

CROSS-BORDER DATA FLOWS

The movement of data across borders is essential to the global economy. But what exactly are cross-border data flows and how do they affect you?

“Cross-border data flows” refer to the movement or transfer of information between servers across country borders. Data needs to be able to move freely so that no matter where you are, you have access to the information and services you need. Everyone from individuals to large corporations relies on transferring data.

Data moving across borders is critical for the services that sustain global commerce, improve health and safety, promote social good, and enable the technologies of the future.

Sustaining Global Commerce

Sustaining E-Commerce

For nearly every kind of global e-commerce, vendors must maintain and transfer personal and commercial data across borders to keep track of their customers’ orders and product supplies. Many online retailers rely upon third-party retailers to sell their products, and therefore must maintain and move both customer and vendor data.

- » Zalando is the largest European e-commerce platform, selling clothing and accessories from more than 1,500 retailers. Based in Berlin, the company is able to serve 20 million customers in 15 EU countries through a network of connected warehouses located in France, Germany, Italy, and Poland.
- » Lazada, Southeast Asia’s most popular online shopping platform, operates local-language online retail stores in Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. Lazada used Salesforce Sales Cloud to rapidly expand its product range by streamlining the vendor registration process, reducing the sign up and on-boarding time from 60 days to 10 days.

Data flows accounted for **\$2.8 trillion of global GDP in 2014** and “cross-border data flows now generate more economic value than traditional flows of traded goods,” according to a recent McKinsey report.

Building Global Business

Businesses that operate globally — such as hotels, car manufacturers, freight and logistics enterprises and restaurant chains — benefit from data analytics that allow them to reach more customers, improve customer experiences and work more efficiently. Businesses must pool large amounts of data from their centers around the world to accomplish these goals.

- » Global shipping giant Maersk is creating solutions to digitize global trade, including a collaboration with IBM on blockchain to build trust and transparency in global supply chains while boosting efficiency. The solution will help manage and track the paper trail for tens of millions of shipping containers across the world by digitizing the supply chain process from end-to-end, ensuring transparency and the highly secure sharing of information among trading partners. When adopted at scale, the solution has the potential to save the industry billions of dollars.

Enhancing Cybersecurity

For multinational companies, the ability to collect and holistically analyze data across an entire organization is essential to robust cybersecurity; similarly, such analysis underpins cybersecurity for major global service providers, like email service providers. Often, preventing cyberattacks requires not only internal analysis, but also collaboration with other private- and public-sector stakeholders.

➔ A World Bank study of six developing countries and the EU-28 found that requirements restricting data flows “can reduce GDP by up to 1.7 percent, investments up to 4.2 percent, and exports by 1.7 percent.”

- » Storing data in only local servers does not bolster cybersecurity: centrally stored information is much less secure than information distributed across large infrastructures because it increases the likelihood that unauthorized third parties could breach these data “honeypots” with maximum adverse consequences. Distributing data storage — like with global cloud computing — compartmentalizes data sets, ensuring that a breach in one location is contained and does not give access to the entirety of any data set. European Commission Vice President Andrus Ansip advocates against data localization in Europe, often likening it to the act of hiding money under a mattress instead of trusting a bank.
- » Cross-border data flows also enable certain cybersecurity features, allowing for companies to reduce network latency and maintain redundancy for critical data. For example, according to the Centre for Economics and Foreign Policy Studies: “Insurance companies usually cite the need to back up beneficiaries’ personal data in a secondary location abroad to ensure efficient processing of data and the physical protection of the data.”
- » When a suspicious activity or file is detected, Trend Micro, a cybersecurity company with operations in more than 50 countries, automatically searches for a match in its global database of emerging threats, often blocking the spread of a new attack. Any delay in uploading threat incident information to Trend Micro’s network due to regional data restrictions could expose customers in that region to new threats spreading from other parts of the world, reducing information privacy and security for those customers.
- » Cummins, a worldwide leader in manufacturing power systems, uses cloud-based Oracle human resource management software to hire, track and conduct performance management for a workforce of more than 30,000 people spread across 50 different companies. As an example of the complexity of Cummins’ HR challenges, the company asked 1,800 senior leaders in more than 40 countries to appraise the potential of more than 5,000 middle- and upper-management employees. This process depends on organizing and sharing employee personal and performance data across global offices. By using a cloud-based solution, Cummins sped the process from several months to a few weeks.

