



# The Digital Trade Revolution:

How U.S. Workers and Companies Can Benefit from a Digital Trade Agreement



U.S. Chamber of Commerce

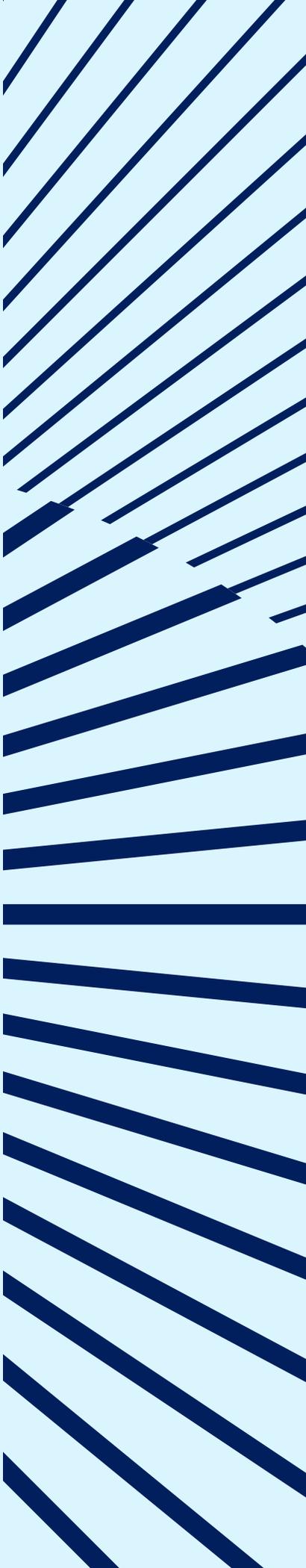
# The Digital Trade Revolution:

## How U.S. Workers and Companies Can Benefit from a Digital Trade Agreement

This report was prepared by the staffs of Trade Partnership Worldwide, LLC ([www.tradepartnership.com](http://www.tradepartnership.com)) and the U.S. Chamber of Commerce. TPW is an international trade and economic research firm with a global outlook and reach through a network of international economists. The trade data included in this report come from TPW's proprietary *CDxports* database.

### Table of Contents

- Executive Summary ..... 1
- Introduction .....2
- The digital economy is critical to the U.S. economy.....2
- Digital economy jobs in the United States are proliferating .....3
- Trade is key to the U.S. digital economy's growth ..... 4
  - U.S. exports by type of service .....5
  - U.S. exports to top markets ..... 8
  - Digital trade and jobs .....9
  - Digital trade and small business.....9
  - State trends .....10
- Foreign competitors see the same opportunities for increasing exports of digitally tradeable services ..... 12
  - Global ICT services exports ..... 12
  - Global potentially ICT-enabled services exports.....13
  - Resiliency of digitally tradeable services exports.....14
- Global barriers to U.S. digital exports are on the rise ..... 15
- The case for a digital trade agreement ..... 16
- Appendix I: U.S. Chamber Digital Trade Priorities ..... 17
- Appendix II: State Digital Trade One-Pagers..... 21



# Executive Summary

The digital economy has become critical to the U.S. economy, driving growth, prosperity, and dynamism for every state and sector across the United States. A diverse range of firms not traditionally seen as actors in the digital economy are producing digital goods and services, including businesses in transportation and warehousing, arts and entertainment, and even mining. Nearly two-thirds of the digital economy consists of digital *services*, not digital goods. The digital economy is expanding nearly three times as rapidly as the economy writ large.

Digital economy jobs are proliferating in the United States. Jobs tied to the digital economy can be found in nearly every sector, and their number is growing at a faster rate than that of overall job growth over the last decade. These jobs pay well, and compensation growth for digital jobs exceeds that for all jobs generally.

Trade is key to the U.S. digital economy's growth. The bulk of U.S. services exports are digitally tradeable, but the potential for expansion of the digital delivery of services exports remains largely untapped.<sup>1</sup> Developed economies—and particularly Europe—are the top markets for U.S. exports of digitally tradeable services. These exports, coming from every U.S. state, supported more than 2 million U.S. jobs in 2020. America's small business exporters are among those with the most to gain from digital technologies that have the potential to overcome the longstanding hurdles to exporting they face.

Foreign competitors see the same opportunities to increase exports of digitally tradeable services. Leading competitors in international markets include companies based in the European Union, India, and China.

Unfortunately, global barriers to U.S. digitally tradeable services exports are on the rise. Left unchecked, the proliferation of these trade barriers threatens to deprive American workers and companies of the potential benefits of exporting digitally tradeable services.

To counter these foreign trade barriers and secure the benefits of digital trade, the United States must act quickly to negotiate a digital trade agreement with key partners. The United States should work with like-minded partners to negotiate a binding trade agreement that guarantees the ability to move data across international borders, prohibits forced localization of data or restrictions based on nationality of ownership, and bars customs duties on electronic transmissions, among other objectives. One logical focus is a group of economies, dubbed the “Digital Dozen” in this report, considered potentially suitable partners to join the United States in a high-standard digital trade agreement: Australia, Canada, Chile, Colombia, Japan, Korea, Mexico, New Zealand, Peru, Taiwan, the UK, and the members of ASEAN.

The United States finds itself at a moment of promise and peril on digital trade. Export opportunities for digitally tradeable services are expanding rapidly, and the United States is well positioned to build on its formidable advantages in these areas. However, these opportunities are endangered by the spread of digital protectionism and the accumulation of discriminatory digital rules that often target American firms.

To forestall these threats, the United States must act now to push forward a vision for a digital trade agreement that can secure these opportunities for American workers, small businesses, services industries, and others. The case for American leadership on digital trade is strong: It is time for the United States to move forward on this important initiative.

<sup>1</sup> “Digitally tradeable services” includes exports tied directly to information technologies and the movement of data (e.g., telecommunications services, computer software services, cloud computing and data storage, and other computer services) as well as services that have the potential to be traded digitally: architectural, engineering, project management, and specialized design services; accounting, bookkeeping, auditing, and payroll services; legal services; consulting; research services; advertising; audiovisual and photographic services; banking, insurance, and other financial services; travel arrangement and reservation services; and waste management. The United States is home to world-beating firms in all of these growing industries.

# Introduction

The digital economy is critical to the U.S. economy, driving growth, prosperity, and dynamism for every state and sector across the United States. The digital economy is generating good jobs for a growing number of American workers in nearly every sector of the U.S. economy. International trade is playing a central role in the U.S. digital economy’s growth: Export opportunities for digitally tradeable services are expanding rapidly, particularly for small businesses and in services sectors that employ millions of Americans

However, foreign competitors see the same opportunities to increase exports of digitally tradeable services and are moving ahead rapidly. At the same time, global barriers to U.S. digitally tradeable services exports are on the rise. Left unchecked, the proliferation of these trade barriers threatens to deprive American workers and companies of the

potential benefits of exporting digitally tradeable services. A digital trade agreement would enable the United States to take the lead in strengthening international rules for digital trade and push back against the trade barriers that threaten to deprive American workers and companies of the benefits and dynamism of the digital trade era.

## The digital economy is critical to the U.S. economy

The digital economy has emerged as a critical driver of growth, prosperity, and dynamism for every state and sector across the United States. In 2020, 93% of American adults used the Internet (including 86% of households earning less than \$30,000).<sup>2</sup> In 2019, according to the Commerce Department’s Bureau of Economic Analysis, the U.S. digital economy’s output surpassed \$2 trillion or nearly 10% of total U.S.

**Value Added by the Digital Economy, 2019 (Billions of Dollars, and Percent)**

	Value Added	Share of Total Industry Value Added
All Industries	\$2,051.6	9.6%
Private non-agricultural industries	2,039.7	11.0%
Information	835.5	73.6%
Wholesale trade	391.9	30.7%
Professional and business services	420.7	15.4%
Retail trade	139.0	11.9%
Manufacturing	211.4	8.9%
Other services, except government	7.1	1.6%
Transportation and warehousing	8.7	1.3%
Educational services, health care, and social assistance	14.9	0.8%
Finance, insurance, real estate, rental, and leasing	8.2	0.2%
Mining	0.6	0.2%
Utilities	0.4	0.1%
Construction	0.5	0.1%
Arts, entertainment, rec., accommodation, & food services	0.8	0.1%
Government	11.9	0.5%

Source: Bureau of Economic Analysis. Data are not available for the agriculture sector.

<sup>2</sup> Pew Research Center, “Internet/Broadband Fact Sheet,” April 7, 2021, <https://www.pewresearch.org/internet/fact-sheet/internet-broadband/?menuItem=480dace1-fd73-4f03-ad88-eae66e1f4217>.

## U.S. Value Added in the Digital Economy by Type of Good or Service, 2019 (Billions of dollars and Percent)

	Value Added	Share of Total, Subtotal
Total digital economy	\$2,051.6	100.0%
Digital goods (hardware and software)	736.1	35.9
Digital services	1,315.5	64.1
E-commerce	450.68	34.2
Cloud services	73.2	5.6
Telecommunications services	413.4	31.4
Internet and data services	22.1	9.2
All other priced digital services	256.1	19.5

Source: Bureau of Economic Analysis.

