

UNDERSTANDING THE TRANSATLANTIC DIGITAL ECONOMY

As far back as 2007, we wrote that services activities were the sleeping giant of the transatlantic economy—a force so powerful that if awakened would further deepen the commercial stakes between the United States and Europe and enhance the global competitiveness of both parties. Nearly a decade on, our premise has not changed. But much else has.

In 2007 the Apple iPhone was introduced. What was then a novelty is now one of the most ubiquitous appliances in the world, with some 2.1 billion people owners of smart phones. In 2007 less than 1.7 billion people were accessing the internet. Now 3.2 billion do. Table 1 depicts this astounding growth. In 2007 Facebook had yet to go public. Now it is now valued higher than IBM. In 2007 electric cars were a concept. Today they are reality. In 2007 the App Economy didn't exist. Today it employs over 1.6 million workers in both the United States and Europe. In 2007, the Rocket Internet start-up was launched in Germany. Today it has 30,000 employees. On it goes.

Every day 4.2 billion searches are made on Google, 803 million Tweets are tweeted, 36 million purchases are made on Amazon, 115 million videos are viewed on DailyMotion, nearly 100 million users stream music from Spotify, 186 million photos are taken on Instagram, 152 million calls are placed on Skype, and 2.3 billion gigabytes course around the web. Moreover, the digital economy ranges far beyond pure internet or e-commerce companies. McKinsey estimates that three-quarters of the economic value of the internet is captured by manufacturing, financial services and other industries.¹

Digital information, services and products, and the infrastructure that supports them, have become the backbone of the modern global economy.² They are transforming how we live, work, play, travel, interact, and do everything in between. At the heart of this transformation is data and the ability to analyze data,

which today is spurring growth, innovation and competitiveness across industries.

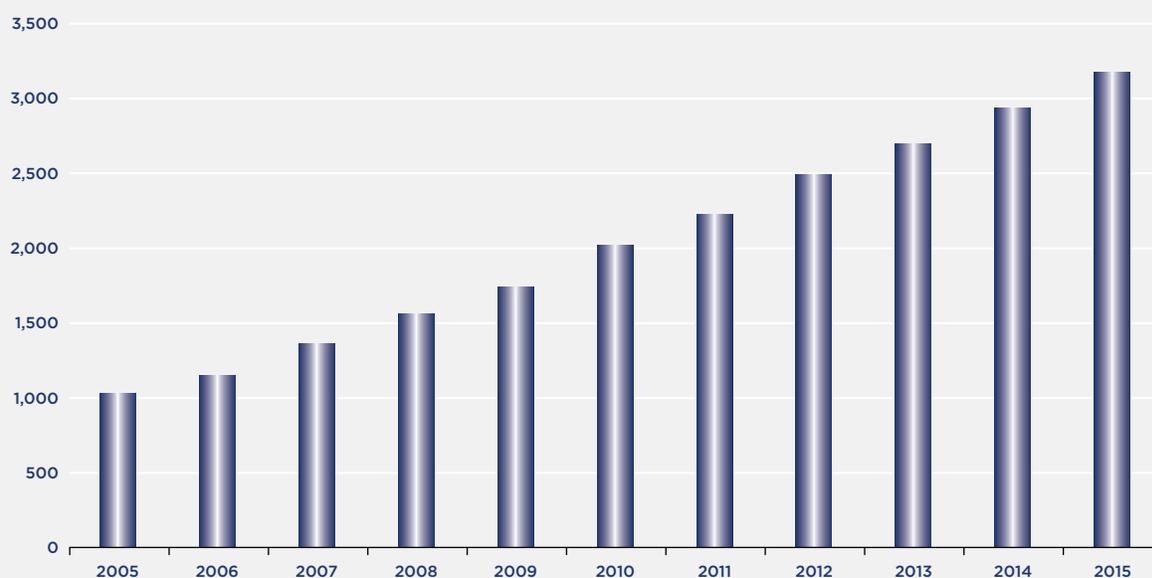
Global flows of information and communications, transactions, video, and intrafirm traffic underpin and enable virtually every other kind of cross-border flow. According to McKinsey, these global data flows now contribute more to global growth than global trade in goods.³

The pace of change associated with these transformations is astounding. Mobile data traffic has grown 4,000-fold over the past 10 years and almost 400-million-fold over the past 15 years. Mobile networks carried fewer than 10 gigabytes per month in 2000 and less than 1 petabyte per month in 2005. By the end of 2015, global mobile data traffic reached 3.7 exabytes per month (one exabyte is equivalent to one billion gigabytes, and one thousand petabytes).⁴

