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DIGITAL GLOBALIZATION: THE NEW ERA OF GLOBAL FLOWS

MARCH 2016

EXECUTIVE SUMMARY

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CELEBRATING 25 YEARS OF INSIGHT

25

MCKINSEY GLOBAL INSTITUTE

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MGI research combines the disciplines of economics and management, employing the analytical tools of economics with the insights of business leaders. Our "micro-to-macro" methodology examines microeconomic industry trends to better understand the broad macroeconomic forces affecting business strategy and public policy. MGI's in-depth reports have covered more than 20 countries and 30 industries. Current research focuses on six themes: productivity and growth, natural resources, labor markets, the evolution of global financial markets, the economic impact of technology and innovation, and urbanization.

Recent reports have assessed global flows; the economies of Brazil, Mexico, Nigeria, and Japan; China's digital transformation; India's path from poverty to empowerment; affordable housing; the effects of global debt; and the economics of tackling obesity.

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DIGITAL GLOBALIZATION: THE NEW ERA OF GLOBAL FLOWS

MARCH 2016

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IN BRIEF

DIGITAL GLOBALIZATION: THE NEW ERA OF GLOBAL FLOWS

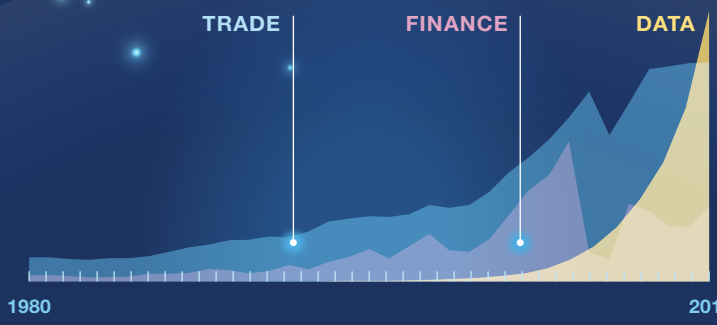
The rapidly growing flows of international trade and finance that characterized the 20th century have flattened or declined since 2008. Yet globalization is not moving into reverse. Instead digital flows are soaring—transmitting information, ideas, and innovation around the world and broadening participation in the global economy.

- The world is more interconnected than ever. For the first time in history, emerging economies are counterparts on more than half of global trade flows, and South-South trade is the fastest-growing type of connection.
- While flows of goods and finance have lost momentum, used cross-border bandwidth has grown 45 times larger since 2005. It is projected to grow by another nine times in the next five years as digital flows of commerce, information, searches, video, communication, and intracompany traffic continue to surge.
- Digital platforms change the economics of doing business across borders, bringing down the cost of international interactions and transactions. They create markets and user communities with global scale, providing businesses with a huge base of potential customers and effective ways to reach them.
- Small businesses worldwide are becoming "micro-multinationals" by using digital platforms such as eBay, Amazon, Facebook, and Alibaba to connect with customers and suppliers in other countries. Even the smallest enterprises can be born global: 86 percent of tech-based startups we surveyed report some type of cross-border activity. The ability of small businesses to reach new markets supports economic growth everywhere.
- Individuals are participating in globalization directly, using digital platforms to learn, find work, showcase their talent, and build personal networks. Some 900 million people have international connections on social media, and 360 million take part in cross-border e-commerce.
- Over a decade, global flows have raised world GDP by at least 10 percent; this value totaled $7.8 trillion in 2014 alone. Data flows now account for a larger share of this impact than global trade in goods. Global flows generate economic growth primarily by raising productivity, and countries benefit from both inflows and outflows.
- The MGI Connectedness Index offers a comprehensive look at how countries participate in inflows and outflows of goods, services, finance, people, and data. Singapore tops the latest rankings, followed by the Netherlands, the United States, and Germany. China has surged from No. 25 to No. 7.
- Although more nations are participating, global flows remain concentrated among a small set of leading countries. The gaps between the leaders and the rest of the world are closing very slowly, but catch-up growth represents a major opportunity for lagging countries. Some economies could grow by 50 percent or more over the long term by accelerating participation.
- Many companies grew more complex and inefficient as they expanded across borders. But digital technologies can tame complexity and create leaner models for going global. This is a moment for companies to rethink their organizational structures, products, assets, and competitors.

Countries cannot afford to shut themselves off from global flows, but narrow export strategies miss the real value of globalization: the flow of ideas, talent, and inputs that spur innovation and productivity. Digital globalization makes policy choices even more complex. Value chains are shifting, new hubs are emerging, and economic activity is being transformed. This transition creates new openings for countries to carve out profitable roles in the global economy. Those opportunities will favor locations that build the infrastructure, institutions, and business environments that their companies and citizens need to participate fully.

The new era of digital globalization

Global flows of trade and finance are flattening, while data flows are soaring



45X
growth in data flows 2005–2014

Digital technologies are changing how business is done across borders and broadening participation

Large multinationals

Attain truly global scale with new markets and suppliers

New strategies for products, assets, organization

SMEs

Use digital platforms to find customers and suppliers abroad

50M on Facebook, 10M on Alibaba, 2M on Amazon

Startups

>80% of tech-based startups are "born global"

Foreign customers, financing, suppliers from day one

Individuals

New ways to work, learn, and communicate across borders

>900M have international connections on social media

Global flows increase economic growth

10%
Increase in world GDP, worth $7.8T in 2014

$2.8T
GDP increase from data flows, larger impact than goods trade

~50%
Potential GDP boost for some countries by increasing participation in global flows

EXECUTIVE SUMMARY

Somewhere in Kenya, a girl logs on for a personalized math lesson from California-based Khan Academy. Thousands of Syrian refugees rely on Facebook updates for the latest information to guide their journey through Europe. A multinational energy giant launches plans to use sensors on 4,000 oil wells around the world to monitor production remotely. A manufacturer in Australia buys components from a Chinese supplier on Alibaba, and a clinical trial in India transmits patient data to US pharmaceutical researchers.

The world has become more intricately connected than ever before. Back in 1990, the total value of global flows of goods, services, and finance amounted to $5 trillion, or 24 percent of world GDP. There were some 435 million international tourist arrivals, and the public Internet was in its infancy. Fast forward to 2014: some $30 trillion worth of goods, services, and finance, equivalent to 39 percent of GDP, was exchanged across the world's borders. International tourist arrivals soared above 1.1 billion. And the Internet is now a global network instantly connecting billions of people and countless companies around the world.

Flows of physical goods and finance were the hallmarks of the 20th-century global economy, but today those flows have flattened or declined. Twenty-first-century globalization is increasingly defined by flows of data and information. This phenomenon now underpins virtually all cross-border transactions within traditional flows while simultaneously transmitting a valuable stream of ideas and innovation around the world.[1]

The shift to a more digital form of globalization changes who is participating, how business is done across borders, and where the economic benefits are flowing.

Digitization changes the economics of globalization in several ways. As digital platforms become global in scope, they are driving down the cost of cross-border communications and transactions, allowing businesses to connect with customers and suppliers in any country. Globalization was once for large multinational corporations, but platforms reduce the minimum scale needed to go global, enabling small business and entrepreneurs around the world to participate. As a result, new types of competitors can emerge rapidly from any corner of the world, increasing pressure on industry incumbents.

More than ever before, companies and countries cannot afford to ignore the opportunities beyond their own borders. Our econometric research indicates that global flows of goods, foreign direct investment, and data have increased current global GDP by roughly 10 percent compared to what would have occurred in a world without any flows. This value was equivalent to $7.8 trillion in 2014 alone. Data flows account for $2.8 trillion of this effect, exerting a larger impact on growth than traditional goods flows. This is a remarkable development given that the world's trade networks have developed over centuries but cross-border data flows were nascent just 15 years ago.

[1] This research builds on the 2014 McKinsey Global Institute report *Global flows in a digital age: How trade, finance, people, and data connect the world economy*.

Global flows support growth by raising productivity and creating more efficient markets with truly global scale. But not all countries are making the most of this potential. Our updated MGI Connectedness Index ranks countries on inflows and outflows of goods, services, finance, people, and data. Advanced economies are still the most globally connected. Although more developing countries are deepening their participation, they are narrowing the gap with the leading advanced economies only very slowly over time.

Accelerating catch-up growth is a major opportunity for the developing world. Our 2014 report showed that countries in the center of trade networks derive more benefit from goods flows than countries with few connections. But our new research shows that data flows offer stronger economic benefits to countries on the periphery of the world's digital networks.

The new age of digital globalization also poses challenges. Companies can enter new markets, but they are exposed to pricing pressures, aggressive global competitors, and disruptive digital business models. Data has to be protected against cybercrime. Students can educate themselves online from anywhere on earth, but their view into other societies can heighten their impatience with bleak job prospects at home. Social media creates global communities but also allows networks of extremists to connect. It will take more international coordination to deal with many of these issues. Today's version of globalization is vastly more complex and fast-paced, but connectedness can be a path to growth.

A NEW ERA OF DIGITAL GLOBALIZATION HAS BEGUN

The world has never been more deeply connected by commerce, communication, and travel than it is today. But the pattern of globalization is shifting. Trade was once dominated by tangible goods and was largely confined to advanced economies and their large multinational companies. Today global data flows are surging, and digital platforms allow more countries and smaller enterprises to participate. This shift has far-reaching implications.