... the U.S. digital economy's output surpassed \$2 trillion ...

economic output.<sup>3</sup> While it is not surprising that sectors that produce semiconductors, computers and software, or provide internet services and e-commerce sales have a large stake in the digital economy, the production of digital goods and services also takes place among a host of firms not traditionally seen as actors in the digital economy, including businesses in transportation and warehousing, arts and entertainment, and even mining. New digital technologies enable firms, workers, and consumers across the economic spectrum to offer new services (e.g., telemedicine in health care) and make ever more sophisticated goods (e.g., GPS-enabled cars).

The importance of the digital economy has, not surprisingly, been growing. Digital value-added output increased from \$1.3 trillion in 2010 to \$2.0 trillion in 2019. The digital economy's share of the total economy expanded from 8.6% to 9.6% in that same period. The value of the digital economy, adjusted for inflation, has grown at an average annual rate of 6.1%, compared to just 2.2% for the economy generally. In other words, the digital economy is expanding nearly three times as rapidly as the economy writ large. Nearly two-thirds of the digital economy is digital

services as opposed to digital goods (such as hardware and software not sold digitally). Digital services exports include e-commerce, cloud services, telecommunications services, internet and data services, and other digital services. E-commerce and telecommunications services account for most of these digital services. Cloud services have been a particular benefit to small and medium-sized businesses, enabling them to access the same information and computing power as large firms.<sup>4</sup>

... the digital economy is expanding nearly three times as rapidly as the economy writ large.

## Digital economy jobs are proliferating in the United States

Millions of people work in the digital economy. As expected, a large number of jobs in the digital economy are related to computer systems design and related services, e-commerce, and software and data

<sup>3</sup> BEA includes in its definition of the digital economy three major types of goods and services: Infrastructure, or the basic physical materials and organizational arrangements that support the existence and use of computer networks and the digital economy, primarily information and communications technology (ICT) goods and services; e-commerce, or the remote sale of goods and services over computer networks; and priced digital services, or services related to computing and communication that are performed for a fee charged to the consumer. The data it reports for the digital economy (value added, employment and compensation) covers most of these elements of the digital economy, except some infrastructure, services e-commerce, and digital intermediary services.

2019 is the most recent year for which BEA reports these data.

See: Bureau of Economic Analysis, U.S. Department of Commerce, "Digital Economy," <https://www.bea.gov/data/special-topics/digital-economy>.

<sup>4</sup> Congressional Research Service, "Digital Trade and U.S. Trade Policy," December 9, 2021, p. 8, <https://sgp.fas.org/crs/misc/R44565.pdf>.

## Full- and Part-time Employment in the Digital Economy, 2019 (Thousands, and Percent)

	Jobs	Share of total Industry
All Industries	7,685.1	5.4%
Private non-agricultural industries	7,621.1	6.3%
Professional and business services	2,419.4	12.0%
Wholesale trade	1,822.4	31.8%
Information	1,724.0	65.3%
Manufacturing	799.4	6.4%
Retail trade	516.7	3.8%
Educational services, health care, and social assistance	162.8	0.7%
Other services, except government	82.6	1.3%
Transportation and warehousing	64.8	1.2%
Finance, insurance, real estate, rental, and leasing	19.4	0.2%
Arts, entertainment, rec., accommodation, & food services	7.2	0.1%
Mining	1.0	0.2%
Construction	0.8	0.0%
Utilities	0.5	0.1%
Government	64.0	0.3%

Source: Bureau of Economic Analysis. Data are not available for the agriculture sector.

processing. However, many digital economy jobs are in sectors such as the manufacturing of machinery and parts and (truck) transportation and warehousing. One study estimates that the “tech-e-commerce ecosystem” (which includes some tech manufacturing as well as some services tech-related sectors) was the “main job producer” in 40 states from 2017-2021.<sup>5</sup>

The digital economy is a growing source of employment in the United States. The number of jobs tied to the digital economy has increased from 6.1 million in 2010 to 7.7 million in 2019, or at an annual average rate of 2.7% over the decade. This compares to comparable overall job growth of 1.6% per year over this period.

Jobs supporting the digital economy generally pay well. According to BEA data, total compensation paid to workers in the digital economy reached \$1.0 trillion in 2019, up from \$600 million in 2010. Compensation has been growing at an average annual rate of 5.9% since 2010, compared to a 4.2% growth rate for all jobs generally.

Because digital services play such a vital role in the U.S. digital economy and are the source of

much of its growth, the balance of this report focuses on global markets for U.S. digital services output and employment and the role U.S. exporters play in those markets.

## Trade is key to the U.S. digital economy’s growth

Currently, digital trade plays a much smaller role in U.S. services output than trade does for manufacturing. In 2020, U.S. government data show that exports represented 7.1% of services sector value-added output; for manufacturing the share was three times higher.<sup>6</sup> Strong recent growth suggests the potential for further expansion of digitally tradeable services remains largely untapped.

**Strong recent growth suggests the potential for further expansion of digitally tradeable services remains largely untapped.**

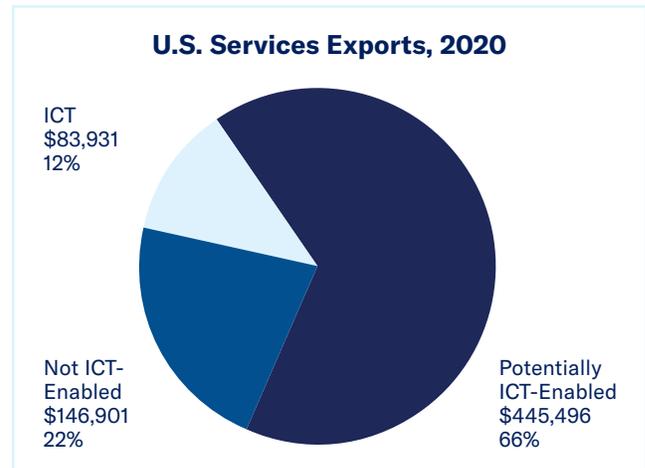
<sup>5</sup> Michael Mandel, “Tech-Ecommerce Drives Job Growth in Most States,” Progressive Policy Institute, October 18, 2021, <https://www.progressivepolicy.org/blogs/tech-e-commerce-drives-job-growth-in-most-states/>.

<sup>6</sup> U.S. Department of Commerce, Bureau of Economic Analysis, “Data: Trade in Value Added, 2007-2020,” Global Value Chains, <https://www.bea.gov/data/special-topics/global-value-chains>.

## U.S. exports by type of service

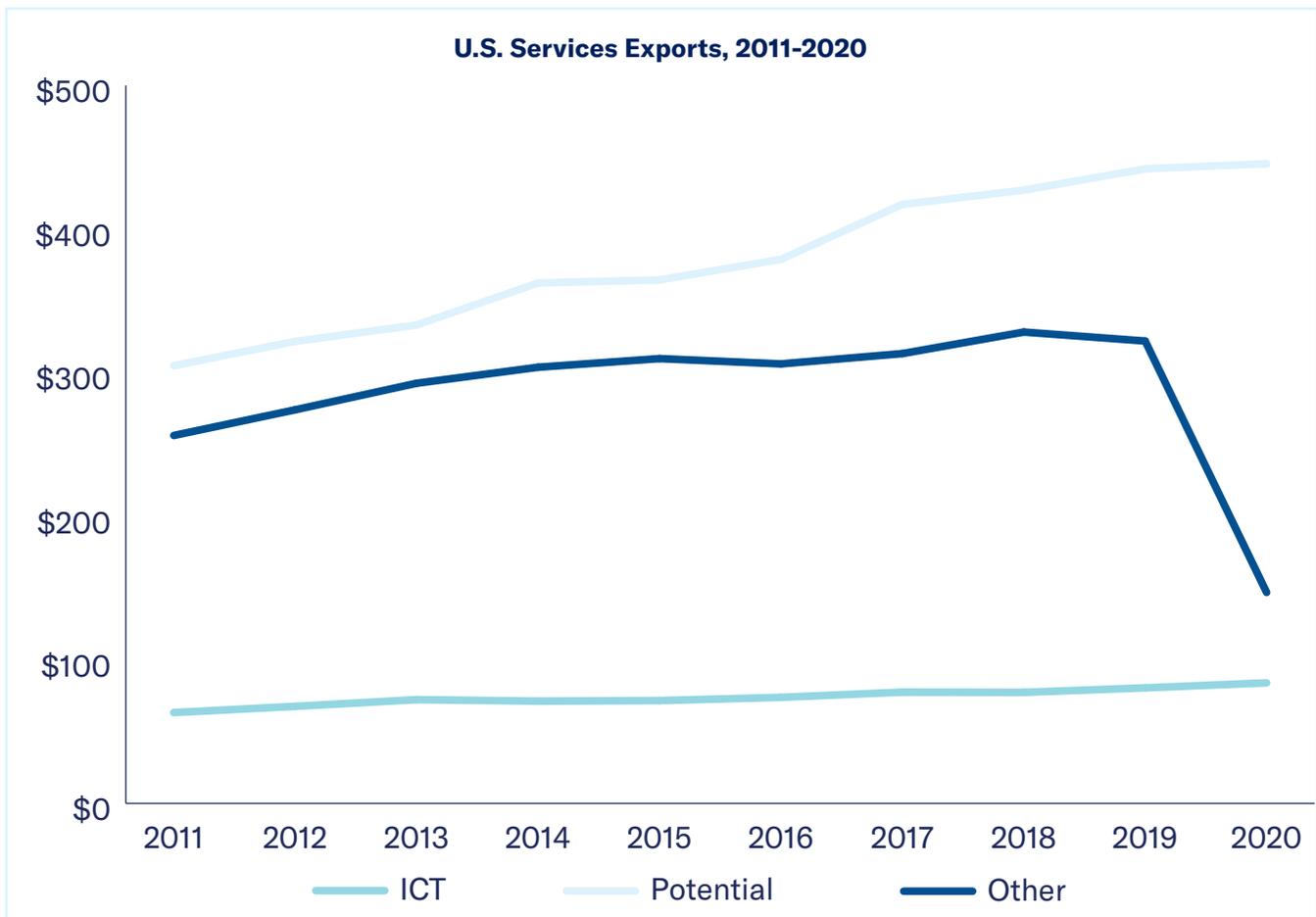
U.S. exports of digital services contribute to the health of the digital economy and the jobs tied to it. In 2020, the United States exported \$84 billion in information and communications technology (ICT) services to the world. These are sectors tied directly to information technologies and the movement of data, such as telecommunications services, computer software services, cloud computing and data storage, and other computer services. U.S. exports of ICT services are significant—about the same as U.S. exports of airplanes and aerospace products (\$85 billion) and significantly more than exports of agricultural crops (\$73 billion), petroleum products (\$62 billion), and motor vehicles (\$54 billion).

