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THE IMPORTANCE OF THE INTERNET AND TRANSATLANTIC DATA FLOWS FOR U.S. AND EU TRADE AND INVESTMENT

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Global Economy
and Development
at BROOKINGS

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CONTENTS

LIST OF FIGURES AND MAPS

THE IMPORTANCE OF THE INTERNET AND TRANSATLANTIC DATA FLOWS FOR U.S. AND EU TRADE AND INVESTMENT

Joshua P. Meltzer

EXECUTIVE SUMMARY

- The most globally significant bilateral trade and investment relationship is between the U.S. and the EU. An increasing amount of this economic relationship is underpinned by cross-border flows of data. Cross-border data flows between the U.S. and Europe are the highest in the world—50 percent higher than data flows between the U.S. and Asia and almost double the data flows between the U.S. and Latin America.

- Access to the Internet and the ability to move data freely across borders increases the productivity of businesses and reduces trade costs, thereby creating economic growth and jobs. This is providing new opportunities for small and medium-sized enterprises to participate in the global economy. Consumers are also benefiting as they are able to access new and innovative services.

- Cross-border data flows are a form of international trade. For instance, a range of services can now be purchased and delivered online to anyone with Internet access—so-called digitally deliverable services. This includes services such as finance, consulting, software and royalties for intellectual property use. Studies find that increasing Internet access leads to increased international trade.

- U.S. exports globally of digitally deliverable services in 2012 were $383.7 billion and imports were $233.6 billion. This represented 61 percent of total U.S. services exports and 53 percent of services imports. EU exports of digitally deliverable services in 2012 were $465 billion and imports were $297 billion.

- In 2012, the U.S. exported $140.6 billion worth of digitally deliverable services to the EU and imported $86.3 billion worth. U.S. exports of digitally deliverable services to the EU comprise 72 percent of bilateral services exports, compared with 55 percent of exports to Asia and to Latin America.

- Digitally deliverable services such as consulting, engineering, design and finance are also inputs into the production of other goods and services. And where these products are exported, so are

the digitally deliverable services used in their production. Taking into account the value of digitally deliverable services in goods and services exports increases U.S. exports of digitally deliverable services to the world from $383.7 billion to $569.2 billion in 2012, equivalent to 32 percent of total U.S. exports. For the EU, exports of digitally deliverable services to the world increase from $465 billion to $748.8 billion, representing 24.8 percent of total EU exports.

- Digitally deliverable services imports from the EU are used to produce U.S. goods and services for export, and this is also true of EU imports of digitally deliverable services from the U.S. In 2009, $11.2 billion—or 62 percent—worth of digitally deliverable services from the EU were used in the production of U.S. exports. For the EU, $22.3 billion—or 53 percent—worth of digitally deliverable services imported from the U.S. were incorporated into EU exports.

- There are other cross-border data flows that are not recorded in international trade statistics but are important sources of economic growth and enablers of international trade. For instance, businesses rely on cross-border data flows to communicate internally and with customers and suppliers, to manage global supply chains, access software in the cloud and collaborate globally in research and development.

- Digitally deliverable services are also delivered through affiliates of U.S. companies located in Europe and affiliates of European companies in the U.S. In 2011, the supply of digitally deliverable services through U.S. affiliates in Europe was worth $312 billion and Europe supplied $215 billion worth of digitally deliverable services through U.S. affiliates.

INTRODUCTION

The Internet and the free movement of data globally is an important and growing driver of economic growth, jobs and welfare. This growth happens as the Internet increases productivity and reduces trade costs, which also stimulates trade. The United States International Trade Commission (ITC) estimates that digital trade has increased U.S. GDP by 3.4 to 4.8 percent and created up to 2.4 million jobs.[1] The gains could be even higher if countries reduced their barriers to digital trade. Consumers also benefit as they are able to access new and innovative services. Access to the Internet and the ability to move data freely across borders increases the productivity of businesses and reduces trade costs, thereby creating economic growth and jobs. This is providing new opportunities for small and medium-sized enterprises to participate in the global economy. Consumers are also benefiting as they are able to access new and innovative services.

The Internet and cross-border data flows are providing opportunities for small and medium-sized enterprises (SMEs) to participate in the global economy.[2] SMEs can now use the Internet to reach customers globally wherever they have Internet access, process international payments, and, for a range of digital products, deliver them online. For instance, SMEs on eBay are almost as likely to export as large businesses, have a 54 percent survival rate compared with offline businesses (24 percent), and over 80 percent of these businesses export to five or more countries.[3]

The Internet is also giving SMEs access to business services that can increase their productivity and global competitiveness. Such access includes functions like Google search, which helps businesses develop market intelligence on competitors and learn about foreign laws and regulations. The cloud provides access to low-cost software on demand and data flows allow for regular updates and security patches. One report estimates that software has accounted for over 15.4 percent of all U.S. labor productivity gains since 2004.[4] The Internet also provides opportunities for businesses to become part of global supply chains by providing discrete tasks, and this opportunity is being seized by SME services firms.[5]

In addition, businesses are increasingly using the Internet in innovative ways. For instance, the Internet has given companies the ability to harness the intelligence of users by interacting with customers, suppliers and other stakeholders in product development efforts. Crowdsourcing is another evolving Internet-based opportunity that allows people situated globally to contribute tasks or become co-creators.[6] All of these new business models require data and information to move freely across borders.

This paper focuses on the importance of the Internet and transatlantic data flows for U.S. and EU trade and investment. Whether the U.S. and the EU are able to take full advantage of the opportunities for international trade and investment presented by their increasingly online and digital populations will affect transatlantic economic relations. As the world's two largest economies, the U.S. and EU decisions on support for cross-border data flows will also have global implications.

The first part of this paper provides an overview of the U.S.-EU economic relationship and how growth in Internet access and data flows are driving an increasing amount of transatlantic trade and investment. The second part calculates the economic value of the free flow of data for U.S. and EU services trade and investment.

PART 1: THE U.S.–EU ECONOMIC RELATIONSHIP

The U.S. and Europe are the world's largest economies. Together they represent 50 percent of world GDP, 25 percent of global exports and over 30 percent of global imports.

