

## Trends in Digitally-Enabled Trade in Services

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Digitally-enabled services are those for which digital information and communications technologies (ICT) play an important role in facilitating cross-border trade in services. Improvements in ICT technologies and reductions in their costs could be expected to contribute to growth in trade in services. BEA's statistics on trade in services can be used to examine trends in exports and imports of services whose trade is enabled by digital technologies.

The United Nations Conference on Trade and Development defines ICT-enabled services as composed of the following categories from the standard IMF balance of payments presentation<sup>1</sup>: communications services; insurance; financial services; computer and information services; royalties and license fees; "other" business services; and personal, cultural, and recreational services.<sup>2</sup> ICT-enabled services correspond to the following categories of services in BEA's published statistics on international trade in services: royalties and license fees, insurance, financial services, telecommunications, and business, professional, and technical services (except construction).<sup>3</sup> These are the services for which digital technologies are thought to play an important role in facilitating trade, but there is no way to determine the portion of trade in these services that was actually delivered digitally. In addition, there are other types of services that could be traded digitally, such as education, but these are not included because digital delivery is not generally the primary mode of delivery for these services.

From 1998 to 2010, both U.S. exports and imports of ICT-enabled services grew strongly.<sup>4</sup> In 2010, ICT-enabled services accounted for 61 percent of U.S. service exports and 56 percent of service imports, resulting in a trade surplus of \$116 billion in ICT-enabled services. Statistics on global trade in services indicate that the share that is ICT-enabled has been growing, although it is unclear how much of

<sup>1</sup> The International Monetary Fund publishes recommendations for compiling balance of payments statistics to ensure that the statistics keep pace with economic developments and to enhance international comparability. The most recent recommendations were published in 2009 in the *Balance of Payments and International Investment Position Manual, 6<sup>th</sup> edition*.

<sup>2</sup> See United Nations Conference on Trade and Development (UNCTAD) 2007, *Information Economy Report 2007-2008: Science and Technology for Development: the New Paradigm of ICT*; page 120.

<sup>3</sup> The category "business, professional, and technical services" published by BEA includes the balance of payments categories of computer and information services; "other" business services; and transactions related to arts and sports, which are a component of personal, cultural and recreational services. It also includes construction, which is not considered to be an ICT-enabled service. Film and TV tape distribution—the other main component of personal, cultural, and recreational services—is included in BEA's category royalties and license fees beginning with 1999 and in "other services" in earlier years. See [BEA's International Services Statistics](#).

<sup>4</sup> The period 1998-2010 was selected in order to allow analysis by detailed service type for unaffiliated trade, including some ICT-enabled service types—namely, architectural, engineering and technical services—that were not collected separately prior to 1998. In addition, this period was characterized by falling communication costs and widened use and access to broadband. The latest year for which published statistics on international trade in services by detailed service type and affiliation are available is 2010.

the growth in trade in these services is due to improvements in digital technologies and how much is due to other factors. The remainder of this document presents more detail on trends in ICT-enabled services trade.

### **U.S. Exports**

The share of total service exports attributable to ICT-enabled services grew from 45 percent in 1998 to 61 percent in 2010 (table A and chart 1). The share grew more strongly in the first half of the period, through 2004. From 1998 to 2010, U.S. exports of total private services grew at an average annual rate of 6 percent; ICT-enabled services grew at a rate of 9 percent, while all other services, which mainly consist of travel, passenger fares, other transportation, education, and construction, grew at 3 percent. Growth in ICT-enabled services was slower in 2006-2010 than in 1998-2005, reflecting the broader global economic slowdown. However, growth in ICT-enabled services (8 percent) still outpaced that for all other services (5 percent) for the latter period.

For 1998 to 2010, among broad categories, an increase in exports of business, professional, and technical services contributed most to the overall increase in ICT-enabled services exports in dollar terms (table B). The categories of ICT-enabled services with the fastest rates of growth for the period were insurance services (14 percent) and financial services (13 percent).

Comparisons over time are limited by the fact that information on total exports by detailed type of service is only available beginning with 2006; prior to 2006, data on trade in services between affiliated parties was limited to only a few, major types of services, such as total trade in royalties and license fees or in financial services. From 2006 to 2010, business, professional, and technical services exports both increased and contributed the most to the overall increase in ICT-enabled services. The largest increases within this category were in management and consulting services and in R&D and testing services.