Soaring cross-border data flows now generate more economic value than traditional flows of traded goods.

After a 20-year period of growing roughly twice as fast as the world economy, global flows of goods, services, and finance hit roughly $30 trillion in 2007, peaking at 53 percent of global GDP. But this rapid expansion has stopped in its tracks. Growth in global goods trade has flattened, financial flows have fallen sharply, and trade in services has posted only modest growth. These flows have finally regained their pre-recession levels in terms of dollar value, but they are now just 39 percent of world GDP (Exhibit E1).

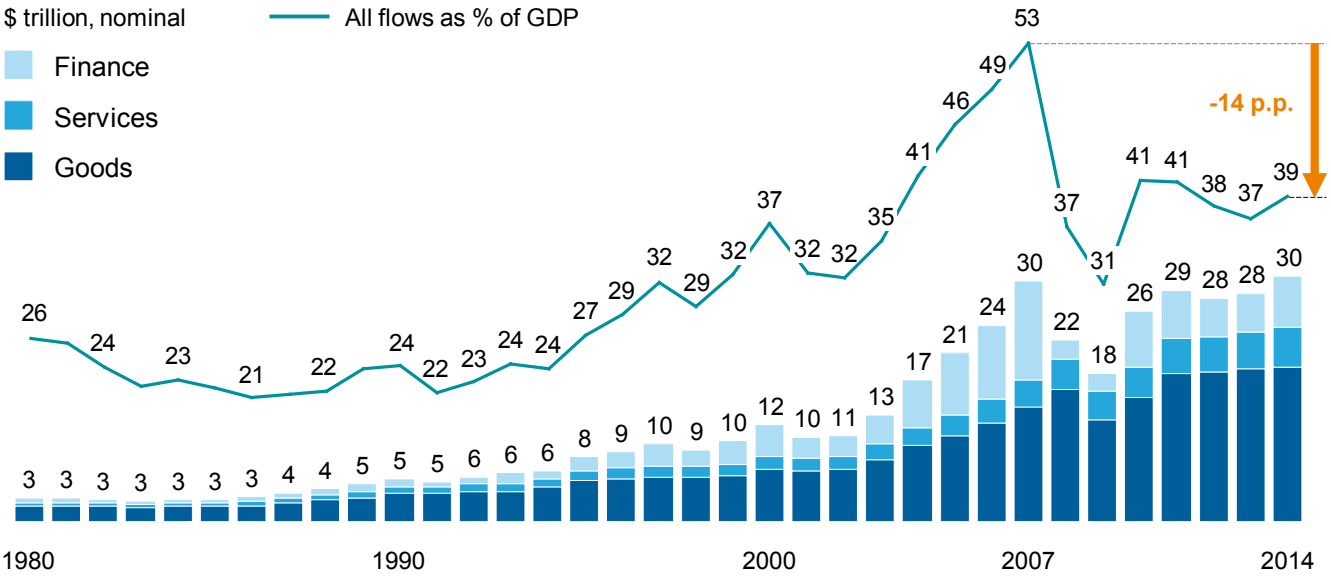
Many observers point to this trend as evidence that globalization has stopped.[2] We have a different view: globalization has instead entered a new era defined by data flows that transmit information, ideas, and innovation. Digital platforms create more efficient and transparent global markets in which far-flung buyers and sellers find each other with a few clicks. The near-zero marginal costs of digital communications and transactions open new possibilities for conducting business across borders on a massive scale.

[2] See, for example, David Smick, "Could globalization crack up?" *International Economy*, fall 2012; Joshua Cooper Ramo, "Globalism goes backward," *Fortune*, November 20, 2012; and Jeffrey Rothfeder, "The great unraveling of globalization," *Washington Post*, April 24, 2015.

Exhibit E1

After 20 years of rapid growth, traditional flows of goods, services, and finance have declined relative to GDP

Flows of goods, services, and finance, 1980–2014



SOURCE: UNCTAD; IMF Balance of Payments; World Bank; McKinsey Global Institute analysis

Traditional flows of goods, services, and finance have flattened

For two decades, the world's trade in goods (including commodities, finished goods, and intermediate inputs) grew roughly twice as fast as global GDP as major multinationals expanded their supply chains and established new bases of production in countries with low-cost labor. Global trade in goods soared from 13.8 percent of world GDP in 1986 to 26.6 percent in 2008 on the eve of the Great Recession. After a sharp decline and short-lived rebound, however, the goods trade has been growing more slowly than world GDP in recent years, puzzling economists and business leaders alike. Some of this decline is cyclical. Our analysis suggests that weak demand and plummeting prices for commodities account for nearly three-quarters of the decline in trade.

But trade in both finished and intermediate manufactured goods has also declined, thanks to several structural forces. The makers of many finished goods are beginning to place less importance on labor costs and more on speed to market and non-labor costs. As a result, some production is moving closer to end consumers. Trade is also declining for many intermediate goods such as chemicals, paper, textile fabrics, and communications and electrical equipment. This suggests that global value chains may be shortening, at least in part because of the cost of managing complex, lengthy supply chains.

In the decade ahead, the global goods trade may continue to decline relative to world GDP. At a minimum, it is unlikely to resume rapid growth. Not only are factor costs changing, but 3D printing and other technologies also have the potential to transform how—and where—goods such as electronics, vehicle parts, other transportation equipment, machinery and electrical equipment, medical instruments, and apparel are produced.

Cross-border financial flows—which include lending, foreign direct investment (FDI), and purchases of equities and bonds—link together national financial markets, connecting borrowers and savers from different countries. They grew from $0.5 trillion in 1980 (4.1 percent of global GDP) to $11.9 trillion in 2007 (20.7 percent of global GDP). But 2007 proved to be the height of a global credit bubble. Since then financial flows have fallen to less

than half their previous value ($5.2 trillion in 2014); they are only one-third as high relative to global GDP.[3] A decline in cross-border lending accounts for the majority of the overall drop in financial flows and may reflect a return to long-term trend. But other types of portfolio investment and FDI have also fallen, raising concerns about financing for emerging markets.

Accelerating flows of data and information are changing the dynamics of globalization

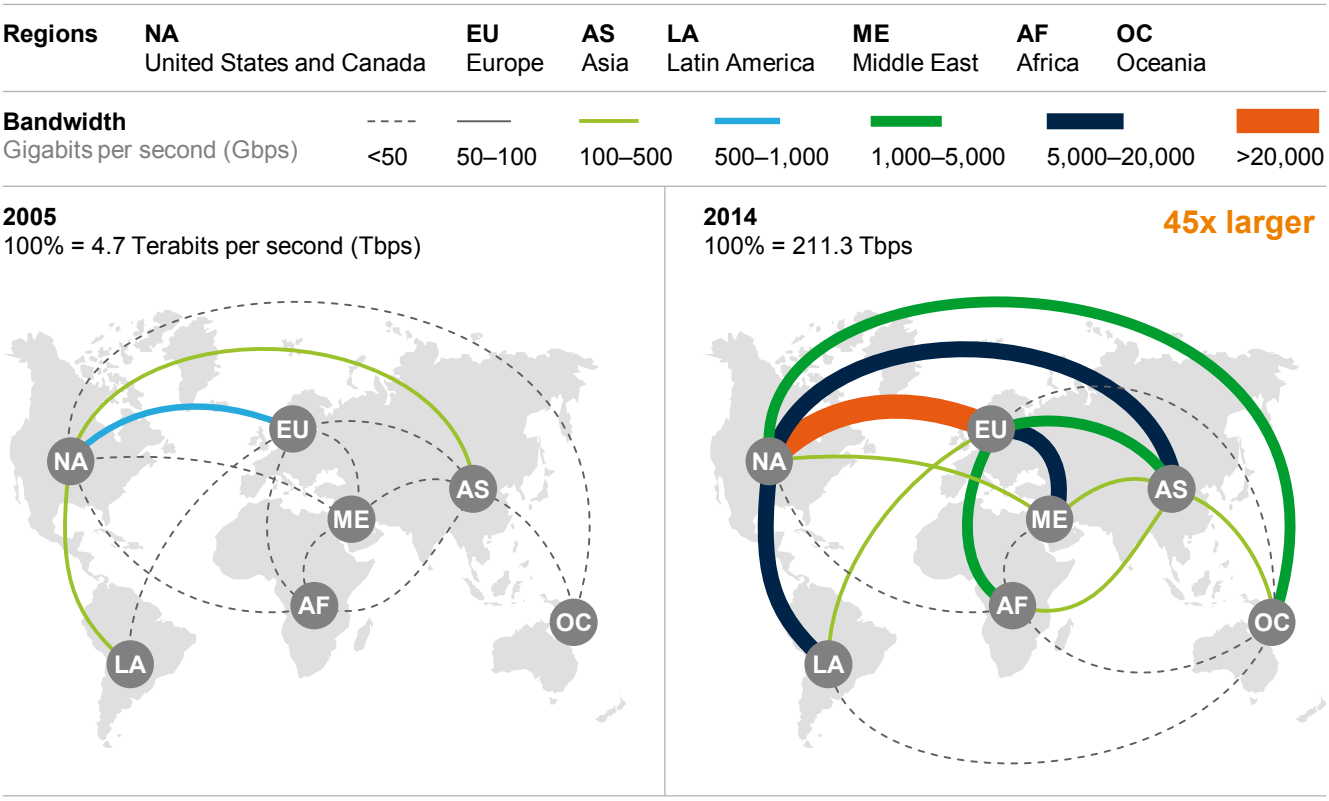
While global flows of trade and finance have lost momentum, the volume of data being transmitted across borders has surged, creating an intricate web that connects countries, companies, and individuals (Exhibits E2 and E3).[4]

Global flows of data primarily consist of information, searches, communications, transactions, video, and intracompany traffic. They underpin and enable virtually every other kind of cross-border flow. Container ships still move products to markets around the world, but now customers order them online, track their movement using RFID codes, and pay for them via digital transactions. Although videos use a majority of Internet bandwidth, the Internet of Things and other business applications are gaining importance. Indeed, Cisco estimates that machine-to-machine connections will account for more than 40 percent of global devices and connections by 2019.[5]

Exhibit E2

Cross-border data flows are surging and connecting more countries

Used cross-border bandwidth



NOTE: Lines represent interregional bandwidth (e.g., between Europe and North America) but exclude intraregional cross-border bandwidth (e.g., connecting European nations with one another).