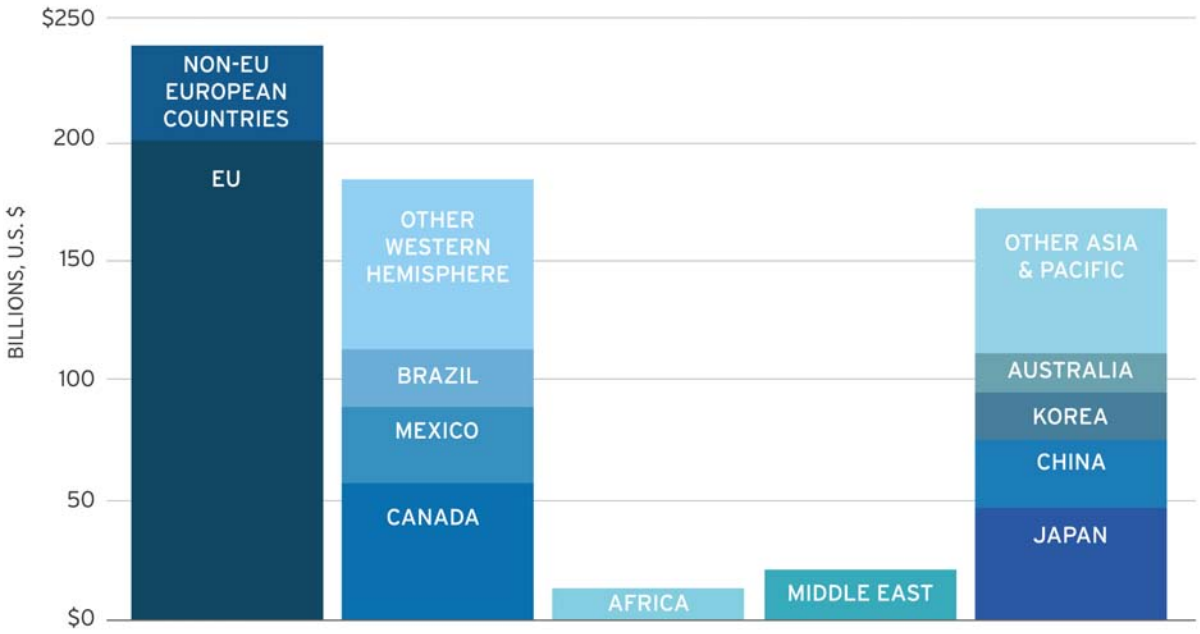
The most significant economic relationship for the U.S. and Europe is the one they share; each is the other's largest markets for goods and services. In 2013, U.S.-EU goods trade was worth $650 billion, with a U.S. trade deficit of $125 billion.[7] In contrast, the U.S. runs a services trade surplus with the EU which in 2012 was worth $56 billion, comprising exports of $199 billion and imports of $143 billion.[8] This represented over 30 percent of total U.S. services exports and 32 percent of U.S. services imports.

As will be discussed in more detail, use of the Internet and the ability to move data globally is providing new opportunities for international trade and, in particular, for services exports that can be increasingly delivered online. Growth in services trade will further increase economic growth. Services are already a key driver of the U.S. economy and U.S. services output continues to grow faster than all other economic sectors.[9] In 2012, private services accounted for 69 percent of U.S. GDP and 68 percent of employment growth.

Services exports are 34 percent of total U.S. exports, but taking into account the value added by services in the production of goods for exports increases U.S. services exports to almost 50 percent of total exports.

As Figure 1 shows, U.S. exports of services to Europe are a magnitude larger than U.S. exports to other regions, approximately 50 percent larger than services exports to all of Asia, including China and Japan, and three times larger than to U.S. NAFTA partners Canada and Mexico.

Figure 1: U.S. Services Exports, 2012



Source: U.S. Bureau of Economic Analysis

The U.S. and Europe are also each other's main sources and destinations of foreign direct investment. Since 2000, Europe has attracted 56 percent of total U.S. global investment and the U.S. has attracted 56.2 percent of European global investment. Over the same period, China has only accounted for 1.2 percent of total U.S. global investment. In fact, as of 2012 U.S. investment in Europe was 14 times larger than U.S. investment in the BRICs.[10]

Moreover, U.S. and European investments in each other's markets are important drivers of transatlantic trade. Sixty-one percent of U.S. imports from the EU and 33 percent of EU imports from the U.S. consist of trade. This compares with intra-firm trade as a share of U.S. imports from the Pacific Rim (37.2 percent), and South/Central America (37 percent).[11] However, establishing overseas subsidiaries is often not an option for SMEs due to their constrained financial resources.[12] This means that taking advantage of the Internet for the delivery of digital services remains particularly important.

U.S. and European investments in each other's markets are also important sources of employment. U.S. companies in Europe directly employ about 4.2 million workers and European businesses in the U.S. employ approximately 3.8 million U.S. workers.[13]

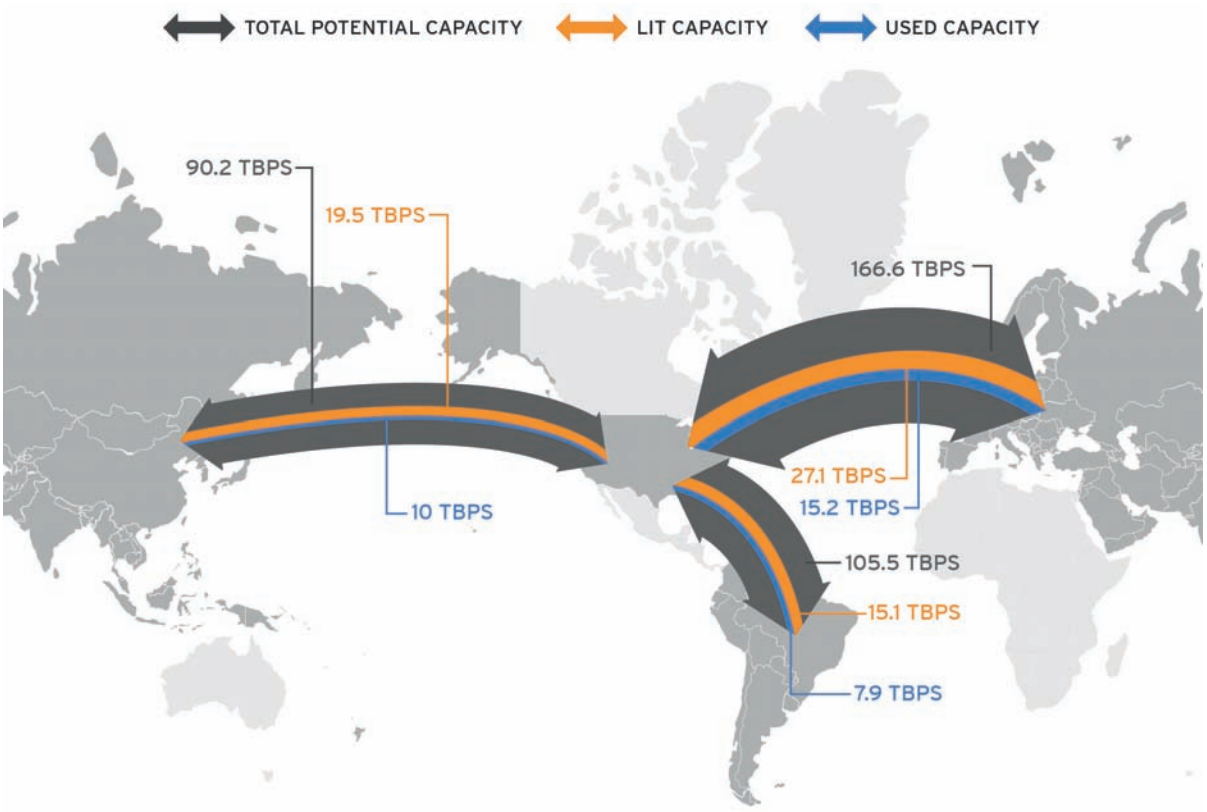
Global Data Flows

The global movement of data across borders will propel global Internet traffic to over one zettabyte (1000^3 gigabytes) by 2015.[14] This movement relies on international data flows over physical infrastructure such as terrestrial networks and submarine cables carrying fiber optics. Submarine cables terminate in coastal landing stations and along with terrestrial cables connect to Internet exchange points (IXPs). At these IXPs, Internet service providers, content providers and telecommunications network companies connect overseas data with local networks, making the Internet global. A large amount of U.S. and European trade and investment is underpinned by Internet access and the free flow of data. Internet penetration in the U.S. reached 83 percent in 2013. In Europe, Internet penetration was at a similar level overall but varied from close to 90 percent in the U.K. to under 60 percent in Italy.

