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# The Powerful Role Payments Data Can Play in the Public Sector

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# Executive summary

**Data has the power to unlock and create enormous value for governments, businesses, and citizens,** enabling them to address some of their most pressing challenges. It is also a powerful engine of economic activity and technological innovation. As the level of digitalization increases and the volume of data in society and the economy grows, harnessing and producing insights from data will be **critical to maintaining national competitiveness and driving economic prosperity.**

Payments data offers a **unique snapshot of macroeconomic and microeconomic behaviors and trends.** Due to its granularity, payments data also allows for different levels of aggregation, which enable a nuanced understanding of spend patterns.

Payments data presents **three important areas of opportunity** for governments today:

- As the **tourism sector** recovers from the impact of the COVID-19 pandemic, payments data can help public tourism bodies steer toward better informed campaigns supported by more effective budget allocation. Understanding consumer behavior and spending patterns enables tourism entities to offer tailored services—helping them stand out in an increasingly competitive international environment.
- In **urban planning**, payments data can help public authorities understand the economic impact of climate change, model future scenarios, and make better strategic decisions. Payments data is invaluable for city managers, allowing them to better plan initiatives related to sustainable street design or public mobility and to gain unique and valuable insights into the financial impact of different options.
- And in the area of **macroeconomic foresight**, the accelerated adoption of digital payments throughout the COVID crisis has positioned payments data as one of the strongest indicators of economic recovery and growth in the post-pandemic world. “Nowcasting” based on payments data is faster than official statistics and also enriches them, in many cases improving the outputs.

**Data privacy and security are arguably the most important issues facing governments as they work with data.** Responsible data use and data sharing principles and frameworks should ensure the protection of citizen rights, and simultaneously promote innovation and the intrinsic value generated for the public sector, private companies, and citizens. However, there is often a patchwork of regulations across sectors and regions: **more coordinated, harmonized, and interoperable frameworks will be critical to ensuring the responsible and ethical global use of data.**

Looking ahead, governments that include payments data in their data warehouses can capture powerful insights, benefit from more informed policy development, and gain the ability to measure and monitor policy outcomes and impact. **Partnerships with the private sector can enhance governments’ data science expertise and accelerate data-based innovation.** Through such collaboration, governments can position themselves as leaders in their countries by setting the standards around data governance and ethical standards, while also realizing rich market and economic insights.



# About the study

This study has been commissioned and developed in collaboration between Visa—a global payments organization—and Kearney—a global management consulting firm. Our mutual goal is to engage with government officials and policymakers—inspiring them to collaborate and leverage the opportunities provided by digital payments to enhance public-sector services and maximize value for society and the economy.

The study was conducted between June and September 2022. All insights, recommendations, and conclusions featured in this study are based on data and information sourced both before the COVID-19 pandemic and during the last two years of the pandemic.

## Primary research

**20+**

government officials and leaders of public-private partnerships

**10+**

Kearney Financial Services experts, with experience at the intersection of payments and public sector

**13**

Visa subject matter experts across different geographies and functions

## Secondary research

**105+**

data sources referenced in the white paper

**30+**

research and content pieces by international organizations, e.g., the World Bank, the Asian Development Bank, the European Commission, the UN, the OECD

**35+**

reports of programs and studies published by public sector entities

## Global examples

**40+**

programs deploying Payments data solutions, including focus area, description, and results

**3**

in-depth case studies of flagship Payments data solutions across different geographies

The case studies span several themes – tourism, urban planning, sustainability, economic insights

# 1. Introduction

In today's economies, data underpins everything from international production processes to global e-commerce and is set to grow in both importance and volume. In 2021, on average, 200 terabits of data flowed through global cables every single second.

Among public authorities and international organizations alike, there is growing recognition of the huge contribution that data and responsible public-private data collaboration<sup>1</sup> can make to the prosperity of citizens and businesses. In early 2020, the European Commission introduced the Data Act, which sets out rules for fair access to—and use of—data. The Act was expected to ensure fairness in the digital environment, stimulate a competitive data market, open opportunities for data-driven innovation, and make data more accessible for all.

The COVID-19 pandemic (referred to as “the pandemic”, the “COVID pandemic”, the “COVID crisis”, or “COVID-19” hereafter) lent further impetus to the digital adoption and consumption of data, highlighting data's power to drive better policy decisions and benefit society. For example, Tyrol—a federal province of Austria—implemented a wastewater monitoring program for tracking the spatial distribution and temporal trends of COVID-19 at the community level. The program provided valuable insights into the development of the pandemic situation, represented an early-warning system, provided alerts about bursts of disease activity, and enabled the assessment of the effectiveness of response measures. Beyond COVID-19, data has proven its value in a number of situations over the years. Mobile network operators create mobility insights, dashboards, and other decision-making tools, generated from anonymized and aggregated telecommunications data. Their value has been demonstrated in addressing different global challenges, ranging from the possibilities offered by models to better understand the spread of Zika in Brazil to interactive dashboards that aid emergency services during earthquakes and floods in Japan.

Data has the power to unlock and create enormous value when it is underpinned by transparent and accountable systems for data sharing. It can also enable governments to address some of the most pressing challenges the world is facing today. With the public sector more focused than ever on ensuring that funds are spent effectively, data can help local and national governments develop informed and efficient policy responses. It can also support the post-COVID recovery of the tourism sector, help tackle congestion and improve air quality in cities, and develop ground-breaking remote diagnosis systems.

This paper focuses on three areas where data could play a valuable role in informing and shaping public sector strategies and decisions: (i) travel and tourism, (ii) urban planning and sustainability, and (iii) macroeconomic foresight. We focus in particular on payments data, exploring its unique ability to provide governments with unrivalled economic insights. **We also highlight real-world examples of successful solutions where the public sector has deployed payments data in close collaboration with the private sector to tackle some of the biggest challenges facing society and the economy. This paper showcases effective practices and learnings of governments that are leading the way in this high-potential area.**

This paper identifies the gaps between where the world stands today in terms of generating societal value from commercial public-private partnerships, where it could be in the future, and what needs to be done to get there. It also encourages consideration of the many opportunities and benefits that payments data could deliver for the public sector.

<sup>1</sup> A public-private collaboration consists of a partnership between a public organization and a private entity, where the latter provides a product or service to the former, in order to co-design a solution that addresses a public sector challenge.



## What is data?



**Data** is factual information used as a reference or basis for analysis, reasoning, or decision-making. It includes text, audio, and video information. According to the International Smart Cities Network, data is in its nature unlike any other resource: it is non-rivalrous and non-excludable, meaning that many actors can use it and reuse it as many times as they want, and for different purposes, without impacting its quantity or quality. Furthermore, data can be even more valuable when used in combination with other datasets and leveraged for analytics and actionable insights.

In this paper, we cover digital data only—information in electronic form, as opposed to hard-copy.

The datasets referenced in this paper include those captured by telecommunications companies (calls, geotagging), smart sensors (car parking, mobility metrics), and financial services providers (aggregated card transactions).

## 2. Why is data important?

Data is a powerful engine of economic activity and technological innovation. As the volume of data produced worldwide grows, there is an opportunity to harness and produce insights from data that unlocks economic prosperity.