SOURCE: TeleGeography, Global Internet Geography; McKinsey Global Institute analysis

[3] *Financial globalization: Retreat or reset?* McKinsey Global Institute, March 2013.
[4] To measure these flows, we track used cross-border bandwidth, which is highly correlated with Internet traffic.
[5] Cisco Visual Networking Index: Forecast and methodology, 2014–2019, Cisco, May 2015.

Exhibit E3

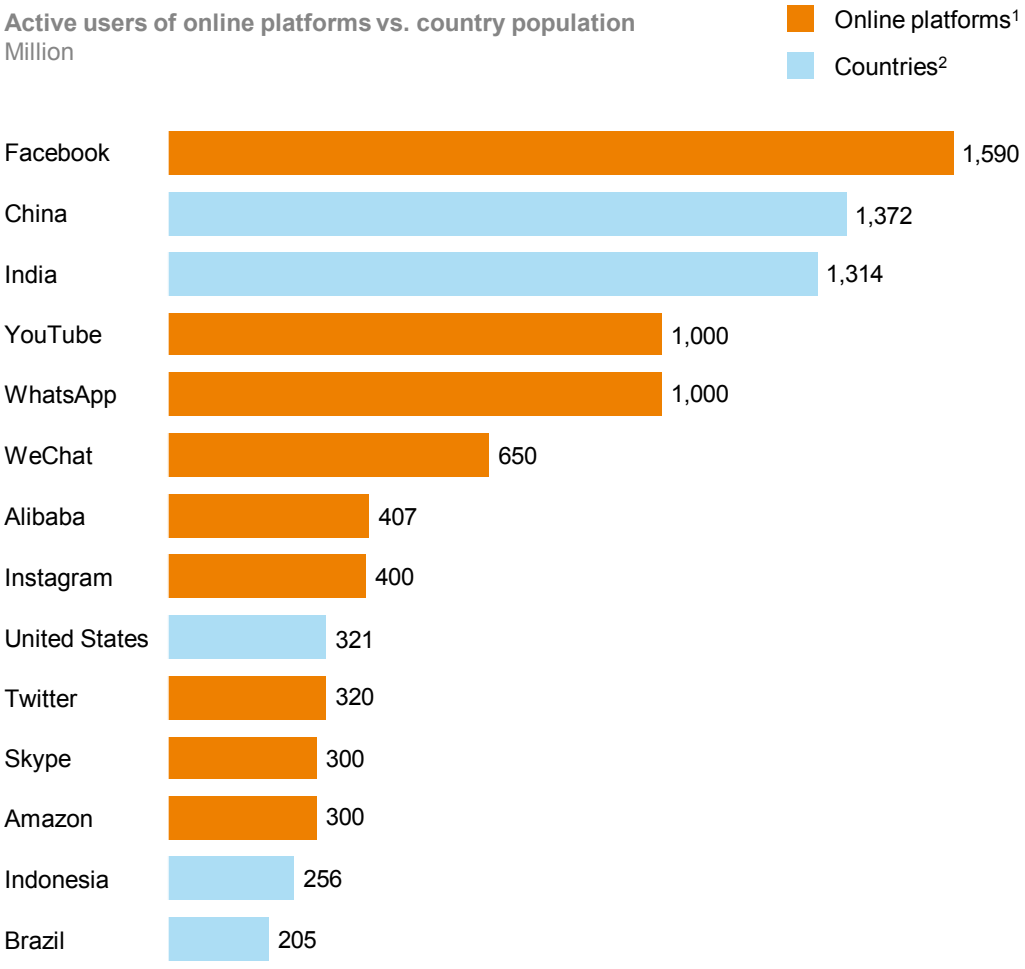
Globalization: Then vs. now

20TH CENTURY	21ST CENTURY
Tangible flows of physical goods	Intangible flows of data and information
Flows mainly between advanced economies	Greater participation by emerging economies
Capital- and labor-intensive flows	More knowledge-intensive flows
Transportation infrastructure is critical for flows	Digital infrastructure becomes equally important
Multinational companies drive flows	Growing role of small enterprises and individuals
Flows mainly of monetized transactions	More exchanges of free content and services
Ideas diffuse slowly across borders	Instant global access to information
Innovation flows from advanced to emerging economies	Innovation flows in both directions

Digital platforms are key to this new era of globalization. Over the past two decades, the largest corporations built their own digital platforms to manage suppliers, connect to customers, and enable internal communication and data sharing for employees around the world. But a diverse set of public Internet platforms has emerged to connect anyone, anywhere. These include operating systems, social networks, digital media platforms, e-commerce websites, and all kinds of online marketplaces. Their use of automation and algorithms drives the marginal costs of adding new interactions practically to zero, allowing the biggest platforms to support hundreds of millions of global users (Exhibit E4). Now users can more easily see details on products, services, prices, and alternative choices. This removes some information asymmetries so that markets function more efficiently, although it can disrupt some intermediaries in the process.

Exhibit E4

The biggest online platforms have user bases on par with the populations of the world's biggest countries



1 4Q15 or latest available.
2 2015 population.

SOURCE: Facebook; Twitter; Alibaba; *Fortune*; Statista; Population Reference Bureau; McKinsey Global Institute analysis

12%
of the global goods trade is e-commerce

Approximately 12 percent of the global goods trade is conducted via international e-commerce, with much of it driven by platforms such as Alibaba, Amazon, eBay, Flipkart, and Rakuten. Beyond e-commerce, digital platforms for both traditional employment and freelance assignments are beginning to create a more global labor market.[6] Some 50 percent of the world's traded services are already digitized.[7]

Digitization also enables instantaneous exchanges of virtual goods. E-books, apps, online games, MP3 music files and streaming services, software, and cloud computing services can all be transmitted to customers anywhere in the world there is an Internet connection. Many major media websites are shifting from building national audiences to global ones; a range of publications, including *The Guardian*, *Vogue*, BBC, and BuzzFeed, attract more than half of their online traffic from foreign countries. By expanding its business model from mailing DVDs to selling subscriptions for online streaming, Netflix has dramatically broadened its international reach to more than 190 countries. While media, music, books, and games represent the first wave of digital trade, 3D printing could eventually expand digital commerce to many more product categories.

Finally, "digital wrappers" are digital add-ons that enable and raise the value of other types of flows. Logistics firms, for example, use sensors, data, and software to track physical shipments, reducing losses in transit and enabling more valuable merchandise to be shipped and insured. Online user-generated reviews and ratings give many individuals the comfort level needed to make cross-border transactions, whether they are buying a consumer product on Amazon or booking a hotel room halfway around the world on Airbnb, Agoda, or TripAdvisor.

DIGITIZATION IS MAKING GLOBAL FLOWS MORE INCLUSIVE

Globalization was once driven almost exclusively by governments, large multinational corporations, and major financial institutions. Today artisans, entrepreneurs, app developers, freelancers, small businesses, and even individuals can participate directly on digital platforms with global reach.

SMEs can be micro-multinationals, and digital startups are born global

Small and medium-sized enterprises (SMEs) worldwide are using the "plug-and-play" infrastructure of Internet platforms to put themselves in front of an enormous global customer base and become exporters. Amazon, for instance, now hosts some two million third-party sellers. In countries around the world, the share of SMEs that export is sharply higher on eBay than among offline businesses of comparable size. PayPal enables cross-border transactions by acting as an intermediary for SMEs and their customers. Participants from emerging economies are senders or receivers in 68 percent of cross-border PayPal transactions. Microenterprises and projects in need of capital can turn to platforms such as Kickstarter, where nearly 3.3 million people representing nearly all countries made pledges in 2014.

Facebook estimates that 50 million SMEs are on its platform, up from 25 million in 2013; on average 30 percent of their fans are from other countries. To put this number in perspective, consider that the World Bank estimated there were 125 million SMEs worldwide in 2010. For small businesses in the developing world, digital platforms are a way to overcome constraints in their local markets. The ability of SMEs to reach global audiences supports economic growth everywhere.

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6 *A labor market that works: Connecting talent with opportunity in the digital age*, McKinsey Global Institute, June 2015.