In the developing world, Internet access averages only 32 percent, ranging from 16 percent in India to 46 percent in China.[15] In fact, 4 billion people do not have Internet access with over 90 percent living in developing countries.[16] For instance, in China over 730 million people do not have Internet access and in India that number is over 1 billion. But Internet access is growing and is expected to reach 5 billion people in 2020, up from 2.7 billion today, with most of the growth happening in the developing world.[17]

Data flows between the U.S. and Europe occur over submarine cables that cross the Atlantic Ocean. Map 1 shows the submarine cables connecting the U.S. and Europe, the U.S. and Asia, and the U.S. and Latin America.[18] The map disaggregates and scales the submarine cables according to their capacity, how much of this capacity is lit, and how much is actually used. Capacity describes the data that could flow along existing submarine cables,[19] "lit" refers to the fiber optic cables that are turned on and "used" measures current flows of data.

Map 1: Submarine Cable Bandwidth (in terabits per second, or TBPS)



Source: Telegeography 2014 [20]

As Map 1 shows, capacity on the transatlantic route is the highest globally.[21] In fact, transatlantic submarine cables can carry almost 55 percent more data than the pacific route and approximately 40 percent more data than between the U.S. and Latin America. In terms of how much of submarine cable capacity is being used, data flows between the U.S. and Europe are 50 percent higher than the U.S.-Asia route and almost double the data flows between the U.S. and Latin America. However, growth in bandwidth deployed on submarine cables is now fastest outside of the U.S. and Europe.[22]

Another way of highlighting the size of transatlantic data flows is on a per capita basis. Using this metric approximately 65 million people in the U.S. and Europe generate transatlantic data flows of one TBPS.[23] This compares with data flows between the U.S. and Latin American, which requires over 100 million people to generate one TBPS, and on the U.S.-Asia route over 250 million people are required to generate the equivalent data flows. In other words, on a per capita basis data flows between the U.S. and Europe are 40 percent more dense than data flows between the U.S.- and Latin America and almost 400 percent denser than U.S.-Asia data flows.

Box 1: Limits to Identifying Data Flows with End-Users

Data flows along submarine cables can overstate the data flows that originate and terminate with users on either end of that route because submarine cables often include data routed from users in third countries. For example, an email from Chile to Italy may be routed through the U.S. And Europe is often a transit point for Internet traffic between Africa and the U.S.

Growth in Transatlantic Data Flows

Transatlantic data flows will grow substantially over this decade. This will be driven by increased Internet access and higher broadband speeds, combined with growth in the use of mobile smart devices to access the Internet.[24] For example, by 2018, 93 percent of U.S. mobile devices and 83 percent of Western Europe's mobile devices (61 percent of Central and Eastern Europe) will be "smart."[25]

Greater mobility and the use of smart devices will also underpin growth in a range of new devices—the so-called Internet of things—that includes wearable devices such as smart watches, health monitors and navigation devices. As a result, smart traffic is expected to grow at a compound annual growth rate of 61 percent out to 2018.[26]

The Internet of things will also generate lots of new data that companies and governments will seek to aggregate and analyze to produce new insights and solutions. Aggregating this data to create so-called big data will require data moving freely across borders. In addition, businesses and people in the U.S. and Europe will take advantage of the opportunities presented by the growth in computing capacity and use cloud computing to engage in increasingly complex transatlantic research opportunities and online business exchanges.[27] In fact, the majority of growth in transatlantic data flows will be generated by commercial and research needs.[28] Already, almost 40 percent of data flows between the U.S. and Europe are over business and research networks. This includes intra-company networks such as those established by: BMW., which coordinates production from its Munich headquarters with its subsidiary in South Carolina; SAP, which communicates from Walldorf, Germany with its data centers in the United States; and Dassault Systèmes, which shares designs from Paris, France with its campus in Boston. These business and research networks also include research and education-based networks and those being built by content providers such as Google and Facebook to manage their data centers located in countries such as Ireland.

Cross-Border Data Flows and International Trade

Various studies have confirmed that increasing Internet use leads to growth in international trade. This happens when the Internet increases firm productivity which, in turn, increases the competitiveness of these businesses domestically and globally, increasing the opportunities for international trade.[29] A recent ITC report estimates that the Internet improves the productivity of digitally intense industries by 7.8 to 10.9 percent.[30] The Internet can also reduce trade costs, such as by making communications with overseas customers and suppliers cheaper, and where online delivery is possible, avoiding customs and transportation costs. The same ITC report estimates that the Internet reduces trade costs by 26 percent on average.[31]

There is also a range of other empirical work[32] and economic modelling of the relationship between Internet use and international trade using country level[33] and firm level data.[34] For instance, one study concludes that a 10 percent increase in Internet access leads to a 0.2 percent increase in exports.[35] And other studies using more recent data find even stronger impacts of Internet use and trade.[36] The impact of the Internet and the value of the free flow of data for international trade and investment are likely to be even greater than these figures suggest, given the amount of value from cross-border data flows not reflected in trade statistics (see Box 2).

Box 2: The Relationship Between Cross-Border Data Flows and International Trade

Some commercially valuable cross-border data flows are not collected in national statistics. For example, when multinational companies with offices in the U.S. and Europe internally move data across borders for human resource or research and development purposes, this creates economic value but does not show up in national economic accounts. There is also no direct relationship between the quantity of transatlantic data flows and the value of international trade generated by the flows. This is because some activities such as Internet video generate large amounts of Internet traffic but are of low value in contrast to financial data flows or online software purchases that generate less data but are of greater value.

There are multiple ways that the free flow of data between the U.S. and Europe generates international trade and investment:

- When a business in Europe uses the Internet to reach customers in the U.S. and to sell products online. Internet commerce in the U.S. grew from $13.63 billion in 2011 to $42.13 billion in 2013 and is expected to reach $133 billion in sales by 2018.[37] As online marketplaces in the U.S. and Europe mature, consumers in the U.S. and Europe will increasingly use the Internet to purchase goods and services from each other's markets, thereby growing transatlantic trade.

