Trends in U.S. Trade in Information and Communications Technology (ICT) Services and in ICT-Enabled Services

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INFORMATION AND COMMUNICATIONS technologies (ICT) play a vital role in the facilitation of trade in many types of services. Technological advances and reductions in costs for ICT over time have led to a greater opportunity for the remote provision and procurement of services across international borders. The desire to understand how these technological changes may affect international trade in ICT services and of the services trade taking place over ICT networks has led to increased interest in measuring such trade. This article builds on the international statistical community's recent progress toward more precisely defining the types of services that fall into these categories. It presents statistics for 1999–2014 of U.S. trade in ICT and potentially ICT-enabled services using statistics published by the Bureau of Economic Analysis (BEA) on international trade in services. In keeping with the Bureau of Economic Analysis's mission, these statistics promote a better understanding how U.S. companies engaged in services trade are reaching global markets. They also shed light on whether and how companies have reconfigured their global value chains over time in response to improvements in ICT.

This article updates and extends an earlier paper, "Trends in Digitally Enabled Trade in Services, 1998–2010," which featured estimates of ICT-enabled services trade (referred in that article as "digitally enabled" services trade) compiled from statistics published by BEA.[1] This article refines the definition of ICT-enabled services used in the earlier article with the expanded detail in trade in services resulting from the comprehensive restructuring of the international economic accounts in 2014.[2] It also introduces statistics on trade in ICT services and country-level statistics on trade in potentially ICT-enabled services.

ICT services are those services that are used to facilitate information processing and communication. ICT services presented in this article include three categories of services from BEA's published statistics on international trade in services: telecommunications services, computer services, and charges for the use of intellectual property associated with computer software (table A). ICT-enabled services are "services with outputs delivered remotely over ICT networks."[3] This

1. Maria Borga and Jennifer Koncz-Bruner. "Trends in Digitally Enabled Trade in Services, 1998–2010" (June 2012).

2. For more information, see Maria Borga and Kristy L. Howell, "The Comprehensive Restructuring of the International Economic Accounts: Changes in Definitions, Classifications, and Presentations," Survey of Current Business 90 (March 2014).

3. Timothy J. Sturgeon, Torbjörn Fredriksson, Scarlett Fondeur, and Diana Korka, International Trade in ICT Services and ICT-Enabled Services: Proposed Indicators from the Partnership on Measuring ICT for Development (Geneva, Switzerland: United Nations Conference on Trade and Development (UNCTAD) Division on Technology and Logistics, Science, Technology and ICT Branch, ICT Analysis Section, October 2015).

Table A. Trade in Selected Services Types by ICT and Potentially ICT-Enabled Services Categories, 2014

[Millions of dollars]

	Exports	Imports	Balance
Total services	**710,565**	**477,428**	**233,137**
Potentially ICT-enabled services	**385,108**	**230,875**	**154,233**
ICT services	68,374	37,815	30,559
Other potentially ICT-enabled services	316,734	193,060	123,674
Not potentially ICT-enabled services	**325,457**	**246,553**	**78,904**
Total services	**710,565**	**477,428**	**233,137**
Maintenance and repair services n.i.e.	22,389	7,468	14,921
Transport	90,031	94,219	–4,188
Travel (for all purposes including education)	177,241	110,787	66,454
Insurance services	17,417	50,096	–32,679
Financial services	87,290	19,503	67,787
Charges for the use of intellectual property n.i.e.	130,362	42,124	88,238
Industrial processes	48,723	23,783	24,940
Computer software	39,514	6,773	32,741
Trademarks	16,883	(D)	(D)
Franchise fees	5,735	(D)	(D)
Audio-visual and related products	19,414	7,643	11,771
Other intellectual property	94	114	–20
Telecommunications, computer, and information services	35,885	33,314	2,571
Telecommunications services	13,550	6,656	6,894
Computer services	15,310	24,386	–9,076
Information services	7,025	2,272	4,753
Other business services	129,514	95,752	33,762
Research and development services	33,192	33,048	144
Professional and management consulting services	59,487	38,163	21,324
Technical, trade-related, and other business services	36,834	24,542	12,292
Architectural and engineering services	12,343	4,986	7,357
Construction	1,971	2,261	–290
Industrial engineering	4,085	2,691	1,394
Mining	3,797	1,762	2,035
Operating leasing services	7,505	3,509	3,996
Trade-related services	1,269	1,390	–121
Sports and performing arts	817	992	–175
Training services	2,515	1,260	1,255
Other business services n.i.e.	2,532	5,690	–3,158
Government goods and services n.i.e.	20,438	24,163	–3,725

ICT Information and communications technology

ICT services

Other potentially ICT-enabled services

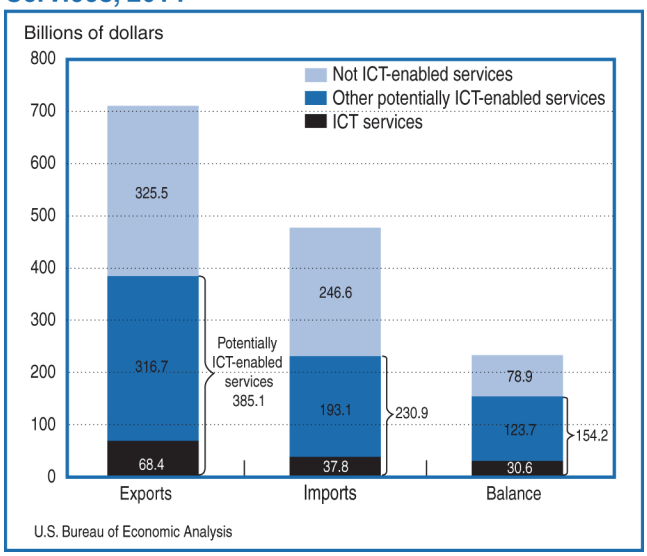
(D) Suppressed to avoid the disclosure of the data of individual companies.

n.i.e. Not included elsewhere

article also features a more broadly defined concept, *potentially* ICT-enabled services. For many types of services, the actual mode of delivery is unknown. Potentially ICT-enabled services include services types that *can* predominantly be delivered remotely over ICT networks without identifying the services that *are* delivered over ICT networks. See the box, "Defining ICT and Potentially ICT-Enabled Trade in Services." Statistics on potentially ICT-enabled services are composed of BEA's published statistics on international trade in insurance services; financial services; charges for the use of intellectual property n.i.e.; telecommunications, computer, and information services; and certain other services included in other business services (table A). Potentially ICT-enabled services include ICT services. Before 2006, limited detail is available for statistics on certain types of services trade. Consequently, ICT and potentially ICT-enabled statistics for 1999–2005 are partly based on estimates of subcomponents within services categories.[4]

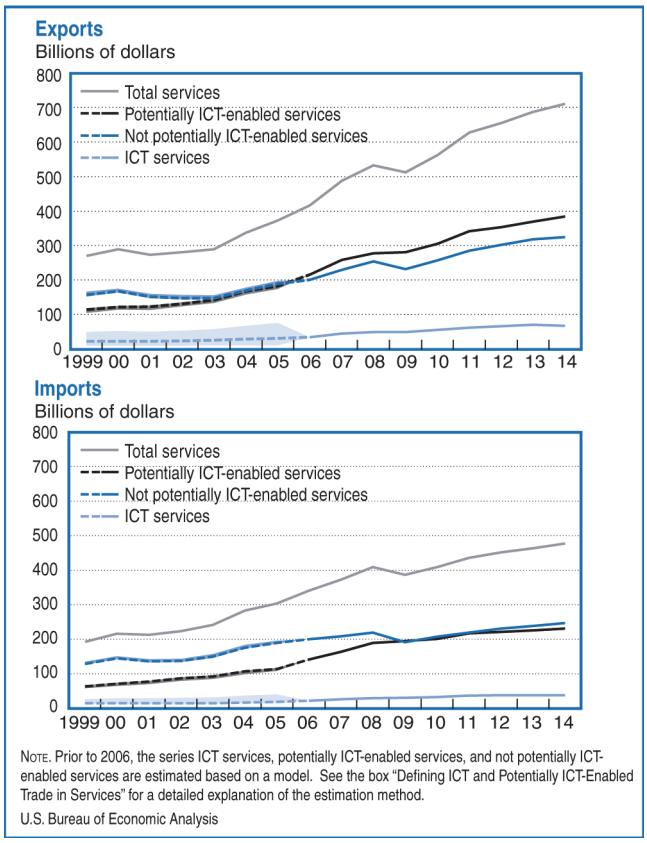
In 2014, exports of ICT services were $68.4 billion, and imports of ICT services were $37.8 billion, resulting in a trade surplus in ICT services of $30.6 billion. Exports of potentially ICT-enabled services were $385.1 billion, and imports of potentially ICT-enabled services were $230.9 billion, resulting in a trade surplus of $154.2 billion (chart 1). The statistics on trade

Chart 1. Trade in ICT and Potentially ICT-Enabled Services, 2014



in ICT services and trade in potentially ICT-enabled services presented in this article are available starting for 1999, the earliest year for which BEA has published data on trade in services by type that allow for ICT services and potentially ICT-enabled services to be separately identified or estimated.[5] From 1999 to 2014, ICT services exports and potentially ICT-enabled services exports and imports more than tripled, and ICT services imports more than doubled (chart 2).[6] Exports of

Chart 2. Trade in ICT and Potentially ICT-Enabled Services, 1999–2014



NOTE. Prior to 2006, the series ICT services, potentially ICT-enabled services, and not potentially ICT-enabled services are estimated based on a model. See the box "Defining ICT and Potentially ICT-Enabled Trade in Services" for a detailed explanation of the estimation method.

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both ICT and potentially ICT-enabled services grew faster than imports, leading to an increase in the trade surplus in ICT services from 1.7 percent to 2.6 percent of total trade in services (exports plus imports) and to an increase in the trade surplus in potentially ICT-enabled services from 10.9 percent to 13.0 percent of total trade in services. The growth in the surplus on trade in potentially ICT-enabled services contributed to the growth of the surplus on trade in all services, which

4. For more detailed definitions of ICT and potentially ICT-enabled services, see the box "Defining ICT and Potentially ICT-Enabled Trade in Services." For the full list of types of trade in services in BEA's published statistics that are identified as ICT and as potentially ICT-enabled, see table 1.

5. The statistics presented in this article are calculated from BEA's published statistics on trade in services, not from the underlying data used to compile the services trade statistics. For future years, statistics on trade in ICT services and trade in potentially ICT-enabled services will be calculated from the underlying data by the same processing system used for the other services trade statistics. The statistics in this article may differ slightly from those that will be published in future years because of differences in the rounding procedures used.

6. All statistics presented in this article are in current dollars and all growth rates are in nominal terms.

increased from 16.9 percent to 19.6 percent of total trade in services over the same period.