7 Daniel Castro and Alan McQuinn, *Cross-border data flows enable growth in all industries*, Information Technology and Innovation Foundation, February 2015.

The increasing globalization of small businesses is starting to show up in national statistics. It is most clearly seen in the United States, where the share of exports by large multinational corporations dropped from 84 percent in 1977 to 50 percent in 2013. Among SMEs that export, the smallest (those with fewer than 50 employees) are gaining share the fastest. An analysis of export data for 16 OECD countries shows mixed evidence, with the SME share of total exports growing in ten of the countries.[8]

86%
of surveyed startups report at least one cross-border activity

Even new startups can form global connections and market to international customers from their inception. We surveyed 271 startups worldwide through a partnership with 1776, a global incubator and venture fund. By working with 1776 and its Startup Federation program, we were able to expand the reach of the survey to 19 countries. While these startups represent a more tech-savvy cross-section than the broader universe of entrepreneurs, the results show that even the smallest and youngest enterprises can execute a global vision if their business model is built on digital technologies. A surprising 86 percent of survey respondents pointed to at least one cross-border activity. Almost two-thirds have customers or users in other countries, and almost half reported sourcing talent from other countries.

Individuals can participate directly in globalization, with significant economic impact

Thanks to social media and other Internet platforms, individuals are forming their own cross-border connections. We estimate that 914 million people around the world have at least one international connection on social media, and 361 million participate in cross-border e-commerce (Exhibit E5). These figures are growing rapidly. On Facebook, 50 percent of users now have at least one international friend. This share is even higher—and growing faster—among users in emerging economies.

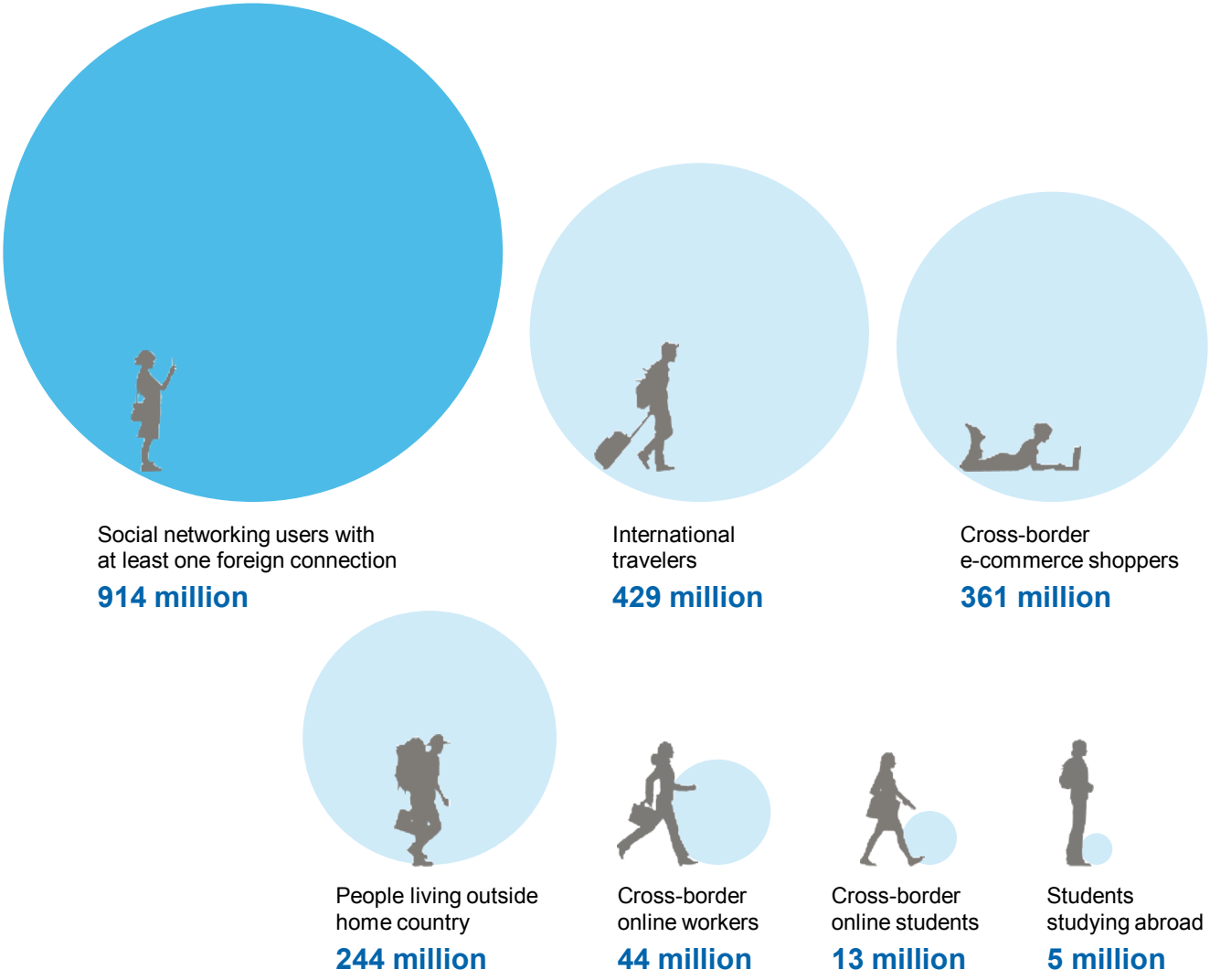
The business and economic implications of individual participation are significant. Digital platforms provide a huge built-in base of potential customers and effective ways to market to them directly. As social media exposes consumers from around the world to what is available, products can go viral on a scale that has never been seen before. In 2015, Adele's song "Hello" racked up 50 million views on YouTube in its first 48 hours, and her album *25* sold a record 3.38 million copies in the United States in its first week alone, more than any other album in history. In 2012, Michelle Obama wore a dress from British online fashion retailer ASOS in a photo that was retweeted 816,000 times and shared more than four million times on Facebook; it instantly sold out.

Digital platforms offer individuals new ways to learn, collaborate, and acquire new skills—and then to showcase their talents to potential employers. Some 44 million people around the world find freelance work on Freelancer.com, Upwork, and other digital platforms; nearly 400 million have posted their professional profiles on LinkedIn. Individuals with creativity and drive can propel themselves onto a global stage in ways that would have been unimaginable in the pre-digital world. A number of previously unknown singers have been discovered after posting videos on YouTube. The Weeknd, spotted on YouTube by Drake, dominated the Billboard charts in 2015 and recently earned an Oscar nomination for best original song.

[8] Some countries where SME share of exports declined were those suffering from a post-crisis credit crunch, such as Portugal.

Exhibit E5

Individuals are participating in globalization, and 914 million have cross-border social media connections



NOTE: Numbers adjusted to account for overlap between platforms and for individuals making multiple international trips in the same year.

SOURCE: Facebook; AliResearch; US Department of Commerce; OECD; World Bank; McKinsey Global Institute analysis

GLOBAL FLOWS DRIVE ECONOMIC GROWTH, BUT COUNTRY PARTICIPATION IS UNEVEN

In this report, we set out to develop more robust estimates of whether global flows contribute to economic growth, using an expanded and improved data set and more sophisticated statistical methods than in our last report on this topic, in 2014.[9] We find even stronger evidence that global flows increase GDP in the long term by raising productivity and that data flows have as much impact as goods trade. But we also find that country participation varies widely, and every type of flow remains dominated by a small group of leading countries. There is enormous value at stake for lagging countries in catching up.

[9] We first test for cointegration in the data and then use an error-correction econometric model. Our data cover 1995–2013 and 97 countries. See the technical appendix for a comprehensive discussion of the econometric model, different statistical tests, and the variables and data used.

Global flows raised world GDP growth by 10 percent, or $7.8 trillion, in 2014 alone

Our econometric analysis finds robust evidence that global flows of goods, FDI, people, and data contribute structurally to economic growth by increasing productivity.[10] It breaks new ground by testing the impact of all types of flows together, both inflows and outflows, and considering how countries are positioned in each web of flows.

Our results indicate that over a decade, global flows have raised world GDP by roughly 10 percent over what would have resulted in a world in without any flows. In 2014 alone, they generated roughly $7.8 trillion in value. Flows of goods and FDI account for about half of this impact, while data flows, the hallmark of 21st-century globalization, account for $2.8 trillion. All types of global flows boost productivity growth, and data flows additionally appear to increase the amount of labor and capital used in the economy.

We also examine how a country's position in the network of flows affects the benefits it receives. Countries in the center of the global network of goods trade benefit more than those at the periphery. The network of cross-border data flows, by contrast, is still rather new and less dense. The United States and Europe are at the center of the world's digital networks, facilitating links to other countries. But we find that countries at the periphery of this digital network stand to gain even more than those at the center. For economies that have been relatively disconnected, the arrival of new digital platforms and cross-border data flows can be transformational.

We find strong evidence that global flows increase GDP over the long term by raising productivity. Both inflows and outflows matter for growth.

Overall, our analysis underscores the value of connectedness—and the benefits are much broader and more nuanced than a simple accounting of net exports can capture. Countries that participate in global flows gain exposure to ideas, research, technologies, talent, and best practices from around the world. The most connected economies can draw on these flows to enhance their own competitiveness, innovation, and efficiency, positioning themselves to take advantage of growth opportunities in global markets. However, countries also need to have supporting institutions and policies in place to realize this potential.