Yet exports of ICT services pale in comparison to the extremely wide array of services that have the potential to be traded digitally. U.S. government agencies refer to these as “potentially ICT-enabled services,” and they include architectural, engineering, project management, and specialized design services;



Source: Estimated by Trade Partnership Worldwide

accounting, bookkeeping, auditing, and payroll services; legal services; consulting; research services; advertising; audiovisual and photographic services; banking, insurance, and other financial services; travel arrangement and reservation services; and waste management. The United States is home to



Source: Estimated by Trade Partnership Worldwide

world-beating firms in all of these growing industries. This paper will refer to the full array of these ICT services and potentially ICT-enabled services together as *digitally tradeable services*.

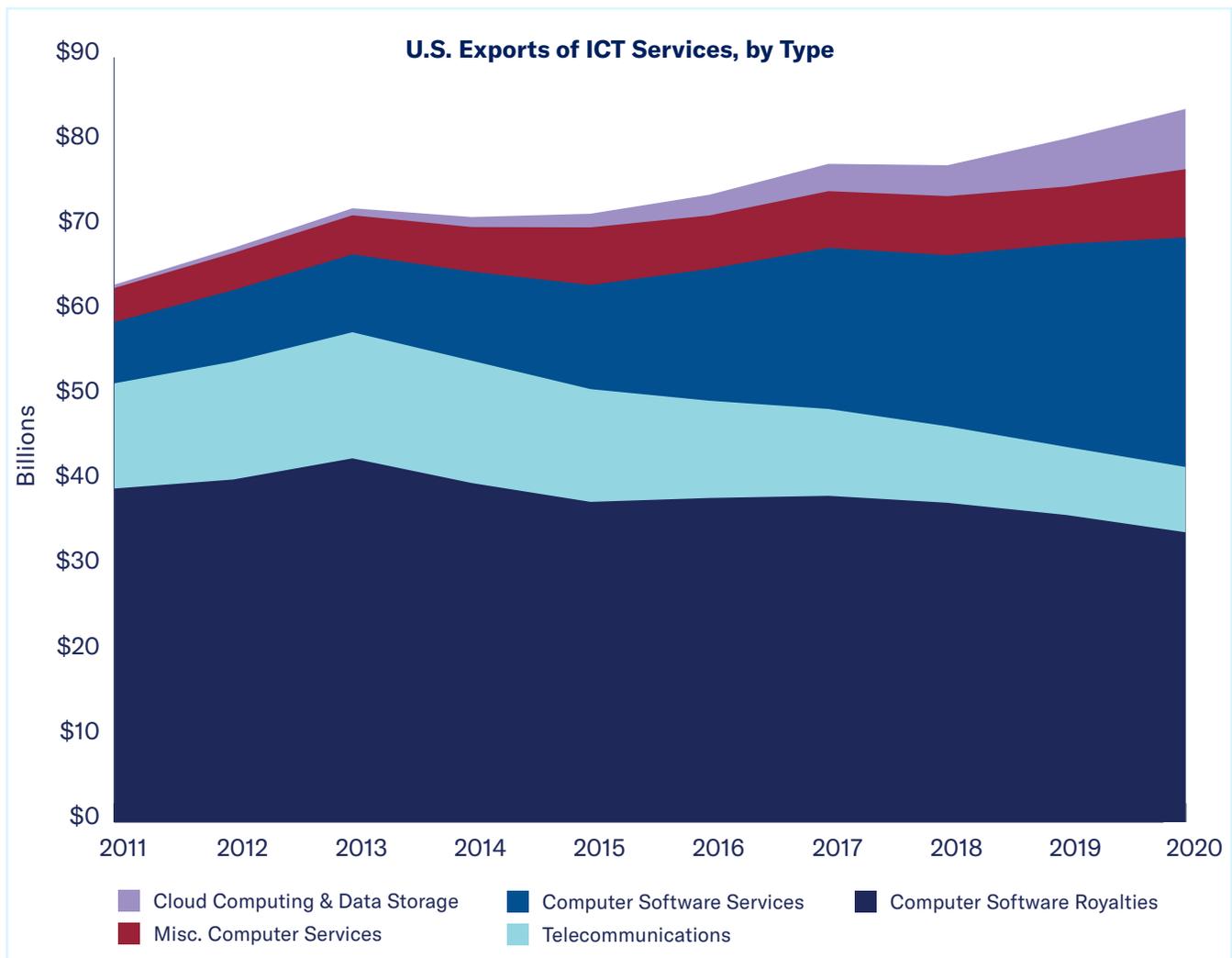
Indeed, the bulk of U.S. services exports are digitally tradeable. In 2020, U.S. exports of potentially ICT-enabled services were \$445 billion and accounted for about 66% of U.S. services exports. The share of total services exports represented by ICT services and potentially ICT-enabled services was unusually high in 2020 due to the sharp decline in many “physical” services exports such as travel and tourism and transportation caused by the Covid-19 pandemic.

U.S. exports of potentially ICT-enabled services are not only larger than ICT services exports, but they have also been growing at a significantly faster rate. From 2011 to 2020, potentially ICT-enabled services exports increased by \$141 billion (an increase of 46%), while

exports of ICT services grew by \$21 billion (an increase of 33%). The graph below shows the importance of potentially ICT-enabled exports as well as the sharp decline in exports of non-digitally enabled services after Covid-19 impacted global economies.

There are diverging trends within digitally tradeable services exports that should help shape future digital trade policies. In 2011, over 80% of U.S. ICT services exports were either computer software royalties (e.g., payments to license or redistribute standardized software packages) or telecommunications services. However, the export values of both have been declining, and they accounted for just 50% of U.S. ICT services exports in 2020.

In the software area, the decline in royalties has been more than offset by a shift to computer software services (e.g., customized design). Between 2011 and 2020, exports of computer software services



Source: Estimated by Trade Partnership Worldwide

**U.S. exports of potentially ICT-enabled services have more than doubled in the past 10 years, making it one of the country's fastest growing export sectors.**

quadrupled from \$7 billion to \$27 billion, and its share of ICT services exports nearly tripled from 11% to 32%. Software exports are as important as ever, but the types of software and how that software is delivered has changed (e.g., as a good, royalty, or service).

Cloud computing and data storage services exports are growing at an astonishing clip. Exports of cloud computing and data storage services grew from just \$390 million in 2011 to over \$7 billion in 2020, or by about 1,700%. Just 10 years ago, telecommunications

exports were over 30 times larger, but exports of cloud computing and data storage services likely surpassed telecommunications exports in 2021.

The diversity of sectors within the potentially ICT-enabled services exports shows why digital trade matters so much for industries that are not generally associated with “information technology.” These are not “digital exports” *per se*, but exports that can be delivered digitally; this is a type of trade that has become increasingly important due to Covid-19 related disruptions and travel restrictions. The top U.S. export in this category in 2020 was business management and consulting services, with a value of \$68 billion. U.S. exports of potentially ICT-enabled services have more than doubled in the past 10 years, making it one of the country's fastest growing export sectors.