### 2.1. Exponential growth of data

According to IDC, the Global DataSphere is expected to more than double in size from 2022 to 2026. Adoption of data-reliant technologies is growing among businesses of all sizes. 41 percent of EU enterprises<sup>2</sup> used cloud computing in 2021—mostly for hosting their e-mail systems and storing files electronically. By the same year, almost a third of all EU enterprises (29 percent) were using the Internet of Things (IoT), and 8 percent had already adopted Artificial Intelligence technologies. In 2020, across the EU countries, 19 percent of enterprises had received orders online.

### 2.2. Data can drive economic growth

Data can significantly boost GDP. Data access and sharing can help generate social and economic benefits worth between 0.1 and 1.5 percent of GDP in the case of public sector data, and between 1.0 and 2.5 percent of GDP when also including private-sector data. The European Commission, the Lisbon Council, and IDC estimated the value of the EU-27 data economy<sup>4</sup> at nearly USD482bn (EUR422bn) in 2020. The new European data regulation—the Data Act—is expected to add USD305bn (EUR270bn) to GDP by 2028. Enhanced access to data creates new business opportunities, facilitates business cooperation across sectors and countries, boosts user-driven innovation, and enables “super additive” insights.

Global exports of digitally deliverable services—which rely on technology and data for their delivery—have grown faster than the total services exports over the past 15 years. The total value of global digitally deliverable services has almost tripled since 2005 from USD1.2tn in 2005 to USD3.2tn in 2019. During that period, the share of digitally deliverable services in all services trade rose from 45 percent to 52 percent.

Technological innovation has played an important role creating new job opportunities. Between 2019 and 2021, there was a noticeable increase in the total number of data professionals. The average number of data professionals per company also increased, as did their share of total employment in the EU-27. The number of data professionals is expected to reach 8.15mn in the EU-27 by 2025, equating to 1.65mn new positions from 2020–2025.

<sup>2</sup> EU enterprises with at least 10 employees and self-employed people.

<sup>3</sup> The EU-27 consists of the 27 states that are members of the European Union, as of February 1, 2020.

<sup>4</sup> The value of the data economy is the value of the direct, indirect, and induced impacts of data-driven innovation on the EU economy.



## 2.3. Big data is an engine of innovation

Big data has helped fuel rapid innovation through faster iterative learning. Several innovative technologies rely heavily on big data for their operation. In the transport space, self-driving vehicles (SDVs) can share and process data across the network of SDVs to calculate the timing and location of traffic jams—enabling drivers to avoid them entirely. The healthcare industry also leverages big data for more precise identification of at-risk populations and better surveillance of communicable and non-communicable diseases. And airplane engine manufacturers can use sensors to spot weaknesses and error patterns—both on prototypes and on engines already in use.

## 2.4. The data balancing act

Data represents an invaluable resource for the public sector. Its potential for creating more efficient public services, informing policy making and decision-making, and opening new forms of citizen participation is immeasurable. According to researchers, the opportunities created through data will trigger a change in society similar to that experienced upon the arrival of electricity.

But there is growing momentum to ensure that data is used in ways that respect the public interest and deliver trustworthy outcomes. The OECD highlights growing concerns around the use of data, stating that data should be managed with integrity and that ethical considerations must be incorporated into public sector decision-making. For data usage to match its potential for good, it must be accompanied by accountability and responsibility.

When it comes to data, governments commonly are working toward two important objectives: (i) responsible data sharing and (ii) innovation through the use of data. Commercial data collaborations underpinned by robust ethical standards can facilitate the creation of innovative data solutions that are valuable for both public and private stakeholders. For example, in the payments industry, transaction data is critical for fraud detection from the moment a payment is initiated with a merchant, as powerful artificial intelligence models analyze hundreds of risk attributes. In the tourism sector, dashboards that capture insights from mobility and spend data allow public bodies to maximize a destination's attractiveness—creating direct financial benefits for the administration and private companies in the area and at the same time improving tourists' experience.

## What is big data?



**Big data** is data with large size and complexity. Big data is characterized by its volume (enormous size), variety (heterogeneous sources and the nature of data, both structured and unstructured), velocity (high-speed generation of data), and variability (inconsistencies sometimes hampering effective data management). According to SAS, big data analytics examines large amounts of data to uncover hidden patterns, correlations, and other insights. The combination of different datasets can provide a more complete and more accurate picture.



### 3. Payments data: an invaluable dataset<sup>5</sup>

Data-driven decision-making can deliver many well-documented benefits for the public sector, including greater accuracy, precision, and efficiency. While different types of data have their own advantages, payments data<sup>6</sup> comes with its own unique attributes.

Payments data is information collected when consumers insert a card, touch, click, or tap to make a payment. It includes personal identification data<sup>7</sup>, information about the transaction (e.g., details of the merchant, location/purpose of the transaction), and data about the payment instrument used (e.g., cardholder's account number, card expiration date). At an aggregated level, payments data can provide a snapshot into macro and microeconomic trends as explained by spend patterns.

<sup>5</sup> Content from interviews and materials provided by Visa subject matter experts.

<sup>6</sup> Payments data discussed herein is aggregated and anonymized.

<sup>7</sup> Personal data is any information that relates to an identified or identifiable living individual.



Payments data has some particularly valuable characteristics:

- **Accessibility.** Data is collected automatically when digital payments are made, with no need for infrastructure or technology investment.
- **Accuracy.** Payments data is not dependent on self-assessment and reflects actions consumers have actually taken, rather than actions or intentions they have reported (e.g., as opposed to determining hotel occupancy based on bookings, which tourists may not have actually occupied).
- **Timeliness.** Datasets are real-time and can be processed very quickly. This makes payments data faster to pinpoint shifts in customer sentiment or economic conditions—particularly in comparison to traditional statistics.
- **Granularity.** Different cuts of aggregated and anonymized payments data can provide unique insights. For example, payments data can hone in on geographical coordinates (e.g., specific postal codes in a city), customer profiles (e.g., tourists from a particular country of origin), or merchant category (e.g., the purchase of smartwatches). These deep insights into human behavior can be scaled up to a macro-level view of cities and countries.

Unlike some other data types, payments data can generate comprehensive economic insights revealing how much consumers spend, what they buy, and where and when they prefer to shop. Only tax data can offer a comparable depth of insight into economic value—but at significantly higher cost and with a longer time lag.

Payments data and the associated customer spend insights are now providing an increasingly comprehensive picture of consumer spending. Lockdowns and social distancing rules during the COVID pandemic made the use of cash much more complicated. They also vastly increased consumers' preference for paying digitally, especially for online shopping.



In the **U.K.**, prior to the pandemic, an average of around 30 percent of card spending occurred online. In April 2020, this rose to as high as 45 percent as people turned to online shopping during the first lockdown.

Some governments actively discouraged their citizens from using coins and notes. Countries around the world have expanded contactless payments and significantly increased the spending limit on an individual contactless card payment.



For example, **Canada** raised its limit by USD120 (CAD150), **Bahrain** by USD80 (BHD30), and **New Zealand** by USD85 (NZD120)—making the new limits in these countries 150 percent higher than originally.