### **U.S. Imports**

The share of total service imports attributable to ICT-enabled services grew from 34 percent in 1998 to 56 percent in 2010 (chart 2). From 1998 to 2010, U.S. imports of total private services grew at an average annual rate of 6 percent; ICT-enabled services imports grew at a rate of 10 percent, while all other services grew at 3 percent. Growth in ICT-enabled services imports slowed in the period 2006-2010 compared with 1998-2005, but still grew at an average annual rate of 9 percent.

From 1998 to 2010, among broad categories, increases in imports of business, professional, and technical services and insurance contributed most to the overall increase in ICT-enabled services imports in dollar terms. The categories of ICT-enabled services with the fastest rates of growth for the period were insurance services (19 percent) and business, professional, and technical services (12 percent).

As with exports, comparisons over time are limited by the fact that information on total imports by detailed type of service is only available beginning with 2006; prior to 2006, data on trade in services between affiliated parties was limited to only a few, major types of services, such as total trade in

royalties and license fees or in financial services. From 2006 to 2010, business, professional, and technical services imports both increased and contributed the most to the overall increase in ICT-enabled services. The largest increases within this category were in R&D and testing services and in computer and information services.

### **Global trade in services**

Trends in global trade in ICT-enabled services are difficult to discern because many countries do not compile statistics at the level of detail needed. The Organisation for Economic Cooperation and Development (OECD) collects detailed trade in services data from its member countries and selected other countries that can be used to look at trends in ICT-enabled trade in services for these countries.<sup>5</sup> According to the OECD database, the countries providing the detail needed to identify the ICT-enabled portion of trade in services in both 2002 and 2008 accounted for about three quarters of global exports and imports of services in both years.<sup>6</sup> For these countries, 47 percent of their exports and 43 percent of their imports were ICT-enabled in 2002, and 53 percent of their exports and 47 percent of their imports were ICT-enabled in 2008. These figures suggest that there has been an increase in the share of global trade in services accounted for by ICT-enabled trade. Those shares were lower than for the United States; the shares increased from 53 percent to 59 percent for U.S. exports and from 43 percent to 53 percent for U.S. imports from 2002 to 2008.

<sup>5</sup> The first year for which most countries provided the detail needed is 2002, and the most recent year for which most countries provided the detail needed is 2008. The countries are Australia, Austria, Belgium, Brazil, Canada, Chile, China, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Russia, the Slovak Republic, Slovenia, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. In addition, the OECD database includes global totals for imports and exports of services.

<sup>6</sup> The countries providing enough detail for both 2002 and 2008 were those listed in footnote 5 except for Denmark, Finland, Indonesia, Israel, Mexico, Russia, South Africa, and Turkey.

Table A. Trade in ICT-Enabled Services, 1998-2010

Year	U.S. exports			U.S. imports <sup>1</sup>		
	Total private services	ICT-enabled services	ICT-enabled share of total private services	Total private services	ICT-enabled services	ICT-enabled share of total private services
	millions of dollars		percent	millions of dollars		percent
1998	244,427	110,614	45%	165,643	56,829	34%
1999	262,922	126,260	48%	180,959	66,915	37%
2000	281,249	133,439	47%	203,880	75,159	37%
2001	270,751	135,757	50%	201,043	80,486	40%
2002	278,182	146,837	53%	206,410	89,517	43%
2003	287,217	158,037	55%	218,614	95,915	44%
2004	331,746	185,045	56%	253,725	110,255	43%
2005	362,895	203,177	56%	272,627	118,722	44%
2006	403,996	234,426	58%	307,271	147,193	48%
2007	472,624	282,816	60%	336,908	170,878	51%
2008	519,540	304,835	59%	371,196	196,311	53%
2009	487,867	301,900	62%	346,020	198,112	57%
2010	530,274	323,966	61%	368,036	207,611	56%

NOTE: ICT-enabled services include those in the following IMF Balance of Payments categories: communications services, insurance, financial services, computer and information services, royalties and license fees, other business services, and personal, cultural, and recreational services. See United Nations Conference on Trade and Development (UNCTAD), 2007, *Information Economy Report 2007-2008: Science and Technology for Development: the New Paradigm of ICT*; page 120.

<sup>1</sup> Prior to 2001, U.S. imports exclude auction services, internet or online sales services, and services provided by independent sales agents—called trade-related services in BEA's statistics—because they were not collected.