This article describes trade in ICT services and in potentially ICT-enabled services in 2014 and examines trends in these series from 1999. First, overall trade is discussed, followed by a discussion of U.S. trade in ICT and potentially ICT-enabled services by partner country. Summary statistics are provided in each section. For additional statistics, see tables 1–8 that follow this article. The following are key findings identified in this article:

- From the early 2000s to 2008, trade in ICT and potentially ICT-enabled services grew most rapidly. Growth slowed considerably in 2009, reflecting the broader economic slowdown and then resumed in 2010 for exports and in 2011 for imports before starting to slow again in 2012. Exports and imports of ICT services contracted in 2014.
- In 2014, the majority of trade in ICT services was between affiliated trading partners, and the majority of trade in potentially ICT-enabled services was between unaffiliated trading partners.
- In 2014, Europe accounted for the most exports of ICT services, exports of potentially ICT-enabled services, and imports of potentially ICT-enabled services by region. Asia and Pacific accounted for the most imports of ICT services.
- In 2014, the United States had trade surpluses in ICT services with every region except the Middle East and with all regions in potentially ICT-enabled services. The largest trade surpluses in ICT services were with Europe and Latin America and Other Western Hemisphere. The largest surpluses in potentially ICT-enabled services were with Europe and Asia and Pacific.

U.S. Exports

ICT services

In 2014, the most recent year for which BEA's most detailed annual trade in services statistics are available, exports of ICT services were $68.4 billion, or 9.6 percent of total services exports (table B). By service type, more than half of ICT exports in 2014 were exports that reflect charges for the use of intellectual property associated with computer software (chart 3). By affiliation status of trading partners, just over half of all ICT exports were to affiliated purchasers in 2014 (table C).

From 1999, the earliest year for which BEA has published data on trade in services by type that allow for ICT services to be separately identified or estimated, to 2014, ICT exports increased at an average annual rate of 7.6 percent (table D). Over that same period, exports of all services types grew by an average annual rate of 6.6 percent, resulting in an increase in ICT services' share of all services exports to 9.6 percent from 8.3 percent (table B). Exports of ICT services grew rapidly from 2003 to 2008, but growth slowed in 2009, reflecting the broader economic slowdown. Growth resumed in 2010 and 2011, but slowed again from 2012

Table B. Trade in ICT Services and in Potentially ICT-Enabled Services, 1999-2014

	All services (Millions of dollars)	Potentially ICT-enabled services						Not potentially ICT-enabled services	
		Total (Millions of dollars)	Total	ICT services		Other potentially ICT-enabled services		Total (Millions of dollars)	As a share of all services (Percent)
			As a share of all services (Percent)	Total (Millions of dollars)	As a share of all services (Percent)	Total (Millions of dollars)	As a share of all services (Percent)		
Exports									
1999	271,343	114,830	42.3	22,646	8.3	92,183	34.0	156,513	57.7
2000	290,381	122,220	42.1	23,472	8.1	98,748	34.0	168,161	57.9
2001	274,323	122,616	44.7	23,215	8.5	99,401	36.2	151,707	55.3
2002	280,670	132,452	47.2	24,009	8.6	108,443	38.6	148,218	52.8
2003	289,972	142,427	49.1	25,852	8.9	116,575	40.2	147,545	50.9
2004	337,966	168,062	49.7	29,537	8.7	138,526	41.0	169,904	50.3
2005	373,006	183,124	49.1	32,009	8.6	151,115	40.5	189,882	50.9
2006	416,738	215,508	51.7	35,494	8.5	180,014	43.2	201,230	48.3
2007	488,396	258,566	52.9	44,908	9.2	213,658	43.7	229,830	47.1
2008	532,817	277,769	52.1	49,915	9.4	227,854	42.8	255,048	47.9
2009	512,722	280,768	54.8	49,940	9.7	230,828	45.0	231,954	45.2
2010	563,333	305,582	54.2	55,910	9.9	249,672	44.3	257,751	45.8
2011	627,781	342,399	54.5	63,244	10.1	279,155	44.5	285,382	45.5
2012	656,411	353,520	53.9	66,796	10.2	286,724	43.7	302,891	46.1
2013	687,894	369,975	53.8	70,714	10.3	299,261	43.5	317,919	46.2
2014	710,565	385,108	54.2	68,374	9.6	316,734	44.6	325,457	45.8
Imports									
1999	192,893	64,140	33.3	14,697	7.6	49,443	25.6	128,753	66.7
2000	216,115	71,477	33.1	14,183	6.6	57,294	26.5	144,638	66.9
2001	213,465	77,194	36.2	14,135	6.6	63,060	29.5	136,271	63.8
2002	224,379	86,991	38.8	13,821	6.2	73,169	32.6	137,388	61.2
2003	242,219	92,427	38.2	15,112	6.2	77,315	31.9	149,792	61.8
2004	283,083	106,644	37.7	16,693	5.9	89,951	31.8	176,439	62.3
2005	304,448	114,163	37.5	18,519	6.1	95,643	31.4	190,285	62.5
2006	341,165	141,358	41.4	22,162	6.5	119,196	34.9	199,807	58.6
2007	372,575	164,067	44.0	26,394	7.1	137,673	37.0	208,508	56.0
2008	409,052	189,872	46.4	29,790	7.3	160,082	39.1	219,180	53.6
2009	386,801	194,961	50.4	30,626	7.9	164,335	42.5	191,840	49.6
2010	409,313	200,976	49.1	32,621	8.0	168,355	41.1	208,337	50.9
2011	435,761	216,537	49.7	36,615	8.4	179,922	41.3	219,224	50.3
2012	452,013	221,013	48.9	37,604	8.3	183,409	40.6	231,000	51.1
2013	463,700	225,840	48.7	38,267	8.3	187,573	40.5	237,860	51.3
2014	477,428	230,875	48.4	37,815	7.9	193,060	40.4	246,553	51.6
Balance									
1999	78,450	50,690	64.6	7,949	10.1	42,741	54.5	27,760	35.4
2000	74,266	50,744	68.3	9,290	12.5	41,454	55.8	23,522	31.7
2001	60,858	45,421	74.6	9,080	14.9	36,341	59.7	15,437	25.4
2002	56,291	45,461	80.8	10,187	18.1	35,273	62.7	10,830	19.2
2003	47,753	50,000	104.7	10,740	22.5	39,260	82.2	–2,247	–4.7
2004	54,883	61,418	111.9	12,843	23.4	48,575	88.5	–6,535	–11.9
2005	68,558	68,961	100.6	13,490	19.7	55,471	80.9	–403	–0.6
2006	75,573	74,150	98.1	13,332	17.6	60,818	80.5	1,423	1.9
2007	115,821	94,499	81.6	18,514	16.0	75,985	65.6	21,322	18.4
2008	123,765	87,897	71.0	20,125	16.3	67,772	54.8	35,868	29.0
2009	125,921	85,807	68.1	19,314	15.3	66,493	52.8	40,114	31.9
2010	154,020	104,606	67.9	23,289	15.1	81,317	52.8	49,414	32.1
2011	192,020	125,862	65.5	26,629	13.9	99,233	51.7	66,158	34.5
2012	204,398	132,507	64.8	29,192	14.3	103,315	50.5	71,891	35.2
2013	224,194	144,135	64.3	32,447	14.5	111,688	49.8	80,059	35.7
2014	233,137	154,233	66.2	30,559	13.1	123,674	53.0	78,904	33.8

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to 2013. ICT exports contracted in 2014. More than half of the increase in ICT exports from 1999–2014 was in exports that reflect charges for the use of intellectual property associated with computer software, which more than tripled over that period (chart 3).

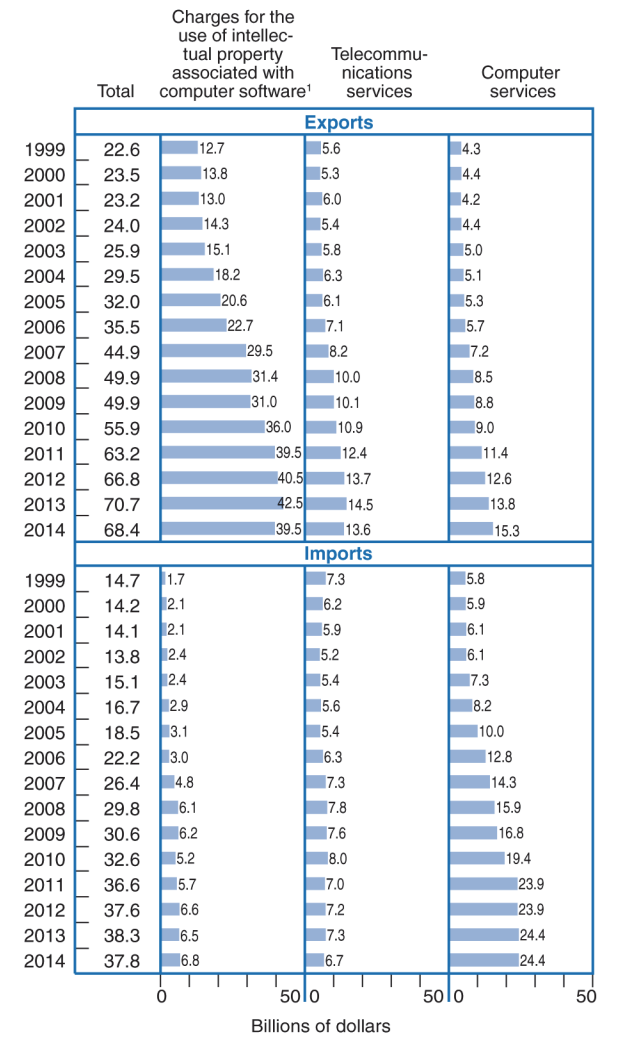
Potentially ICT-enabled services

Exports of potentially ICT-enabled services were $385.1 billion in 2014, accounting for 54.2 percent of total services exports (table B). The services categories with the largest potentially ICT-enabled exports in 2014 were exports that reflect charges for the use of intellectual property n.i.e. and the potentially ICT-enabled services types categorized under other business services (chart 4). In 2014, 50.5 percent of potentially ICT-enabled exports were to affiliated trading partners (table C).[7]

From 1999 to 2014, potentially ICT-enabled exports grew at an average annual rate of 8.4 percent (table D). Exports of not potentially ICT-enabled services, which mainly consist of travel (for all purposes including education), transport, maintenance and repair services n.i.e., and government goods and services n.i.e., grew at an average annual rate of 5.0 percent over the same period, resulting in an increase in potentially ICT-enabled services' share of all services exports to 54.2 percent from 42.3 percent. Most of this growth was in the first half of the period; growth slowed in 2009 but resumed in 2010 and 2011, before slowing again from 2012 to 2014.

Among the major categories of services, the largest increases in potentially ICT-enabled services exports for 1999–2014 were in charges for the use of intellectual property n.i.e., the potentially ICT-enabled portion of other business services, and in financial services (chart 4). The major categories with the fastest average annual rates of growth over the same period were insurance services (12.3 percent) and financial services (10.5 percent) (table 1).

Chart 3. Trade in ICT Services by Service Type, 1999–2014



1. Charges for the use of intellectual property associated with computer software are estimated for 1999–2005. See the box "Defining ICT and Potentially ICT-Enabled Trade in Services" for a detailed explanation of the estimation method.

