, health and travel by consumers living there.

France and the U.S. led the pack in digital engagement growth over the last year, with overall increases of 10% and 9.2%, respectively. Consumers in both countries disproportionately ramped up their digital activities related to home management, health and travel, as well as work for France and entertainment for the U.S. France saw the greatest growth of any country in the last year, and the U.S. closed much of the gap with global leader Singapore. The U.S. now leads in three of the 10 pillars, while Singapore still tops the charts in four.

# 5 17% Share of global in-store transactions completed using mobile wallets

05

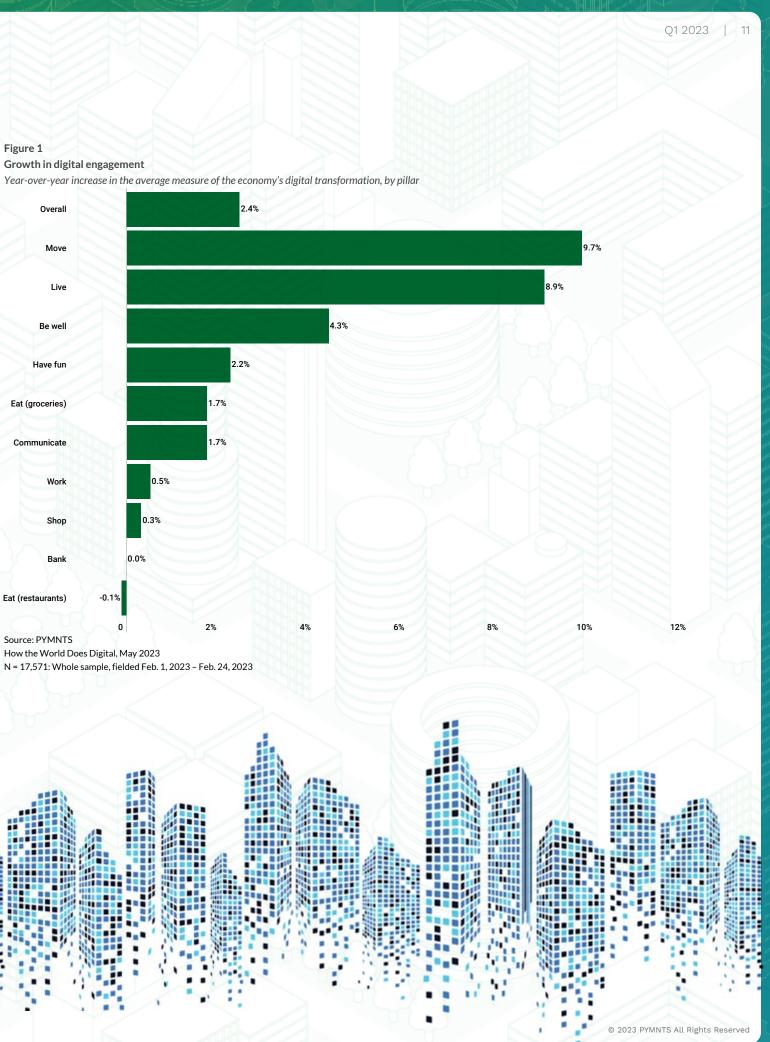
# Digital wallet use in stores grew sharply, and overtook cash in the U.K.

Digital wallets captured larger shares of in-store transactions over the last year in 10 of the 11 countries in our study, accounting for 17% of all in-store transactions globally in Q1 2023. Digital wallets have now surpassed cash for in-store payments in the U.K. — the first such case in any of the 11 countries. In addition, use of global wallets — those from Apple, Google and Samsung — climbed to 7.1% of digital transactions from 5.5% a year earlier, mainly due to Apple Pay, which had its strongest growth in the Netherlands, Singapore and Brazil. That said, credit and debit cards remain the top choice for both in-store and online purchases in at least nine of all 11 countries. **Consumers around the world** ramped up daily digital engagement by 6.5% over the last year.

igital transformation took a sizeable step forward over the last year, with the ConnectedEconomy™ Index climbing 2.4% from 27.1 in Q1 2022 to 27.7 in Q1 2023. This reflects a steady rise in average digital engagement across the 11 economies we study: More consumers conducted more digital activities and did so more frequently. Surges in the areas of traveling, home management and maintaining wellness drove most of this uptick.