These changes have contributed to the number of digital payments skyrocketing. By March 2021, Visa reported increases of more than 40 percent in tap-to-pay transactions globally, and 1bn additional touch-free transactions in Europe—less than a year since contactless limits had increased across the region. Meanwhile, the World Bank FINDEX database revealed that 12 percent of adults in Latin America and the Caribbean (LAC) made their first digital in-store merchant payment after the COVID-19 pandemic started. Consumers' tendency to use digital payments instead of cash has been supported by a significant increase in the number of digital acceptance locations from 13.4 point of sale (PoS) terminals per 1,000 inhabitants in 2016 to almost 22 per 1,000 in 2021<sup>8</sup>.

The acceleration of digital payments means that payments data now spans almost all sectors of the economy, providing more and deeper insights into spend behavior and patterns than ever before. This makes payments data a highly valuable resource for supporting public administration officials in making decisions and shaping policy.

<sup>8</sup> Based on 73 countries, as published by Global Data.



# 4. Three payments data opportunities

## 4.1. Travel and tourism

### 4.1.1. Context

Travel and tourism are sectors of significant economic importance for economies around the globe. Prior to the pandemic, the tourism sector directly contributed 4.7 percent of GDP and 6.9 percent of employment, and tourism generated 20.5 percent of service-related exports in OECD countries, on average. More than 800mn international tourist arrivals were registered in 2019 across OECD countries.





### **The COVID-19 pandemic has hit tourism hard.**

In 2020, tourism suffered its greatest crisis on record. International arrivals plunged by 73 percent as the COVID-19 pandemic prompted nearly all governments around the world to introduce travel restrictions, including closing their borders to tourists. The shock has been unprecedented even in countries that saw the smallest falls in international arrivals in 2020, with inbound tourism remaining significantly below 2019 levels through 2021. For example, international tourists to Mexico declined by 46 percent in 2020, despite an open border strategy and the third-highest number of arrivals among OECD countries. Australia, Canada, Israel, Japan, and Korea saw declines of more than 80 percent in inbound arrivals in 2020.

This dramatic decline in travel led to massive losses in revenues for tourism-dependent economies. Tourism accounted for 77 cents of every one dollar of lost revenue from the decline in service exports in OECD countries in 2020. This increases to 90 cents of every one dollar when passenger transport receipts are included. The shock from COVID-19 saw the average direct contribution of tourism to GDP fall to 2.8 percent in 2020 across OECD countries<sup>9</sup>. This equates to an average decline of 1.9 percentage points compared to pre-COVID-19. Tourism's share of total employment fell to 4.3 percent in the same region—down 0.8 percentage points<sup>10</sup>.

### **COVID-induced travel disruption forced many governments to rethink their response to new issues.**

The crisis triggered by COVID-19 presents a unique opportunity to rethink tourism policy and take steps so the measures put in place today can shape a more resilient, sustainable, and inclusive tourism economy for the future. The pandemic made it painfully clear that historical data-driven models were no longer fit for purpose, leaving governments struggling to predict tourism demand. New challenges have emerged, including determining health restrictions, navigating booking windows, engaging international audiences, adjusting to smaller budgets and staff, and rethinking messaging.

In addition, a lagging travel recovery has forced governments to more aggressively compete for a much smaller pool of travelers and to optimize spending. In the process, the role of governments and destination management organizations (DMOs) has evolved beyond simply marketing a destination to actively driving change in the tourism sector by managing a complex matrix of stakeholder interests.

### **Data and market intelligence are critical for the recovery of the travel and tourism sector.**

Weaker economic growth, the geopolitical implications of the Russia-Ukraine conflict, and rising inflation and interest rates could also translate into a decreased ability or desire to travel, as well as higher travel costs for consumers. This puts additional pressure on tourism bodies to invest wisely into attraction campaigns. Some tourists now have limited budgets, and many are likely to choose to take one big trip to a single destination, rather than many trips to multiple destinations. The OECD cautions that “innovative solutions are needed in many countries to survive the turbulent times ahead.” The pandemic has reinforced the urgency to have new tourism data measures and complementary data sources to react quickly under uncertainty, and this will be more evident as governments look to measure new sustainable policies.

As the sector moves toward recovery, data and market intelligence have the ability to play a critical role in empowering destinations, businesses, and tourism officials to be better prepared in a rapidly changing landscape. Robust data and analytics may be essential for the travel and tourism sector to reconfigure, enable, and measure the effectiveness of customer segmentation and marketing/promotional spending.

<sup>9</sup> Where data was available.

<sup>10</sup> Percentage point is the unit for the arithmetic difference of two percentages. This definition applies to the remainder of this whitepaper where the term “percentage point(s)” is used.

### 4.1.2. Payments data opportunity

Payments data could play a key role in the recovery of the tourism sector:

#### **New strategies for growing the tourism sector.**

Understanding tourism expenditure is vital for countries, cities, and destinations that rely on tourism. Payments data can help them identify top feeder regions based on spending and understand which segments visitors are spending on most. Access to this data can steer tourism ministries toward more strategic and informed initiatives and campaigns. It can enable destinations to measure the impact of travel and tourism in specific locations, and forecast the potential of large-scale events to draw in visitors and revenue. In addition, it can help effectively allocate tourism budgets and resources by visitor country of origin, as well as support capacity planning and infrastructure investments. At the government level, payments data could support travel- and tourism-related policy-making such as investments into infrastructure or services appropriate for growth sectors like ecotourism and leisure and recreational tourism. Finally, as DMOs transform themselves from destination marketing organizations into destination management organizations, payments data can inform decision-making not only on tourism development alone, but also on the impact of tourism on local residents—for example, regarding overtourism or support for local businesses.



**New Zealand.** For example, in New Zealand, the government uses an experimental dataset containing a time series for international visitor expenditure in New Zealand. This data is based on model estimates from electronic card transactions and international visitor numbers and is an alternative way of estimating visitor expenditure. Based on this and other data<sup>11</sup>, the Ministry of Business, Innovation and Employment has been publishing a Tourism Recovery Dashboard, tracking the border reopening and its effect on the recovery of the tourism sector from the COVID-19 pandemic. These statistics helped identify at what point of time holiday and vacation visitors exceeded friends and family visitors and that it was the U.K. and U.S. card spend which led the recovery to 2019 levels.

The decision to use card transaction data is grounded in New Zealand's status as a mature economy, with high adoption of card payments and a strong card acceptance infrastructure. In 2020, there were 362 card transactions per capita in New Zealand—74 percent more than in Singapore (207) and 10 percent more than in Sweden (328)—indicating a strong adoption of cashless transactions.



**South Korea.** Since 2015, KT Corporation (KT) and the Korea Tourism Organization (KTO) have worked together to revitalize South Korea's tourism sector. As part of this drive, KT developed the Travel Intelligence Platform (TIP), which leverages mobile telecommunications and credit card data to provide periodic tourism statistics and analysis of tourists' patterns in specific areas. The resulting analysis informs and facilitates KTO's development of tourism strategies and policies.

During the COVID-19 pandemic, TIP has been used to determine the number of domestic visitors and analyze their expenditure patterns. Having access to data that can offer insights into domestic tourists' demands, behaviors, and willingness to engage in tourism-related activities has enabled KT and KTO to design attractive products and boost recovery.

<sup>11</sup> Data for the dashboard includes StatsNZ provisional border crossing and visitor arrival data, Sabre flight capacity, Marketview international electronic card spend, and Immigration New Zealand visa approval and arrival figures for the Working Holiday Scheme visa.