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7. In addition to the services types included in potentially ICT-enabled services for the trade by all affiliation types, the statistics by affiliation also include trade-related services, sports and performing arts, and mining, which cannot be disaggregated from the potentially ICT-enabled services in the category "other" technical, trade-related, and other business services (lines 58 and 117 of international services table 2.3). In 2014, the total of these three categories for all countries accounted for 53.8 percent of the category "other" technical, trade-related, and other business services exports and 1.5 percent of potentially ICT-enabled services exports; for imports, these shares were 37.4 percent and 1.8 percent, respectively.

Data Availability

Tables A–E and 1–8 presented in this article are available in an Excel file on BEA's Web site. Statistics on ICT services and potentially ICT-enabled services for 2015 will be released in October 2016 when BEA publishes its most detailed annual statistics for U.S. international services. The statistics presented in this article for 2013 and 2014 will also be revised at that time.

U.S. Imports

ICT services

Imports of ICT services were $37.8 billion, accounting for 7.9 percent of total services imports in 2014 (table B). Nearly two-thirds of ICT imports were in computer services (chart 3). Seventy percent of all ICT imports were from affiliated trading partners (table C).

From 1999 to 2014, ICT imports grew at an average annual rate of 6.5 percent, while imports of all services types grew at an average annual rate of 6.2 percent, leading to a slight increase in the share of ICT services imports of all services imports to 7.9 percent from 7.6 percent (tables D and B). ICT imports more than doubled from 2002 to 2008, but their growth slowed in 2009. As with growth in ICT exports, after increasing from 2010 to 2011, growth in ICT imports again slowed from 2012 to 2013 and ICT imports contracted in 2014. More than 80 percent of the increase in ICT imports over the period 1999–2014 was due to an increase in imports of computer services, and the remainder was more than accounted for by an increase in imports that reflected charges for the use of computer software. Imports of telecommunications services contracted between 1999 and 2014 (chart 3).

Potentially ICT-enabled services

In 2014, imports of potentially ICT-enabled services were $230.9 billion, accounting for 48.4 percent of total services imports (table B). The potentially ICT-enabled services in other business services and insurance services combined for more than half of total potentially ICT-enabled services imports (chart 4). In 2014, 52.9 percent of potentially ICT-enabled imports were from unaffiliated trading partners (table C).

From 1999 to 2014, potentially ICT-enabled imports grew at an average annual rate of 8.9 percent, while imports of not potentially ICT-enabled services grew at an average annual rate of 4.4 percent, resulting in an increase in potentially ICT-enabled services' share of all services imports to 48.4 percent from 33.3 percent (tables D and B). Growth was most rapid in 2004–2008, then slowed in 2009–2010, reflecting the broader economic slowdown. Growth resumed in 2011, but again slowed from 2012 to 2014.

Other business services and insurance services together accounted for nearly two-thirds of the increase in potentially ICT-enabled services imports in 1999–2014 (chart 4). They also were the categories with the most rapid growth over the same period; insurance grew at an average annual rate of 11.8 percent, and the potentially ICT-enabled services in other business services—research and development services, professional and management consulting services, architectural and engineering services, industrial engineering, training services, and other business services n.i.e.—collectively grew at an average annual rate of 10.4 percent (table 2).

Table C. Trade in ICT Services and in Potentially ICT-Enabled Services by Affiliation, 2006-2014

	Total services			Unaffiliated			Affiliated		
	Level (Millions of dollars)		Average annual growth (Percent)	Level (Millions of dollars)		Average annual growth (Percent)	Level (Millions of dollars)		Average annual growth (Percent)
	2006	2014	2006–2014	2006	2014	2006–2014	2006	2014	2006–2014
Total services exports	**416,738**	**710,565**	**6.9**	**307,679**	**512,848**	**6.6**	**109,058**	**197,718**	**7.7**
ICT services	35,494	68,374	8.5	17,487	31,693	7.7	18,009	36,681	9.3
Potentially ICT-enabled services	215,508	385,108	7.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Insurance services [1]	9,445	17,417	7.9	9,445	17,417	7.9	.....	.....	.....
Financial services	47,882	87,290	7.8	37,283	69,649	8.1	10,599	17,641	6.6
Charges for the use of intellectual property n.i.e.	83,549	130,362	5.7	28,276	47,962	6.8	55,273	82,400	5.1
Telecommunications, computer, and information services [2]	17,184	35,885	9.6	12,451	20,233	6.3	4,733	15,652	16.1
Potentially ICT-enabled services in other business services	57,448	114,154	9.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total services imports	**341,165**	**477,428**	**4.3**	**272,413**	**345,917**	**3.0**	**68,751**	**131,510**	**8.4**
ICT services	22,162	37,815	6.9	8,200	11,345	4.1	13,963	26,471	8.3
Potentially ICT-enabled services	141,358	230,875	6.3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Insurance services [1]	39,382	50,096	3.1	39,382	50,096	3.1	.....	.....	.....
Financial services	14,733	19,503	3.6	8,139	11,230	4.1	6,594	8,272	2.9
Charges for the use of intellectual property n.i.e.	25,038	42,124	6.7	7,175	13,816	8.5	17,863	28,309	5.9
Telecommunications, computer, and information services [2]	19,776	33,314	6.7	7,754	10,985	4.5	12,023	22,328	8.0
Potentially ICT-enabled services in other business services	42,429	85,838	9.2	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. not available
..... Not applicable
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n.i.e. Not included elsewhere

1. Insurance services transactions are considered to be unaffiliated even when they are between affiliated companies because the services are considered to be provided to the policyholders who pay the insurance premiums and who are unaffiliated with either company. The only insurance services considered to be affiliated are primary insurance transactions between a U.S. company that is not an insurance company and an affiliated foreign insurance company, such as a captive foreign insurance affiliate. Data on these affiliated insurance services are not separately available.

2. Transactions in basic telecommunications services are considered to be unaffiliated, even when the services flow through affiliated channels, because they represent the distribution of revenues collected from unaffiliated customers. Other types of telecommunications services, such as value-added services, may flow through either affiliated or unaffiliated channels, and are recorded accordingly.

Table D. Growth in Trade in ICT Services and in Potentially ICT-Enabled Services, 2000-2014

[Percent change from preceding year]

	All services	Potentially ICT-enabled services			Not potentially ICT-enabled services
		Total	ICT services	Other potentially ICT-enabled services	
Exports					
2000	7.0	6.4	3.6	7.1	7.4
2001	–5.5	0.3	–1.1	0.7	–9.8
2002	2.3	8.0	3.4	9.1	–2.3
2003	3.3	7.5	7.7	7.5	–0.5
2004	16.6	18.0	14.3	18.8	15.2
2005	10.4	9.0	8.4	9.1	11.8
2006	11.7	17.7	10.9	19.1	6.0
2007	17.2	20.0	26.5	18.7	14.2
2008	9.1	7.4	11.1	6.6	11.0
2009	–3.8	1.1	0.1	1.3	–9.1
2010	9.9	8.8	12.0	8.2	11.1
2011	11.4	12.0	13.1	11.8	10.7
2012	4.6	3.2	5.6	2.7	6.1
2013	4.8	4.7	5.9	4.4	5.0
2014	3.3	4.1	–3.3	5.8	2.4
Compound average annual growth	6.6	8.4	7.6	8.6	5.0
Imports					
2000	12.0	11.4	–3.5	15.9	12.3
2001	–1.2	8.0	–0.3	10.1	–5.8
2002	5.1	12.7	–2.2	16.0	0.8
2003	8.0	6.2	9.3	5.7	9.0
2004	16.9	15.4	10.5	16.3	17.8
2005	7.5	7.1	10.9	6.3	7.8
2006	12.1	23.8	19.7	24.6	5.0
2007	9.2	16.1	19.1	15.5	4.4
2008	9.8	15.7	12.9	16.3	5.1
2009	–5.4	2.7	2.8	2.7	–12.5
2010	5.8	3.1	6.5	2.4	8.6
2011	6.5	7.7	12.2	6.9	5.2
2012	3.7	2.1	2.7	1.9	5.4
2013	2.6	2.2	1.8	2.3	3.0
2014	3.0	2.2	–1.2	2.9	3.7
Compound average annual growth	6.2	8.9	6.5	9.5	4.4
Balance					
2000	–5.3	0.1	16.9	–3.0	–15.3
2001	–18.1	–10.5	–2.3	–12.3	–34.4
2002	–7.5	0.1	12.2	–2.9	–29.8
2003	–15.2	10.0	5.4	11.3	(1)
2004	14.9	22.8	19.6	23.7	190.9
2005	24.9	12.3	5.0	14.2	–93.8
2006	10.2	7.5	–1.2	9.6	(1)
2007	53.3	27.4	38.9	24.9	1398.4
2008	6.9	–7.0	8.7	–10.8	68.2
2009	1.7	–2.4	–4.0	–1.9	11.8
2010	22.3	21.9	20.6	22.3	23.2
2011	24.7	20.3	14.3	22.0	33.9
2012	6.4	5.3	9.6	4.1	8.7
2013	9.7	8.8	11.2	8.1	11.4
2014	4.0	7.0	–5.8	10.7	–1.4
Compound average annual growth	7.5	7.7	9.4	7.3	7.2

ICT Information and communications technology

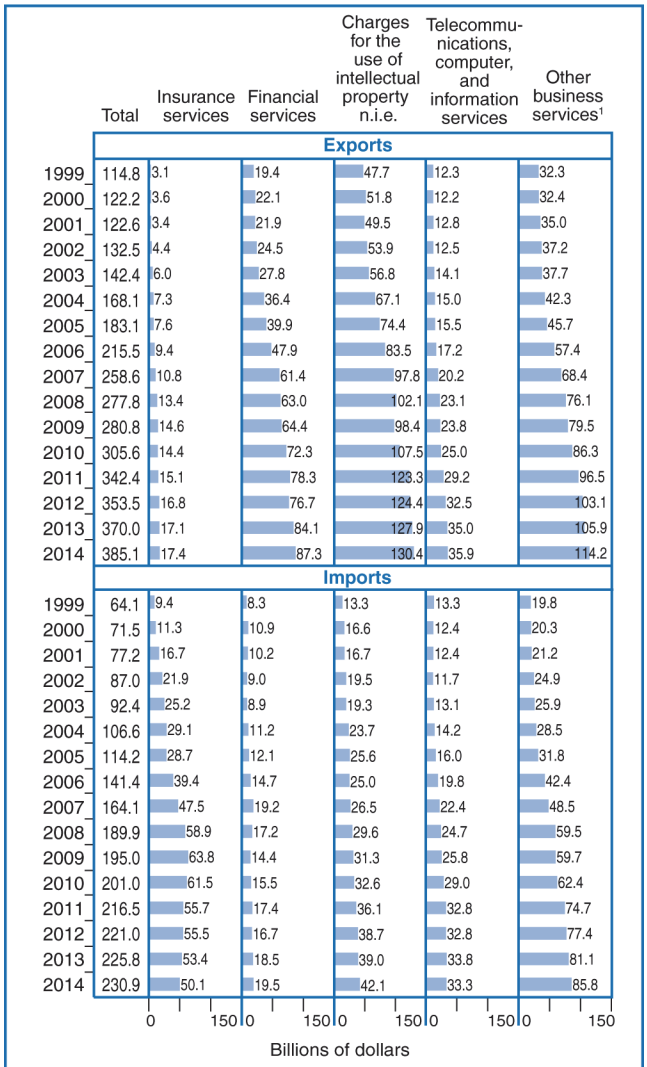
1.The growth rates for the balances for 2003 and 2006 are not shown, because the balance transitioned to a surplus from a deficit or to a deficit from a surplus.