Detecting Fraud

Detecting credit card fraud at the point of sale offers one of the clearest examples of the benefits of cross-border data flows. No matter where you are in the world, your bank’s computer back home can analyze your purchase and location in a matter of seconds when you swipe your credit card. Based on that analysis, the system can allow the purchase, or flag it as likely fraud and stop it.

- » Credit card systems also transfer data to detect online or “card-not-present” credit card fraud anywhere in the world. As a result, companies like CA Risk Analytics Network can detect and block online fraud attempts in five seconds on average. They estimate their system can help reduce losses due to online fraudsters by 25 percent or \$2.2 billion.

Keeping People Safe and Healthy

Enhancing 21st Century Medical Care

Cross-border transfers of personal data allow hospitals and other care facilities to use clinical support software. The software analyzes electronic health records, health insurance claims and data sets to help caregivers improve effectiveness of medical treatments and reduce risks.

- » **Clinical Assistance.** Analytical software is used to track and analyze patient outcomes, create medical images and predictive outcome analysis so surgeons and clinicians understand the data, and support decisions on where specialists are needed. The software also allows digitized medical images to be shared with non-local

Bolstering Human Resource Management

The ability to transfer data across borders has broad ramifications for human resource management. Global companies manage offices and employees at multiple locations around the world, employees and contractors are increasingly able to work remotely from any location and companies recruit from an increasingly global talent pool. To manage employees at multiple global offices, companies must transfer employees’ personal data across international boundaries.

specialists for consultations anywhere in the world, improving the quality of medical advice for patients.

- » **Predictive Modeling.** Personal health data is used to help predict future patient behaviors and thus initiate preventive steps. One example: automated reminders for patients that analysis suggests may forget to refill medication.
- » **Risk Stratification.** Medical errors account for roughly 98,000 deaths a year in the United States, and large-scale analysis of personal health data has helped hospitals develop risk stratifications to guide certain procedures in order to reduce the risk of medical error.

Healthcare analytics firms are increasingly global in nature, and many offer cloud-based services. Cross-border data flows enable global operations of such analytics. Data flows also help create more accurate analytics by increasing the size and diversity of samples.

Groundbreaking Medical Research

Personal health data has helped researchers identify links among diseases and between health issues and genetics, and identify relationships between lifestyle factors and the incidence of certain diseases.

- » Analytics improve when researchers have access to medical data from around the world. JASON, a group of independent scientists advising the US Department of Health and Human Services, cites that several genetic populations in the United States and elsewhere in the world are too small to provide adequate sample sizes individually, and are more telling when studied together.
- » Cross-border data sharing means studies can compare cultural factors, legal and policy frameworks and geographic variables. For example, CONCORD-2 is a worldwide comparative study of factors affecting cancer survival, analyzing data from more than 270 cancer registries across 61 countries. The study examines global differences in cancer survival rates and the key factors underlying these differences in order to inform national and international policies for cancer control.
- » Fullerton Health operates more than 180 medical clinics in Australia, China, Hong Kong, Indonesia, Malaysia and Singapore, and works with more than 25,000 companies to provide quality healthcare solutions to eight million people in the region. Fullerton Health uses Microsoft cloud solutions to integrate healthcare delivery across its medical network and enable its staff to communicate across regions and work more effectively. They can quickly and securely access shared documents, patient notes and care plans from any device, regardless of their physical location.

Identifying Pandemic and Environmental Health Challenges

Analyzing personal health data can help health officials identify pandemic outbreaks early and monitor contagion patterns, leading to earlier and more effective interventions. It can also help officials identify, characterize and respond to environmental health concerns, such as spikes in ozone levels that increase cardiac arrest risks. This would not be possible without cross-border data flows.