### Differentiated marketing by visitor profile.

Payments data can reveal differences in spend and preferences between visitors coming from different parts of the world, enabling DMOs to invest in effective marketing campaigns. Spend data can “zoom in” on visitors from a specific country and track their behavior, e.g., what are the main attractions they are interested in, whether they stay in one or more locations, and whether they return to a site that they have previously visited. Payments data can also highlight post-COVID-19 changes—for example, by revealing “top feeder” regions that were previously big contributors to the visitor economy but have not recovered post-pandemic as they require extensive travel time to reach or are no longer as attractive.

By developing regionally specific barometers that show the amount of money being spent on certain products and services, payments data can capture more precisely the tourists’ socio-spatial behavior—with a high degree of geographical granularity. Understanding consumer behavior, spending patterns, and trends opens up an opportunity to offer locations and services best suited to visitors’ preferences. By understanding how trips taken by different types of tourists vary in duration and spend amount, marketers are able to differentiate their strategies for longer-staying and high-spending visitors.



**Dubai.** Hala China is a first of its kind initiative for Dubai, aimed at exploring opportunities to attract Chinese visitors. Launched by Meraas—part of Dubai Holding—Dubai’s Hala China initiative was conceived to foster economic development through tourism, trade, and investment. Hala China includes new tourism packages that cater to Chinese visitors in seven categories—stay, shop, eat, play, explore, wellness, and concierge. The initiative has seen several key government ministries and companies in Dubai and China team up to organize events and incentives designed to further strengthen bilateral relations.

Chinese tourists are some of the biggest spenders in Dubai—second only to travelers from the Gulf in terms of their total card spending. Initiatives like Hala China saw Chinese spending in Dubai grow by more than 50 percent. The Dubai Department of Tourism and Commerce Marketing counted almost 300,000 Chinese visitors per quarter before the COVID-19 pandemic hit.



**Japan.** In 2015, the government launched the Regional Economy and Society Analyzing System. This groundbreaking tool converts economic and social data into easy-to-understand visualizations, allowing users to understand regional development metrics or process the data on their own. Various types of data are behind a series of nine map visualizations, on metrics ranging from population to corporate activity or urban development.

Under one of the nine visualization maps, namely the Consumption Map, credit card payments data provided by Visa is used to show a comparison of consumption by foreigners across Japan’s regions. The provided maps and graphs show the amount of card consumption, the number of transactions, and the transaction unit price for foreign visitors’ spending. Different regions of the country can thus be compared looking at the total value of consumption or at spending in specific categories. Likewise, the spending habits of tourists by nationality are also recorded and can be used to develop marketing strategies tailored to the regions’ main attraction points.

Another visualization, the Tourism Map, allows regional administrations in Japan to obtain information on visitor movement patterns, popular places of interest, and preferred tourism routes. In Niseko, a town on Hokkaido Island, the local administration used such information to decide on the promotion of tourism consumption in the town centered on the charm of food. The city of Obihiro looked at foreign tourism data to perform an analysis on inter-cities cooperation in Eastern Hokkaido for attracting foreign tourists.

According to Eurostat, full utilization of big data by national tourism organizations, destination management organizations, and national statistics offices will take some time. In the near term, big data will become an auxiliary data source to official surveys. In the medium term, it will gradually be integrated with traditional data sources. And in the longer term, big data will become the predominant source.



## Using payments data for tourism development in Australia's Gold Coast region<sup>12</sup>

In 2020, the City of Gold Coast decided to leverage payments data to help it make more informed decisions on its economic development and investments in tourism and events. The City also wanted to explore opportunities for economic growth and promote the city's strengths. In partnership with Visa, the government council developed a dedicated tourism insights dashboard based on VisaNet transaction data.

The payments data helped the City of Gold Coast to develop an evidence-based methodology for the analysis of events and their impact on the local economy. Officials can identify the flow of economic benefit not just to the localized event area, but also to precincts in the vicinity. Precinct analysis enables them to understand a precinct's catchment and assists in determining zoning and infrastructure decisions, as well as potential requirements for enhanced service provision.

The local government has also been using Visa tourism dashboards to get a better understanding of the City's primary visitor destinations and how they responded to the pandemic. Analyzing spending on a daily basis allowed them to observe a surprisingly quick recovery in spending by domestic visitors after extended periods of border restrictions. Additionally, intrastate economic activity was vital to the city's recovery from the initial COVID-19 lockdown, as spending from within Queensland grew in 2020 despite months of restrictions on travel.

Other insights include the disproportionate impact of border restrictions and lockdowns on tourism- and leisure-oriented merchants, with spend in these sectors declining by 33 to 90 percent. When restrictions were removed, these areas saw the largest recovery. At the same time, lockdowns had a varying effect on residential spend depending on their timing. When lockdowns occurred during the week, average spend declined by 33 percent, but lockdowns that happened at weekends led to a 54 percent drop as they also hit daytrip visitor activity.

All in all, the experience of the City of Gold Coast emphasizes both the versatility of payments data as input for tourism and local policy-making, as well as the importance of generating insights tailored to local concerns.

<sup>12</sup> Information in this case study was gathered and confirmed through direct communication with Tanya Lipus, Executive Coordinator Smart City, City of Gold Coast, Australia.



## 4.2. Urban planning and sustainability

### 4.2.1. Context

#### **The world is facing unprecedented urban growth.**

More than half of the world's population lives in cities, and that figure is expected to grow to 68 percent by 2050. Moreover, a UN report from 2018 estimated that by 2050, the world could have more than 40 megacities—cities with more than 10mn inhabitants—up from 33 at 2018. Most of these will be in Asia, Africa, and LAC, raising challenges for both governments and local administrations. Given cities' unstoppable growth, it's important for public administrations to understand how investments in urban design could be planned in a more sustainable and effective way.

#### **Sustainable development is the biggest challenge in urban planning and management.**

Cities consume two-thirds of global energy and account for more than 70 percent of global greenhouse gas emissions. At the same time, continuous urban expansion at rates much higher than population growth has resulted in a massive urban footprint. Known as "urban sprawl", this phenomenon puts additional pressure on land and natural resources. The cities' energy demands are increasing along with their vulnerability to disasters and climate shocks such as heat stress, flooding, and health emergencies. These challenges put increasing pressure on critical urban infrastructure and on local administrations as they strive to provide fair living opportunities to all citizens and reduce the marginalization of the poor.

Some governments are addressing this threat to the existence of cities through climate-sensitive urban planning. This solution has significant potential to drive job creation, poverty reduction, efficient use of resources, improved public health, and reduced pollution. In 2019, President Joko Widodo announced that Indonesia's capital will move to the island of Borneo in order to save sinking and congested Jakarta. Planning for the new capital city—Nusantara—has considered equitable and balanced development, accommodated large-scale investments, and envisioned an ideal urban area that is carrying the Future City Direction, following three main missions—national identity, sustainability, and a modern smart city with international standards.