U.S. Trade Balance

ICT services

The surplus on ICT services was $30.6 billion in 2014, primarily reflecting a surplus on charges for the use of intellectual property associated with computer software (table B). From 1999 to 2014, the surplus on ICT services grew at an average annual rate of 9.4 percent, while the surplus on all services types grew at an average annual rate of 7.5 percent, leading to an increase in the ICT services' share of the all-services surplus to 13.1 percent from 10.1 percent (tables D and B). Nearly all of the increase in the surplus on ICT services in 1999–2014 was due to an increase in the surplus on

Chart 4. Trade in Potentially ICT-Enabled Services by Service Type, 1999–2014



1. The category other business services reflects only the services types categorized under other business services that are considered potentially ICT-enabled. The point estimates of exports and imports in these services types for 1999–2005 are model based. See the box "Defining ICT and Potentially ICT-Enabled Trade in Services" for a detailed explanation of the estimation method.

U.S. Bureau of Economic Analysis

charges for the use of intellectual property associated with computer software. Over the same period, the balance of trade in telecommunications services shifted from a deficit to a surplus, and the deficit on computer services grew.

Potentially ICT-enabled services

In 2014, the surplus on potentially ICT-enabled services was $154.2 billion, primarily reflecting surpluses on charges for the use of intellectual property n.i.e., financial services, and the potentially ICT-enabled components in other business services (table B). A deficit on insurance services was partly offsetting. From 1999 to 2014, the surplus on potentially ICT-enabled services grew at an average annual rate of 7.7 percent, while the surplus on imports of not potentially ICT-enabled services grew at an average annual rate of 7.2 percent, resulting in a slight increase in the potentially ICT-enabled services' share of the surplus on total services to 66.2 percent from 64.6 percent (tables D and B). An increase in the surpluses on financial services and on charges for the use of intellectual property n.i.e. more than accounted for the increase in the surplus on potentially ICT-enabled services.

ICT and ICT-Enabled Services by Partner Country

The share of total services trade in ICT and potentially ICT-enabled services exports and imports varies by region and by country. BEA's statistics on potentially ICT-enabled services by country use a slightly different definition of potentially ICT-enabled services than for the all-country totals in the previous section because less detail is available by service type in BEA's published statistics of trade in services by country.[8] For countries for which one or more of the components of ICT or potentially ICT-enabled services exports or imports was suppressed to avoid the disclosure of data of individual companies, a range of possible values was calculated to rank the value of ICT and potentially ICT services exports and imports for all countries whose U.S. exports and imports of services are separately published by BEA.[9]

8. In addition to those services types included in potentially ICT-enabled services for the trade with all countries statistics, the statistics by partner country also include trade-related services, sports and performing arts, and mining, which cannot be disaggregated from the potentially ICT-enabled services in the category "other" technical, trade-related, and other business services (lines 58 and 117 of international services table 2.3). In 2014, the total of these three categories for all countries accounted for 53.8 percent of the category "other" technical, trade-related, and other business services exports and 1.5 percent of potentially ICT-enabled services exports. For imports these shares were 37.4 percent and 1.8 percent, respectively.

9. ICT and potentially ICT-enabled statistics have more suppressions than some other BEA datasets because the suppression procedures applied to the components did not account for the eventuality that the ICT and potentially ICT-enabled totals would be published. In most cases the categories that are suppressed are relatively small parts of the total. For countries where one or more components are suppressed, charts 6, 9, 12, and 14–16 include an upper bound and lower bound that establish a range of possible values. The lower bound is equal to the sum of the unsuppressed services types included in ICT or potentially ICT-enabled services that appear in charts 6, 9, 12, and 14–16. The upper bound is calculated as the sum of the parent category of the suppressed component less any unsuppressed subcategories of that parent that are not considered ICT or potentially ICT-enabled services trade in charts 6, 9, 12, and 14–16. The lower bound is used to rank each country's total ICT services and potentially ICT-enabled services trade in charts 6–14. More sophisticated methods for determining the lower and upper bounds exist and may have served to tighten the range of the bounds, but these were not used to compile these charts.

Worldwide Trends in ICT-Enabled Trade in Services

Many countries do not compile statistics at the level of detail needed to calculate ICT services or potentially ICT-enabled services trade statistics. In addition, in recent years, many countries have restructured their trade in services statistics to conform more closely with the "Extended Balance of Payments Services Classification" presented in the updated *Manual on Statistics of International Trade in Services 2010,* thus limiting the comparability of statistics for recent years with those for older years. Despite these limitations, data on trade in services collected by the Organisation for Economic Co-operation and Development (OECD) from its member countries were used to calculate comparable estimates of ICT and potentially ICT-enabled trade for 2010-2014 for a set of countries that accounted for 67 percent of world exports and 58 percent of world imports in 2014.[1] For these countries, 50 percent of exports and 46 percent of imports were potentially ICT-enabled in 2014, an increase in both shares from 47 percent of exports and 43 percent of imports in 2010. These figures suggest that the share of global trade in services accounted for by potentially ICT-enabled trade has increased over this period. The shares for other countries are lower than the shares for the United States, which remained at 54 percent for exports in 2014 and 2010,and decreased slightly to 48 percent in 2014 from 49 percent in 2010 for imports.

1. The countries included in this comparison are Australia, Canada, the European Union (28 member countries), Hong Kong, Israel, the Republic of Korea, New Zealand, Russia, and the United States. The shares of world exports and imports for this set of countries were calculated using the World Trade Organization's 2015 international trade in services statistics. Potentially ICT-enabled services exports and imports were calculated for these countries using statistics available in the OECD.stat database on trade in services by partner country as the sum of the following services type categories: insurance and pension services; financial services; charges for the use of intellectual property n.i.e.; telecommunications, computer, and information services; research and development services; professional and management consulting services; architectural, engineering, scientific and other technical services; and other business services n.i.e.

U.S. exports

ICT services

By major region, the 2014 rank ordering of ICT services exports was the same as the rank ordering of total exports. Europe accounted for the most exports of ICT and total services, followed by Asia and Pacific and Latin America and Other Western Hemisphere (table E and chart 5). Nonetheless, ICT services shares of total exports varied by region. The largest ICT shares were for Latin America and Other Western Hemisphere (11.9 percent) and Europe (10.4 percent); the Middle East had the lowest share (3.5 percent) (table E). By country, the top five destinations for ICT exports in 2014 of those separately published by BEA were Brazil, the United Kingdom, Canada, Japan, and Germany

Chart 5. ICT Services Exports by Major Area, 2014

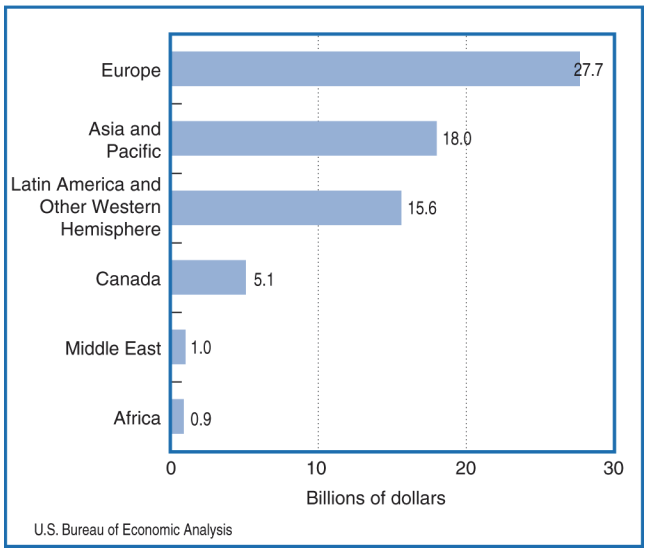


Table E. Trade in ICT Services and in Potentially ICT-Enabled Services by Major Area, 2014

	All services (Millions of dollars)	Potentially ICT-enabled services						Not potentially ICT-enabled services	
		Total (Millions of dollars)	Total		ICT services		Other potentially ICT-enabled services		Total (Millions of dollars)	As a share of all services (Percent)
			As a share of all services (Percent)	Total (Millions of dollars)	As a share of all services (Percent)	Total (Millions of dollars)	As a share of all services (Percent)		
Exports									
All countries	**710,565**	**390,992**	**55.0**	**68,374**	**9.6**	**322,618**	**45.4**	**319,573**	**45.0**
Canada	61,353	29,212	47.6	5,140	8.4	24,072	39.2	32,141	52.4
Europe	267,497	183,687	68.7	27,725	10.4	155,962	58.3	83,810	31.3
Latin America and Other Western Hemisphere	131,554	66,656	50.7	15,646	11.9	51,010	38.8	64,898	49.3
Africa	14,475	7,231	50.0	917	6.3	6,314	43.6	7,244	50.0
Middle East	27,764	11,132	40.1	960	3.5	10,172	36.6	16,632	59.9
Asia and Pacific	205,216	92,965	45.3	17,987	8.8	74,978	36.5	112,251	54.7
International organizations and unallocated	2,706	110	4.1	0	0.0	110	4.1	2,596	95.9
Imports									
All countries	**477,428**	**235,019**	**49.2**	**37,815**	**7.9**	**197,204**	**41.3**	**242,409**	**50.8**
Canada	30,074	14,991	49.8	5,074	16.9	9,917	33.0	15,083	50.2
Europe	203,023	106,909	52.7	13,041	6.4	93,868	46.2	96,114	47.3
Latin America and Other Western Hemisphere	95,027	46,596	49.0	3,214	3.4	43,382	45.7	48,431	51.0
Africa	8,608	(D)	(D)	301	3.5	(D)	(D)	(D)	(D)
Middle East	15,823	(D)	(D)	1,030	6.5	(D)	(D)	(D)	(D)
Asia and Pacific	123,621	57,715	46.7	15,155	12.3	42,560	34.4	65,906	53.3
International organizations and unallocated	1,251	1,061	84.8	0	0.0	1,061	84.8	190	15.2
Balance									
All countries	**233,137**	**155,973**	**66.9**	**30,559**	**13.1**	**125,414**	**53.8**	**77,164**	**33.1**
Canada	31,279	14,221	45.5	66	0.2	14,155	45.3	17,058	54.5
Europe	64,474	76,778	119.1	14,684	22.8	62,094	96.3	–12,304	–19.1
Latin America and Other Western Hemisphere	36,527	20,060	54.9	12,432	34.0	7,628	20.9	16,467	45.1
Africa	5,867	(D)	(D)	616	10.5	(D)	(D)	(D)	(D)
Middle East	11,941	(D)	(D)	–70	–0.6	(D)	(D)	(D)	(D)
Asia and Pacific	81,595	35,250	43.2	2,832	3.5	32,418	39.7	46,345	56.8
International organizations and unallocated	1,455	–951	–65.4	0	0.0	–951	–65.4	2,406	165.4

(D) Suppressed to avoid the disclosure of data of individual companies.
ICT Information and communications technology
NOTE. The regions do not sum to the totals for all countries for potentially ICT-enabled services, other potentially ICT-enabled services, and not potentially ICT-enabled services because a slightly different definition of potentially ICT-enabled services was used to produce the statistics by partner country.