- Transatlantic data flows underpin business to business transactions, such as when a U.S. business receives financial advice from Barclays in London. This is a financial service that is delivered online and is itself a trade in services. In addition, using the Internet to access such cutting-edge business services can increase the productivity and competitiveness of businesses, strengthening their ability to compete in overseas markets, further stimulating international trade. According to an OECD study, a 1 percent increase in the importation of business services is associated with a 0.3 percent higher export share.[38]

- Internet access and the free flow of data supports global value chains. This includes so-called trade in tasks[39]—the ability of geographically diverse businesses to contribute a task or service as part of supply chains that span the Atlantic.

- The free flow of data between the U.S. and Europe is needed for intra-company purposes and is thereby an important enabler of transatlantic investment. For instance, GE in Atlanta relies on the free flow of data to manage production schedules and human resources data, and communicate internally with its subsidiaries throughout Europe.

- Investment in data centers that provide access to the cloud in the U.S. and Europe relies on cross-border data flows. For instance, Amazon's data centers in Ireland require regular communication with its U.S.-based data centers to update or duplicate data for security purposes. Cross-border data flows are also necessary to reduce latency, such as when Google caches data on internet service providers located closer to EU citizens.

- Internet access and the free flow of data provides businesses and entrepreneurs with information on new markets, opportunities for collaboration and research that can support economic activity and lead to international trade between the U.S. and Europe, and globally.

Transatlantic data flows also create opportunities for the U.S. and Europe to expand trade and investment with the developing world. As Internet access expands globally, much of the developing world will access the Internet on mobile devices. And by 2018, 54 percent of these devices will be "smart," up from 21 percent in 2013.[40] Combining these trends with a growing middle class in Asia in particular—a population expected to double by 2020—highlights the potential growth of online international commerce. In fact, globally, people who have made at least one online purchase increased from 38 percent in 2011 to 40.4 percent in 2013, and by 2017 over 45 percent of the world are expected to be engaging in online commerce.[41] The free flow of data globally will be required to ensure these opportunities are full realized.

PART 2: THE VALUE OF CROSS-BORDER DATA FLOWS FOR TRANS-ATLANTIC SERVICES TRADE AND INVESTMENT

This section provides an estimate of the value of transatlantic data flows for digitally deliverable services trade and the delivery of these services through U.S. and EU affiliates in each other's markets.

The focus here is on three areas of transatlantic economic activity that rely on cross-border data flows. These are: digitally deliverable services; digitally deliverable services used in the production of goods and services exports; and digitally deliverable services that are delivered via U.S. companies located in Europe and vice versa.

Digitally Deliverable Services Trade

National trade statistics do not collect data on whether international services are delivered online or in person. For instance, the export from Spain of architecture services to the U.S. could have been delivered online, the architect could have visited the client in the U.S. or the U.S. client could have visited the architect in Spain. In fact, the architecture services might have been delivered using a combination of these modes of supply.

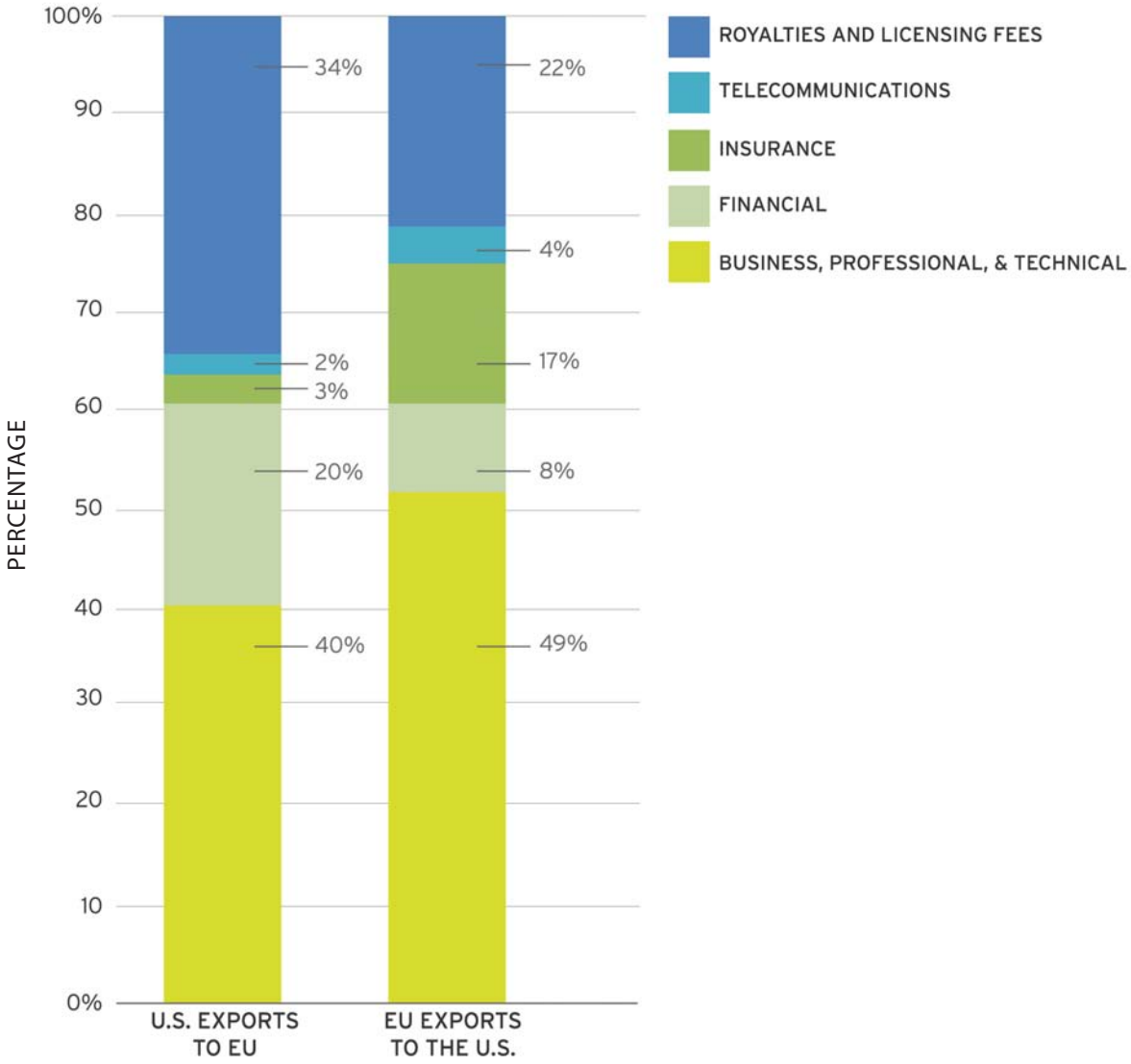
This section estimates U.S. and EU services trade that is digitally deliverable. Digitally deliverable services are services "that may be, but are not necessarily, delivered digitally."[42] This captures the potential for services to reduce trade costs by being delivered online and points to where there is the most potential for the Internet to change the way that international trade happens between the U.S. and the EU.

Digitally deliverable services comprise approximately 75 percent of products traded and delivered online.[43] In contrast, most goods that are purchased online are physically delivered.[44] This section also calculates the value of digitally deliverable services used in the production of goods for export, thereby capturing the importance of the Internet and cross-border data flows for other industries such as manufacturing and retail.