Although more countries are participating, global flows remain concentrated among a relatively small group of leading countries

Today global connections link a larger and more diverse range of countries than ever. For the first time in history, emerging economies are counterparts on more than half of global trade flows, and South-South trade between these countries is the fastest-growing type of connection. The value of traded goods and services plus financial flows exceeded 80 percent of GDP for only 72 countries (mainly developed ones) in 1990; by 2014, that was true for 121 countries. But while more countries are participating in global flows, their level of participation varies widely.

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[10] We include only the FDI component of total financial flows, since those have been shown by other research to be correlated with GDP growth. The impact of other forms of financial flows on growth is mixed. We do not include service flows in our econometric analysis because they are highly correlated with FDI and with goods trade.

The MGI Connectedness Index offers a comprehensive look at how countries participate in inflows and outflows of goods, services, finance, people, and data (Exhibit E6).[11] Our index takes into account the size of each flow for a country relative to its own GDP or population (flow intensity) as well as its share of each total global flow. Combining these measures avoids making large and diversified economies appear closed simply due to the extent of economic activity taking place within their own borders.

Singapore, a small country that punches far above its weight in all types of global flows, tops this year's rankings. It is followed by the Netherlands (one of Europe's main digital hubs), the United States, Germany, Ireland, and the United Kingdom. China's surge is particularly noteworthy; it has climbed from 25th in our previous index to the No. 7 spot.

However, the world is still far from fully globalized. Advanced economies in general remain more connected than developing countries, and the top countries have far higher connectedness scores than the rest of the world Exhibit E7). All types of flows are concentrated among a small set of countries. The top 15 countries in traded goods account for 63 percent of the global total; that share is 62 percent in services and 79 percent in FDI.

We use statistical tests of convergence to see if the gaps between country participation in global flows are closing over time. Our results indicate that lagging countries are catching up to leading countries—but extremely slowly, given that the global flows of leading countries continue to rise. At current trends, cutting the gap in half would take eight years in the goods trade and 13 years in FDI flows. For data flows, we do not see any sign that laggards are catching up to leaders, perhaps reflecting that digitization has a long way to go in all countries and it is a relatively young phenomenon.

Lagging countries could realize tremendous growth potential by accelerating their participation in well-targeted ways. We find that countries in the top quartile increased their flow of goods relative to GDP at an average of 3 percent annually, for example, while goods flows grew at only 1 percent for the bottom quartile. The top-quartile countries increased FDI flows by 5 percent of GDP annually during this period, while those flows shrank by 8 percent annually for countries in the bottom quartile. If countries in the bottom three quartiles had increased participation in flows at the same rate as the top quartile over the past decade, global GDP would be an additional $10 trillion, or 13 percent, higher today. In other words, limited participation in global flows by many countries had a real cost to the world economy. For some individual countries, GDP would be more than 50 percent higher today.

Countries have taken different routes to become more globally connected. Top-ranked Singapore emerged decades ago as Southeast Asia's global shipping hub. It subsequently mapped out an explicit strategy to become a regional hub for finance and services by attracting skilled international talent and establishing incentives and promotional efforts to attract FDI. The Netherlands is a major hub for Europe's data traffic as well as a port for traded goods. Like Ireland, it has created tax and regulatory regimes to attract many subsidiaries, headquarters, and holding companies for multinational corporations. In contrast, the United States and Germany both follow a generalist model with strength across all five flows. The United Kingdom also has broad participation across flows, with a spike in cross-border service and financial flows, a reflection of London's role as a global financial hub.

[11] Several other indexes measure the degree to which countries are connected to global activity, although they use different data and weighting. These include the DHL Global Connectedness Index produced by Pankaj Ghemawat and Steven A. Altman and globalization indexes from Ernst & Young, A. T. Kearney, and the Swiss Economic Institute. See, for example, Pankaj Ghemawat and Steven A. Altman, *Depth Index of Globalization 2013: And the big shift to emerging economies*, IESE Business School, University of Navarra, 2013.

Exhibit E6

MGI Connectedness Index

Country connectedness index and overall flows data, 2014
Rank of participation by flow as measured by flow intensity and share of world total

Connectedness index rank 1–10 11–25 26–50 >50 **Flow intensity** 100+ 70–99 <70

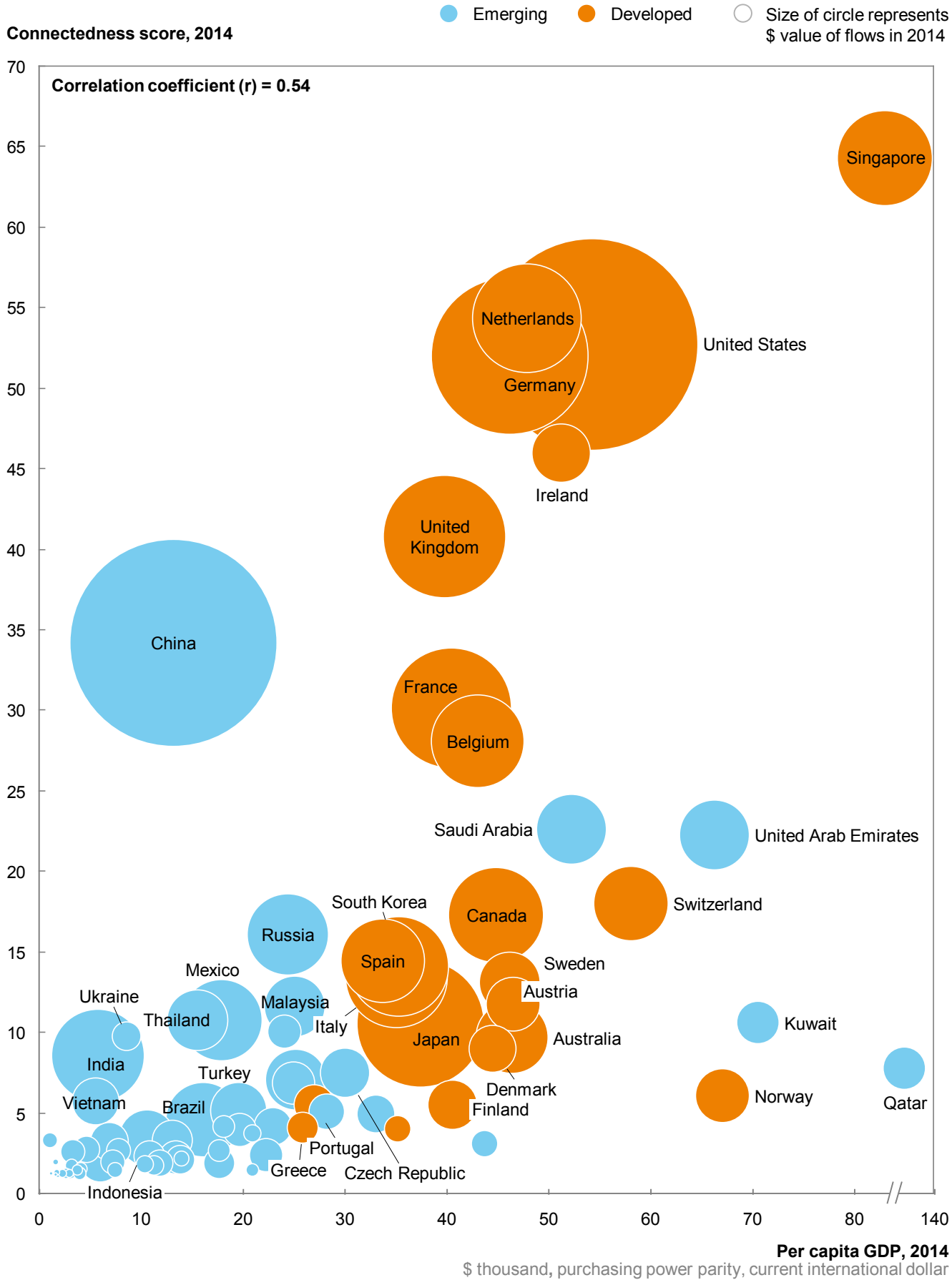
Rank	Country	Score	Connectedness Index rank					Flow value[1] $ billion	Flow intensity[2] % of GDP
			Goods	Services	Finance	People	Data		
1	Singapore	64.2	1	2	2	12	6	1,392	452
2	Netherlands	54.3	3	3	6	21	1	1,834	211
3	United States	52.7	7	7	3	1	7	6,832	39
4	Germany	51.9	2	4	8	3	2	3,798	99
5	Ireland	45.9	32	1	1	28	9	559	227
6	United Kingdom	40.8	13	5	5	6	3	2,336	79
7	China	34.2	4	16	4	82	38	6,480	63
8	France	30.1	11	8	9	7	4	2,262	80
9	Belgium	28.0	5	6	33	33	8	1,313	246
10	Saudi Arabia	22.6	20	28	27	2	53	790	106
11	United Arab Emirates	22.2	6	23	17	4	46	789	196
12	Switzerland	18.0	12	11	10	17	13	848	115
13	Canada	17.3	16	22	11	11	18	1,403	79
14	Russia	16.1	21	25	18	5	25	1,059	57
15	Spain	14.4	25	13	19	14	16	1,105	79
16	Korea	14.0	8	12	28	50	44	1,510	107
17	Italy	13.4	17	18	24	16	19	1,587	74
18	Sweden	13.0	29	14	22	31	5	572	100
19	Austria	11.7	26	17	31	20	12	470	108
20	Malaysia	11.6	9	19	25	26	43	610	187
21	Mexico	10.7	14	63	34	18	41	1,022	80
22	Thailand	10.7	10	15	36	44	64	605	162
23	Kuwait	10.6	37	46	13	13	75	306	153
24	Japan	10.5	15	20	12	81	20	2,498	54
25	Kazakhstan	10.0	48	73	41	8	57	176	83
26	Ukraine	9.8	38	39	87	10	34	133	101
27	Australia	9.7	30	34	21	15	33	825	57
28	Denmark	8.9	35	9	32	41	11	369	108
29	Jordan	8.8	73	50	75	9	83	50	138
30	India	8.5	24	10	35	58	70	1,316	64
32	Czech Republic	7.5	18	33	57	59	15	397	193
34	Poland	7.0	23	31	47	34	22	585	107
35	Hungary	6.8	22	30	26	62	17	287	209
36	Norway	6.0	36	24	20	46	24	458	92
37	Vietnam	5.7	19	54	45	103	61	350	188
39	Finland	5.5	46	27	23	70	10	390	144
40	Portugal	5.5	47	36	30	23	31	255	111
41	Turkey	5.1	28	40	53	38	29	521	65
43	Israel	4.9	51	32	49	24	56	248	82
44	Brazil	4.5	41	38	14	125	30	869	37
45	Chile	4.1	45	58	16	102	27	239	92
47	Greece	4.1	60	29	54	35	42	160	67
48	New Zealand	3.9	67	48	61	25	51	130	63
51	Indonesia	3.4	31	49	38	106	76	504	57
53	South Africa	3.3	34	57	52	64	80	277	79
54	Philippines	3.2	54	41	44	52	67	230	81
64	Morocco	2.6	58	43	74	56	65	104	97
73	Egypt	2.2	68	42	69	73	71	158	55
83	Nigeria	1.9	55	76	48	128	98	268	47
86	Peru	1.8	62	88	51	104	49	122	60
118	Kenya	1.3	100	84	127	119	91	35	58