Advertising is the fastest growing sector of the U.S. potentially ICT-enabled services. Between 2011 and 2020, U.S. exports of advertising services nearly

**U.S. Exports of Potentially ICT-Enabled Services, by Type (Millions, and Percent)**

Sector	2011	2020	Change (\$)	Change (%)
Management & Consulting Services	\$33,441	\$68,457	\$35,016	105%
Financial Advisory Services	\$37,925	\$60,179	\$22,254	59%
Industrial Processes Royalties	\$43,954	\$50,472	\$6,518	15%
R&D and Testing Services	\$25,945	\$44,857	\$18,912	73%
Misc. Financial Services	\$20,270	\$30,375	\$10,105	50%
Credit-Related Services	\$13,616	\$23,901	\$10,285	76%
Advertising	\$7,527	\$21,866	\$14,339	191%
Insurance Services	\$14,673	\$20,432	\$5,759	39%
Personal and Cultural Services	\$18,717	\$19,976	\$1,259	7%
Trademarks Royalties	\$16,057	\$19,551	\$3,494	22%
Implicit Financial Services	\$8,850	\$18,936	\$10,086	114%
Legal Services	\$7,726	\$14,219	\$6,493	84%
Securities Transactions	\$20,407	\$10,950	-\$9,457	-46%
Architectural, Engineering & Other Technical Services	\$17,324	\$10,415	-\$6,909	-40%
Misc. Business Services	\$2,972	\$9,268	\$6,296	212%
Database & Other Info Services	\$5,060	\$6,603	\$1,543	30%
Audio/Visual Royalties	\$2,041	\$5,201	\$3,160	155%
Franchise Fees Royalties	\$5,732	\$4,430	-\$1,302	-23%
Accounting & Auditing Services	\$1,141	\$3,370	\$2,229	195%
Trade-Related Services	\$1,134	\$1,784	\$650	57%
News Agency Services	\$332	\$254	-\$78	-23%

Source: Estimated by Trade Partnership Worldwide

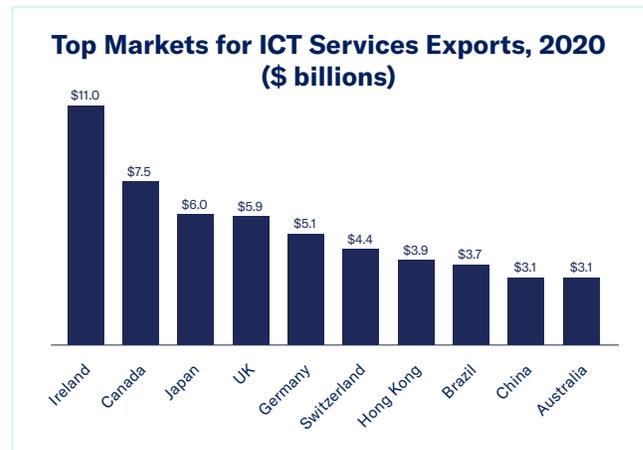
tripled from \$7.5 billion to roughly \$22 billion. That said, most of the top sectors have been growing strongly. For sectors showing export declines, there may be pandemic-related explanations. For example, exports of database and other information services and franchise fees (royalties) increased from 2011 to 2019 before falling sharply in 2020.

### U.S. exports to top markets

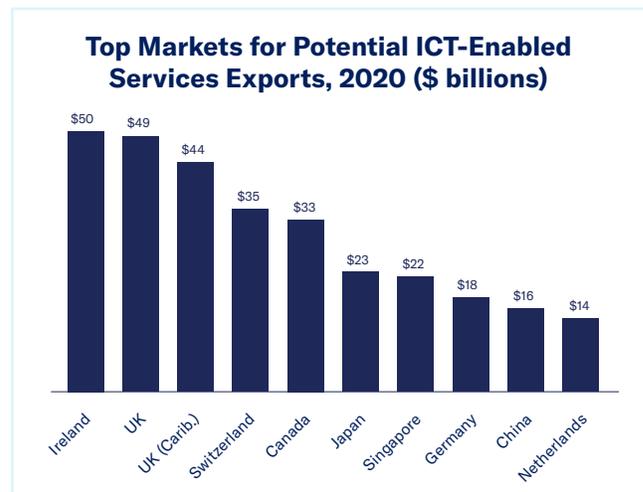
Developed economies are the top markets for U.S. exports of digitally tradeable services. In 2020, Ireland was the top export market for both ICT services (\$11 billion) and potentially ICT-enabled services (\$50 billion). Canada, China, Germany, Japan, Switzerland, and the UK each ranked among the top 10 individual markets for digitally tradeable services. Hong Kong, Brazil, and Australia were among the top 10 markets for ICT services, while the UK’s Caribbean Islands (largely financial services), Singapore, and the Netherlands were among the top 10 markets for potentially ICT-enabled services. Collectively, EU countries accounted for \$26 billion (31%) of U.S. exports of ICT services exports and \$122 billion (27%) of potentially ICT-enabled services exports in 2020.

Europe is the top destination for U.S. exports of digitally tradeable services. For this reason, the emphasis placed on transatlantic technology trade and investment is no surprise, as seen in U.S. government and business priorities such as the need to secure a successor agreement to Privacy Shield and ensure that EU initiatives such as the Digital Markets Act and the Digital Services Act do not discriminate against U.S. firms. Other regions, however, are stronger in one over the other. For example, the Asia and Pacific region (excluding China) accounted for 27% of ICT services exports but only 19% of potentially ICT-enabled exports.

Conversely, Central and South America accounted for 11% of ICT services exports but 16% of potentially ICT-enabled exports.



Source: Estimated by Trade Partnership Worldwide



Source: Estimated by Trade Partnership Worldwide

### U.S. Digitally Tradeable Services Exports, by Region and Type, 2020 (Millions, and Percent)

Region	ICT Services		Potentially ICT-Enabled Services	
	Exports	Export Share	Exports	Export Share
Europe	\$37,404	45%	\$214,706	48%
Asia & Pacific (ex. China)	\$22,369	27%	\$82,598	19%
North America	\$9,750	12%	\$42,263	9%
Central & South America	\$9,318	11%	\$73,350	16%
China	\$3,126	4%	\$16,394	4%
Middle East & Africa	\$1,964	2%	\$15,890	4%

Source: Estimated by Trade Partnership Worldwide

## Digital trade and jobs

Exports of digitally tradeable services support millions of American jobs. In 2020, exports of ICT services supported an estimated 317,000 U.S. jobs, similar to the number of jobs supported by U.S. airplane and aerospace exports (321,000). Exports of potentially ICT-enabled services supported nearly 2.2 million U.S. jobs, more than the *combined* exports of primary metals, fabricated metal products, machinery, computers and electronics, and electrical equipment.

Exports of digitally tradeable services support millions of American jobs.

Jobs supported by exports of digitally tradeable services grew from 2011 to 2020, but not nearly as fast as exports themselves due to productivity growth. For example, jobs related to exports of ICT services grew by just 17,000 (5%) despite export growth that was more than six times higher (33%), while jobs related to exports of potentially ICT-related services grew by just 224,000 (11%) despite exports that were more than four times higher (46%). Looking at this from another perspective: if policymakers want export-supported jobs to grow, then exports must expand significantly faster than productivity in those sectors.

Finally, as digitally tradeable services encompass a larger swath of the economy than just telecommunications and computer services, jobs supported by exports may be found across a wide range of industries that are not necessarily exporting digitally tradeable services. Indeed, they may not export at all. These indirectly supported jobs include those at equipment suppliers, support services, and other industries that exporters depend on to keep their businesses running.

## Digital trade and small business

America's small business exporters are among those with the most to gain from digital trade. While U.S. small and medium-sized businesses generate about two-thirds all new U.S. jobs, it is often overlooked that 98% of the nearly 300,000 American companies that export are small and medium-sized businesses. These firms account for about one-third of U.S. merchandise exports, according to data from the U.S. Department of Commerce. However, only about one in every 100 of America's 30 million small businesses export. In countries such as Germany and Switzerland, the

share of small or medium-sized firms that sell their products abroad is approximately five to ten times larger on a per capita or per firm basis.

In this context, the digital trade revolution offers impressive new opportunities for America's small businesses. New digital technologies have the potential to overcome longstanding hurdles facing small exporters.

The U.S. Chamber of Commerce recently issued a report entitled [\*Growing Small Business Exports: How Technology Strengthens American Trade\*](#), and it uncovered some surprising findings. Based on a national survey of more than 3,800 small businesses and a related economic analysis, the report produced a new estimate that 9% of U.S. small businesses currently export goods or services, a figure considerably higher than indicated by official statistics. The report estimated that small business exports generated \$541 billion in output in 2017 and supported more than 6 million U.S. jobs. Small businesses that export have been expanding the overseas markets they serve, the report found, from an average of seven countries in 2016 to 10 countries in 2018.

... the digital trade revolution offers impressive new opportunities for America's small businesses.