#### Figure 1





How the World Does Digital, May 2023

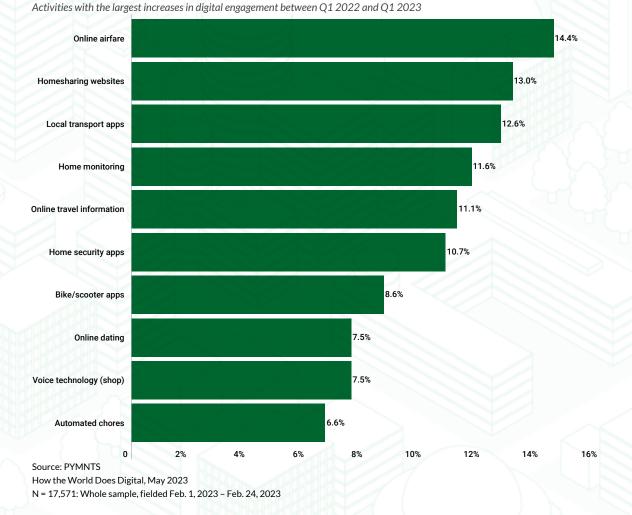
Consumers engaged 9.7% more in digital travel activities year over year, making it the biggest driver in the overall Index increase. Two specific activities stand out most: purchasing online airfare, with engagement up 14%, and seeking online travel information, up 11%. Consumers in the U.S., Spain and France disproportionately shouldered this growth, with double-digit gains ranging from 15% to 19%.

# Daily digital engagement with local transport apps is up

27%

#### Figure 2

The top 10 increases in digital engagement



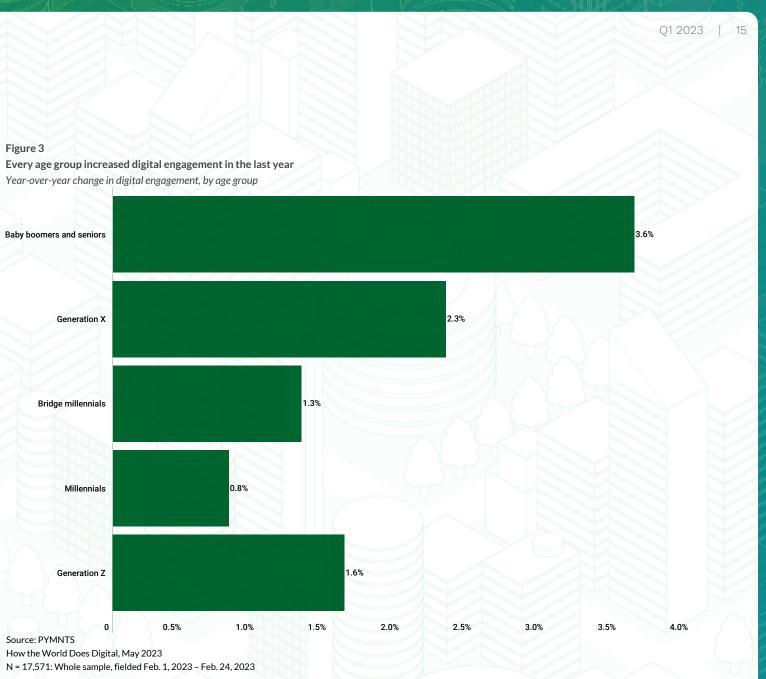
At the heart of the overall increase in global digital engagement is a robust 6.5% increase in daily engagement — more consumers conducting more different activities every day. The three largest year-over-year increases were a 27% surge in daily engagement with local transport apps, a 26% spike in digitally accessing health data and a 25% upswing in purchasing airfare online.