Determining what are digitally deliverable services follows the approach taken by U.S. Bureau of Economic Analysis, using five categories of cross-border services trade:[45]

- Business, professional and technical services such as computers and information services, legal, architectural, consulting and advertising services
- Royalties and license fees paid for the use of intellectual property
- Financial services such as online banking and investment activities such as market research and buying and selling shares
- Insurance services such as digital transmission of premiums and payments for claims online
- Telecommunications services including video conferences, email and Internet access services

Figure 2: U.S.-EU Digitally Deliverable Services Trade by Sector, 2012



Source: U.S. Bureau of Economic Analysis

Figure 2 shows the different composition of digitally deliverable services trade between the U.S. and the EU. For both economies, the majority of exports are in business, professional and technical services, representing 40 percent of U.S. exports to the EU of digitally deliverable services and 52 percent of digitally deliverable services exports from the EU to the U.S. Many of these services are often consumed by businesses, increasing their productivity and competitiveness, highlighting the benefit for EU and U.S. business of the transatlantic free flow of data.

Royalties and license fees are the next largest exports for the U.S. and the EU of digitally deliverable services. Most of the royalties and license fees are paid on industrial processes (34 percent) and software (32 percent) reflecting inputs into the production processes in each country. For the U.S., the larger share of royalties and license fees reflects strong demand in Europe for U.S.-produced television and film.[46]

U.S. exports of financial services to the EU is the third largest component of digitally deliverable services, reflecting the importance of the U.S. financial sector. While for the EU, exports of insurance services (including reinsurance services) are its third largest digitally deliverable service export, comprising 17 percent of these services exports.

Figure 3 shows U.S. and EU exports of digitally deliverable services on a bilateral, regional and global basis.

The graph shows that for the U.S. and EU exports of digitally deliverable services are a majority of services exports—over 60 percent for the U.S. and 55 percent for the EU. It is also the case that the U.S. and the EU run trade surpluses in digitally deliverable services, which in 2012 were over $150 billion for the U.S. and $168 billion for the EU. This comprised U.S. digitally deliverable exports of $383.7 billion and imports of $233.6 billion and, for the EU, digitally deliverable exports of $465 billion and imports of $297 billion.

Trade in digitally deliverable services also dominates transatlantic services trade. In 2012, U.S. exports of digitally deliverable services to the EU were worth $140.6 billion, or 72 percent of services exports to the EU. This compares with the share of digitally deliverable services exports to Asia and Latin America of around 55 percent. Moreover, the U.S. share of digitally deliverable services trade with individual European states is as high as 95 percent for Ireland—reflecting the role of IT and data centers and payments of royalties and license fees—and 70 percent for the U.K. due to the role of London as a provider and consumer of business services such as finance and consulting, and as consumers of U.S. television and movies. Even in Germany and France, shares of digital trade as a share of total services trade are over 60 percent of total services exports to these countries.

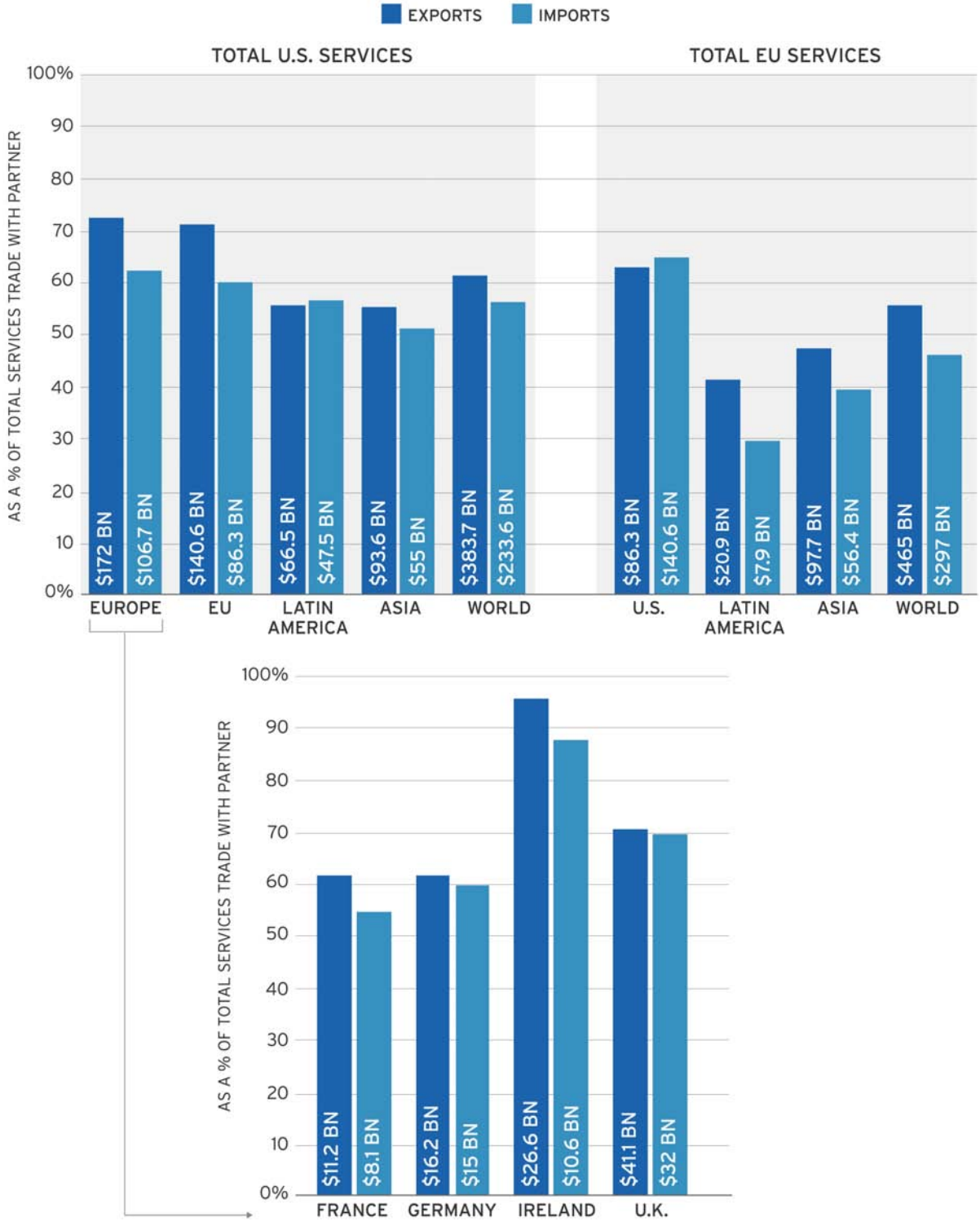
For the EU, the share of digitally deliverable exports to the U.S. is over 60 percent of services exports. This is significantly higher than the EU's share of digitally deliverable services exports to Asia and Latin America of 47 percent and 40 percent, respectively. In terms of value, the EU exported five times the amount of digitally deliverable services to the U.S. than it did to Latin America—$20.9 billion compared with $106.7 billion. However, EU exports of digitally deliverable services to Asia of $97.9 billion in 2012 are approaching the same levels as EU exports of such services to the U.S.