These larger-than-the-official-statistics results indicate that digital trade is already contributing to the expansion of U.S. small business exports and job creation. The Chamber's study found digital trade's boost to small business exporters is especially pronounced in the following three areas:

1. *Digital advertising* plays an overlooked but critical role in allowing U.S. small businesses to economically reach potential foreign customers in a targeted fashion. Small businesses simply had no such tools in the pre-internet era: print advertising in newspapers or direct mail were never feasible options for U.S. small businesses trying to tap even nearby and familiar markets such as Canada or Europe.
2. Modern digital tools are revolutionizing *payment collection*, cited by small business exporters as a top challenge. Uncertainty around international payment collection was a principal brake on small business exports even a few

years ago, but such risks and foreign exchange complexities can now be managed in a cost-effective manner by digital payment services.

3. International shipment firms, including express delivery companies, today provide comprehensive services that handle *customs clearance procedures and costs* for small business owners who lack the expertise and time to tackle the minutiae of such matters. The evidence supports the view that online channels reduce transaction costs associated with international trade significantly.

One takeaway is that digital trade allows small business exporters and larger firms to prosper together. Some of the services mentioned above in areas such as digital advertising (e.g., Google's Market Finder) are fostering new trade ecosystems of mutual benefit.

The cumulative effect of these digital technologies is that more small business exporters are able to reach more international markets. The Chamber's findings are supported by an earlier [study](#) which found that 94% of the smallest 10% of commercial sellers on eBay engage in exporting, not far behind the largest 10% (99%). Only 5% of commercial sellers in that study were single country exporters, with a remarkable 81% selling to five or more foreign countries.

The Chamber report found that the digital trade revolution nonetheless remains a work in progress for U.S. small business exporters. While 92% of small businesses that export use digital tools, a large majority flagged ongoing concerns. Small businesses surveyed noted the challenge posed by foreign regulations such as data localization requirements, privacy rules, and liability risks, as well as taxes. However, with further progress on these fronts and further steps to take advantage of digital trade, the small businesses surveyed projected a 14% increase in sales, which would increase U.S. economic output by \$81 billion and add 900,000 jobs.

## State trends

Every U.S. state exports digitally tradeable services, though those exports are currently more significant for some state economies than others. California was the largest exporter of ICT services at approximately \$21 billion in 2020. ICT services accounted for 16% of California's total services exports, which is above the national average of 12%. California was also the largest exporter of potentially ICT-enabled services

## Every U.S. state exports digitally tradeable services.

at about \$84 billion in 2020, though this high value can be attributed in part to the state's sheer size. The state's share of potentially ICT-enabled exports was identical to the national average at 66%.

Exports of ICT services were most important to Washington State. In 2020, ICT services accounted for nearly half—\$11 billion out of \$23 billion—of Washington's total services exports to the world. ICT services accounted for about a quarter of services exports for Colorado (\$3 billion out of \$12 billion), Wisconsin (\$1.5 billion out of \$6 billion), and Virginia (\$3.8 billion out of \$16 billion). Utah, New Hampshire, and Georgia are the other states where ICT services account for 20% or more of total services exports.

In some states, potentially ICT-enabled services account for nearly all services exports. These services accounted for almost 90%—\$3.5 billion out of \$4 billion—of Delaware's total services exports to the world. For New York, potentially ICT-enabled services accounted for over 80%—\$76 billion out of \$94 billion—of its global services exports. Other states where potentially ICT-enabled services account for more than 80% of total services exports include South Dakota (\$1.25 billion out of \$1.5 billion), Connecticut (\$9 billion out of \$11 billion), and Iowa (\$3.1 billion out of \$3.8 billion). In each of these states, financial or insurance services exports (or both) are a key contributor to the high share.

State exports of digitally tradeable services have grown much faster than other services exports, especially in light of the Covid-19 pandemic. Between 2011 and 2020, about two-thirds of all states experienced increases in exports of both ICT services and potentially ICT-enabled services while other services exports declined. In one of the most extreme examples, ICT services exports from Arizona grew by \$622 million (190%), exports of potentially ICT-enabled services grew by \$2.7 billion (67%), and exports of other services declined by \$2.9 billion (56%).

## State exports of digitally tradeable services have grown much faster than other services exports, especially in light of the Covid-19 pandemic

## State Services Exports, by Type, 2020 (Millions, and Percent)

State	Value				Share		
	ICT	Potentially ICT-Enabled	Not ICT-Enabled	Total	ICT	Potentially ICT-Enabled	Not ICT-Enabled
AK	\$24	\$195	\$1,200	\$1,418	2%	14%	85%
AL	\$265	\$2,330	\$1,043	\$3,638	7%	64%	29%
AR	\$104	\$777	\$444	\$1,325	8%	59%	34%
AZ	\$950	\$6,630	\$2,332	\$9,911	10%	67%	24%
CA	\$20,890	\$84,381	\$22,751	\$128,022	16%	66%	18%
CO	\$3,111	\$6,696	\$2,084	\$11,891	26%	56%	18%
CT	\$888	\$9,088	\$814	\$10,790	8%	84%	8%
DC	\$490	\$4,888	\$762	\$6,140	8%	80%	12%
DE	\$95	\$3,531	\$371	\$3,997	2%	88%	9%
FL	\$2,627	\$14,957	\$11,723	\$29,307	9%	51%	40%
GA	\$3,964	\$10,609	\$5,308	\$19,881	20%	53%	27%
HI	\$22	\$362	\$1,069	\$1,453	2%	25%	74%
IA	\$101	\$3,070	\$668	\$3,838	3%	80%	17%
ID	\$20	\$973	\$320	\$1,313	2%	74%	24%
IL	\$1,773	\$23,209	\$7,845	\$32,828	5%	71%	24%
IN	\$152	\$5,739	\$1,666	\$7,557	2%	76%	22%
KS	\$280	\$2,340	\$662	\$3,282	9%	71%	20%
KY	\$127	\$1,530	\$1,383	\$3,040	4%	50%	45%
LA	\$29	\$3,028	\$4,321	\$7,378	0%	41%	59%
MA	\$5,684	\$21,256	\$4,302	\$31,243	18%	68%	14%
MD	\$1,661	\$8,263	\$2,523	\$12,447	13%	66%	20%
ME	\$29	\$641	\$451	\$1,121	3%	57%	40%
MI	\$721	\$6,185	\$4,032	\$10,939	7%	57%	37%
MN	\$1,194	\$7,622	\$1,519	\$10,335	12%	74%	15%
MO	\$1,151	\$5,914	\$1,565	\$8,631	13%	69%	18%
MS	\$26	\$694	\$527	\$1,248	2%	56%	42%
MT	\$26	\$399	\$307	\$732	4%	55%	42%
NC	\$2,688	\$15,535	\$2,221	\$20,444	13%	76%	11%
ND	\$86	\$316	\$582	\$985	9%	32%	59%
NE	\$300	\$1,364	\$348	\$2,011	15%	68%	17%
NH	\$535	\$1,721	\$398	\$2,654	20%	65%	15%
NJ	\$2,655	\$13,824	\$4,982	\$21,461	12%	64%	23%
NM	\$13	\$1,155	\$461	\$1,629	1%	71%	28%
NV	\$210	\$1,571	\$2,202	\$3,982	5%	39%	55%
NY	\$3,629	\$76,252	\$13,674	\$93,556	4%	82%	15%
OH	\$646	\$10,744	\$4,196	\$15,586	4%	69%	27%
OK	\$59	\$1,067	\$989	\$2,116	3%	50%	47%
OR	\$1,156	\$4,998	\$1,207	\$7,360	16%	68%	16%
PA	\$1,753	\$13,551	\$4,285	\$19,589	9%	69%	22%
RI	\$175	\$1,101	\$478	\$1,754	10%	63%	27%
SC	\$165	\$2,822	\$2,261	\$5,248	3%	54%	43%
SD	\$17	\$1,257	\$183	\$1,457	1%	86%	13%
TN	\$268	\$4,337	\$1,728	\$6,332	4%	68%	27%
TX	\$5,470	\$32,990	\$14,165	\$52,625	10%	63%	27%
UT	\$1,302	\$3,683	\$1,263	\$6,248	21%	59%	20%
VA	\$3,780	\$9,191	\$3,400	\$16,371	23%	56%	21%
VT	\$91	\$407	\$249	\$746	12%	55%	33%
WA	\$11,031	\$8,334	\$4,082	\$23,447	47%	36%	17%
WI	\$1,478	\$3,348	\$933	\$5,759	26%	58%	16%
WV	\$18	\$518	\$394	\$930	2%	56%	42%
WY	\$1	\$103	\$228	\$332	0%	31%	69%
US	\$83,931	\$445,496	\$146,901	\$676,328	12%	66%	22%

Source: Estimated by Trade Partnership Worldwide

## Foreign competitors see the same opportunities to increase exports of digitally tradeable services

U.S. exporters do not operate in a vacuum, and they face growing competition from foreign competitors similarly trying to increase exports of digitally tradeable services. While not quite apples-to-apples,<sup>7</sup> data from the World Trade Organization (WTO) allows comparisons between export trends for the United States and other top exporters.