We also saw an upward swing at the weekly level for digital activities consumers tend to conduct less regularly, including 11% and 10% year-over-year rises in weekly engagement with tracking health data and automated chores, respectively. **Over the last year,** digital engagement increased across every age group and income bracket.

ithout exception, digital engagement grew across every age and income bracket over the past year. Older generations made remarkable progress, closing some of the distance with their younger peers, though the gap remains large. High-income earners took especially large strides, while middle- and low-income earners made only small upticks in engagement.

Baby boomers and seniors stole the spotlight over other age groups, registering an average 3.6% rise in digital engagement over Q1 2022, followed by Gen X with a 2.3% increase. Younger age groups also upped their digital engagement, but at lower rates: Generation Z and bridge millennials experienced moderate growth of 1.6% and 1.3%, respectively, while millennials lagged further behind.

Q1 2023 data reveals that younger generations consistently engaged with a higher number of different digital activities per month compared to their older counterparts. For instance, Gen Z engaged in Year-over-year change in digital engagement, by age group

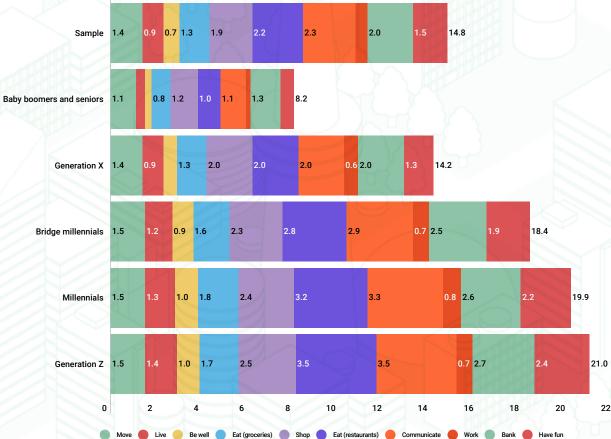


3.5 digital activities related to communication and 3.5 related to dining at restaurants, outpacing the overall averages of 2.3 digital communication and 2.2 restaurant-related activities. Millennials also boasted robust engagement with these activities, with 3.3 digital activities related to communication and 3.2 related to restaurant dining.

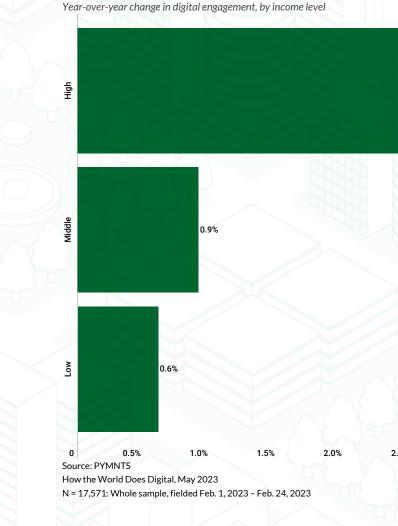
#### Figure 4

#### Breakdown of distinct monthly digital activities

Average number of distinct digital activities with which consumers engaged per month, by pillar and generation



We also found notable disparities in digital engagement growth among income brackets over the last year. High-income earners — those earning over \$100,000 per year — achieved a substantial 4% year-over-year average increase in Q1 2023, overshadowing the small upticks seen among those earning \$50,000 to \$100,000 per year and those earning less than \$50,000 per year, which stood at 0.9% and 0.6%, respectively.