(chart 6).[10] These top five countries are among the top nine markets for total services exports, but Brazil's ranking is much higher for ICT exports than its rank of eighth-largest export market for total services exports.

Exports of ICT services to Europe grew to $27.7 billion in 2014 from $14.5 billion in 2006, representing an average annual growth rate of 8.4 percent (chart 7).[11] More than half of the increase in ICT services exports to Europe over that period was due to an increase in charges for the use of computer software in 2007, particularly to Ireland and to the United Kingdom. Exports of ICT services to other top destinations also grew strongly from 2006 to 2014. Exports to Asia and Pacific grew at an average annual rate of 5.7 percent. Exports to Latin America and Other Western Hemisphere grew at an annual average rate of 16 percent.

10. Ireland has also historically been an important market for ICT services exports, but the values of exports of various components of ICT services exports have been suppressed since 2010 to avoid the disclosure of data of individual companies. In 2014 the upper bound for ICT services exports to Ireland was 10,124, which was larger than exports to the United Kingdom, the top market identified using available data.

11. The year 2006 was the first for which BEA has published data on trade in services by type and by country that allow for ICT services by partner country to be calculated from published statistics.

Potentially ICT-enabled services

As with ICT services exports, Europe was the largest regional destination for U.S. exports of potentially ICT-enabled services in 2014, followed by Asia and Pacific and by Latin America and Other Western Hemisphere (table E and chart 8). For three regions potentially ICT-enabled services accounted for half or

Chart 6. Growth in Exports of ICT Services by Country, 2006–2014 and Exports of ICT Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual growth 2006–2014	2014 Total[1]			Charges for the use of intellectual property associated with computer software	Telecommunications services	Computer services
			Point value	Lower bound	Upper bound			
		Percent	Millions of dollars					
1	Brazil	19.6	6,710	....	....	2,250	3,799	661
2	United Kingdom	3.4	5,412	....	....	1,662	1,541	2,209
3	Canada	4.8	5,140	....	....	2,677	684	1,779
4	Japan	2.0	4,665	....	....	3,524	230	911
5	Germany	3.6	2,512	....	....	1,549	271	692
6	Switzerland	14.6	2,156	....	....	989	112	1,055
7	Taiwan	10.1	2,114	....	....	1,975	27	112
8	Mexico	6.7	1,739	....	....	913	325	501
9	Bermuda	28.9	1,659	....	....	1,570	23	66
10	Australia	5.6	1,625	....	....	780	145	700
11	Argentina	19.5	1,511	....	....	267	1,180	64
12	France	0.4	1,493	....	....	743	217	533
13	Republic of Korea	5.0	1,479	....	....	1,192	88	199
14	India	17	1,472	....	....	577	141	754
15	China	7.8	1,311	....	....	815	113	383
16	Netherlands	4.7	1,195	....	....	683	171	341
17	Venezuela	15.6	1,128	....	....	165	912	51
18	Italy	–0.6	879	....	....	512	156	211
19	Sweden	11.2	844	....	....	239	300	305
20	Chile	15.8	584	....	....	288	236	60
21	Singapore[2]	–6.1	(D)	583	1,442	(D)	123	460
22	Belgium-Luxembourg	(D)	(D)	571	1,254	(D)	220	351
23	Spain	2.4	553	....	....	326	88	139
24	South Africa	3.9	453	....	....	259	22	172
25	Hong Kong	(D)	(D)	386	2,977	(D)	170	216
26	Israel	9.5	322	....	....	162	30	130
27	Malaysia	7.6	317	....	....	170	40	107
28	Thailand	9.8	233	....	....	88	29	116
29	Ireland	(D)	(D)	231	10,124	(D)	(D)	231
30	Norway	3.0	206	....	....	80	26	100
31	Philippines	–3.6	174	....	....	57	54	63
32	New Zealand	5.5	158	....	....	81	20	57
33	Indonesia	12.0	144	....	....	51	19	74
34	Saudi Arabia	–1.5	118	....	....	17	40	61

–10 40 0 15,000 0 15,000 0 15,000 0 15,000 0 15,000 0 15,000

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of ICT services exports are published, a point value is given for the total of ICT services exports. For countries where one or more components of ICT services exports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower bound and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

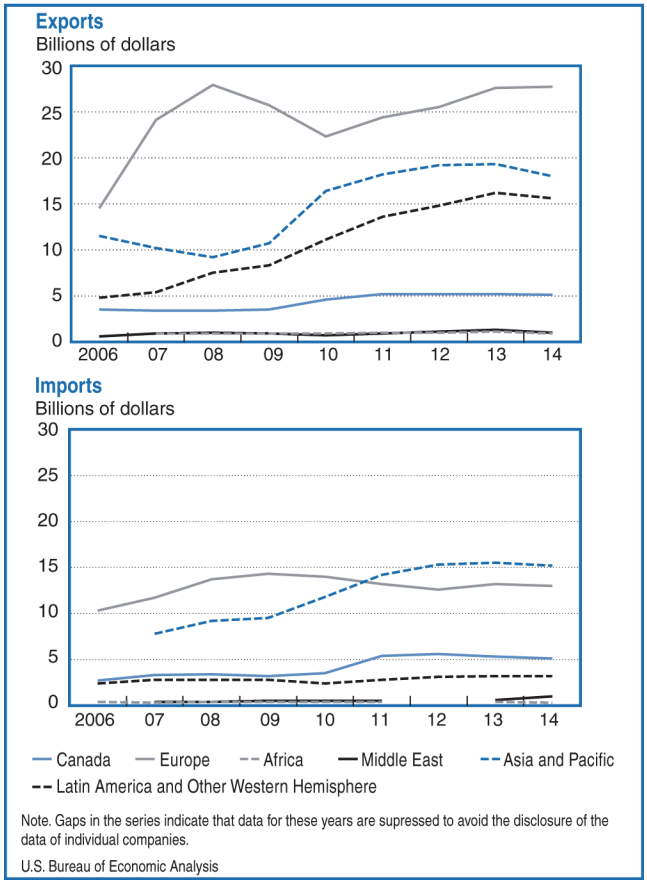
2. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

U.S. Bureau of Economic Analysis

more of all services exports: Europe (68.7 percent), Latin America and Other Western Hemisphere (50.7 percent), and Africa (50.0 percent). Potentially ICT-enabled services exports accounted for the lowest regional share in the Middle East (40.1 percent). By country, the top five destinations of potentially ICT-enabled exports in 2014 were the United Kingdom, Ireland, Canada, Japan, and Switzerland (chart 9). These countries were also among the top seven markets for total services exports in 2014.

Exports of potentially ICT-enabled services to the top regional destination, Europe, grew to $183.7 billion in 2014 from $111.2 billion in 2006, representing an average annual growth rate of 6.5 percent (chart 10). Exports of potentially ICT-enabled services to other top regional destinations also grew strongly from 2006 to 2014. Exports of potentially ICT-enabled services to Asia and Pacific grew by an average annual rate of 8.9 percent. Exports to Latin America and Other Western Hemisphere grew at an average annual rate of 9.8 percent.

Chart 7. Trade in ICT Services by Major Area, 2006–2014



U.S. imports

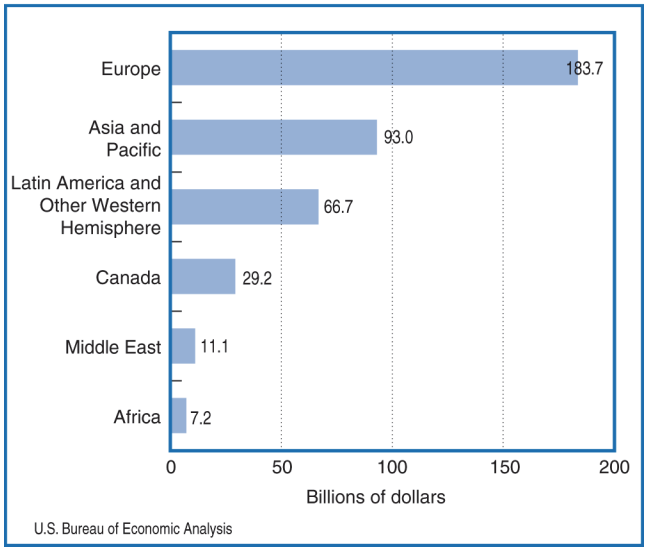
ICT services

Asia and Pacific was the largest regional source for U.S. imports of ICT services in 2014, followed by Europe (table E and chart 11). The two regions were ranked in the reverse order for total services imports. The regions where the largest shares of total services imports were accounted for by ICT services were Canada (16.9 percent) and Asia and Pacific (12.3 percent). Latin America and Other Western Hemisphere (3.4 percent) and Africa (3.5 percent) had the lowest shares (table E). The top five countries of origin for ICT imports in 2014 were India, Canada, the United Kingdom, Ireland, and Mexico (chart 12). Although these countries were also among the top ten countries of origin for total services imports in 2014, the rank ordering is quite different. India ranked seventh and Canada ranked fourth for total services imports.

Imports of ICT services from the top region of origin, Asia and Pacific, grew to $15.2 billion in 2014 from $7.8 billion in 2007, representing an average annual growth rate of 9.9 percent (chart 7).[12] Nearly all of the increase over that period was due to an increase in computer services. In contrast, imports of ICT services from Europe grew more slowly, growing at an average annual rate of 3.0 percent from 2006 to 2014, which led to Asia and Pacific overtaking Europe as the top region of origin for ICT imports in 2011.

12. The year 2007 was the first for which BEA has published data on trade in services by type and by country that allow for ICT services imports from Asia and Pacific to be calculated from published statistics.