Value-Added Trade in Digitally Deliverable Services

U.S. exports comprise 66 percent goods and 34 percent services. This data, however, fails to take into account the value added of services in the production of goods for export. This includes the research and development, design, software, consulting, legal and accounting services that are used to manufacture goods.

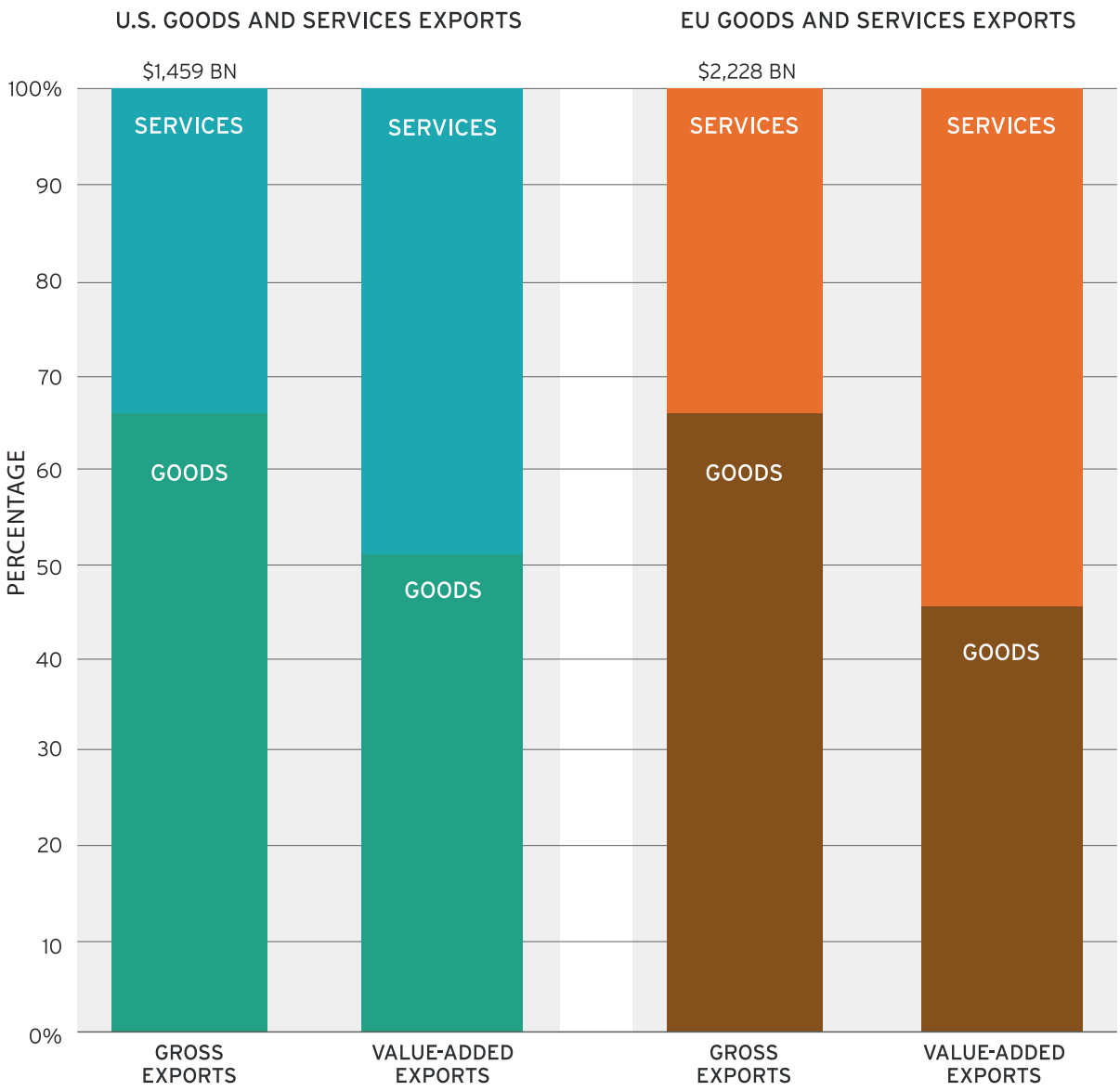
Figure 4 shows the difference between gross and value-added exports for the U.S. and the EU. As noted, gross U.S. exports of services comprise 34 percent of total exports. Taking into account the value added of services in the production of goods and services for export increases services share of total exports to almost 50 percent. The increase in services as a share of total exports is even more dramatic for the EU, where services increase from 34 percent of total exports to over 54 percent.

Figure 3: U.S. and EU Digitally Deliverable Services Trade, 2012



Source: U.S. Bureau of Economic Analysis and Eurostat

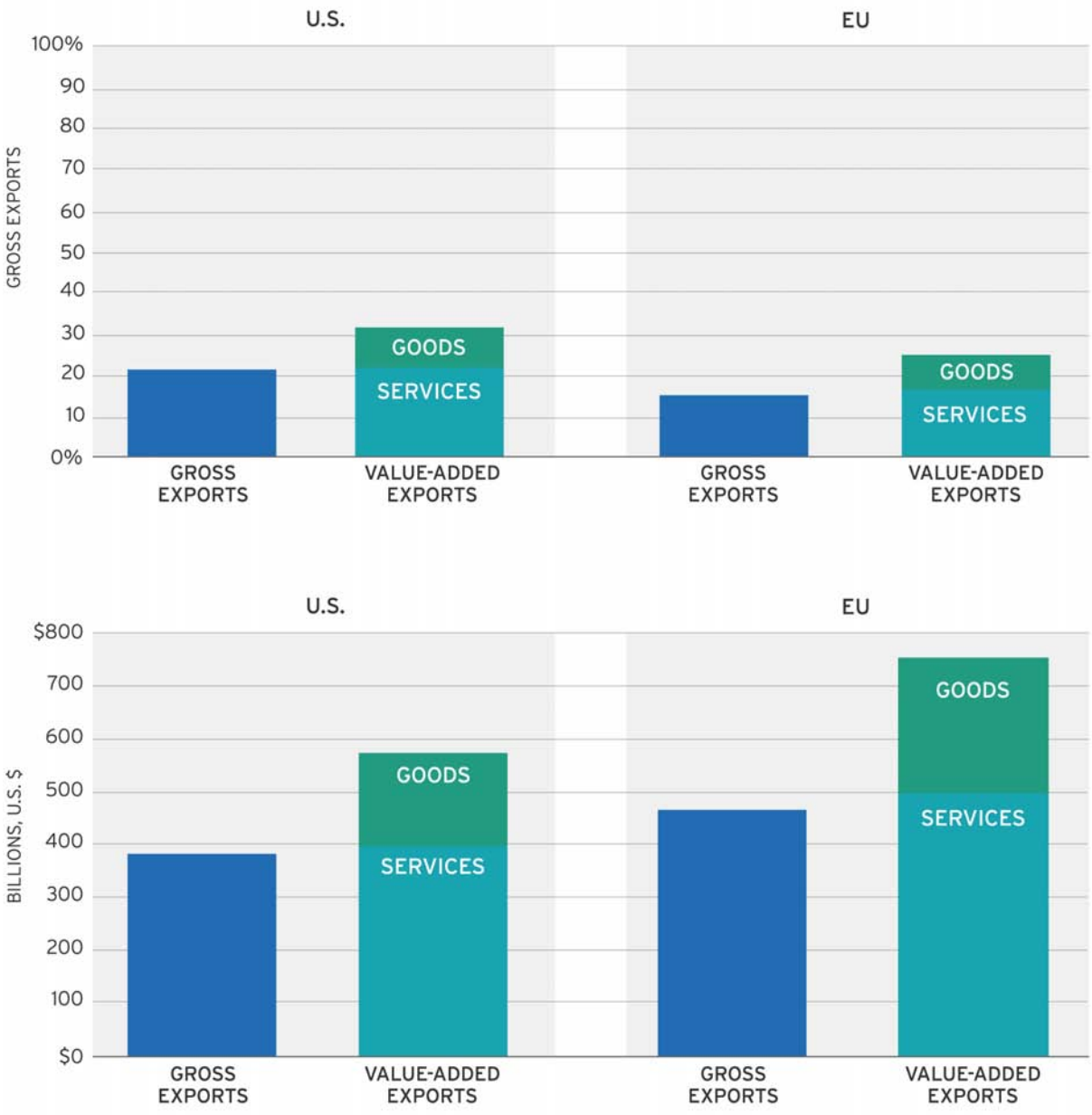
Figure 4: U.S.-EU Value-Added Goods and Services Exports, 2009