Despite these incredible transformations, we're still in what Scott Cook of Intuit calls “the first minutes of the first day” of the digital revolution. Cisco projects that by 2020 monthly global mobile data traffic will grow nearly eightfold and mobile network connection speeds will increase more than threefold, there will be 1.5 mobile-connected devices per capita, 98% of mobile data traffic will originate from smart devices, and three-fourths of the world's mobile data traffic will be video.⁵ The Internet of Things, big data analytics, cloud computing and other innovations will further accelerate digital growth across the Atlantic and around the world.

The Significance of the Transatlantic Digital Economy

The digital revolution is particularly important to the transatlantic economy. The United States and the European Union are not only the world's most important services economies and each other's largest

TABLE 1: GLOBAL INTERNET USERS GROWTH (MILLIONS OF PEOPLE)

Source: Ministry of Commerce/CEIC.
Data as of September 2015.

and most profitable services markets, each is the other's most important trading partner when it comes to digitally deliverable services. Cross-border data flows between the United States and Europe, at about 15 terabits per second, are by far the highest in the world – 50% higher than the data flows between the United States and Asia in absolute terms, and 400% higher on a per capita basis.⁶

Moreover, the United States and the EU are the two largest net exporters of digitally deliverable services to the world. They are well positioned to take advantage of the global internet economy, which is projected to grow 8% a year over the next five years in G-20 economies and 18% a year in developing economies, far outpacing just about every traditional economic sector.⁷

Understanding the Transatlantic Digital Economy

Transatlantic data flows generate international trade and investment in many different ways. They include trade in digitally deliverable services; digitally deliverable services used to add value to the production and the export of goods and other services; and, most importantly, digitally deliverable services delivered via European affiliates of U.S. companies and U.S. affiliates of European companies. Intra-

firm cross-border data flows are a particularly dynamic element of transatlantic commerce.

Trade in Digitally Deliverable Services

The internet is to trade in services what the advent of container shipping was to trade in goods – a transforming capability that enables faster cross-border delivery of a variety of activities that were once considered non-tradable.⁸ This dynamic is reflected in trade in digitally deliverable services, which are services that can be purchased and delivered online across borders to anyone with internet access. This includes business, professional and technical services, financial and insurance services, telecommunications, software and royalties for intellectual property use. Digitally deliverable services are services “that may be, but are not necessarily, delivered digitally,” according to the U.S. International Trade Commission.⁹ This means that an export of engineering services from Frankfurt, Germany to Hartford, Connecticut could have been delivered online or in person, or some combination of the two. The statistic does not say exactly whether the specific service was delivered online or in person. But it does offer an indication of the potential for digital trade.¹⁰

It also underscores the outsized importance of the United States and the EU to the global economy. In 2012, the EU

TABLE 2: THE APP ECONOMY: JOBS BY COUNTRY

Country	App Economy jobs (thousands)
United Kingdom	321.2
Germany	267.9
France	228.9
Netherlands	125.2
Italy	97.5
Poland	84.3
Spain	78.2
Sweden	67.1
Finland	47.4
Norway	41.6
Denmark	33.4
Switzerland	28.5
Portugal	27.4
Belgium	23.3
Czech Republic	19.7
Romania	19.3
Hungary	15.3
Ireland	13.2
Austria	11.9
European Union	1,572
30-country total	1,642

*Source: Progressive Policy Institute, Indeed, ILO.
Data as of January 2016.*

exported \$465 billion of digitally deliverable services, and imported just \$297 billion. That \$168 billion surplus made the EU the largest net exporter of digitally deliverable services in the world. Digitally deliverable services also drive the transatlantic services economy: in 2014, U.S. exports of digitally deliverable services to Europe comprised 70% of bilateral services exports, and U.S. imports of digitally deliverable services from Europe accounted for 54% of all bilateral services imports.