1 Flows value represents total goods, services, and financial inflows and outflows.
2 Flow intensity represents the total value of goods, services, and financial flows as a share of the country's GDP.

SOURCE: McKinsey Global Institute analysis

Exhibit E7

A small group of leading countries are much more connected than the rest of the world



SOURCE: IMF; McKinsey Global Institute analysis

Although our report mainly assesses the global connectedness of countries, nation-states are not the only lens through which to observe globalization. Cities, regions within countries, and broader blocs of countries are connecting with the global economy in myriad ways and to varying degrees. For instance, our previous report found that the world had only eight truly "global cities" with strong connections in at least four of the five major flows: New York, London, Tokyo, Los Angeles, San Francisco, Singapore, Hong Kong, and Dubai. This year Tokyo drops off the list due to a decline in goods trade, while Shanghai takes its place.

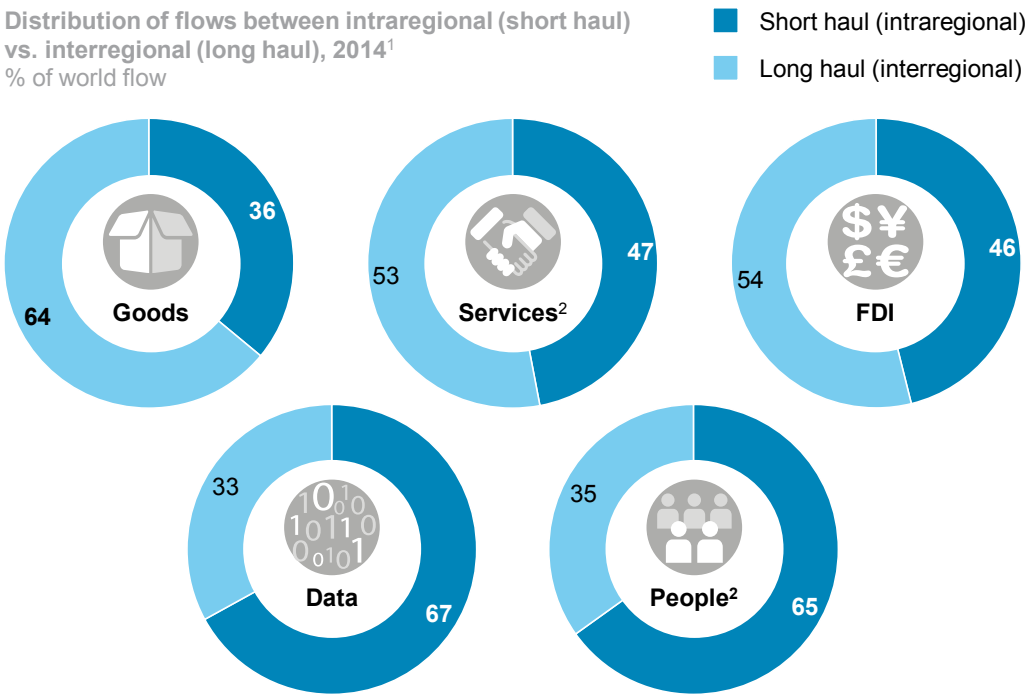
Within countries there can be very different patterns of globalization. In the United Kingdom and Germany, for instance, the variation across regions is modest. China, by contrast, has a handful of highly connected coastal provinces and largely unconnected inland provinces. Some highly connected states and provinces rank as economic powerhouses in their own right: China's booming province of Guangdong would rank sixth globally in terms of goods flows, while California would rank fourth in the world for people flows.

We also look at the patterns of trade among neighbors and trading blocs. Europe is the most integrated region; more than 60 percent of its trade in goods is intraregional. But the corresponding shares are sharply lower in Africa, Latin America, and South Asia. This indicates a significant opportunity for developing countries to increase their participation in flows by trading with their neighbors (Exhibit E8).

Exhibit E8

While much of the world's trade in goods is long distance, roughly half or more of other global flows move within the same region

Distribution of flows between intraregional (short haul) vs. interregional (long haul), 2014[1]
% of world flow



1 For goods, services, FDI, and travelers we have divided the world into 10 regions; for data flows we have used TeleGeography's six regions.
2 Distribution of services flows for 2014 estimated based on 2011 data; 2013 bilateral traveler data used for people flows.
NOTE: Numbers may not sum due to rounding.

SOURCE: UNCTAD; UN World Tourism Organization; TeleGeography, Global Internet Geography; IMF; McKinsey Global Institute analysis

COMPANIES MAY NEED TO REINVENT THEMSELVES TO WIN IN A DIGITAL GLOBAL MARKETPLACE

The new era of digital globalization offers unprecedented opportunities for companies to achieve both global scale and efficiency, but it also calls for reevaluating existing strategies, business models, and operations. Business leaders in all industries should consider the following issues:

- **Do your footprint and organizational structure make sense in a more digital world?** As companies expanded across borders, many encountered a "globalization penalty" due to the costs of rising complexity.[12] But now digital technologies allow companies to globalize in a leaner way. Digital tools for remote collaboration and instant communication mean that it is possible to centralize some global functions, such as back-office operations or R&D; to create virtual global teams that span borders; or even to forgo having one global headquarters location. Digitization is also enabling business models that are less capital-intensive. Rather than establishing a large physical presence in many countries, some companies focus local offices on sales and marketing only. Those that deliver digital goods and services can enter new international markets without establishing a physical presence at all.

- **Should you offer one brand and one product line around the world, or customize for local markets?** In some industries, product tailoring is driven by local regulatory requirements or language differences. In others, companies that sell into many global markets have expanded their product portfolios to appeal to local consumer preferences and price points. But others take a different approach: offering products that are the same everywhere in the world. Apple, for instance, offers just three models of its iPhone and iPad, all with consistent design and branding wherever they are sold. Facebook, Uber, and Airbnb have simply scaled up their digital platforms in country after country with limited customization. Many global automakers are attempting to strike a balance by whittling down the number of platforms used across their international manufacturing operations (that is, using fewer underlying designs that can be customized by swapping certain components to create differentiated models). The media and consumer technology industries are shifting to simultaneous global product launches, since consumers around the world can see instantaneously what is offered in other countries.

- **Do you have the right suppliers and customer channels?** Digital tools can orchestrate a multitude of vendors around the globe with greater precision and efficiency. But even as technology enables more complex global value chains, the importance of different factor costs is shifting. Until relatively recently, many companies were willing to fully outsource manufacturing and other functions to locations with low-cost labor. Today many are reevaluating those decisions and giving greater weight to energy prices, distance to market, infrastructure, ease of doing business, and risk. According to a recent UPS survey, approximately one-third of high-tech companies are moving manufacturing or assembly closer to end-user markets; this number is up by 25 percentage points from 2010.[13] As China's labor costs rise and the country moves into higher-value-added industries, more of the world's manufacturing business is up for grabs. Businesses will have to consider whether their suppliers and customer channels should change.