Source: OECD-WTO Trade in Value Added database

Figure 5 takes this analysis a step further and shows digitally deliverable services exports on a gross and value-added basis. It shows the direct exports of digitally deliverable services and how it increases when taking into account the value added of digitally deliverable services in the production of other goods and services for export. For the U.S., taking into account digitally deliverable services with value added in exports raises total digitally deliverable services exports by $185.5 billion, from $383.7 billion to $569.2 billion. This increases the share of digitally deliverable services in U.S. exports from 21.4 percent to 32 percent.

Figure 5: Digitally Deliverable Services Exports, 2012



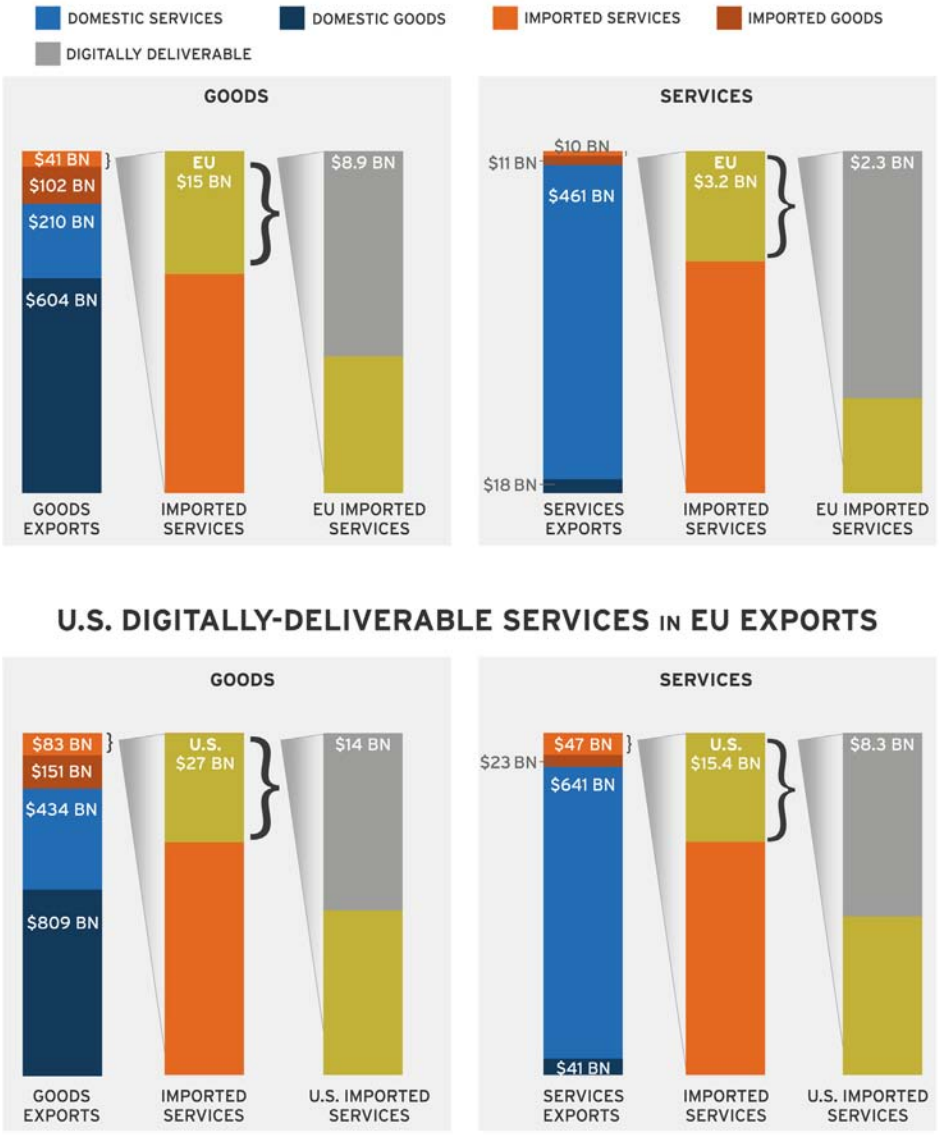
For the EU, VA shares from most recent 2009 input-output tables, applied to 2012 gross exports
Source: U.S. Bureau of Economic Analysis and Eurostat

Digitally deliverable services are also important inputs into EU exports. Including the value of digitally deliverable services in goods and services exports increases total EU digitally deliverable services exports from $465 billion to $748 billion in 2012. And the share of digitally deliverable services in EU goods and services exports increases from 15.4 percent to 24.8 percent. Moreover, the relatively lower share of EU digitally deliverable exports as a share of total exports compared with the U.S. points to the potential for the EU to grow its digitally deliverable services exports.

Inputs into the production of goods and services for export can be domestic or foreign. This is increasingly the case in a world of global value chains where inputs from globally located industry are used to develop a final product for export. In fact, often goods and services cross borders multiple times to produce a final product. WTO Director-General Pasqual Lamy has described this phenomenon as goods being "made in the world."[47]

Figure 6 shows the importance of intermediate services imports for U.S. and EU production of goods and services for export. For instance, in 2009 (most recent data) almost 17 percent, or $143 billion, of U.S. goods exports included value from imports. And for the EU, a similar share of goods exports—16 percent or $234 billion—were made up of imports.