Digital engagement climbed across all income levels year over year

Figure 5

Source: PYMNTS How the World Does Digital, May 2023 N = 17,571: Whole sample, fielded Feb. 1, 2023 – Feb. 24, 2023



4.0%

4.0%

4.5%

2.5%

3 0%

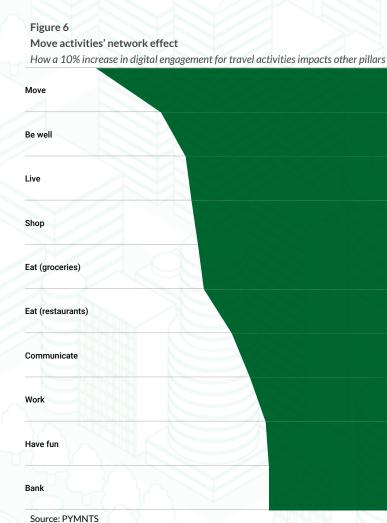
5.0%

# **Network effects across** activities accelerated digital transformation

igital transformation is a virtuous cycle. The more consumers engage in any one pillar of digital activities, the more they increase their digital engagement in other areas of their everyday lives. This connected behavior is now stronger than ever.

The links that measure network effects — or interconnectedness across pillars — strengthened by 4.4%, on average, over the last year. Fueled by the acceleration in remote work during pandemic, the network effects for work with all other areas rose sharply over the last year. Most notably, the link between work and entertainment surged 14%, while several other areas, including work and retail shopping, rose 10%. Travel and work represent another standout pair, also at 10%.

We modeled how an increase in any one pillar of digital activity drives higher engagement in other areas. This analysis revealed potent network effects across the pillars, with two areas — digital travel and shopping activities — among the most noteworthy.



How the World Does Digital, May 2023 N = 17,571: Whole sample, fielded Feb. 1, 2023 - Feb. 24, 2023

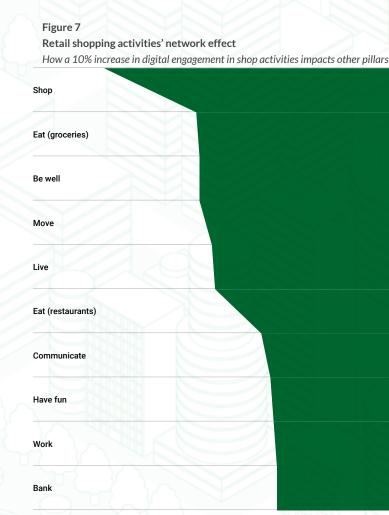
For digital travel activities, a 10% increase in engagement drives a 7.9% rise in health-related digital activities and a 7.1% upswing in digital home-management activities, which are a part of the live pillar. Other notable impacts include a 6.9% increase in engagement in connected shopping and a 5.6% rise in engagement in social digital activities, on average.

10.0%	
7.9%	
7.1%	
6.9%	
6.7%	
6.5%	
5.6%	
5.0%	
4.5%	
4.4%	

# 4.4%

Average increase in network effects between pillars over the last year

For digital retail shopping activities, we found a 10% increase in engagement results in 7% and 6.4% jumps in online grocery and restaurant purchases, respectively. Health- and travel-related activities follow closely behind at 6.9% each. We also observe a notable rise in digital engagement in entertainment activities, such as streaming or gaming.



Source: PYMNTS How the World Does Digital, May 2023 N = 17,571: Whole sample, fielded Feb. 1, 2023 - Feb. 24, 2023

#### **HIGHLY CONNECTED ACTIVITIES**

Consumers engaging in digital activities are more likely than ever to also participate in other, similar activities. Here are just a few examples:

61%

of consumers shopping on retail marketplaces also placed orders through aggregators in the month prior to being surveyed.

# 69%

of telehealth patients also used mental health or relaxation apps.

### 66%

of rideshare users also used apps to look up schedules and routes or purchase fares for local transportation.

10.0%

10.070	
7.0%	
6.9%	
6.9%	
6.5%	
6.4%	
4.9%	
4.6%	
4.5%	

4.4%

of consumers using wearable technology to track their health also used connected devices for home monitoring, while 63% used connected security systems.