[12] Martin Dewhurst, Jonathan Harris, and Suzanne Heywood, "Understanding your 'globalization penalty,'" *McKinsey Quarterly*, July 2011.

[13] *Change in the (supply) chain*, United Parcel Service, 2015.

- **Do you have the right assets to compete digitally and globally?** Building digital platforms, online customer relationships, and data centers may be critical for a growing range of companies, far beyond the Internet giants. GE, for example, is transforming its core manufacturing capabilities to establish itself as a leader in Internet of Things technology. Businesses in all industries need to take a fresh look at their assets, including customer relationships and market data, and consider whether there are new ways to monetize them. Alibaba has a vast pool of transactional data on the vendors that operate on its platform, and it has built on it to move into new areas such as mobile payments and small business financing. The insurance industry could similarly harness its sophisticated data pools on different forms of risk to create new products and services.

- **Are you ready for a new era of digitally accelerated global competition?** Competition is intensifying and product cycles are shortening due to the confluence of three trends. First, emerging-market giants are going global. Many of them are aggressive, deep-pocketed, and able to operate with different time horizons and financial targets. By 2025, MGI estimates that companies headquartered in emerging markets will make up 45 percent of the global Fortune 500, up from 26 percent today.[14] Second, tech companies are expanding into new industries. Some of the truly disruptive players are siphoning value out of industries and giving it away for free to consumers as a way to build their positions. Finally, the largest Internet platforms allow millions of SMEs and startups to go head-to-head with incumbents. These new forms of competition have unleashed pricing pressures and industry disruptions. The Internet and international competition have cut into the window of exclusivity companies once enjoyed on new products and services; "copycat" versions can be launched in new markets even before the originator has time to scale up. It is more important than ever to stay alert to new competitive threats.

- **Are you prepared for new risks?** As the world grows more dependent on information systems, the private sector is also becoming more vulnerable to cyberattacks. It is difficult to stay ahead of increasingly sophisticated hackers, but companies can prioritize their information assets, test continuously, and work with frontline employees to emphasize basic protective measures. If a breach does occur, a decisive and forthright response from marketing, public affairs, and customer service functions can be critical to restoring customer trust.[15] Maintaining data security has to be a top priority for CEOs in every industry.

POLICY MAKERS FACE A NEW WORLD OF CHALLENGES

Countries cannot afford to shut themselves off from global flows, given the value at stake in raising productivity and long-term GDP growth. Pursuing this opportunity requires a new policy agenda that includes the issues outlined below.

- **Thinking strategically about the role your country can play.** Policy makers should carefully consider how to build on their country's comparative advantages. Many countries are trying to develop the next Silicon Valley, but innovation is notoriously difficult to orchestrate. Meanwhile, developing nations may face a shrinking opportunity to become low-cost manufacturers for the world as automation advances. But other opportunities exist. Some countries can build on their geographic proximity to major consumer markets, as Mexico and Eastern Europe have done. Others may develop a successful niche as global transit hubs, as Dubai has done in transportation and trade flows. Other countries have targeted a particular flow or industry to cultivate,

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[14] See *Playing to win: The new global competition for corporate profits*, McKinsey Global Institute, September 2015, and *Urban world: The shifting global business landscape*, McKinsey Global Institute, October 2013.

[15] *Risk and responsibility in a hyperconnected world: Implications for enterprises*, McKinsey & Company and the World Economic Forum, January 2014.

perhaps building on pools of talent within their borders (as India has done with business process outsourcing).

- **Addressing policy and administrative barriers that hinder global flows.** Pursuing bilateral and multilateral trade partnerships is the cornerstone of a more open approach. Another important step is removing import tariffs, quotas, and subsidies for national industries, all of which can introduce distortions. Other types of legal and administrative barriers also have to be dismantled to make the most of global flows; these may include limitations on foreign business ownership and investment, import licensing, regulatory requirements that deviate from international norms, and limits on immigration. The Association of South East Asian Nations (ASEAN), for instance, has largely eliminated import tariffs among its ten member states, but its ongoing effort to build a seamless trading bloc involves harmonizing product standards, certification procedures, customs requirements, and cross-border regulations covering traded services and the movement of labor.[16]

- **Addressing dislocations.** Even though their net global effect is ultimately positive, global flows can cause job losses and displacement in the short run. Governments have to consider these trade-offs and open to global flows at a pace their economies and societies can absorb. Few countries have adequately supported the workers and communities affected by exposure to international competition and disruptive business models. But these workers will need a clearer path to new roles—and the societal cost of neglecting this issue grows over time. It will take a much more proactive response to ensure that labor markets and training systems can deal with rapid change.

- **Investing in human capital.** The Internet can promote inclusiveness, but only if education and training systems provide language fluency, basic digital literacy, and other skills so that individuals can take advantage of the opportunities. Investment in human capital development will be a critical determinant of which nations come out on top.

- **Building the necessary infrastructure and closing the digital divide.** Even in a more digital world, roads, ports, airports, and rail remain vital as the conduits of trade and mobility. But today any list of infrastructure priorities also has to include universal, affordable Internet access. At the end of 2015, 57 percent of the world's population, or four billion people, remained offline, and only 15 percent had access to broadband.[17] The value of connecting these people is significant. Our own econometric analysis shows that countries with higher Internet penetration reap up to 25 percent more benefit from cross-border data flows than those with limited Internet penetration.

- **Creating a strong business and institutional environment.** A recent World Bank report finds that in many developing countries, the economic benefits of digital technologies have been limited by a lack of strong fundamentals such as education and good governance.[18] To capture the full growth potential of digital globalization, countries need to cultivate a healthy business environment that nurtures startups, allows inefficient firms to exit, ensures a level playing field, and establishes a solid legal framework for intellectual property and property rights.

- **Protecting data privacy while maintaining an open Internet.** Many countries have enacted or are considering limitations on what kind of data can be transmitted across borders; this may include requirements that companies use servers physically located

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[16] *Southeast Asia at the crossroads: Three paths to prosperity*, McKinsey Global Institute, November 2014.

[17] *The state of broadband 2015*, International Telecommunication Union and UNESCO, September 2015. For more on policy approaches to addressing this issue, see *Offline and falling behind: Barriers to Internet adoption*, McKinsey Technology, Media and Telecom Practice, September 2014.

[18] *World development report 2016: Digital dividends*, World Bank, January 2016.

within their borders to process and store data generated there. As we went to press, for example, the future of the "safe harbor" agreement governing data transfers between the European Union and the United States remained uncertain. Legitimate privacy concerns need to be addressed through thoughtful frameworks, but data localization and fragmented regulation may have real economic costs.[19]

- **Making cybersecurity a top priority.** One study has estimated that cybercrime costs the global economy some $400 billion in annual losses through consumer data breaches, financial crimes, market manipulation, and theft of intellectual property.[20] Hackers may also pose public safety and even national security risks. While companies are often at the forefront of ensuring cybersecurity, governments can invest in research, share information, model good security practices, and craft thoughtful rules. Governments will need to work closely with their global counterparts and with the business community to stay on top of new threats and share technology solutions. Regulators may need to mandate standards for securing consumer data, and public agencies need to safeguard their own assets.

•••

Many of the challenges associated with digitizing economic activity are now playing out on a global scale. Even measuring digital globalization in statistics has become a more complex undertaking, since much of the value being generated winds up as consumer surplus. Our analysis provides strong evidence of the economic value of openness—and it shows that both inflows and outflows matter, as they expose an economy to ideas, research, technologies, talent, and best practices from around the world. For countries that have been slow to participate, the opportunities for catch-up growth are too substantial to ignore.

[19] Matthias Bauer et al., *The costs of data localization: Friendly fire on economic recovery*, ECIPE occasional paper number 3/2014, May 2014, analyzes recently proposed or enacted data localization rules in seven economies. It found that these rules would lower GDP in all seven cases, with Vietnam (-1.7 percent), China (-1.1 percent), and Indonesia (-0.5 percent) poised for the largest losses.

[20] *Net losses: Estimating the global cost of cybercrime*, Center for Strategic and International Studies and McAfee, June 2014.