Table 3 categorizes U.S.-EU digitally deliverable services trade into five sectors. For both economies, the most important exports are represented by business, professional and technical services, which accounted for 54% of digitally deliverable services exports from the EU to the United States and 39% of digitally deliverable services from the United States to the EU in 2014. The second most important category consists of royalties and license fees, most of which are paid on industrial processes and software, underscoring how integral such transatlantic inputs are to production processes in each economy. For the United States, the larger share of royalties and license fees (35%) reflects strong European demand for U.S.-produced television and film.¹¹

The third largest digitally deliverable services export category for the United States is financial services (23%), whereas for the EU it is insurance and reinsurance services (13%), reflecting each economy's comparative advantage.¹²

Digitally deliverable services have also been catalysts for the growth of the internet economy in Europe. 400,000 Europeans are now building apps, and the broader app economy supported 1.8 million European jobs in 2013, contributing €17.5 billion to the EU economy. By 2018, the app economy is projected to employ 4.8 million people and to contribute €63 billion to the EU economy.¹³

The transformative impact of digital services is not limited to just the services sector but extends to manufacturing and the traditional bricks-and-mortar economy as well. Digitally deliverable services such as consulting, engineering, software, design and finance are used in manufacturing industries such as transport equipment, electrical equipment and food products. In this regard, digitally deliverable services from the United States have become critical to the manufacturing competitiveness of European manufacturing and retail operations and vice versa.

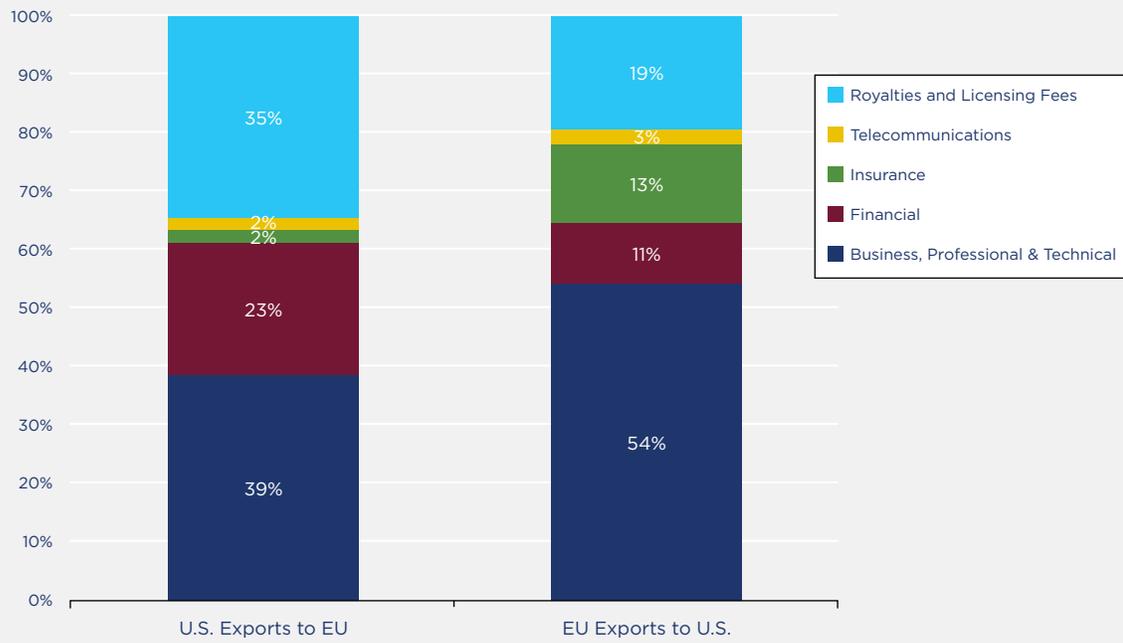
Value-added Trade in Digitally Deliverable Services

Digitally deliverable services are not just exported directly, they are also used in the United States and the EU to produce goods and services for export. Joshua Meltzer at Brookings estimates that almost \$11.2 billion, or 62% of digitally deliverable services imported by the United States from the EU, was used to produce U.S. products for export, and that \$22.3 billion, or 53% of digitally deliverable services imported by the EU from the United States, was used in the production of EU exports in 2009. If digitally deliverable services used as indirect inputs in goods and services exports are added to direct exports of digitally deliverable services, then Meltzer estimates that U.S. exports of digitally deliverable services to the world totaled \$569.2 billion in 2012, or 32% of total U.S. exports, and that EU exports of digitally deliverable services to the world totaled \$748.8 billion, or 24.8% of total EU exports.