Figure 6: EU Digitally Deliverable Services in U.S. Exports, 2009



Source: OECD-WTO Trade in Value Added database

For U.S. and EU exports of goods and services, each graph goes through a three step process to determine the value for the U.S. and the EU of digitally deliverable services imports from each other that are inputs into the production of goods and services for export.

The main finding here is that digitally deliverable services are key inputs into the production in the U.S. and the EU of goods and services for exports. For the U.S., almost $11.2 billion or 62 percent of digitally deliverable services imported from the EU were used to produce products for export. And for the EU, $22.3 billion or 53 percent of digitally deliverable services imported from the U.S. were used in the production of exports.

Digitally Deliverable Services Supplied Through Foreign Affiliates

As discussed, transatlantic investment in in all sectors increasingly relies on cross-border data flows. This can be using email to communicate internally, managing supply chains or transferring data for human resource or financial reasons. As a result, it is important to understand that the $3.8 trillion stock of investment that the U.S. and EU have invested in each other is underpinned by cross-border data flows.

Transatlantic investment is also an important vehicle for the delivery of digitally deliverable services. However, the sale of services through foreign affiliates, such as when a service is provided by a Microsoft subsidiary in Rome to a local business or person, is not recorded in the statistics as a services export or import. Yet sales from U.S. affiliates in Europe and European affiliates in the U.S. are significantly larger than bilateral trade flows. For instance, in 2011 the provision of services through U.S. foreign affiliates in Europe was worth $645 billion and the sale of services through European companies in the U.S. was valued at $467 billion. This compares with 2012 services exports from the U.S. to Europe of $240 billion and from Europe to the U.S. of $172 billion. In 2012, European affiliate sales in the U.S. were triple U.S. imports from Europe.

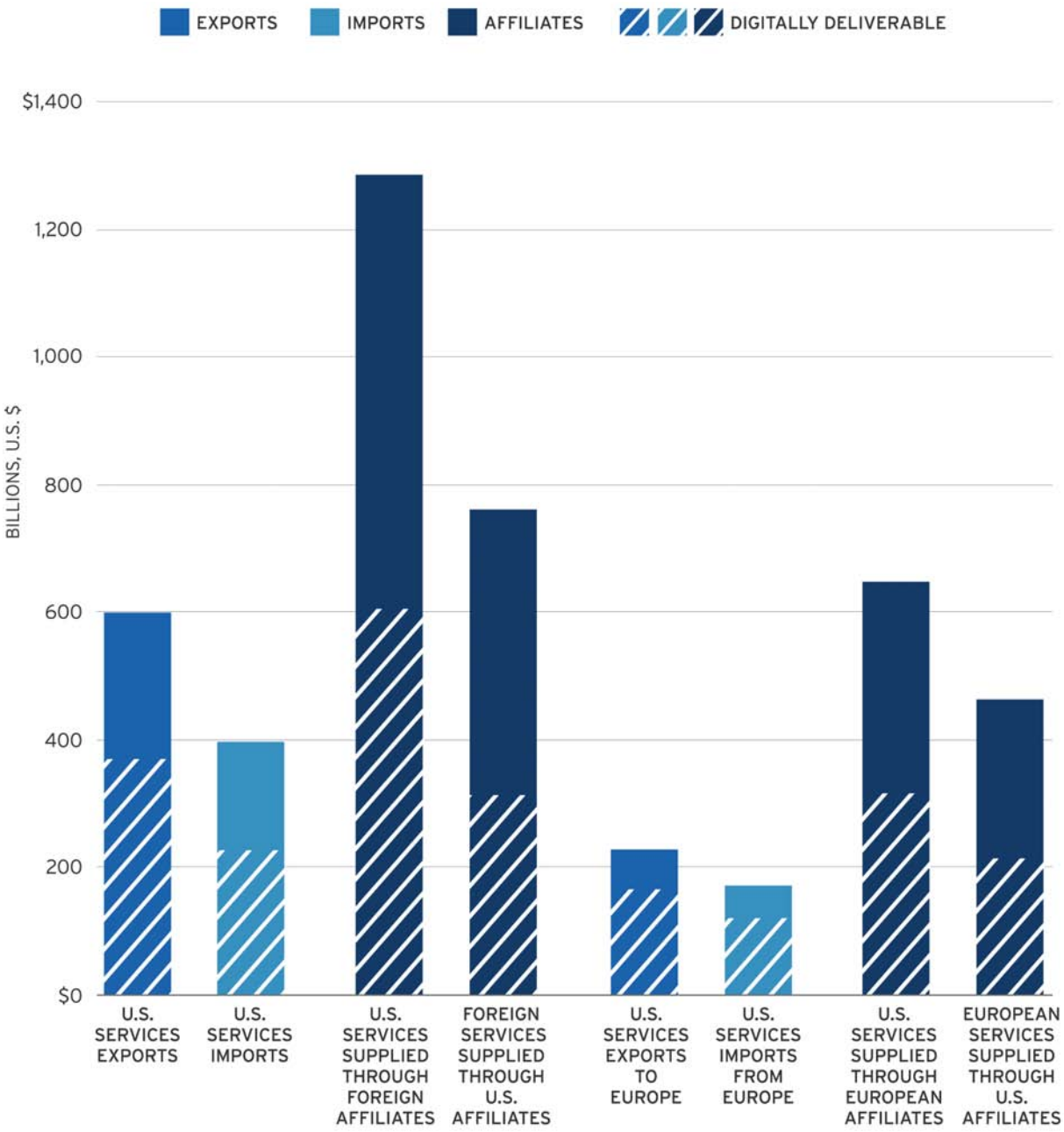
Differences in coverage of services trade data and services supplied through foreign affiliates limit the extent that digitally-delivered services via trade and foreign affiliates can be combined. For instance, services trade data is collected for each of the services traded while the foreign affiliate data is collected based on the affiliate's primary industry. As a result, where the provision of a good is the primary industry for the affiliate the statistics will record this as good delivered via a foreign affiliate, even where that affiliate may also be providing a range of services as well. Foreign investment and trade are also often complimentary channels for building U.S.-EU economic relations.

Figure 7 shows U.S. and European services exports and the share that is digitally deliverable and compares it with services supplied through foreign affiliates of U.S. and European companies.

As can be seen, for the U.S. and Europe, foreign direct investment is the most significant channel for providing services into each other's markets. In 2011, U.S. foreign affiliates in Europe delivered $312 billion worth of digitally deliverable services and European businesses in the U.S. provided $215 billion worth of digitally deliverable services. This compares with U.S. exports to Europe in 2012 of $172 billion and imports of 106.7 billion.

While for the U.S. and Europe the value of digitally deliverable services supplied through foreign affiliates are greater than the value that is exported, for

Figure 7: U.S. Digitally Deliverable Services Trade and Services Supplied through Affiliates, 2011



Source: U.S. Bureau of Economic Analysis

both economies digitally deliverable services are a higher share of total services exports than as a share of services delivered through foreign affiliates. One explanation for this might be that the Internet and the free flow of data across borders increase the ease of delivering services online as exports, reducing the need to deliver these services via foreign affiliates.

ENDNOTES

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