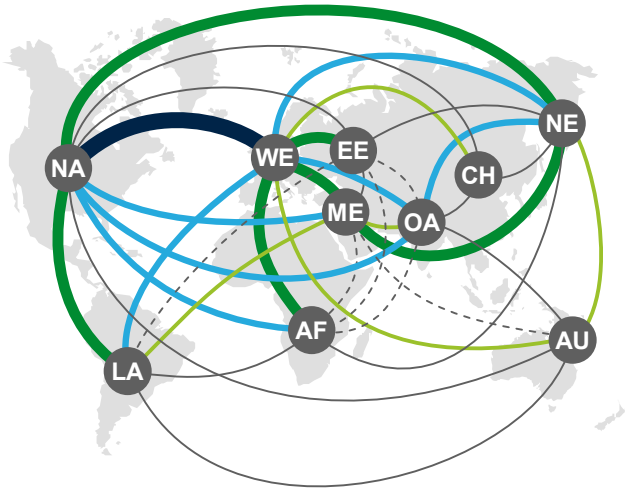
GOODS FLOWS

% of global GDP

0.02–0.05	0.05–0.10	0.10–0.25	0.25–0.50	0.50–1.00	>1.00

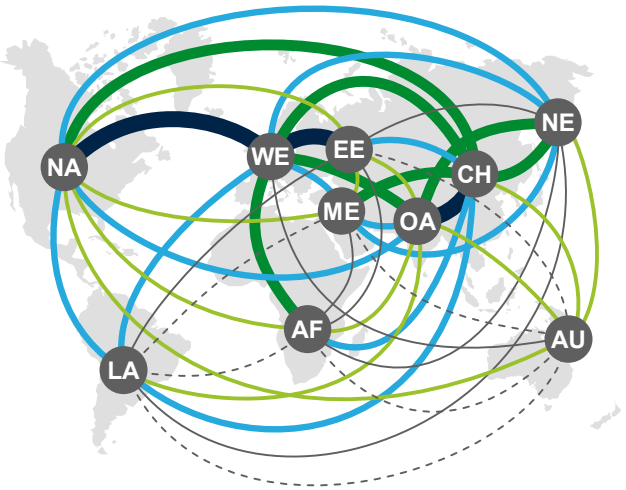
NA United States and Canada	**LA** Latin America	**ME** Middle East	**AF** Africa	**WE** Western Europe	**EE** Eastern Europe and Central Asia	**CH** China region	**NE** Northeast Asia	**AU** Australasia	**OA** Other Asia

1980
100% = $1.8 trillion (18.6% of GDP)



2014
100% = $19 trillion (24.6% of GDP)

10.5x larger



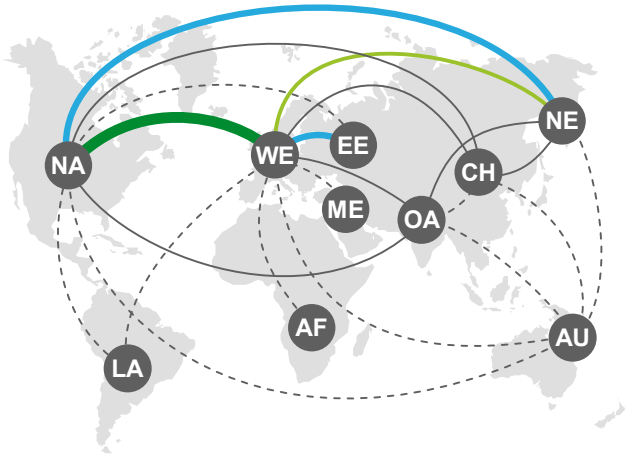
SERVICES FLOWS

% of global GDP

0.01–0.05	0.05–0.10	0.10–0.25	0.25–0.50	>0.50

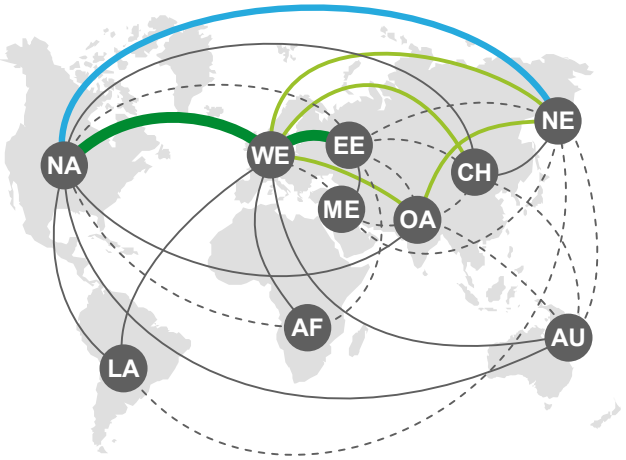
NA United States. Canada, and Mexico	**LA** Latin America	**ME** Middle East	**AF** Africa	**WE** Western Europe	**EE** Eastern Europe and Central Asia	**CH** China region	**NE** Northeast Asia	**AU** Austral-asia	**OA** Other Asia

2002
100% = $1.6 trillion (4.9% of GDP)



2014[1]
100% = $4.9 trillion (6.4% of GDP)

3.1x larger



1 Estimated from 2011 bilateral services flows data and 2014 services trade data from UNCTAD.
NOTE: For cross-border data flows, see Exhibit E2.

SOURCE: UNCTAD; McKinsey Global Institute analysis

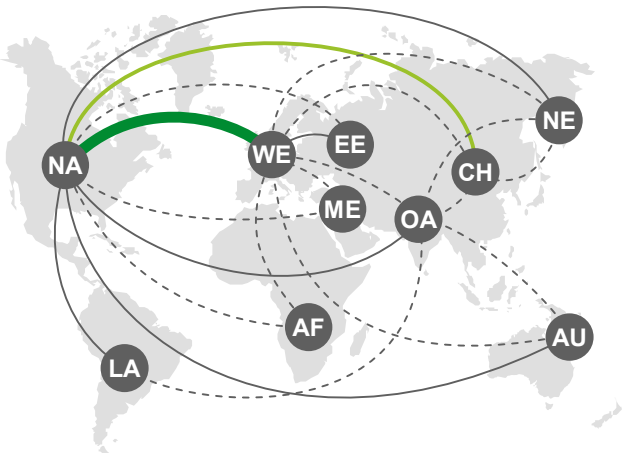
FINANCIAL FLOWS (FDI)[1]

% of global GDP

0.02–0.05 | 0.05–0.10 | 0.10–0.25 | 0.25–0.50 | 0.50–1.00

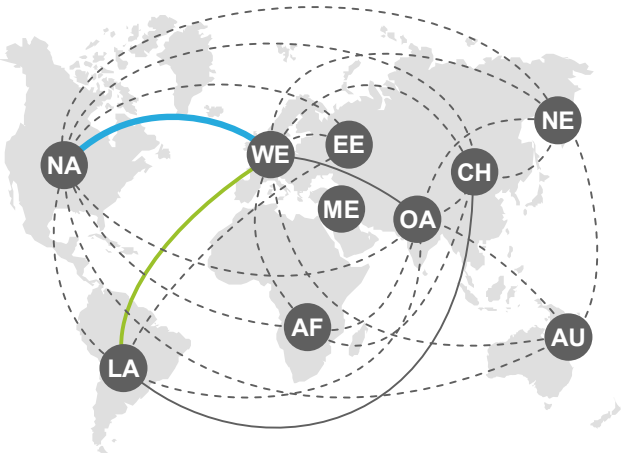
NA United States, Canada, and Mexico
LA Latin America
ME Middle East
AF Africa
WE Western Europe
EE Eastern Europe and Central Asia
CH China region
NE Northeast Asia
AU Austral-asia
OA Other Asia

2002
100% = $0.7 trillion (2.1% of GDP)



2014
100% = $1.65 trillion (2.1% of GDP)

2.3x larger



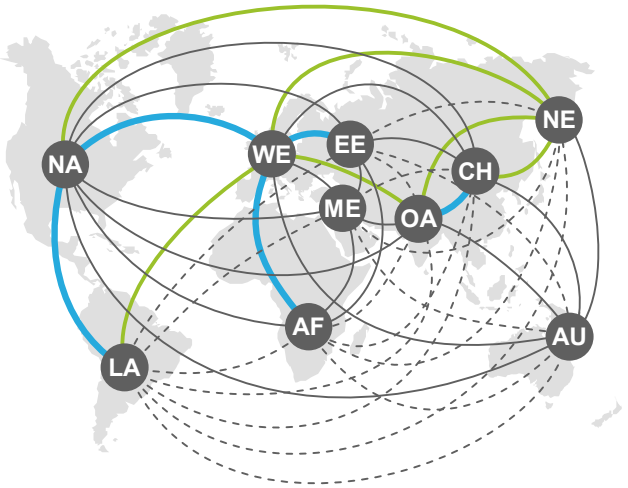
PEOPLE FLOWS

Million cross-border travelers

<1 | 1–5 | 5–10 | 10–50 | >50

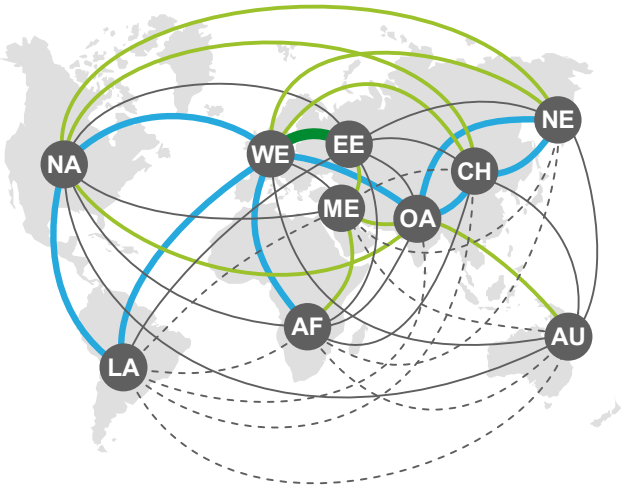
NA United States and Canada
LA Latin America
ME Middle East
AF Africa
WE Western Europe
EE Eastern Europe and Central Asia
CH China region
NE Northeast Asia
AU Australasia
OA Other Asia

2002
100% = 650 million



2013
100% = 1.03 billion

1.6x larger



1 Estimated from bilateral FDI stock data.
NOTE: For cross-border data flows, see Exhibit E2.

SOURCE: IMF CDIS; UN World Tourism Organization; McKinsey Global Institute analysis

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