Table B. ICT-Enabled Services by Type of Service in 1998, 2006, and 2010

	Exports						Imports					
	1998	2006	2010	1998-2006	2006-2010	1998-2010	1998	2006	2010	1998-2006	2006-2010	1998-2010
	(millions of dollars)			Average annual rate of			(millions of dollars)			Average annual rate of		
ICT-enabled services	110,614	234,426	323,966	9.8%	8.4%	9.4%	56,829	147,193	207,611	12.6%	9.0%	11.4%
Unaffiliated	56,447	125,323	176,820	10.5%	9.0%	10.0%	29,569	79,228	115,913	13.1%	10.0%	12.1%
Affiliated	54,168	109,104	147,145	9.1%	7.8%	8.7%	27,260	67,968	91,699	12.1%	7.8%	10.6%
By Type of Service:												
Royalties and license fees <sup>1</sup>	35,626	83,549	105,583	11.2%	6.0%	9.5%	11,235	25,038	33,450	10.5%	7.5%	9.5%
Unaffiliated	9,314	28,276	39,188	14.9%	8.5%	12.7%	2,688	7,175	10,080	13.1%	8.9%	11.6%
Affiliated	26,313	55,273	66,395	9.7%	4.7%	8.0%	8,547	17,864	23,370	9.7%	6.9%	8.7%
Financial services	15,607	47,882	66,387	15.0%	8.5%	12.8%	7,303	14,733	13,803	9.2%	-1.6%	5.4%
Unaffiliated	11,327	37,283	54,330	16.1%	9.9%	14.0%	3,590	8,139	9,788	10.8%	4.7%	8.7%
Affiliated	4,280	10,599	12,056	12.0%	3.3%	9.0%	3,713	6,594	4,016	7.4%	-11.7%	0.7%
Insurance services	3,002	9,445	14,605	15.4%	11.5%	14.1%	7,957	39,382	61,767	22.1%	11.9%	18.6%
Unaffiliated	3,002	9,445	14,605	15.4%	11.5%	14.1%	7,957	39,382	61,767	22.1%	11.9%	18.6%
Affiliated	(3)	(3)	(3)	n.a.	n.a.	n.a.	(3)	(3)	(3)	n.a.	n.a.	n.a.
Telecommunications	5,568	7,105	11,095	3.1%	11.8%	5.9%	7,682	6,342	8,006	-2.4%	6.0%	0.3%
Unaffiliated	5,568	5,106	5,399	-1.1%	1.4%	-0.3%	7,682	4,843	5,366	-5.6%	2.6%	-2.9%
Affiliated	(4)	2,000	5,696	n.a.	29.9%	n.a.	(4)	1,500	2,640	n.a.	15.2%	n.a.
Business, professional, and technical services <sup>2</sup>	43,735	86,445	126,296	8.9%	9.9%	9.2%	22,511	61,698	90,585	13.4%	10.1%	12.3%
Unaffiliated <sup>2</sup>	22,676	45,213	63,298	9.0%	8.8%	8.9%	7,531	19,689	28,912	12.8%	10.1%	11.9%
Affiliated <sup>2</sup>	21,059	41,232	62,998	8.8%	11.2%	9.6%	14,980	42,010	61,673	13.8%	10.1%	12.5%
Computer and information services	4,921	10,079	13,766	9.4%	8.1%	9.0%	3,565	13,434	19,385	18.0%	9.6%	15.2%
Unaffiliated	3,705	7,345	9,125	8.9%	5.6%	7.8%	1,069	2,911	4,924	13.3%	14.0%	13.6%
Affiliated	1,216	2,733	4,641	10.7%	14.2%	11.8%	2,496	10,523	14,461	19.7%	8.3%	15.8%
Management and consulting services	n.a.	21,421	30,858	n.a.	9.6%	n.a.	n.a.	18,562	22,888	n.a.	5.4%	n.a.
Unaffiliated	1,888	2,727	3,119	4.7%	3.4%	4.3%	872	1,988	3,069	10.9%	11.5%	11.1%
Affiliated	(5)	18,695	27,739	n.a.	10.4%	n.a.	(5)	16,573	19,819	n.a.	4.6%	n.a.