61%

# The U.S. and France set the pace for digital transformation over the last year.

our of the 11 countries we studied recorded year-over-year progress toward digital transformation. France earned the top spot with an increase of 10%, followed closely by the U.S. at 9.2%. The Netherlands and the U.K. also made small positive gains.

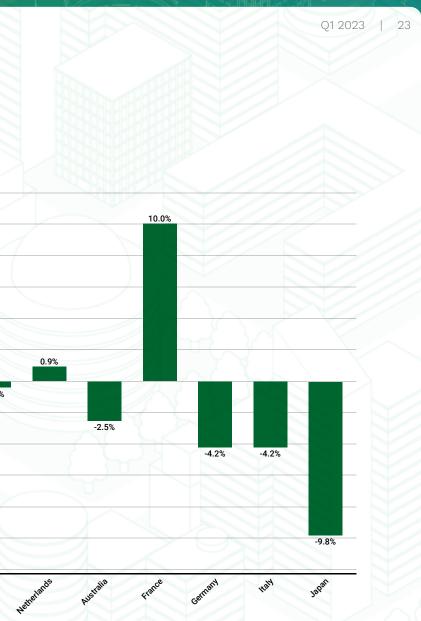
France's strong showing was driven by relatively evenly distributed engagement across all digital activities, pushing its Index score to 26.3. In contrast, growth in the United States' Index score was primarily fueled by engagement with access activities — those which do not involve payments — rather than with transactional ones.

According to the International Monetary Fund's January projections, the global growth rate will drop from 3.4% in 2022 to 2.9% in 2023, while global inflation will decrease to 6.6% in 2023 and 4.3% in 2024.<sup>1</sup> Though lower, these rates remain well above pre-pan-

<sup>1</sup> Author unknown. World Economic Outlook: A Rocky Recovery. International Monetary Fund. 2023. https://www.imf.org/en/Publications/WEO/Issues/2023/04/11/world-economic-outlook-april-2023. Accessed May 2023.

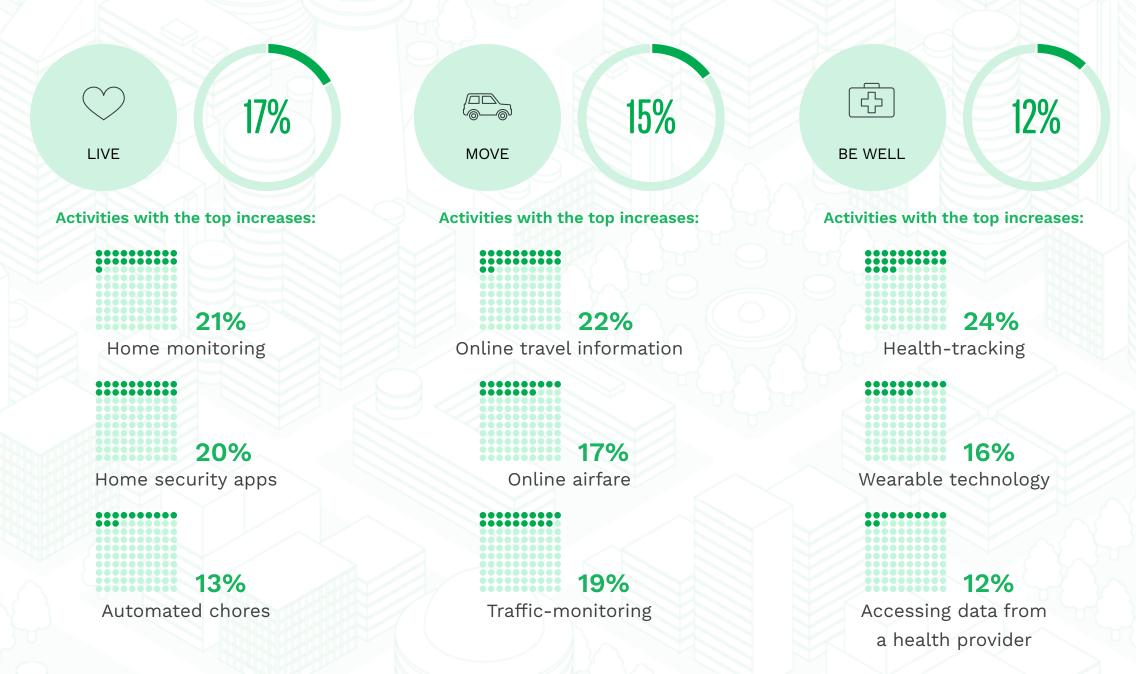
#### Figure 8 Changes in digital engagement Year-over-year change in digital engagement, by country 12% 10% 9.2% 8% 6% 4% 2.4% 2% 0.1% -0.4% -0.9% -2% -4% -3.8% -6% -8% -10% -12% Source: PYMNTS How the World Does Digital, May 2023 N = 17,571: Whole sample, fielded Feb. 1, 2023 - Feb. 24, 2023