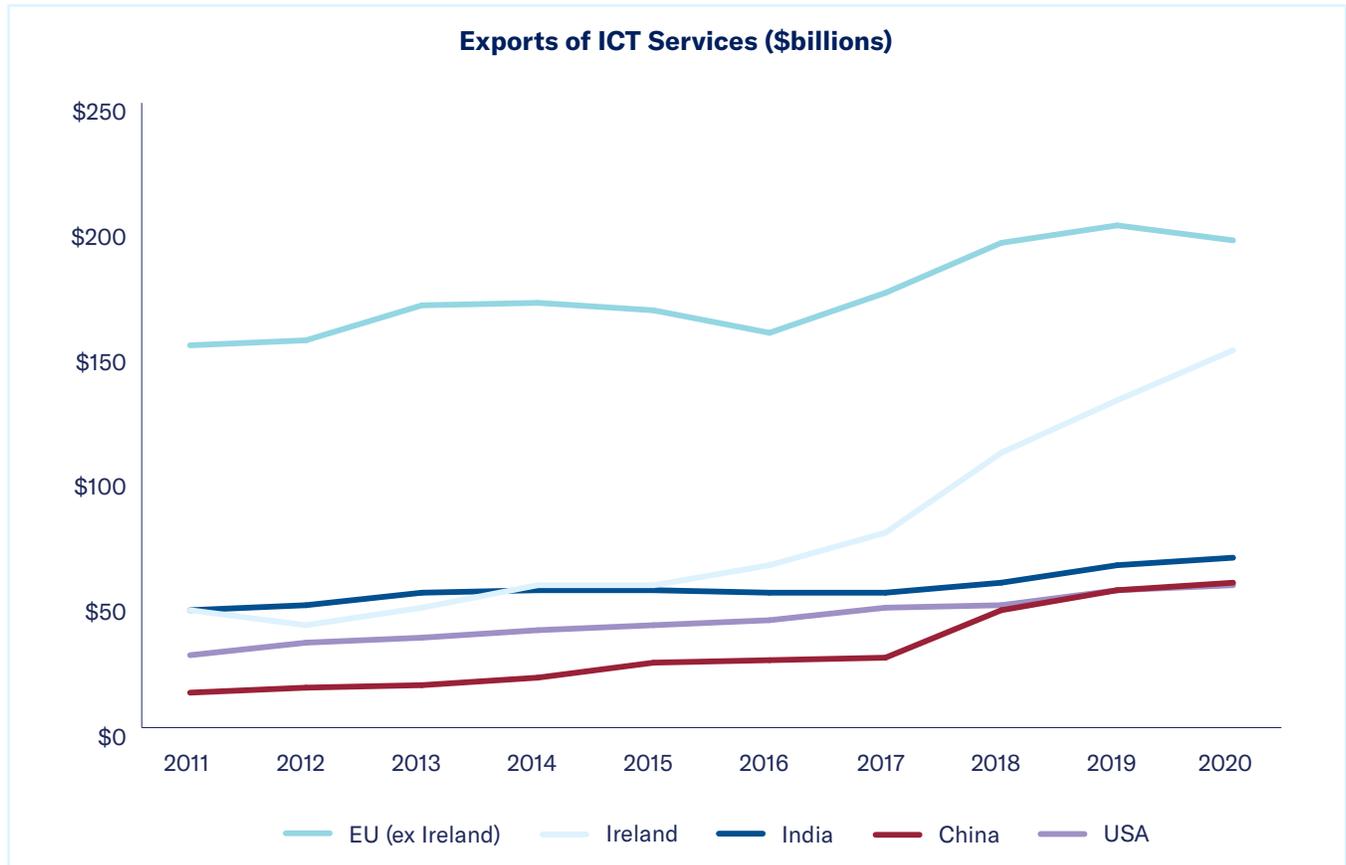
### Global ICT services exports

Global exports of ICT services have been growing. In 2020, the value of global ICT services exports was \$711 billion, nearly double the \$364 billion exported

in 2011. The EU was the top exporter of ICT services in 2020 at \$346 billion. Ireland was the largest EU exporter at \$151 billion in 2020 compared to \$195 billion for all other EU countries combined. Ireland has driven much of the EU growth in recent years, so the graph below represents them separately.

India, China, and the United States are in the next tier of ICT services exporters. India was the largest of the three with \$68 billion in exports in 2020, but it also saw the slowest export growth over the last 10 years (45%). In 2020, China (\$59 billion) slightly surpassed the United States (\$58 billion) following a big jump in exports from 2017 to 2018.

On a relative basis, only a small share of U.S. services exports falls under the ICT services category. In 2020, just 8.0% of U.S. services exports were ICT-related based on the WTO data, below any of the other leading



Source: WTO Data

<sup>7</sup> The World Trade Organization (WTO) data for ICT services differs slightly from the classification used by the U.S. Bureau of Economic Analysis. The WTO data includes the entire “Telecommunications, computer, and information services” (BOP6 – SI), while the United States classifies some of the information services subsectors as potentially ICT-enabled. Additionally, the United States includes “Royalties from Computer Software” among its ICT services sectors, which falls under “Licenses to reproduce and/or distribute computer software” (BOP6 – SH3) in the WTO data. Unfortunately, only a limited number of countries report data in BOP6 – SH3, so it is not possible to aggregate the various WTO data and better approximate the U.S. definition.

exports and the 14.2% world average.<sup>8</sup> In Ireland, ICT services exports account for nearly 60% of total services exports, while ICT services exports account for 11.6% of total services exports for non-EU countries. The share in China has been growing, reaching 21.0% in 2020. The share in India is higher at 33.6%, but this is slightly below India's 34.0% share in 2011.

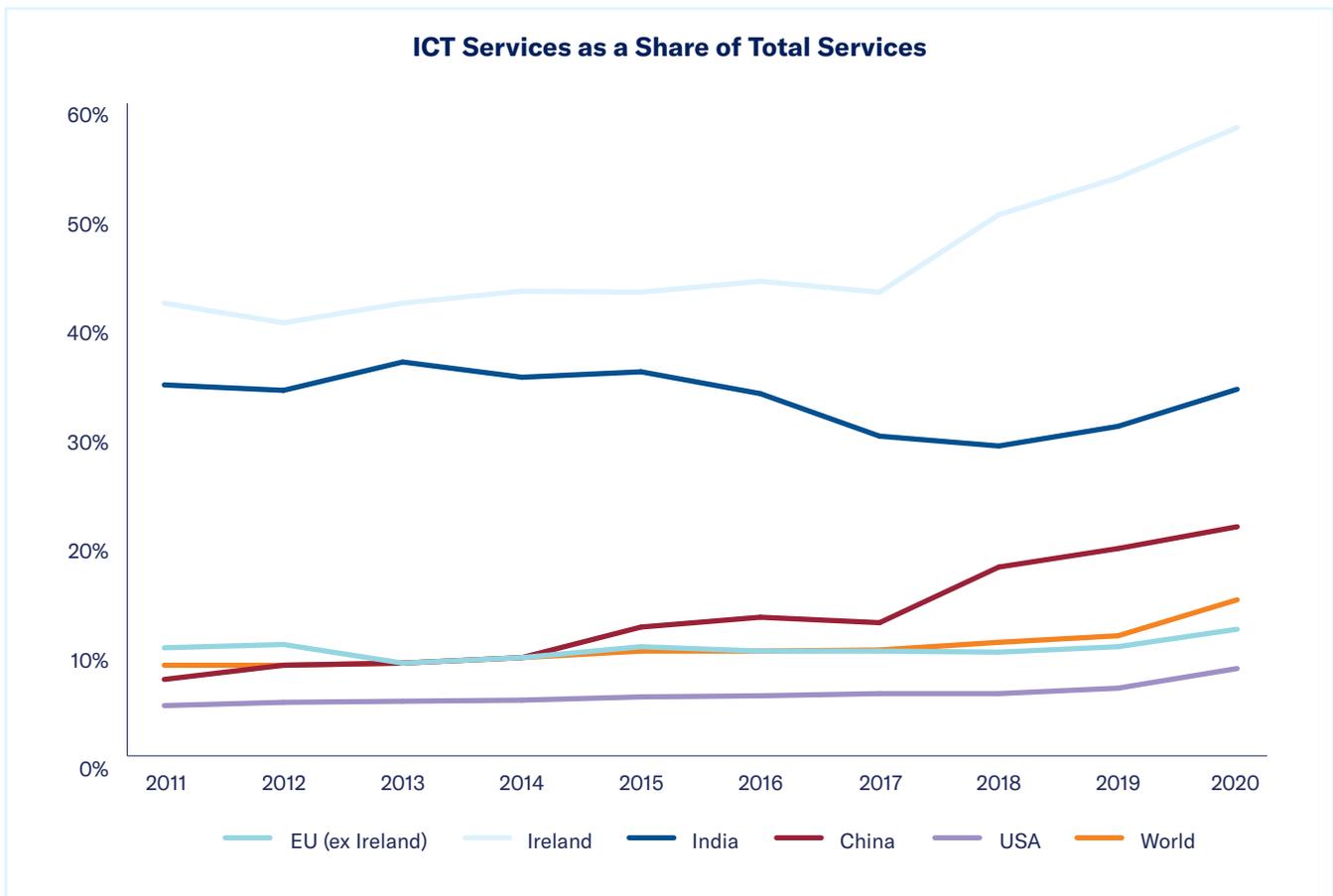
## Global potentially ICT-enabled services exports

A much larger share of exports—both from the United States and the world—fall under the potentially ICT-enabled category. Global exports of potentially ICT-enabled services were \$2.5 trillion in 2020, or about 3.5 times higher than the \$711 billion

in ICT services exports. Using the WTO data, the potentially ICT-enabled services exports from the United States were 8.5 times higher than ICT exports.