Chart 8. Potentially ICT-Enabled Services Exports by Major Area, 2014



Potentially ICT-enabled services

Europe was the largest regional source for imports of potentially ICT-enabled services in 2014, followed by Asia and Pacific and Latin America and Other Western Hemisphere (table E and chart 13). Potentially ICT-enabled services accounted for a majority of all services imports (52.7 percent) from Europe and just under half of all imports from Canada (49.8 percent) and Latin America and Other Western Hemisphere (49.0 percent) (table E). The top five countries of origin of potentially ICT-enabled imports in 2014 were the United Kingdom, Bermuda, India, Japan, and

Chart 9. Growth in Exports of Potentially ICT-Enabled Services by Country, 2006–2014 and Exports of Potentially ICT-Enabled Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual average growth 2006–2014	2014 Total[1]			Insurance	Financial services	Charges for the use of intellecual property	Telecom-munications, computer, and information services	R&D and profes-sional and manage-ment consulting	Technical, trade-related, and other business services[2]
			Point value	Lower Bound	Upper bound						
		Percent	Millions of dollars								
1	United Kingdom[3]	2.5	(D)	40,486	42,855	1,906	14,971	9,731	4,862	9,016	(D)
2	Ireland	(D)	(D)	38,027	38,190	320	2,722	18,752	1,076	15,157	(D)
3	Canada	5.6	29,213	....	....	2,898	5,870	8,732	3,113	6,034	2,566
4	Japan	2.5	23,254	....	....	2,074	3,033	8,693	1,567	7,255	632
5	Switzerland	(D)	(D)	23,115	24,777	269	1,517	10,636	1,399	9,294	(D)
6	Germany	(D)	16,210	....	....	269	3,290	5,953	1,308	4,712	678
7	China	18.0	13,523	....	....	172	3,133	6,826	653	1,026	1,713
8	Netherlands	8.6	12,731	....	....	62	1,949	4,788	612	5,050	270
9	Brazil	17.1	12,574	....	....	468	2,119	4,074	4,617	670	626
10	Australia	11.0	11,332	....	....	838	3,602	2,884	1,224	1,437	1,347
11	Bermuda	(D)	10,261	....	....	3,452	1,377	2,193	100	3,115	24
12	Belgium-Luxembourg	11.7	9,931	....	....	99	3,725	2,430	634	2,936	107
13	France[4]	0.6	9,845	....	....	262	2,536	3,215	925	2,145	762
14	Republic of Korea	9.8	9,570	....	....	267	903	6,082	381	1,324	613
15	Singapore	(D)	8,922	....	....	221	982	3,329	736	3,250	404
16	Mexico	6.9	8,807	....	....	484	1,508	3,169	954	1,135	1,557
17	Taiwan	(D)	6,975	....	....	75	612	5,164	196	505	423
18	Hong Kong[4]	9.9	6,834	....	....	78	1,497	3,353	446	1,166	294
19	Italy	0.4	4,321	....	....	95	1,219	1,603	588	634	182
20	India	13.4	4,007	....	....	82	806	1,108	1,033	583	395
21	Spain	0.8	3,580	....	....	303	1,004	1,369	306	411	187
22	Argentina	(D)	(D)	2,825	3,079	99	469	791	1,286	180	(D)
23	Sweden	(D)	(D)	2,407	3,971	12	544	1,167	684	(D)	(D)
24	Venezuela	(D)	(D)	2,187	2,451	115	262	677	985	148	(D)
25	Saudi Arabia	(D)	(D)	2,130	3,206	19	929	207	209	766	(D)
26	Israel	11.9	1,969	....	....	116	394	593	213	579	74
27	South Africa[4]	4.3	1,903	....	....	43	358	774	251	159	318
28	Thailand	13.2	1,709	....	....	94	393	507	180	238	297
29	Chile[3]	15.0	(D)	1,676	1,869	188	383	530	327	248	(D)
30	Malaysia	11.4	1,619	....	....	33	309	628	167	306	176
31	Norway	6.1	1,599	....	....	47	508	259	186	295	304
32	Indonesia	9.1	1,187	....	....	34	277	286	116	290	184
33	Philippines	(D)	1,038	....	....	39	234	327	134	149	155
34	New Zealand	(D)	925	....	....	39	284	323	111	96	72
		0 50	0 50,000	0 50,000	0 50,000	0 25,000	0 25,000	0 25,000	0 25,000	0 25,000	0 25,000

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of potentially ICT-enabled services exports are published, a point value is given for the total of potentially ICT-enabled services exports. For countries where one or more components of potentially ICT-enabled services exports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

2. The category technical, trade-related, and other business services reflects only the services types that are considered potentially ICT-enabled.

3. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

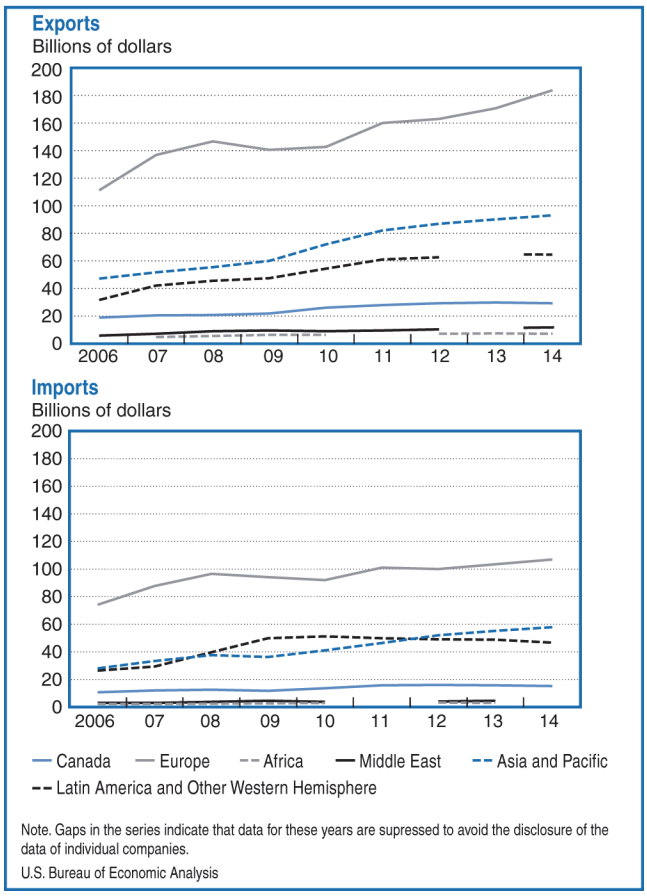
4. Average annual growth shown is for 2007–2014 because values from 2006 were suppressed to avoid disclosure of data of individual companies.

U.S. Bureau of Economic Analysis

Switzerland. These countries were all in the top seven countries of origin for total services imports in 2014.

Imports of potentially ICT-enabled services from the top region of origin, Europe, increased to $106.9 billion in 2014 from $73.9 billion in 2006, representing an average annual growth rate of 4.7 percent (chart 10). Imports of potentially ICT-enabled services from other top regions of origin also grew strongly over this period. Imports from Asia and Pacific grew at an average annual rate of 9.5 percent. Imports from Latin America and Other Western Hemisphere grew at an average annual rate of 7.4 percent.

Chart 10. Trade in Potentially ICT-Enabled Services by Major Area, 2006–2014



Note. Gaps in the series indicate that data for these years are supressed to avoid the disclosure of the data of individual companies.

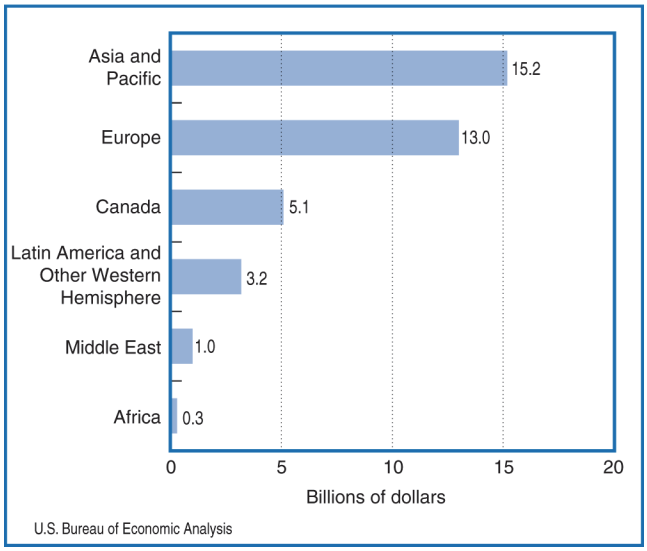
U.S. Bureau of Economic Analysis

U.S. trade balance

ICT services

In 2014, the largest surpluses by region in ICT services were with Europe and with Latin America and Other Western Hemisphere (table E). The United States also had surpluses in ICT services with Asia and Pacific, Africa, and Canada and a deficit with the Middle East. In contrast, the largest surplus for total services was with Asia and Pacific. The five largest surpluses in ICT services were with Brazil, Japan, the United Kingdom, Taiwan, and Bermuda (chart 15). The largest deficit was with India, which was more than accounted for by a deficit in computer services.

Chart 11. ICT Services Imports by Major Area, 2014



U.S. Bureau of Economic Analysis

The surplus on ICT services from Europe grew to $14.7 billion in 2014 from $4.2 billion in 2007. Most of the increase over that period was in charges for the use of intellectual property associated with computer software and in computer services. The surplus in Latin America and Other Western Hemisphere also grew sig-

Chart 12. Growth in Imports of ICT Services by Country, 2006–2014 and Imports of ICT Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual average growth 2006-2014	2014 Total[1]			Charges for the use of intellectual property associated with computer software	Telecommunications services	Computer services
			Point value	Lower Bound	Upper bound			
		Percent	Millions of dollars					
1	India	17.1	11,188	....	....	268	326	10,594
2	Canada	8.1	5,074	....	....	129	318	4,627
3	United Kingdom	–0.9	2,810	....	....	482	955	1,373
4	Ireland	15.2	1,506	....	....	1,250	44	212
5	Mexico	2.7	1,001	....	....	3	559	439
6	Germany[2]	2.0	(D)	948	3,196	(D)	113	835
7	China	(D)	(D)	911	1,087	(D)	196	715
8	Israel[3]	15.5	759	....	....	191	26	542
9	Netherlands	–0.9	697	....	....	57	460	180
10	Japan	–2.9	624	....	....	281	99	244
11	France	–7.8	622	....	....	94	124	404
12	Switzerland	(D)	(D)	614	1,973	(D)	62	552
13	Brazil	4.2	491	....	....	14	120	357
14	Singapore	7.5	372	....	....	25	75	272
15	Sweden	6.8	348	....	....	78	102	168
16	Australia	–0.7	336	....	....	40	70	226
17	Italy	–2.9	323	....	....	20	157	146
18	Belgium-Luxembourg	6.6	305	....	....	54	96	155
19	Malaysia	25.5	277	....	....	2	21	254
20	Hong Kong[2]	8.5	(D)	227	296	(D)	179	48
21	Philippines	(D)	(D)	215	1,234	(*)	215	(D)
22	Spain[3]	–4.8	201	....	....	14	143	44
23	Republic of Korea	5.3	124	....	....	14	50	60
24	Norway[3]	–3.5	67	....	....	3	10	54
25	Bermuda	13.5	66	....	....	(*)	65	1
26	Chile	6.9	51	....	....	(*)	25	26
27	Taiwan[2]	9.7	(D)	48	132	8	40	(D)
28	New Zealand	–1.5	39	....	....	1	23	15
29	South Africa	–18.0	39	....	....	1	24	14
30	Argentina	(D)	(D)	38	80	2	36	(D)
31	Saudi Arabia	–5.2	26	....	....	(*)	20	6
32	Venezuela	–1.0	23	....	....	1	16	6
33	Indonesia	0.8	17	....	....	1	13	3
34	Thailand	(D)	(D)	11	58	(*)	11	(D)

(*) Transactions between zero and $500,000

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of ICT services imports are published, a point value is given for the total of ICT services imports. For countries where one or more components of ICT services imports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

2. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

3. Average annual growth shown is for 2007–2014 because values from 2006 were suppressed to avoid disclosure of data of individual companies.

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nificantly, to $12.4 billion from $2.4 billion; an increase in the surplus with Brazil accounted for nearly half of the increase.