demic levels. The gloomy economic forecasts weighed heavily on multiple economies included in our Index. Singapore — still the overall digital engagement leader with an Index score of 34 — saw its digital engagement decrease 4% year over year, with Germany and Italy losing ground at the same rate.



#### A CLOSER LOOK AT THE SURGE IN DIGITAL ENGAGEMENT IN THE U.S.

Digital engagement soared 9.2% in the U.S. over the last year and helped to drive global digital transformation to new heights. Which activities saw the strongest increases?



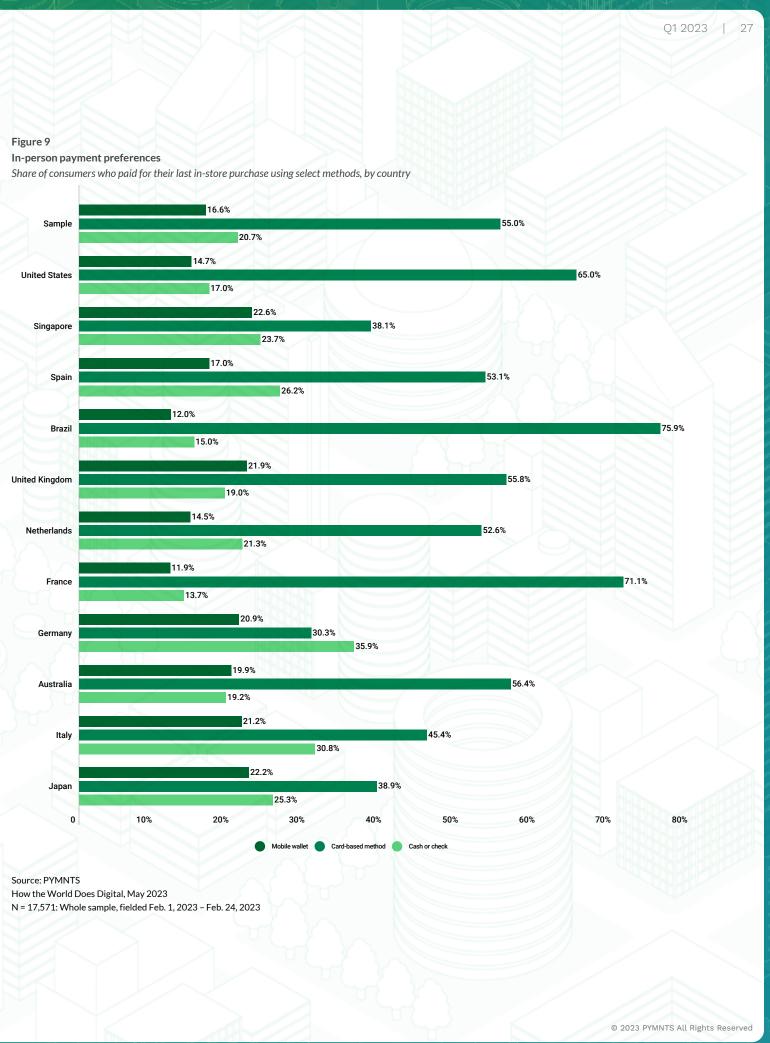
# Year-over-year change in **digital engagement** in the U.S.