#### **Data is a powerful tool for cities.**

Urban planners can benefit from aggregated and anonymized data generated by street sensors, public space monitors, pollution dashboards, location data from residents' mobile phone apps, and other private sources. Community participation in urban design and governance has even been encouraged through videogames. The novel idea that the video game Minecraft can be used for public participation was created in 2012 by UN-Habitat, the UN program for sustainable urbanization, and the Swedish gaming studio Mojang. Today, with the support of the Block by Block Foundation including Mojang and Microsoft, UN-Habitat has over the years developed Block by Block into a robust public participation methodology which has been used in urban projects in more than 75 cities.

Data can be a main contributor to solving urban sustainability challenges. Data insights could help reveal the economic impacts of climate change, as well as the investment potential of climate-smart urban infrastructure. It also allows for the experimentation and evaluation of the impact of new sustainable solutions. This is particularly important given the size of required investment to address climate change and limited public sector budgets.

#### 4.2.2. Payments data opportunity

Deploying payments data in urban planning can help authorities benchmark cities, understand behavior patterns, and model future scenarios. Data relevant for city planners includes spending location, timeline, and amount, as well as the consumers' demographic profile.

##### **Smarter evaluation of urban planning initiatives.**

Payments data provides insights into the impact of the urban environment on dwellers' spending behavior—reflecting their everyday preferences and potential problems. As such, payments data is invaluable for city planners. It allows them to better assess initiatives related to sustainable street design, such as pedestrian zones transformations, land repurposing, and electrical transportation and to gain unique and valuable insights into the financial impact of different options.

Payments data can also be used to identify and predict patterns of commercial activity. This can help urban planners and commercial developers better understand the connection between residents' travel and their shopping behavior—informing decisions related to commercial center development, retail categories of interest, and the public transportation network.



**U.K.** Several cities in the U.K., including Bath, York, and Newcastle, are partnering with GHD's<sup>13</sup> people movement and crowd dynamics team to obtain an aggregated view of spatial dynamics and economics of their city centers. Visa payments data, mobility data, and other mass-datasets are used to analyze movement, spend, and dwell in the cities. The insights are packaged in a dashboard and are used by the cities in a variety of ways, from building resilience to disaster events to planning for urban regeneration, assessing the economic impact of clean air zones, or identifying locations for electric vehicle charging.

The COVID-19 pandemic has amplified public administration's need for data-based insights. In recent work with the Scottish Government<sup>14</sup>, GHD determined the impact of the pandemic on mobility and spend in the country's largest cities. The granularity of the employed data confirmed the assumption that each place is unique—the pandemic's effect on each city largely depended on its catchment and position in the urban hierarchy. While some cities proved to be self-sustaining, others that were previously benefitting from non-resident commuters coming there to work and spend were more seriously affected. Moreover, there was a recurring theme in different data analyses—the economic dynamics and role of big cities with city centers versus satellite cities has changed. Life has become more locally focused, and this trend seems here to stay.

**“We live in a continuously disruptive state. Real and immediate data on changes in citizens' behavior allows governments to answer with agility to unexpected challenges—and in this lies the key value of data. Questions can be answered as and when they are asked.”**

**Steve Scott, Executive Leader of GHD Advisory UK**

<sup>13</sup> GHD is a global professional services company that provides integrated solutions through its expertise in engineering, environmental design, and construction.

<sup>14</sup> Information in this case study was gathered and confirmed in an interview with Steve Scott, Executive Leader of GHD Advisory UK.



**New York City, U.S.** New York City has been at the forefront of creating new models for sustainable urban development. Most notably, it has designed initiatives to help make the streets more welcoming spaces. Metrics deployed by the New York City Department of Transportation (DOT) revealed that higher retail sales result from street projects that improve safety and design and welcome pedestrians, cyclists, and transit riders. For example, in the three years following the installation of bicycle lanes and a tree-lined median in Brooklyn's Vanderbilt Avenue, retail sales doubled—significantly outperforming borough- and city-wide trends. In 2010, DOT simplified the intersection of Amsterdam and St. Nicholas Avenues in Harlem, creating new public space and changing the traffic pattern. As a result, stores in the area experienced a 48 percent rise in sales—beating the Manhattan average for the same period and outstripping the performance of nearby streets.

Retail sales data—based on card transactions—can be used to help address the concerns of local residents and business owners regarding the impact of potential projects, replacing anecdotal experience with comprehensive data and activating the business community in support of appropriately designed projects. Such empirical results—comparing the situation before and after implementation, along a set of predefined success factors—can also allow cities to link street design more closely with economic development goals.

### **Making public transportation more sustainable and efficient.**

In cities around the world, administrators and urban planners leverage payments data to make the public transportation systems more environmentally sustainable and logistically efficient. For example, authorities could use smart card or contactless payments data to identify intense movement between parts of a city, which could point to a need for additional direct travel routes. Similarly, by using payments data to pinpoint passengers' origin and destination, transport authorities can identify gaps in available first- and last-mile public transport. Identification of peak travel times and ridership trends within—and among—neighborhoods can help plan more effective transportation routes and frequency and, as a result, increase ridership, efficiency, and sustainability.

Closed- and open-loop public transit systems<sup>15</sup>—powered by smart digital payment solutions—have long proven their benefits and are becoming a priority for big cities.



**U.K.** Launched in 2020, Transport for London's (TfL) Go travel app provides real-time train times and information in a mobile-friendly way, enabling customers travelling on the Tube, bus, and rail services across London to make more informed decisions about travel—thus helping reduce congestion and overcrowding. TfL has been using ticketing data to understand travel patterns on the network, with quiet times data in TfL Go based largely on data from TfL's Oyster smart card and contactless ticketing system which records entry and exits at stations. More recently, the Go app has been fed aggregated and depersonalized data from TfL's Wi-Fi network to provide customers with real-time information on how busy Tube stations are at any particular point of the day. The fact that customers can choose quieter times to travel around the city helps build confidence as more people continue to return to public transport.

Open-loop systems further support public transport's inclusion and attractiveness by facilitating fare capping. This pricing model uses account-based fare collection to ensure that commuters get the best price per ride, every time they use the public transit system.

<sup>15</sup> Closed-loop smart cards are typically issued by transport operators and can only be used within their private ticketing system. In open-loop systems, passengers can use their bank-issued contactless credit or debit card, mobile wallets, or smart devices to pay the fares.



**Italy.** In February 2022, Italian transit operator Azienda Mobilità e Trasporti launched a pilot of open-loop contactless fare payments in Genoa. The system allows customers to benefit from the best fares proposals—calculated on the basis of length of trip and the number of travelers—with the use of a single payment card, up to four people. Thanks to this innovative set-up, for the first time in Italy, users can access fare-capped rates dedicated to groups, such as the 24-hour ticket for four people. Fare capping, which combines digital payments technology with data-based intelligent pricing, allows low-income groups who cannot afford to pay upfront for a weekly or monthly card to enjoy the benefits of the cheaper price—even when paying for one ride at a time. This enables agencies to make the service more accessible and attract new users.

Genoa thus becomes one of the more than 100 cities that have enabled contactless payments at the European level to facilitate and develop public transport systems, confirming digital payment instruments' significant role in the return to the use of urban means of transport. There is also a growing trend for city authorities to release APIs (Application Programming Interfaces) to encourage developers and community organizations to use open data.