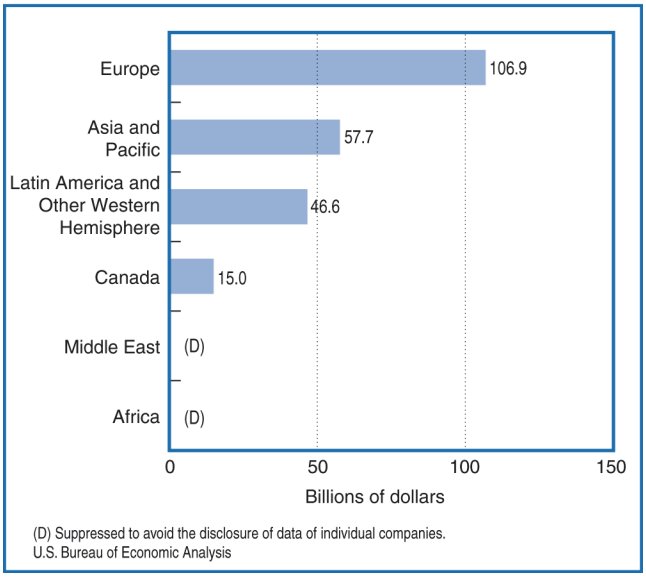
Potentially ICT-enabled services

The largest surpluses by region in potentially ICT-enabled services in 2014 were with Europe and Asia and Pacific. Total services trade surpluses for these two regions were ranked in the reverse order. The United States also had surpluses on potentially ICT-enabled services with Latin America and Other Western Hemisphere, Canada, the Middle East, and Africa.[13] The five largest trade surpluses in potentially ICT-enabled imports in 2014 were with Ireland, Canada, the United Kingdom, Korea, and China (chart 16). The largest deficits were with Bermuda and India.

The surplus on potentially ICT-enabled services from the region with the largest surplus, Europe, increased to $76.8 billion in 2014 from $37.3 billion in 2006. The surplus on potentially ICT-enabled services with Asia and Pacific increased to $35.3 billion from $19.1 billion. In Asia and Pacific, increases in the surpluses in ICT services with China ($8.0 billion in 2014 from $2.1 billion in 2006), Australia ($7.6 billion from $2.5 billion), and Korea ($8.3 billion from $3.8 billion) together exceeded an increase in the deficit with India ($13.3 billion from $3.5 billion).

13. Imports of potentially ICT-enabled services from the Middle East and Africa were suppressed to avoid the disclosure of data from individual companies in 2014, but based on the range of possible values for the trade balance in potentially ICT-enabled services ($3.4–$6.8 billion for the Middle East and $3.3–$5.3 billion for Africa), the United States had a trade surplus with both regions. See footnote 9 for an explanation of how the range of values was calculated.

Chart 13. Potentially ICT-Enabled Services Imports by Major Area, 2014



(D) Suppressed to avoid the disclosure of data of individual companies.
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Chart 14. Growth in Imports of Potentially ICT-Enabled Services by Country, 2006–2014 and Imports of Potentially ICT-Enabled Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual average growth 2006–2014	2014 Total[1]			Insurance	Financial services	Charges for the use of intellecual property	Telecom-munications, computer, and information services	R&D and profes-sional and manage-ment consulting	Technical, trade-related, and other business services[2]
			Point value	Lower bound	Upper bound						
		Percent	Millions of dollars								
1	United Kingdom	3.7	30,402	....	....	4,874	6,144	4,049	2,640	10,200	2,495
2	Bermuda	(D)	(D)	23,121	23,319	22,893	161	(D)	67	(D)	(D)
3	India	16.9	17,286	....	....	50	436	364	11,344	4,322	770
4	Japan	4.3	17,215	....	....	361	1,031	12,406	376	2,707	334
5	Switzerland	5.3	15,679	....	....	6,319	412	5,116	712	2,918	202
6	Canada	4.5	14,991	....	....	560	1,659	1,054	5,089	4,677	1,952
7	Germany[3]	3.8	(D)	13,822	15,738	2,733	617	4,263	1,007	5,202	(D)
8	Ireland	(D)	(D)	11,891	12,260	2,909	163	1,840	262	6,717	(D)
9	France	–0.5	7,023	....	....	558	687	2,400	567	2,308	503
10	Netherlands	3.8	5,984	....	....	76	195	803	701	3,860	349
11	China	18.1	5,567	....	....	56	421	285	968	3,415	422
12	Belgium-Luxembourg	11.2	5,199	....	....	193	381	658	258	3,571	138
13	Brazil	(D)	(D)	4,429	4,957	44	398	1,269	479	2,239	(D)
14	Australia	5.7	3,749	....	....	121	656	594	318	951	1,109
15	Mexico[3]	7.8	(D)	3,294	4,802	40	365	697	1,011	1,181	(D)
16	Singapore	(D)	(D)	2,973	3,386	113	423	70	374	1,993	(D)
17	Israel[4]	9.4	2,948	....	....	(*)	33	302	573	1,975	65
18	Philippines	(D)	2,352	....	....	(*)	115	5	1,234	863	135
19	Hong Kong[3]	4.8	(D)	2,052	2,726	18	680	94	254	1,006	(D)
20	Sweden	0.4	1,960	....	....	74	119	875	274	551	67
21	Italy	1.5	1,767	....	....	97	328	126	321	776	119
22	Spain	7.1	1,593	....	....	233	252	112	336	527	133
23	Republic of Korea	7.8	1,267	....	....	73	247	153	114	546	134
24	Taiwan	(D)	(D)	1,035	1,135	13	112	32	124	754	(D)
25	Malaysia	(D)	(D)	915	382	4	83	18	277	533	(D)
26	Argentina	(D)	(D)	773	873	7	65	292	78	331	(D)
27	South Africa	–0.7	590	....	....	1	87	7	40	310	145
28	Norway	(D)	(D)	545	869	55	55	20	66	349	(D)
29	Saudi Arabia	(D)	487	....	....	8	149	3	27	41	259
30	New Zealand[4]	8.4	350	....	....	1	37	34	44	82	152
31	Chile	7.3	349	....	....	(*)	47	74	54	122	52
32	Thailand	6.2	306	....	....	(*)	120	9	58	119	190
33	Venezuela[4]	3.9	246	....	....	8	44	93	22	38	41
34	Indonesia	3.6	229	....	....	(*)	83	2	17	79	48
		–10 40	0 50,000	0 50,000	0 50,000	0 25,000	0 25,000	0 25,000	0 25,000	0 25,000	0 25,000

(*) Transactions between zero and $500,000

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of potentially ICT-enabled services imports are published, a point value is given for the total of potentially ICT-enabled services imports. For countries where one or more components of potentially ICT-enabled services imports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

2. The category technical, trade-related, and other business services reflects only the services types that are considered potentially ICT-enabled.

3. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

4. Average annual growth shown is for 2007–2014 because values from 2006 were suppressed to avoid disclosure of data of individual companies.

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Chart 15. Growth in the Trade Balance on ICT Services by Country, 2006–2014 and the Trade Balance on ICT Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual average growth 2006–2014	2014 Total[1]			Charges for the use of intellectual property associated with computer software	Telecommunications services	Computer services
			Point value	Lower bound	Upper bound			
		Percent	Millions of dollars					
1	Brazil	22.3	6,219	....	....	2,236	3,679	304
2	Japan	3.0	4,041	....	....	3,243	131	667
3	United Kingdom	10.9	2,602	1,982	2,066	1,180	586	836
4	Taiwan	(D)	(D)	....	....	1,967	–13	(D)
5	Bermuda	30.1	1,593	1,431	1,473	1,570	–42	65
6	Argentina	(D)	(D)	....	....	265	1,144	(D)
7	Republic of Korea	(D)	1,355	....	....	1,178	38	139
8	Australia	8.0	1,289	....	....	740	75	474
9	Venezuela	16.4	1,105	....	....	164	896	45
10	France	17.2	871	....	....	649	93	129
11	Mexico	16.0	738	....	....	910	–234	62
12	Italy	1.0	556	....	....	492	–1	65
13	Chile	17.1	533	....	....	288	211	34
14	Netherlands	26.1	498	....	....	626	–289	161
15	Sweden	15.6	496	....	....	161	198	137
16	South Africa	14.2	414	....	....	258	–2	158
17	Spain[3]	–4.3	352	....	....	312	–55	95
18	Belgium-Luxembourg	(D)	(D)	266	949	(D)	124	196
19	China	(D)	(D)	224	400	(D)	–83	–332
20	Singapore	(D)	(D)	211	1,070	(D)	48	188
21	Switzerland	(D)	(D)	183	1,542	(D)	50	503
22	Thailand	(D)	(D)	175	222	88	18	(D)
23	Norway[3]	–7.1	139	....	....	77	16	46
24	Indonesia	14.8	127	....	....	50	6	71
25	New Zealand	9.2	119	....	....	80	–3	42
26	Saudi Arabia	–0.1	92	....	....	17	20	55
27	Hong Kong	(D)	(D)	90	2,750	(D)	–9	168
28	Canada	–27.1	66	....	....	2,548	366	–2,848
29	Malaysia	–13.8	40	....	....	168	19	–147
30	Israel[3]	60.3	–437	....	....	–29	4	–412
31	Germany[2]	1.0	(D)	–684	1,564	(D)	158	–143
32	Philippines	(D)	(D)	–1,060	–41	57	–161	(D)
33	Ireland	(D)	(D)	–1,275	–430	(D)	(D)	19
34	India	17.2	–9,716	....	....	309	–185	–9,840

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of ICT services exports are published, a point value is given for the total of ICT services exports. For countries where one or more components of ICT services exports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower bound and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

2. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

3. Average annual growth shown is for 2007-2014 because values from 2006 were suppressed to avoid disclosure of data of individual companies.