9.2%

**Digital wallets now** account for 17% of in-person purchases globally and lead cash in the U.K. for in-store purchases.

onsumers are using digital wallets more heavily for in-store purchases than they did a year ago, with increases in 10 of the 11 countries we studied. Digital wallets now account for 17% of all in-store transactions globally, up 7% since Q1 2022.

Digital wallets have eclipsed cash for in-store transactions for the first time in one of the countries we study, accounting for 21.9% of all physical purchases in the U.K. versus 19% for cash. Singapore and Japan were the digital wallet leaders for in-store purchases, however, at 22.6% and 22.2%, respectively.



While digital wallets have become a common payment method for online transactions, their use remained steady over the last year, at 32% of transactions. Card-based payments still captured the lion's share of online purchases, with 48% of consumers opting to pay this way. Despite the gains digital wallets are making, credit and debit cards still dominate both in-store and online purchases in all markets except Germany.

The use of global mobile wallets — Apple Pay, Google Pay and Samsung Pay — grew significantly for both in-store and online transactions. As a group, these wallets increased their share of physical checkouts in all 11 markets, and also strengthened their foothold in online transactions everywhere except Brazil and Germany, where they lost a small amount of ground.

The big global wallet players are not fairing equally, however. Apple Pay drove most of the gains, increasing its overall in-store use to 3.6% from 2.5% a year ago and from 3.4% to 4.5% for online purchases. Consumers in Australia are the most enthusiastic adopters of Apple Pay, at 12% for both in-store and online use, while those in the Netherlands, Singapore and Brazil recorded the largest year-over-year growth in

#### Table 1A

#### Global mobile wallet use

Share of online purchases made using select global mobile wallets, by country and over time

	Global wallets overall		Apple Pay		Google Pay	
	Q1 2023	Q1 2022	Q1 2023	Q1 2022	Q1 2023	Q1 2022
Sample	7.1%	5.5%	4.5%	3.4%	2.1%	1.6%
United States	10.5%	7.3%	6.7%	4.7%	2.3%	1.5%
Singapore	13.7%	12.2%	6.4%	3.1%	6.1%	6.9%
Spain	7.1%	6.1%	3.7%	3.8%	3.5%	2.2%
Brazil	2.6%	2.9%	1.0%	0.5%	1.2%	1.1%
United Kingdom	14.6%	12.9%	10.2%	8.6%	3.3%	3.3%
Netherlands	7.8%	4.8%	5.8%	2.7%	2.0%	2.1%
France	7.1%	4.6%	5.4%	3.4%	1.7%	1.2%
Germany	6.4%	6.7%	3.5%	3.8%	2.9%	2.9%
Australia	16.4%	10.4%	11.7%	6.8%	3.3%	3.0%
Italy	4.6%	3.9%	2.2%	1.9%	2.4%	2.0%
Japan	2.6%	1.8%	2.1%	1.9%	0.9%	0.3%

Source: PYMNTS

How the World Does Digital, May 2023

N = 17,571: Whole sample, fielded Feb. 1, 2023 - Feb. 24, 2023



Q1 2023 | 29

the use of Apple's wallet for online purchases. Overall, Apple Pay saw increases in nine of the 11 countries for both in-person and digital transactions.

Google Pay comes in a distant second, at 1.3% for in-store checkouts and 2.1% for digital purchases, and the wallet has less even performance across the countries. Samsung Pay continues to struggle to find adopters.