Promoting Social Good

Responding to Disasters

Effective responses to natural disasters — which affect hundreds of millions of people globally each year — largely depend upon responders' ability to locate, reach and care for affected civilians. In recent years many public and private efforts have sought to leverage data analytics, including analyzing personal information, to assist in disaster response and recovery.

- » Researchers put real-time analysis of mobile phone patterns into practice in the wake of the 2015 earthquake in Nepal, which revealed national mobility patterns and return rates that are extremely difficult or impossible to acquire using other methods. Humanitarian agencies use mobility patterns to decide where to direct aid, and low return rates to identify areas where recovery and reconstruction work may not be progressing well.

Fighting Child Trafficking

Sharing information across borders can help law enforcement around the world focus their resources more effectively and identify trafficking victims quickly.

- » Project VIC is a collaborative effort among the International Center for Missing and Exploited Children, industry and law enforcement. The project uses image hashing software to analyze seized content collections and identify new victims of trafficking faster. Using this software, law enforcement agencies can quickly eliminate around 85 percent of content and focus on the remaining 15 percent that has not already been classified.

Making a Difference in Developing Countries

Global nonprofit organizations with the mission of improving conditions in developing countries rely on IT solutions that require unimpeded cross-border data flows to help people in emerging countries. Much of the important work of these large organizations requires monitoring, tracking, information dissemination and outreach to improve conditions for millions.



According to a recent report from the World Economic Forum, “The free flow of data... allows the sharing of ideas and information and the dissemination of knowledge as well as collaboration and cross-pollination among individuals and companies. Internet-enabled innovation requires an environment that encourages individuals to experiment with new uses of the internet. In places with severe restrictions that inhibit digital collaboration, people are less likely to experiment and, as a result, innovation is less likely to emerge.”

- » Adobe helps intergovernmental organizations power their global external websites, mobile applications, social media channels and provides the world with timely information, enabling them to serve their clients and partners around the world. The tools also help these organizations show global transparency of their operations to demonstrate openness and accountability.

Microlending

Microlending is not only a \$70 billion industry involving more than 10,000 microfinance institutions, it is also one of the more successful and widespread approaches to helping individuals achieve sustainable livelihoods in developing nations, serving more than 150 million people worldwide. Increasingly, microfinance institutions find that IT lets them provide more successful loans, achieve greater repayment rates, and thus lower interest rates for applicants.

- » Kiva Microfunds has moved to a crowd-sourcing platform that allows lenders from around the world to choose which loan applicants to fund, broadening their base of lenders and allowing each lender to make individual risk calculations. This platform is enabled by the ability to share personal data from loan applications with trusted lenders globally.

Enabling the Technologies of the Future

Fostering Data Analytics, Artificial Intelligence and Blockchain

The world is increasingly more connected through sharing data with the emergence of artificial intelligence (AI) and blockchain. Data must be free to move across borders to continue the growth of the global economy and foster innovation.

- » Data analytics examine large amounts of data to uncover hidden patterns, correlations and new insights. This enables businesses to stay competitive by making smarter decisions and operating more efficiently,

leading to higher profits and happier customers. Companies must be able to collect data from across regions to achieve a complete picture of their operations.

- » Virtually all AI systems at their core assist in analyzing data to find connections that improve the quality and accuracy of human decision-making. AI solutions are already transforming important sectors of the economy and society and, in doing so, are providing concrete, tangible benefits for both people and enterprises. AI systems use computational analysis of data to uncover patterns and draw inferences. This data may originate from many sources located in multiple jurisdictions, making it imperative that data can move freely across borders. Rules that limit cross-border data transfers invariably limit the insights and other benefits that AI systems can provide.
- » Blockchain is a distributed ledger that is used to maintain a constantly expanding list of transactions in an efficient, secure, transparent and lasting way. The technology can help companies conduct business across international borders, speeding and simplifying cross-border payments.



The software we rely upon depends on the rapid and seamless movement of data across borders. Cross-border data flows are important for all types of data, from personal to non-personal. Cloud computing services and data analytics dramatically improve the efficiency and competitiveness of businesses large and small, and help make the world a safer, healthier place.