Digitally Deliverable Services Supplied Through Foreign Affiliates

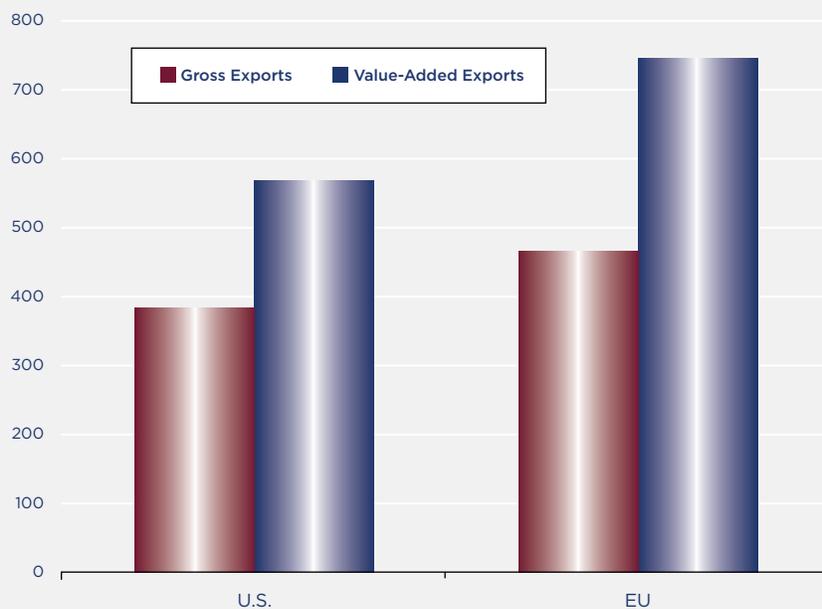
The digital economy has transformed the way trade in both goods and services is conducted across the Atlantic and around the world. Even more important than both direct and value-added trade in digitally deliverable services, however, is the delivery of digital services by U.S. and European foreign affiliates. In fact, affiliate sales of digitally deliverable services has exploded on both sides of the Atlantic in recent years — another indicator reinforcing the

TABLE 3: U.S. - EU DIGITALLY DELIVERABLE SERVICES TRADE BY SECTOR, 2014.