**Mexico.** In 2020, Visa partnered with the Global Resilient Cities Network<sup>16</sup>—the world's leading urban resilience network, pioneered by The Rockefeller Foundation—to launch the Resilient Cities Shaping a Digital World program. Designed to advance digital transformation in LAC, the program helps member cities across LAC to design digital solutions in pursuit of a more resilient future, protecting vulnerable communities from climate change and other physical, social, and economic urban adversities and challenges. It identified urban mobility as one of the key areas of focus for governments committed to creating an inclusive digital economy.

As part of the program, the Jalisco state government in Mexico has been looking to invest in a top-of-the-art digital mobility solution. A new policy called "Mi Movilidad" ("My Mobility") was implemented to modernize Jalisco's public transport and introduce digital payment options for transit fare. The open-loop system allows frictionless transfer between different modes of transport and reduces effort by eliminating the time spent recharging cards and paying for tickets. It also supports users' financial autonomy as funds do not need to be allocated upfront to a single use, such as a pre-paid closed-loop card, without any way to access them for other uses in case of need.

Moreover, digital payments increase the amount of data available to transport operators and enable them to provide segments of the population with offers aimed at improving their access to mobility options, as well as their financial inclusion. In a second stage of the project, the Jalisco administration is looking to incorporate state subsidies into the mobility system with the goal of providing an additional incentive for those unbanked to join the financial system.

<sup>16</sup> The Global Resilient Cities Network is a city-led organization that drives urban resilience action.





## 4.3. Macroeconomic foresight

### 4.3.1. Context

The unexpected—and unprecedented—restriction of economic activity during the COVID-19 pandemic accelerated the experimentation with nowcasting: the use of real-time, high-frequency data sources to track economic activity.

Central banks and macroeconomists have always relied on data to monitor macroeconomic conditions. But the greater availability of real-time commercial datasets can enable more robust forecasting. Potential sources of data for economic nowcasting include financial market data, payment transactions, and transportation or location data. Other possible sources are user behavior data from mobile devices, social media feeds, data collected through public sensors, IoT devices, or utility companies.

These less frequently used data sources can provide some unique insights into macroeconomic activity. For example, nighttime satellite imagery can be used to indirectly observe the use of electricity at the local level. Similarly, nighttime lights, calculated from weather satellite recordings, are increasingly used by social scientists as a proxy for economic activity or economic development in subnational regions of developing countries where disaggregated data from statistical offices are not available. In India, nighttime light intensity was used to estimate the impact of differential containment policies implemented by the government during the COVID-19 pandemic on aggregate economic activity.

### 4.3.2. Payments data opportunity

The increased availability of electronic payments data has spurred a flurry of recent research and publications. For example, Verbaan et al. (2017) analyzed whether the use of debit card payments data can improve the accuracy of Dutch private household consumption forecasts. In Spain, Bodas et al. (2019) replicated a retail sales index through point of sale transactions data.

The accelerated adoption of digital payments throughout the COVID crisis positioned payments data as one of the strongest indicators of economic recovery and economic growth in the post-pandemic world. Payments data is particularly “useful in the monitoring, nowcasting and forecasting of retail sales, private consumption, and other related variables” and gauging the effects on households and businesses at national, regional, or local levels. Several countries have started collecting and publishing card transactions and looking for ways to leverage them in macroeconomic monitoring and forecasting.

## Macroeconomic monitoring and forecasting.

Nowcasting is relevant in economics because key statistics on the present state of the economy are published with a significant delay. This is particularly true for those collected on a quarterly basis, with GDP being a prominent example. For example, the first official estimate of GDP in the U.K. is published approximately six weeks after the end of the reference quarter.



**U.K.** In the U.K., the Office for National Statistics (ONS) is deploying early experimental data and analysis to create faster indicators of economic activity and social change. The ONS uses real-time indicators to monitor U.K. spending using debit and credit cards. These indicators track the daily CHAPS<sup>17</sup> payments made by credit and debit card payment processors to around 100 major U.K. retail corporates—in both real-world and online channels—since the start of COVID. This data gives the ONS visibility of consumer activity across four broad retailer groups: (1) Staples—essential goods such as utilities and groceries, (2) Work related—public transport and fuel, (3) Delayable—discretionary goods such as clothing and furniture, and (4) Social—leisure services such as holidays and eating out.

In addition, the ONS suspended the International Passenger Survey in March 2020, which was feeding into estimates of the international trade in travel services. Instead, it produced early modelled estimates of travel services, based on anonymized foreign-issued card spend processed through Barclays PoS and “card not present” channels. The ONS also utilized additional indicators of the volume of travel provided by the Civil Aviation Authority and Eurotunnel.



**U.S.** The U.S. Bureau of Economic Analysis (BEA) has also been researching the use of card transaction data as an early barometer of spending in the U.S., to inform their spending estimates and address the need for more complete source data about services. The traditional set of consumption statistics—retail sales from the Census Bureau’s surveys—are often revised considerably and do not include any subnational detail for analysis of regional shocks. Moreover, the Census Bureau’s Quarterly Services Report is not available to BEA for their advance estimates of GDP, instead becoming available only for their ‘second’ estimate.

Other data sources, such as the Consumer Expenditure Survey, have limited sample sizes at smaller geographies and are only available after a lag of a year or two. This has prompted BEA to use payment card transactions data in order to inform their estimates of this unavailable source data.

Personal consumption expenditures account for nearly 70 percent of the country’s GDP and are therefore a strong indicator of the cyclical position of the economy. Noticing the public and policymakers’ increased need for more frequent and timely data, since the start of the pandemic BEA has been presenting estimates using daily payment card data to measure the effects of the pandemic on spending—updated approximately every two weeks. Credit card data can be especially useful for gauging economic activities during sharp economic fluctuations caused by unexpected events.



**Israel.** As part of its COVID strategy, the Bank of Israel designed rapid indicators to show changes in the country’s economic trends—spanning areas such as the labor market, credit market, and the foreign exchange market. The payment system and means of payment were particularly relevant here, with indicators including cash withdrawals by the public from ATMs, checking activity, and payment card activity. One indicator of particular interest was credit card activity by industry, which provided a clear picture of the intensity of COVID impact on various industries. The bank aimed to update and publish these indicators with weekly frequency.

The Bank is also analyzing changes in energy consumption and mobility patterns among the population. Google’s “Community Mobility Report” indices for mobility to workplaces, retail, and recreation areas are analyzed as real-time indicators of the state of the labor market and private consumption. Payments data is also leveraged to validate economic growth forecasts and to shape policy measures and stimulus programs for the affected industries.

<sup>17</sup> Clearing House Automated Payment System.

## Crisis management.

The pandemic demonstrated the power of data to facilitate a better, faster response to crises. With the world suddenly in uncharted territory, traditional data was unreliable, incomplete, and slow to enable decision-making. But policymakers were under pressure to respond rapidly. Data from multiple—sometimes unconventional—sources, as well as accurate and timely reporting, were critical components of crisis management, helping control the spread of infection.



**Australia.** The Reserve Bank of Australia has used a wide range of timely information about household spending and activity to provide a real-time assessment of household consumption following the onset of the COVID-19 pandemic. While national accounts data are not available until two months after the end of each quarter, the Bank has built up a 'consumption tracker' drawing on information from a range of sources such as anonymized card transaction data, state government administrative data (including public transport use and gambling revenue), restaurant bookings, flight departures, and mobility indicators. Card payments data were particularly important for the hospitality sector, as they provided an early read on hospitality spending as restrictions on dining out came into place.