We also noted the long-running decline of Pay-Pal. In-store use of the digital wallet slipped marginally over the last year to 5.1% of checkouts, though this still exceeds mobile wallet leader Apple Pay's 4.5%. PayPal also lost ground in online purchases, sliding to 13% this quarter from 15% a year earlier — and sinking in nine of the 11 countries.

The use of local FinTech wallets, such as Japan's PayPay and Rakuten, ticked up by 8%, on average, year over year for digital transactions. Japan remained the undisputed champion of these wallets, with consumers opting for this payment method to complete 37% of all digital purchases — a year-over-year rise of 46% from Q1 2022.

#### Table 1B

#### Global mobile wallet use

Share of in-store purchases made using select global mobile wallets, by country and over time

	Global wallets overall		Apple Pay		Google Pay	
	Q1 2023	Q1 2022	Q1 2023	Q1 2022	Q1 2023	Q1 2022
Sample	5.2%	4.0%	3.6%	2.5%	1.3%	1.3%
United States	7.0%	5.0%	5.1%	2.9%	1.0%	1.4%
Singapore	12.0%	8.5%	6.1%	3.6%	3.1%	3.6%
Spain	7.0%	4.8%	3.6	3.3%	3.3%	1.5%
Brazil	1.8%	1.6%	0.2%	0.3%	0.6%	0.5%
United Kingdom	14.1%	11.8%	10.1%	8.6%	3.3%	2.4%
Netherlands	7.2%	5.4%	5.7%	4.1%	1.5%	1.2%
France	5.3%	4.0%	4.6%	3.0%	0.6%	1.0%
Germany	5.1%	5.0%	2.7%	2.0%	2.4%	3.0%
Australia	15.9%	11.1%	12.1%	7.8%	3.1%	2.6%
Italy	3.6%	3.2%	2.2%	1.5%	1.4%	1.7%
Japan	1.3%	1.0%	0.7%	1.3%	0.5%	0.1%

#### Source: PYMNTS

How the World Does Digital, May 2023

N = 17,571: Whole sample, fielded Feb. 1, 2023 - Feb. 24, 2023



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## Conclusion

lobal digital transformation continued to deepen over the last year. Consumers across the globe deepened their digital engagement in many facets of everyday life, conducting more digital activities daily than ever before. This was particularly true in the areas of travel, entertainment and health, which saw the steepest increases in engagement. The large year-over-year increase in mobile wallet use, meanwhile, underscores the shift toward a digital, cashless society. More than ever before, network effects helped accelerate digital transformation, with growing synergies between digital activities in different areas. This highlights the self-reinforcing nature of digital transformation as greater engagement in one area fuels more participation in others — a powerful virtuous cycle.

ow the World Does Digital: Daily Digital Engagement Hits New Heights is the latest edition in the ongoing series of studies examining global consumers' shift from an analog to a digital-first lifestyle. The Q1 2023 ConnectedEconomy™ Index was built using data collected from 17,571 consumers from Feb. 1 to Feb. 24 across 11 countries.

The ConnectedEconomy<sup>™</sup> Index measures consumer engagement in 37 key activities across the 10 pillars of the ConnectedEconomy<sup>™</sup>, which represent key parts of consumers' daily routines. The Index is scaled from 0 to 100 and intends to mark the steps toward full digital transformation, where consumers use connected devices daily to complete a range of different activities covering the entirety of their routines. The countries in our study include the United States, France, Germany, Italy, the Netherlands, Spain, the United Kingdom, Brazil, Australia, Japan and Singapore, which together account for approximately 50% of the global GDP. Each national sample subset was census-balanced to mirror the current population in key demographic areas, allowing us to gauge the progress of digital transformation both within and between countries.

### Methodology

### How the World Does Digital

# ABOUT

#### PYMNTS®

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