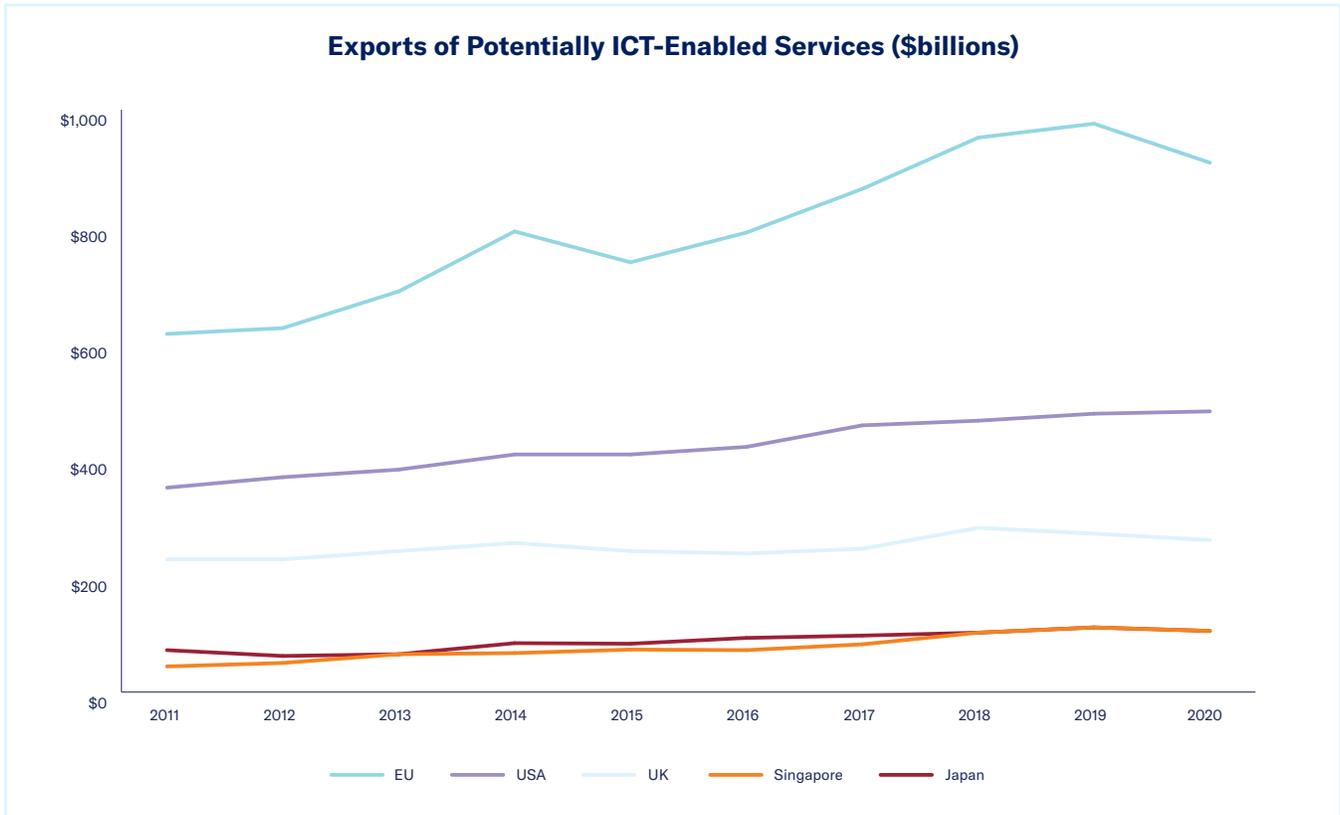
The EU is the top exporter of potentially ICT-enabled services and is the largest U.S. competitor in these sectors. (No EU country accounted for more than 20% of the total figure, so the graph does not show any country-specific breakout as it did for ICT services.) The United States (\$482 billion) ranked second in potentially ICT-enabled services exports in 2020, followed by the United Kingdom (\$261 billion), Singapore (\$107 billion), and Japan (\$105 billion).

Despite its large size, growth in U.S. exports (37%) trended along world export growth (38%)



Source: WTO Data

<sup>8</sup> Even using the U.S. data, ICT services accounted for just 12% of total U.S. services exports in 2020, below the world average using WTO data. Presumably, averages for all countries would increase if they included licenses to reproduce software, but the United States and Singapore are the only two countries with that reported data for 2020, so it is impossible to know the extent to which any of those other countries' averages might increase.



Source: WTO Data

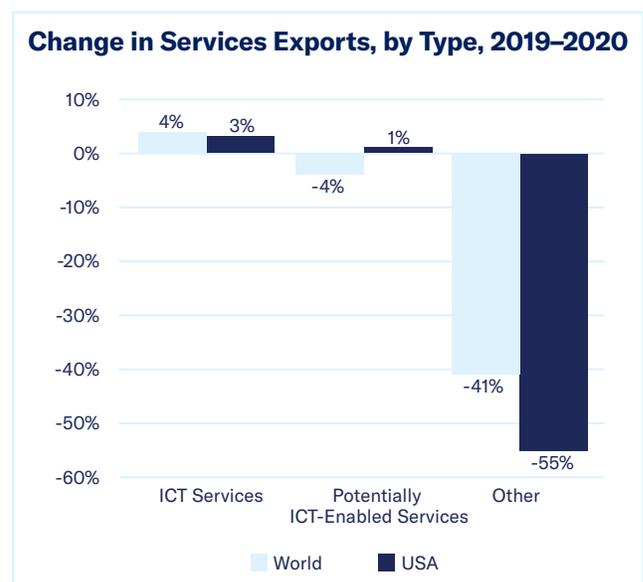
for potentially ICT-enabled services between 2011 and 2020. Singapore’s export growth (142%) was the highest among top exporters, while the United Kingdom’s exports growth (15%) was the lowest.

### Resiliency of digitally tradeable services exports

The Covid-19 pandemic and related recession had a major impact on trade in digitally tradeable services. Some of the services sectors hit hardest, such as travel and tourism and various transportation sectors, are the exact types of exports that cannot be provided digitally. As a result, it should come as no surprise that exports of ICT and potentially ICT-enabled services outperformed exports that required physical movement of people across national borders. Yet the extent of the differences, both for the world and the United States, are rather dramatic to see visualized.

For the United States, exports of digitally tradeable services continued to grow from 2019 to 2020. Conversely, “other” services exports declined by more 55%. The global swings were not quite as extreme, but global ICT services exports grew 8 percentage points faster than potentially ICT-enabled services, while they grew 37 percentage points faster than other services exports. Ireland was one of the few countries

whose total services exports grew in that time frame due to its heavy reliance on ICT exports. Data for the first year of the pandemic suggests that ICT services and potentially ICT-enabled services exports can mitigate some of the export decline in other services sectors should pandemic effects persist.



Source: WTO Data

## Global barriers to U.S. digital exports are on the rise

However, amid these significant opportunities for American workers and companies, the outlook for their ability to continue to export digitally tradeable services is uncertain. Barriers to digital trade exist and in many cases have been increasing.<sup>9</sup> While tariffs on digital goods exports largely have been tamed by plurilateral and bilateral trade agreements, this is not the case for digital services trade. Barriers affecting digitally tradeable services trade include data localization requirements, cross-border data flow limitations, infringement of intellectual property rights, forced technology transfer, measures that violate the WTO's national treatment obligations by discriminating against partially foreign-owned firms, strictures on government procurement that violate the WTO Government Procurement Agreement, and a host of regulatory barriers. In some cases, these measures are crafted to target American firms exclusively.

Multilateral and many bilateral and regional trade agreements address some, but not all, of these barriers, and often in different ways. Additionally, a policy tool that is not updated to reflect new technologies can very quickly become a barrier to digital exports. Left unchecked, the proliferation of these trade barriers threatens to deprive American workers and companies of the potential benefits of exporting digitally tradeable services.

To illustrate the extent of digital trade barriers, the European Centre for International Political Economy published several years ago its [Digital Trade Restrictiveness Index](#) (DTRI), which “measures how 64 countries in the world restrict digital trade.” The index “reveals that many leading economies put significant restrictions on digital trade. These restrictions drive up costs for businesses as well as for consumers.”

This index indicates that China maintains the most restrictive digital trade policies, followed by Russia, India, Indonesia, Vietnam, Brazil, and Turkey. The appearance on this list of large emerging markets of significant commercial interest to American business underscores the significant scope of the harm digital protectionism can inflict.