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Chart 16. Growth in the Trade Balance on Potentially ICT-Enabled Services by Country, 2006–2014 and the Trade Balance on Potentially ICT-Enabled Services by Major Category of Service Type and by Country, 2014

2014 Rank	Partner country	Compound annual average growth 2006–2014	2014 Total[1]			Insurance	Financial services	Charges for the use of intellecual property	Telecom-munications, computer, and information services	R&D and profes-sional and manage-ment consulting	Technical, trade-related, and other business services[2]
			Point value	Lower bound	Upper bound						
		Percent	Millions of dollars								
1	Ireland	(D)	(D)	25,767	26,299	–2,589	2,559	16,912	814	8,440	1
2	Canada	6.9	14,222	....	....	2,338	4,211	7,678	–1,976	1,357	614
3	United Kingdom[3]	1.5	(D)	10,084	12,453	–2,968	8,827	5,682	2,222	–1,184	(D)
4	Republic of Korea	10.2	8,303	....	....	194	656	5,929	267	778	479
5	China	17.9	7,956	....	....	116	2,712	6,541	–315	–2,389	1,291
6	Australia	14.9	7,583	....	....	717	2,946	2,290	906	486	238
7	Switzerland	(D)	(D)	7,436	9,098	–6,050	1,105	5,520	687	6,376	(D)
8	Brazil	(D)	(D)	6,991	7,519	424	1,721	2,805	4,138	–1,569	(D)
9	Netherlands	15.4	6,747	....	....	–14	1,754	3,985	–89	1,190	–79
10	Japan	–1.5	6,039	....	....	1,713	2,002	–3,713	1,191	4,548	298
11	Taiwan	(D)	(D)	5,417	5,517	62	500	5,132	72	–249	(D)
12	Singapore	(D)	(D)	5,132	5,545	108	559	3,259	362	1,257	(D)
13	Belgium-Luxembourg	12.2	4,732	....	....	–94	3,344	1,772	376	–635	–31
14	Hong Kong	(D)	(D)	3,814	4,488	60	817	3,259	192	160	(D)
15	France[4]	11.6	2,822	....	....	–296	1,849	815	358	–163	259
16	Italy	–0.3	2,554	....	....	–2	891	1,477	267	–142	63
17	Mexico[3]	6.5	(D)	2,448	3,956	444	1,143	2,472	–57	–46	(D)
18	Spain	–2.5	1,987	....	....	70	752	1,257	–30	–116	54
19	Argentina	(D)	(D)	1,952	2,306	92	404	499	1,208	–151	(D)
20	Venezuela	(D)	(D)	1,941	2,205	107	218	584	963	110	(D)
21	Saudi Arabia	(D)	(D)	1,643	2,719	11	780	204	182	725	(D)
22	Chile[3]	17.8	(D)	1,327	1,520	188	336	456	273	126	(D)
23	South Africa[4]	6.9	1,313	....	....	42	271	767	211	–151	173
24	Thailand	17.7	1,213	....	....	94	273	498	122	119	107
25	Malaysia	(D)	(D)	1,061	528	29	226	610	–110	–227	(D)
26	Indonesia	10.8	958	....	....	34	194	284	99	211	136
27	New Zealand	(D)	575	....	....	38	247	289	67	14	–80
28	Sweden	(D)	(D)	447	2,011	–62	425	292	410	(D)	(D)
29	Norway	(D)	(D)	426	750	–8	453	239	120	–54	(D)
30	Germany	(D)	(D)	–206	1,710	–2,464	2,673	1,690	301	–490	(D)
31	Israel[4]	10.2	–979	....	....	116	361	291	–360	–1,396	9
32	Philippines	(D)	–1,314	....	....	39	119	322	–1,100	–714	20
33	India	18.2	–13,279	....	....	32	370	744	–10,311	–3,739	–375
34	Bermuda	(D)	(D)	–14,201	–12,884	–19,441	1,216	(D)	33	(D)	(D)
		–50 50	–15,000 30,000	–15,000 30,000	–15,000 30,000	–20,000 20,000	–20,000 20,000	–20,000 20,000	–20,000 20,000	–20,000 20,000	–20,000 20,000

(D) Suppressed to avoid the disclosure of data of individual companies.

.... Not applicable

1. For countries where all components of potentially ICT-enabled services exports and imports are published, a point value is given for the trade balance on potentially ICT-enabled services. For countries where one or more components of potentially ICT-enabled services exports or imports is suppressed to avoid the disclosure of individual companies, a range of possible values is given in the lower and upper bound columns. For more information on how the lower and upper bounds were calculated, see footnote 9.

2. The category technical, trade-related, and other business services reflects only the services types that are considered potentially ICT-enabled.

3. Average annual growth shown is for 2006–2013 because values from 2014 were suppressed to avoid disclosure of data of individual companies.

4. Average annual growth shown is for 2007–2014 because values from 2006 were suppressed to avoid disclosure of data of individual companies.

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Defining ICT and Potentially ICT-Enabled Trade in Services—Continues

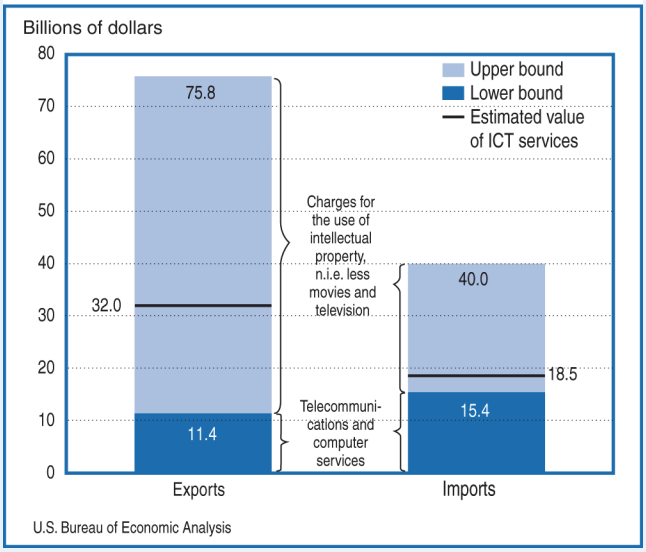
Guidance on standards for internationally comparable statistics on ICT and ICT-enabled services has been by the United Nations Conference on Trade and Development (UNCTAD) Task Group on Measuring Trade in ICT Services and ICT-Enabled Services.[1] The task group's October 2015 report is the first to offer a detailed classification of ICT-enabled services based on existing international statistical guidelines for compiling trade in services statistics, including the United Nations' *Manual on Statistics of International Trade in Services 2010* (*MSITS*) and the *International Monetary Fund's Balance of Payments and International Investment Position Manual, Sixth Edition.*[2]

ICT services

ICT services are those that are "intended to enable and/or fulfill the function of information processing and communication."[3] UNCTAD identified a number of industries in the *International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4* that should be classified as ICT services industries. To facilitate the production of detailed statistics on trade in ICT services, UNCTAD also proposed a corresponding grouping of ICT services categories based on the Extended Balance of Payments Services classification (EBOPS 2010) established by MSITS. In BEA's published statistics on international trade in services, these services types are telecommunications services, computer services, and charges for the use of intellectual property associated with computer software, as shown in the blue shaded rows of table A.

For 1999–2005, statistics on services trade that reflect charges for the use of intellectual property associated with computer software are not available because of source data limitations. However, published statistics are available for its parent category, charges for the use of intellectual property n.i.e. and for one subcomponent of that parent category not considered an ICT service, charges for the use of movies and television programming. To provide estimates of ICT trade for these years, these data were used to calculate a range of possible values for ICT exports and imports for each year in 1999–2005. The lower bound of the range is equal to the sum of telecommunications and computer services and the upper bound is equal to the sum of telecommunications services, computer services, and charges for the use of intellectual property n.i.e. less charges for the use of movies and television programming. The data were also used to calculate a point estimate for 1999–2005 ICT services by multiplying charges for the use of intellectual property associated with computer software's 2006 share of nonmovie/television programming charges for the use of intellectual property n.i.e. (0.32 for exports and 0.13 for imports) by the value of nonmovie/television programming charges for the use of intellectual property n.i.e in the earlier years. An example of these calculations for 2005 is shown in chart I, and the point estimates and the range of possible values for 1999–2005 are shown by the dotted lines and shaded areas extending from the solid line graphs of ICT services exports and imports in chart 2 on page 2.

Chart I. Estimation of ICT Services in 2005



Potentially ICT-enabled services

ICT-enabled services are "services that are delivered remotely over ICT networks" and "include activities that can be specified, performed, delivered, evaluated and consumed electronically."[4] This broad definition includes a variety of types of services, excluding those services types that necessarily involve the movement of physical objects or people or those that require face-to-face contact. Unlike ICT services, it is not possible to identify precisely ICT-enabled services using the EBOPS 2010 classification because the EBOPS classification system is based on the types of services traded, not the mode of delivery of the service. UNCTAD therefore recommends measuring a related concept, *potentially* ICT-enabled services, which

1. The definitions are from Sturgeon, Fredriksson, Fondeur, and Korka.
2. *Manual on Statistics of International Trade in Services* (Geneva: United Nations Department of Economic and Social Affairs, 2010) and *Balance of Payments and International Investment Position Manual Sixth Edition* (Washington, DC: International Monetary Fund, 2009).
3. Sturgeon, Fredriksson, Fondeur, and Korka, 3, paragraph 6.
4. Sturgeon, Fredriksson, Fondeur, and Korka, 3, paragraph 8, and 9, paragraph 22.

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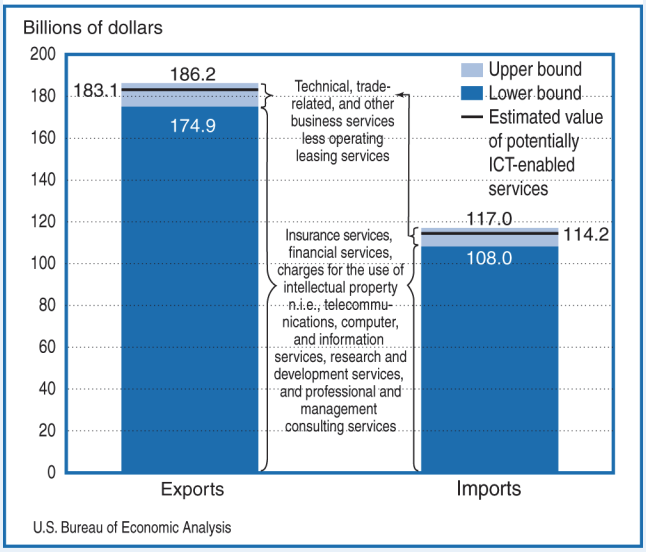
includes service types that *can* predominantly be delivered remotely over ICT networks, a subset of which are *actually* delivered via that method. Potentially ICT-enabled services include ICT services as well as other potentially ICT-enabled services and correspond to the following services types in BEA's published statistics on international trade in services: insurance services; financial services; charges for the use of intellectual property n.i.e.; telecommunications, computer, and information services; and certain services included in other business services, including professional and management consulting services and research and development. Potentially ICT-enabled services include ICT services. The full list of services types identified as being potentially ICT-enabled is shown by the shaded (yellow and blue) rows in table A.

For 1999–2005, statistics on services trade for the service types within technical, trade-related, and other business services are not available because of source data limitations. However, published statistics are available for technical, trade-related, and other business services as a whole and for a separate subcomponent of that parent category not considered potentially ICT-enabled, operating leasing services. These two series were used to calculate a range of possible values for potentially ICT-enabled exports and imports, with the lower bound equal to the sum of insurance services, financial services, charges for the use of intellectual property n.i.e., telecommunications, computer, and information services, professional and management consulting services, and research and development services and the upper bound equal to the sum of those categories as well as technical, trade-related, and other business services less operating leasing services. A point estimate for potentially ICT-enabled services was also calculated for 1999–2005 by identifying the share of technical, trade-related, and other business services less operating leasing services considered potentially ICT-enabled in 2006 (0.73 for exports and 0.68 for imports), and multiplying that share by the value of technical, trade-related, and other business services less operating leasing in 1999–2005. An example of these calculations for 2005 is shown in chart II, and the point estimates and range of possible values for 1999–2005 are shown by the dotted lines and shaded areas extending from the solid line graphs of potentially ICT-enabled services exports and imports in chart 2 on page 2.

Chart II. Estimation of Potentially ICT-Enabled Services in 2005



Tables 1 through 8 accompany this article.