	Exports						Imports					
	1998	2006	2010	1998-2006	2006-2010	1998-2010	1998	2006	2010	1998-2006	2006-2010	1998-2010
Research and development and testing services	n.a.	12,810	20,954	n.a.	13.1%	n.a.	n.a.	9,276	18,541	n.a.	18.9%	n.a.
Unaffiliated	867	1,664	2,998	8.5%	15.9%	10.9%	637	2,324	3,650	17.6%	11.9%	15.7%
Affiliated	<sup>(5)</sup>	11,146	17,956	n.a.	12.7%	n.a.	<sup>(5)</sup>	6,953	14,891	n.a.	21.0%	n.a.
Operational leasing	4,041	6,183	7,158	n.a.	3.7%	4.9%	1,122	1,027	2,111	n.a.	19.7%	5.4%
Unaffiliated	2,367	4,871	5,376	9.4%	2.5%	7.1%	175	359	503	9.4%	8.8%	9.2%
Affiliated	1,674	1,313	1,782	n.a.	7.9%	0.5%	947	668	1,608	n.a.	24.6%	4.5%
Other business, professional, and technical services	32,019	35,951	53,560	1.5%	10.5%	4.4%	16,317	19,399	27,661	2.2%	9.3%	4.5%
Unaffiliated	13,850	28,606	42,680	9.5%	10.5%	9.8%	4,780	12,106	16,766	12.3%	8.5%	11.0%
Affiliated <sup>2</sup>	18,169	7,346	10,880	-10.7%	10.3%	-4.2%	11,537	7,293	10,895	-5.6%	10.6%	-0.5%
<i>Of which:</i>												
Accounting, auditing, and bookkeeping services	n.a.	717	994	n.a.	8.5%	n.a.	n.a.	1,516	2,394	n.a.	12.1%	n.a.
Unaffiliated	412	463	396	1.5%	-3.8%	-0.3%	403	1,125	2,133	13.7%	17.3%	14.9%
Affiliated	n.a.	254	598	n.a.	23.9%	n.a.	n.a.	391	260	n.a.	-9.7%	n.a.
Advertising	n.a.	3,773	4,429	n.a.	4.1%	n.a.	n.a.	1,892	3,312	n.a.	15.0%	n.a.
Unaffiliated	445	1,194	1,506	13.1%	6.0%	10.7%	912	1,157	2,489	3.0%	21.1%	8.7%
Affiliated	n.a.	2,579	2,923	n.a.	3.2%	n.a.	n.a.	735	823	n.a.	2.9%	n.a.
Architectural, engineering, and other technical services	n.a.	4,702	6,170	n.a.	7.0%	n.a.	n.a.	861	946	n.a.	2.4%	n.a.
Unaffiliated	2,541	3,850	4,708	5.3%	5.2%	5.3%	54	430	614	29.6%	9.3%	22.5%
Affiliated	n.a.	853	1,462	n.a.	14.4%	n.a.	n.a.	431	332	n.a.	-6.3%	n.a.
Construction	n.a.	739	742	n.a.	0.1%	n.a.	n.a.	534	482	n.a.	-2.5%	n.a.
Unaffiliated	793	590	550	-3.6%	-1.7%	-3.0%	208	426	224	9.4%	-14.8%	0.6%
Affiliated	n.a.	149	192	n.a.	6.5%	n.a.	n.a.	107	258	n.a.	24.6%	n.a.

	Exports						Imports					
	1998	2006	2010	1998-2006	2006-2010	1998-2010	1998	2006	2010	1998-2006	2006-2010	1998-2010
Industrial engineering	n.a.	3,903	6,042	n.a.	11.5%	n.a.	n.a.	1,343	3,516	n.a.	27.2%	n.a.
Unaffiliated	1,271	3,257	5,115	12.5%	11.9%	12.3%	206	698	855	16.5%	5.2%	12.6%
Affiliated	n.a.	646	927	n.a.	9.4%	n.a.	n.a.	646	2,661	n.a.	42.5%	n.a.
Installation, maintenance, and repair of equipment	n.a.	7,673	13,652	n.a.	15.5%	n.a.	n.a.	4,583	6,527	n.a.	9.2%	n.a.
Unaffiliated	3,189	6,881	12,414	10.1%	15.9%	12.0%	242	2,491	3,832	33.8%	11.4%	25.9%
Affiliated	n.a.	792	1,238	n.a.	11.8%	n.a.	n.a.	2,092	2,695	n.a.	6.5%	n.a.
Legal services	n.a.	5,256	7,303	n.a.	8.6%	n.a.	n.a.	1,223	1,532	n.a.	5.8%	n.a.
Unaffiliated	2,406	5,127	7,091	9.9%	8.4%	9.4%	655	1,152	1,431	7.3%	5.6%	6.7%
Affiliated	n.a.	129	212	n.a.	13.2%	n.a.	n.a.	70	101	n.a.	9.6%	n.a.
Addenda:												
Film and television tape distribution	7,076	(6)	(6)	n.a.	n.a.	n.a.	141	(6)	(6)	n.a.	n.a.	n.a.
Unaffiliated	4,560	(6)	(6)	n.a.	n.a.	n.a.	121	(6)	(6)	n.a.	n.a.	n.a.
Affiliated	2,516	(6)	(6)	n.a.	n.a.	n.a.	20	(6)	(6)	n.a.	n.a.	n.a.