Insights from the detailed understanding of household consumption responses during the pandemic have helped to inform the Bank's view of the outlook for the economy. For example, high-frequency indicators showed that household activity snapped back to normal within days of lockdown restrictions being lifted. The observed smaller impact of lockdowns after the first lockdown episode was partly because households and businesses adapted and found ways to operate effectively while in lockdown. These observations led to a significant reduction in the precautionary behavior embedded within the Bank's central forecasts for household consumption.



**U.K.** The U.K. government launched the Eat Out to Help Out (EOHO) Scheme to support businesses reopening after the first COVID-19 lockdown and used transaction data to monitor its impact. The scheme was designed to protect jobs in the hospitality sector by encouraging consumers to eat out. Participating restaurants offered a 50 percent discount on food and non-alcoholic beverages consumed on the premises from Monday to Wednesday, up to the value of USD12.8 (GBP10) per person.

The ONS used card transaction data from the fintech company Revolut to analyze the spread of transactions at restaurants across days of the week, and the amount spent on those transactions. This data illustrated how the EOHO scheme—and other discounts—have modified consumer behavior and supported the government's goal of boosting the hospitality sector. While the impact of the EOHO program has been questioned, the use of payments data to understand consumer spending patterns in near real-time and to support sector recovery through timely decision-making still stands as a relevant example of how policies might be formulated in the future.

**“We are doing what we do for free and for society. Our work is a public good. It is important to understand what is happening in crisis times and be able to make better policy decisions.”**

**Dr. Álvaro Ortiz, Head of Big Data Analysis at BBVA Research<sup>18</sup>**

<sup>18</sup> Information in this case study was gathered and confirmed in an interview with Dr. Álvaro Ortiz, Head of Big Data Analysis at BBVA Research.



## Using card transaction data for macroeconomic and urban economics insights – BBVA

Private-sector initiatives have proven particularly helpful in getting nowcasting off the ground in its early days. Over the past few years, BBVA Research has used its databases of card transactions to develop and publish proprietary analyses—for example, on the [impact of COVID-19 on consumption](#). The publicly available indices, along with [customizable infographics](#), are based on aggregated and anonymized data from millions of transactions carried out with BBVA cards or registered in BBVA's PoSs. In 2021, BBVA Research added an [index to measure investments by firms and households](#) and more recently they have added the remaining payment means (e.g., cash, money transfers) to complete consumption measures. The development and applications of these innovative indicators have been already presented at conferences organized by important institutions including the Bank of England, the Federal Reserve, the European Central Bank, the Bank of Canada, and the OECD. The BBVA team has recently participated in consultation meetings organized by the U.S. Academy of Sciences with national and top world experts in a project to improve the U.S. Official Statistics.

In its work, BBVA Research counts on a number of qualities that differentiate payments data. The real-time nature of digital payments bridges the time-lag characteristic of traditional statistics based on surveys—a huge advantage in uncertain times and a particularly important feature in countries where the time lag of official statistics is greater. Payments data is also available in “high-definition”, making it possible to determine macroeconomic changes in particular sectors and geographies (regions and cities down to suburbs and streets). Finally, payments data reflects actual behavior, rather than intended or reported actions in surveys. The distinction is relevant when analyzing spending in certain sectors: there is a high likelihood of survey respondents not declaring they spent on luxury items or gambling, for instance, which can skew the data. However, card data does not conceal these actions.

BBVA Research is also spearheading a number of payments data innovations in the urban socioeconomic field. It is currently working on a joint project with the MIT-Media Lab to measure lifestyles and their impact on sustainability. This project will reinforce previous work by BBVA on socioeconomic and urban trends, such as the [Urban Lens](#) project which predicted socioeconomic indices using card transactions. Researchers were able to [quantify the distinctive signature of each region](#) by capturing indicators, such as amount and type of spending, type of individual, and individual mobility. In parallel, BBVA created [Urban Discovery](#)—a publicly available tool that analyzes the commercial activity of Madrid, Barcelona, and Mexico City. This project was also based on card transactions and redraws the borders of the cities—identifying areas where tourists like to visit, locals like to dine, or young people like to shop.

**“Governments tend to look at the economy and implement policies in terms of the ‘average representative individual’. But it is important to differentiate spending by income, regions, gender... Policy Makers will start realizing that the devil is in the detail and high-definition information opens the door for the design of smart policies.”**

**Dr. Álvaro Ortiz, Head of Big Data Analysis at BBVA Research**



## 5. What comes next?

### Ensuring global interoperability across data silos and jurisdictions

Harmonized approaches to data governance practices and policies create a more transparent and easier-to-navigate business environment, playing an important role in economic growth and innovation. In the absence of cross-border data flows policy, the patchwork of national systems with diverging requirements disproportionately affects organizations that rely on data and makes data insights less informative.

The pandemic emphasized the need for international umbrella data-sharing agreements. As recently discussed in an OECD Global Science Forum workshop, the responsible, fair, and timely sharing of data is an essential element of the Open Science approach that the world needs to effectively combat pandemics like COVID-19 and other complex crises. Progress must be pursued to develop robust and globally interoperable standards. When the world faces its next crisis, both governments and industry will likely need to react and respond swiftly and this will depend to a large extent on efficient and secure data exchanges and flows.



## Strengthening open data and data-sharing frameworks

Systematic technology-based innovations for the public good cannot be created by policymakers and government entities alone. Public administrations should consider fostering a collaborative ecosystem and increase the amount of reliable, comprehensive, documented, and insightful sets of data feeding into the ecosystem.



Examples are already emerging. Transport for **London** makes data about its network, including the Tube, Docklands Light Railway, London Overground, buses, TfL Rail and tram, and cycle hire, available through APIs, downloads, and feeds. Businesses, academics, and developers partner with TfL and use this data to create new commercial and non-commercial products and services for customers. Open data from TfL contributes USD116mn (GBP90mn) to USD168mn (GBP130mn) to the economy each year. Meanwhile, the Open Mobility Data in the Nordics project—a collaboration between players in the Nordic public transport industry—aims to lower developer barriers and transform the region into a “living lab” for innovative mobility services.

Open-access frameworks that allow the secure sharing of data, including more sensitive financial and payments data, could spur innovation and contribute to the prosperity of society. To make this happen, the development and adoption of open data standards needs to be ramped up considerably.



In **Australia**, for example, the federal, state, and territorial governments agreed on secure protocols. **Singapore**, which wants its public service to be “data-driven to the core”, established already in 2018 their Public Sector Governance Framework, clarifying the situations in which agencies can and should share data. **Brazil**, one of the co-founders of the Open Government Partnership, established in 2016 an Open Data Policy aiming to build a culture of collaboration and information exchange between society and all levels of government. As more data formats are opened up to wider use and more technologies advance beyond API into blockchain and cloud data warehouses, clear rules on access, sharing, and use of data will become more important than ever.

## Combining datasets for powerful synergies

Combining data from multiple sources is challenging but holds enormous potential. When data assets interact with each other, they create synergies. And synergies generate greater benefits than the sum of the individual assets involved. Data linkage enables “super-additive” insights, leading to increasing returns.