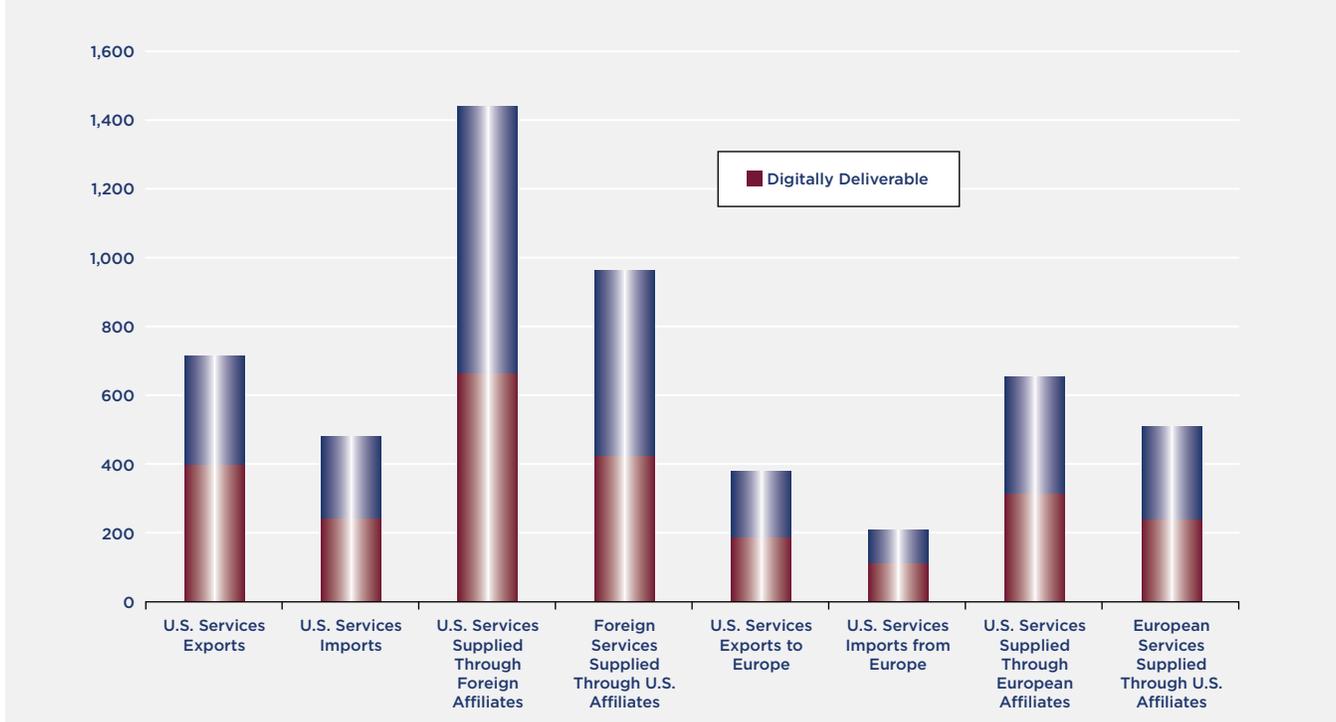


Sources: U.S. Trust Market Strategy Team[®]; U.S. Bureau of Economic Analysis.

TABLE 4: DIGITALLY DELIVERABLE SERVICE EXPORTS, 2012 - (BILLIONS OF \$)



*For the EU, value-added shares from most recent 2009 input-output tables, applied to 2012 gross exports
 Sources: Joshua Meltzer, *The Importance of the Internet and Transatlantic Data Flows for U.S. and EU Trade and Investment*, Brookings Institution, October 2014; U.S. Bureau of Economic Analysis, Eurostat.

TABLE 5: U.S. DIGITALLY DELIVERABLE SERVICES TRADE AND SERVICES SUPPLIED THROUGH AFFILIATES, 2014
 (BILLIONS OF DOLLARS)


*Affiliate data are for 2013, the latest available year.

Sources: U.S. Trust Market Strategy Team[®]; U.S. Bureau of Economic Analysis.

TABLE 6: INFORMATION SERVICES SUPPLIED ABROAD BY U.S. MULTINATIONAL CORPORATIONS THROUGH THEIR MOFAS (MILLIONS OF \$)

	2006	2007	2008	2009	2010	2011	2012	2013
Canada	3,595	4,140	3,971	5,996	6,316	7,135	7,595	7,420
Europe	67,270	76,156	85,450	84,117	96,310	110,525	119,123	121,935
France	4,045	3,794	4,475	4,713	4,582	5,013	4,768	5,259
Germany	5,260	6,031	6,104	6,456	7,143	7,798	7,970	10,523
Netherlands	5,925	8,152	9,980	8,674	8,719	9,313	10,196	9,119
Switzerland	2,871	2,527	3,197	3,747	4,034	4,419	5,243	5,495
United Kingdom	28,073	30,500	31,479	29,906	24,941	26,446	25,996	24,327
Latin America and Other Western Hemisphere	7,255	10,845	13,165	13,798	17,578	20,943	21,887	21,852
Australia	5,722	6,365	6,369	5,961	6,852	6,960	5,531	7,606
Japan	3,447	(D)	6,224	7,856	4,575	4,828	5,204	5,839
Other Asia-Pacific and MENA Countries	5,217	(D)	(D)	8,875	10,215	11,947	13,244	15,890
TOTAL	92,507	(D)	(D)	126,603	141,846	162,338	172,583	180,541

Source: Bureau of Economic Analysis
 MOFA: Majority-owned foreign affiliate

importance of foreign direct investment, rather than trade, as the major driver of transatlantic commerce.

Table 5 underscores the relative importance of digitally deliverable services supplied by affiliates of U.S. companies located in Europe and affiliates of European companies in the U.S., versus U.S. and European exports of digitally deliverable services. In 2014 U.S. affiliates in Europe supplied \$313 billion in digitally deliverable services, whereas European affiliates in the United States supplied \$234 billion in digitally deliverable services. Digitally deliverable services supplied by U.S. affiliates in Europe were 1.67 times greater than U.S. digitally deliverable exports to Europe, and digitally deliverable services supplied by European affiliates in the United States were 2.13 times greater than European digitally deliverable exports to the United States.

The significant presence of leading U.S. service and technology leaders in Europe underscores Europe's position as the major market for U.S. digital goods and services. Table 6 underscores this dynamic. In 2013, Europe accounted for two-thirds of the \$180.5 billion in total global information services supplied abroad by U.S. multinational corporations through their majority-owned foreign affiliates. This is not surprising given the massive in-country presence of U.S. firms throughout Europe, with outward U.S. FDI stock in information overwhelmingly positioned in Europe. Roughly 65% of U.S. overseas investment in the “information” industry was in Europe in 2014.