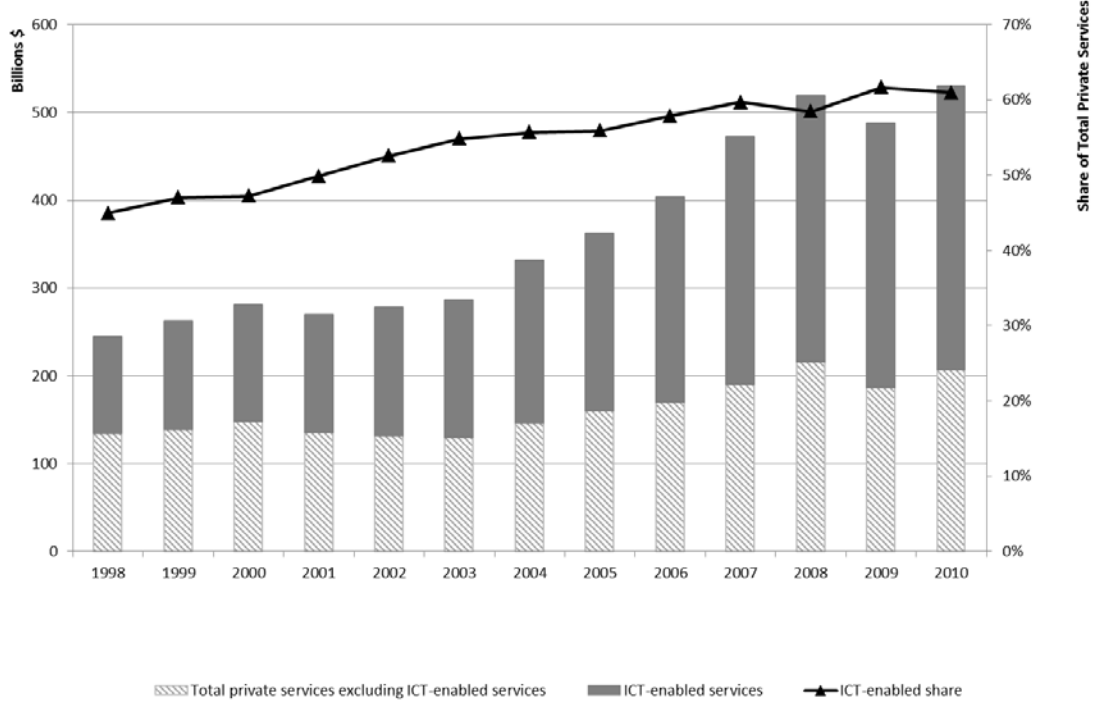
#### ICT Information and Communication Technologies

n.a. Not available.

Note. ICT-enabled services, broadly defined, include those in the following categories: royalties and license fees, financial services, insurance, telecommunications, and business, professional, and technical services (excluding construction services).

1. Beginning with 1999, transactions in film and TV tape distribution are included in royalties and license fees.
2. Beginning with 2006, business, professional, and technical services exclude trade in construction services. Prior to 2006, affiliated trade in construction services were not separately available and were included in affiliated other business, professional, and technical services.
3. Most 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.
4. Prior to 2006, data on affiliated trade in telecommunications were not separately available and were included in affiliated other business, professional, and technical services. Beginning in 2006, data on affiliated trade in telecommunications are included in affiliated telecommunications.
5. In 1998, affiliated transactions in this service were not separately available; they were included in "other business, professional, and technical services."
6. Beginning with 1999, transactions in film and TV tape distribution are included in royalties and license fees.

**Chart 1. U.S. Exports of Digitally-Enabled Services and All Other Services, 1998-2010**



**Chart 2. U.S. Imports of ICT-Enabled Services and All Other Services, 1998-2010**