The public sector too can reap huge benefits from combining different datasets. The Bank of England explains how real-time payments and transaction data can be more readily combined with other forms of data to build a “richer and truer picture of the borrower’s ability to repay.” In tourism, for example, great potential lies in combining the irreplaceable data provided of tourism operators (e.g., hotel bookings) with non-tourism data (e.g., data generated by mobile technologies or financial transactions). One type should not replace—but complement—the other.

## Putting citizens at the heart of data-driven decision-making

Individuals increasingly expect personalization and real-time service in every aspect of their lives. This also applies to their interactions with the public sector. Government services based on data are evolving in two directions. First, governments are using data to analyze drivers, outcomes, and potential obstacles in citizen's interactions with authorities, enabling them to spot unmet needs and service gaps. Second, the public sector leverages data insights in the same way many private companies do—to nudge citizens toward certain behaviors, such as paying their taxes and renewing documentation.

The ability to anticipate citizens' needs and expectations depends on personal data being shared consensually, collected responsibly, and stored safely; in other words, it is crucial to balance the need for consumer privacy with the demand for personalization. Private sector actors own aggregated, anonymized data—though depersonalized, this data reveals trends and insights that can shape society-wide policies. Even more granular data can be shared directly by citizens. The COVID-19 pandemic triggered an urgent need for citizens to voluntarily share data such as personal details, current location, immunization, or infection status. But even in normal times, attitudes to data sharing are changing. Already in 2019, one-third of EU survey respondents were willing to share basic personal data such as date of birth, citizenship, or home address with private companies. As always, the caveat is that such data exchanges must take place within the right guardrails—and on consumers' own terms.







# 6. Takeaways: Enablers for usage of payments data in the public sector

Data and the ability to draw insights from it are critical to the public sector. However, many benefits of data and analytics can only be realized by sharing it and collaborating with others. This underscores the importance of several enablers that must be put in place by the public authorities.

## 01

### Safeguarding data

Data privacy and security are arguably the most important issues facing governments as they begin working with data. The accelerated transition to hybrid and remote working resulting from the COVID-19 pandemic has led to greater reliance on digital services and incentivized organized crime groups toward cybercrimes. In England and Wales, there were 1.8mn computer misuse offenses in the year ending June 2021—an 85 percent increase compared with the year ending June 2019, largely driven by a 161 percent increase in “unauthorized access to personal information (including hacking)” offenses. In order to avoid unacceptable levels of personal and financial risk, it is critical for national public administrations to develop standards and protocols on software security, data access rules, and permission structures.

The escalating privacy and security concerns—particularly when that data is personal—are justified and highlight the need for a solid framework for protection. Importantly, the public sector must ensure that citizens understand when their data is collected and shared, can explicitly provide or revoke consent, and have confidence in the safety and ethical use of their data. An independent report from the UK Government’s Centre for Data Ethics and Innovation portrays both the opportunities and the risks clearly: that data needs to be shared to drive improvements in service delivery and benefit citizens and for this to happen sustainably and effectively, public trust in the way data is shared and used is vital. And without such trust, the government and wider public sector risks losing society’s consent, setting back innovation as well as the efficiency of public services.

## 02

### Fostering innovation

Innovation that is grounded in data has the potential to improve many sectors in the economy and the lives of even more citizens. It falls to public administrations to manage the available data and use it to support innovation for the benefit of society. But current policies and incentives for the private sector to share data mean this is easier said than done. A comparative analysis conducted by the OECD revealed that few countries have policy initiatives to facilitate data sharing within the private sector, and between government and the private sector.

There are four main steps that can be taken here. One, governments should be on the lookout for valuable data—sourcing it as appropriate and combining it with complementary data types. Two, given that data is only as good as what it is used for, the information should be analyzed and used in decision-making. Three, data should be shared consensually and to the mutual benefit of both citizens and the private sector. And four, feedback loops and collaboration should foster the innovation ecosystem. Once public data pools are created, governments are under the imperative to create the right incentives for private companies to contribute to strengthening the ecosystem. This will require a balanced approach, by building public confidence in new technologies, whilst supporting innovation and competitiveness.

Policymakers and the private sector should work together to build an ecosystem in which the potentially transformational benefits of a more open data economy can be realized. This economy must be one in which consumers are protected and empowered to engage with data-sharing, and in which the commercial value of data is understood for its potential to drive further innovation.



## 03

### Bridging the capability and skill gap

Using data at the government level often requires investments in physical infrastructure, legal framework, and talent availability. In 2020, the United Nations Statistics Division conducted a global assessment of institutional readiness for the use of data in official statistics, and found that legal frameworks are still insufficient to regulate big data applications. More than half of public sector leaders in the U.K. believe that their organization's data is stored on infrastructure that is not fit for purpose, according to a study commissioned by NetApp. A number of countries around the globe report a technology skills shortage with data scientists, engineers, and analysts among the most in-demand skill sets, especially evident in the public sector. Only 35 percent of public sector organizations in Europe have an organization-wide program for digital skills development, according to an IDC study.

There is a great incentive for the public sector to take the lead on closing this skill gap. Partnering with universities and education providers to encourage citizens into these careers is an obvious first step. Beyond this, governments could also focus on enablement inside the workforce and creative new ways to recruit, retain, and train a workforce with the critical technology skills. In cooperation with industry and academia, the public sector also has the chance to act as a role model and promoter of diversity in the IT and data workforce. Diverse thoughts and experiences that guard against biases are essential in developing data applications that serve not just selected segments of the population, but society as a whole.

## 04

### Develop public-private partnerships

Countries that digitalize their processes and systems can only become truly technologically savvy if they can harness the power of data they produce. To achieve this, governments need a data layer—comprising different sources of internal and external data—that is supported by strong governance, security protocols, and robust management. One potential source of external data lies with private companies, which possess a wealth of data on citizen behavior and innovative tools to get insights from this data. The public sector can benefit from the capabilities and the experience of the private sector in using data for commercial purposes. Skill transfer to the public sector can be particularly beneficial in the current environment, where governments are under pressure to juggle multiple priorities and reduce headcounts, and where technology talent is scarce and expensive.

The ecosystem of trust required to earn the public mandate for the uptake and usage of new digital technologies at scale can only be created through collaboration between industry and policymakers. This will require a balanced approach, by building public confidence in new technologies, whilst supporting innovation and global competitiveness.

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### **About Visa**

Visa Inc. is a global payments technology company that connects consumers, businesses, financial institutions, and governments in more than 200 countries and territories to fast, secure, and reliable digital payments.

At Visa Government Solutions, our mission is to help governments as they seek to advance their economies. We seek to make public disbursement programs more inclusive and impactful; help government employees execute payments in their daily roles more conveniently and with greater transparency; simplify government revenue collection for payers through better customer experience and provide payment data insight and measurement to governments to help inform and shape their policies.

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Kearney is a leading global management consulting firm with more than 4,200 people working in more than 40 countries. We work with more than three-quarters of the Fortune Global 500, as well as with the most influential governmental and non-profit organizations. Driven to be the difference between a big idea and making it happen, we help our clients break through with curiosity, boldness, generosity, solidarity, passion, and genuine commitment to client success.

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