Inter-firm Trade in the Transatlantic Digital Economy

While affiliate sales are a more important means of delivery for digital services than cross-border trade, as we discussed in Chapter 2 the two modes of delivery are more complements than substitutes, since foreign investment and affiliate sales increasingly drive transatlantic trade flows. The fact that digital services are following this same broad pattern of transatlantic commercial flows reinforces our point that intra-firm trade is critical to the transatlantic economy. Nearly 40% of data flows between the United States and Europe are over business and research networks.¹⁴ Companies rely on cross-border, intra-firm data flows to manage their communications, finances, data centers, human resources and supply chains, access software, and build synergies in research, development and other tasks among affiliates across the transatlantic space. These activities spur innovation and create economic value and are important attributes of the transatlantic

digital economy, but are not captured adequately by national statistics.

A Boon to Stakeholders

The digital economy is opening significant opportunities to key stakeholders across the Atlantic and around the world. Individuals tap global networks to learn, work, play, create, or build personal and business connections. Consumers benefit by easier, faster and cheaper access to products and services. Small and medium-sized businesses and entrepreneurs stand to be major beneficiaries from increased productivity and efficiency, better market intelligence, and greater reach at lower cost.

The digital economy is remaking business on both sides of the Atlantic. For a small business or an entrepreneur, data-driven tools can mean the difference between serving a local market and tapping into a global audience. Hundreds of thousands of small businesses in the United States and the EU use the internet to engage in global trade. According to McKinsey, 80% of tech-based startups are “born global” — attracting users, hiring talent, purchasing inputs, securing funding, and finding mentors across borders from day one. McKinsey uses the example of coModule, an Estonian startup that created technology that brings the Internet of Things to electric bikes and scooters. Its prototype was unveiled in Barcelona, its seed funding came from Germany, its components are sourced from China, and its customer base can be global.¹⁵

Examples abound. Artisans and customers from around the world find each other on Etsy, a marketplace for handcrafted and vintage goods; nearly 30 percent of its gross merchandise sales is international.¹⁶ Online custom tailor Dragon Inside, based in Sofia, Bulgaria, has customers all over Europe, but its strongest market is the United States. The same is true for Yellowschedule, an Irish online patient scheduling and payment tool.¹⁷ 93% of all EU businesses on eBay export their goods to an average of 18 countries, and eBay's survey of European small online business suggests that “it is now possible to run a growing pan-European and global business from Europe's more rural, remote and sometimes less economically wealthy areas.”¹⁸

With some 315 million internet users spread across the European Union, the EU digital economy has massive potential. The EU's fragmented digital markets and barriers to entry among EU members, however, is inhibiting the growth of cross-border digital services. EU cross-border online services represent a paltry 4% of the digital market in the EU, due in large part to uneven laws and regulations. If the same rules for e-commerce

were applied in all EU member states, 57% of companies surveyed by the European Commission indicated they would either start or increase their online sales to other EU countries.

Taken together, these metrics underscore the importance of the digital economy to healthy transatlantic commerce

and to the globally competitive position of the United States and the European Union. While a number of issues have arisen regarding appropriate rules of engagement when it comes to the internet and cross-border flows of massive amounts of data, avoiding a transatlantic digital divide is highly important to the transatlantic partnership.¹⁹

Endnotes

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9. United States International Trade Commission, “Digital Trade in the U.S. and Global Economies, Part 2”, Pub.4485, Investigation No.332-540, August 2014, p.47.
10. For more, see Joshua P. Meltzer, “The Importance of the Internet and Transatlantic Data Flows for U.S. and EU Trade and Investment,” Brookings Institution, Global Economy and Development Working Paper 79, October 2014.
11. Meltzer, op. cit.
12. In 2014 the Bureau of Economic Analysis (BEA) restructured its international economic accounts, so that the categories traditionally originally used to estimate the value of digital services trade are no longer the most up-to-date ones available. The category called “royalties and license fees” is now called “charges for the use of intellectual property,” while “business, professional, and technical services” has been split into two categories – “maintenance and repair services” and “other business services.” To maintain coherence for transatlantic comparison, however, we have chosen to maintain the traditional categories. See Ryan Noonan, “Digitally Deliverable Services Remain an Important Component of U.S. Trade,” Economics and Statistics Administration, U.S. Department of Commerce, May 28, 2015, <http://www.esa.gov/economic-briefings/digitally-deliverable-services-remain-important-component-us-trade>.
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