Left unchecked, the proliferation of these trade barriers threatens to deprive American workers and companies of the potential benefits of exporting digitally tradeable services.

The ongoing proliferation of these barriers to digitally tradeable services trade has been further documented in a recent study by the Information Technology & Innovation Foundation, entitled [How Barriers to Cross-Border Data Flows Are Spreading Globally, What They Cost, and How to Address Them](#). It found that “the number of data-localization measures in force around the world has more than doubled in four years. In 2017, 35 countries had implemented 67 such barriers. Now, 62 countries have imposed 144 restrictions—and dozens more are under consideration.” The experience of Chamber member companies affirms this trend and its widespread nature.

Not only does the spread of barriers to digital services trade threaten to block the opportunities described above, it threatens to consign economies to a low-productivity path of slower growth. The ITIF study found that “a 1-point increase in a nation's data restrictiveness cuts its gross trade output 7 percent, slows its productivity 2.9 percent, and hikes downstream prices 1.5 percent over five years.” The result is that the economic prospects of major emerging markets will be dampened even in areas not directly touched by digital trade.

<sup>9</sup> An excellent overview of these barriers can be found in Congressional Research Service, op. cit., pp. 14-23.

## The case for a digital trade agreement

While these challenges are formidable, the Chamber and its members are convinced that the best defense against this trend is a good offense: The United States must act swiftly to strengthen international rules for digital trade. The ideal solution is a digital trade agreement that guarantees the ability to move data across international borders, prohibits forced localization of data, and bars customs duties on electronic transmissions, among other objectives. The annexed “U.S. Chamber Digital Trade Priorities,” a document which collects a number of widely supported principles, should guide the negotiation of such an agreement.

**The United States must act swiftly to strengthen international rules for digital trade.**

The WTO Joint Statement Initiative on E-commerce is a multilateral effort to lay the foundation for trade rules to digital trade, including some aspects of digitally enabled services trade. Approximately 80 countries are now engaged in this negotiation. However, this agreement is unlikely to be completed in the near term, and it may not achieve the high-standard disciplines critical to U.S. interests.

While the United States must remain a leader within these WTO negotiations, the Chamber believes it is important to advance a digital trade agreement with a coalition of like-minded countries that share U.S. ambitions. Building on the model set out in the digital trade chapter of the United States-Mexico-Canada Agreement (USMCA) and the U.S.-Japan Digital Trade Agreement, the United States should launch negotiations for a high-standard plurilateral digital trade agreement with other economies that share this vision.

The Asia-Pacific region is home to a number of economies that are already showing interest in such an initiative. In addition to Canada, Mexico, and Japan, the members of the CPTPP have already agreed to relatively strong disciplines in this area (though not as strong as those in the USMCA and the U.S.-Japan Digital Trade Agreement). Several regional economies have inked a “Digital Economy Partnership Agreement,” though its provisions fall short of the high standards the United States has championed. In any event, interest in the undertaking from a number of countries is substantial.

One logical focus is a group of economies, dubbed the “Digital Dozen” in this report, considered potentially suitable partners to join the United States in a high-standard digital trade agreement. The group includes Australia, Canada, Chile, Colombia, Japan, Korea, Mexico, New Zealand, Peru, Taiwan, the UK, and the members of ASEAN.

In 2020, these economies accounted for \$34 billion (41%) of U.S. exports of ICT services and \$166 billion (37%) of potentially ICT-enabled services. The Digital Dozen includes large, established markets like Canada, the UK, and Japan as well as emerging markets such as Vietnam. U.S. exports to Vietnam essentially doubled between 2011 and 2020 for both ICT services (\$49 million to \$94 million) and potentially ICT-enabled services (\$280 million to \$573 million).

The architecture for the agreement should be open, leaving room for countries to join later if they can demonstrate they are willing and able to make robust commitments to join even if they are from other world regions. There is precedent from plurilateral agreements within the WTO winning new accessions over time, so devising a path for new parties to join later is important. Even if multilateralization is never achieved, a plurilateral approach offers advantages over hub-and-spoke bilateral agreements by providing the consistency and uniformity of a common rulebook applicable across a wider geography.

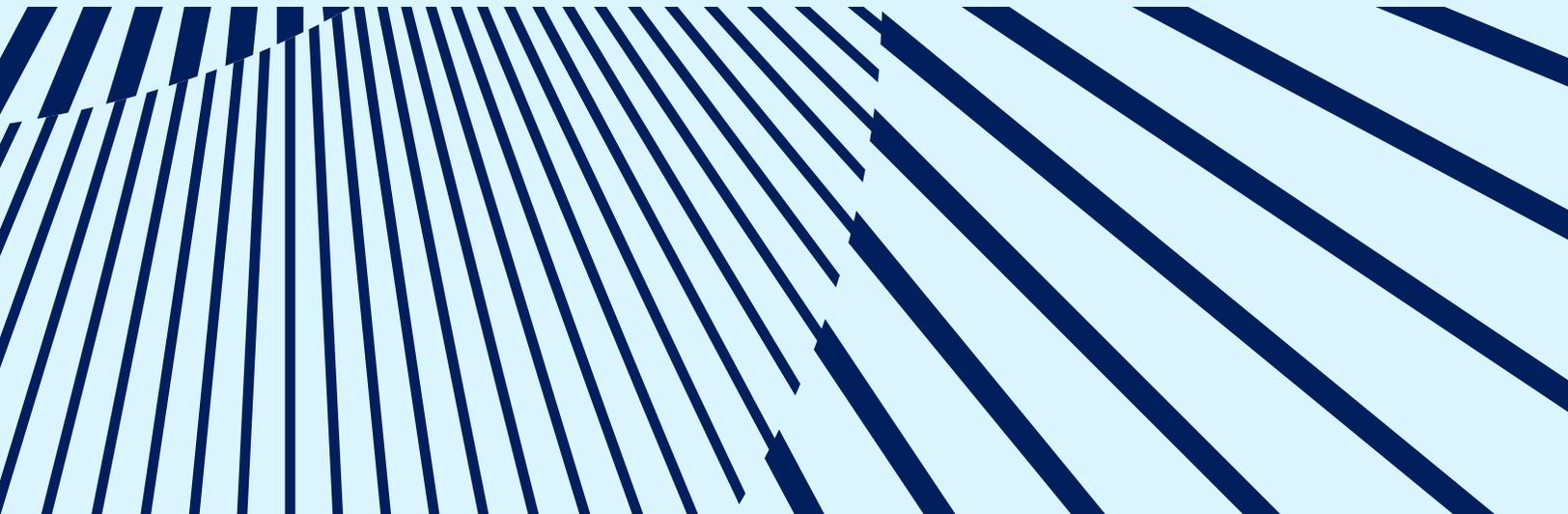
In sum, the United States finds itself at a moment of promise and peril on digital trade. Export opportunities for digitally tradeable services are expanding rapidly, and the United States is well positioned to build on its formidable advantages in these areas. However, these opportunities are endangered by the spread of digital protectionism and the accumulation of discriminatory digital rules that often target American firms.

To forestall these threats, the United States must act now to push forward a vision for a digital trade agreement that can secure these opportunities for American workers, small businesses, services industries, and others. The case for American leadership on digital trade is strong: It is time for the

**... the United States finds itself at a moment of promise and peril on digital trade.**

Appendix I

# U.S. Chamber Digital Trade Priorities





# U.S. Chamber Digital Trade Priorities

## 1. Cross-Border Data Flows

The ability to move data across borders—and access information across borders—is essential to the 21st century economy. No company, regardless of sector, can do business, let alone engage in international trade, without the ability to transfer data. The free flow of data is essential to the creation of global value chains that increase efficiency and permit companies of all sizes to access the global market. The worrisome proliferation of data localization measures around the globe is counterproductive to data protection and poses a threat to economic growth and new market opportunities. To counter the spread of digital trade barriers, policymakers need to commit to support the free flow of data internationally.

## 2. Data Protection

The need to protect data and respect privacy is not in dispute. Privacy protection means different things to different people in different contexts. Prioritizing protection of personal data at the expense of legitimate uses of those data only serves to harm consumers and limit innovation. An optimal regulatory model avoids a one-size-fits-all approach to data protection in favor of a more nuanced approach that recognizes differences among industries in their use of data, enables legitimate business uses of personal data, empowers consumers to make informed choices, and enables cross-border data flows.

## 3. Data Governance & Innovation

Data is central to the digital economy—and so are the laws, regulations, and standards that govern how data is collected and used. Data drives innovation, which in turn promotes economic growth and rising incomes. It is imperative that governments recognize that data is a resource companies create through substantial investments—it is made, not found—and it enhances competition in the marketplace. Governments should refrain from imposing onerous data sharing, access, ownership, and other policies to regulate non-personal data.

## 4. Promote Trust and Innovation in Artificial Intelligence

Artificial intelligence is an important contributor to the global digital economy, and fostering public trust and trustworthiness in AI technologies is necessary to advance its responsible development, deployment, and use. Governments should work together in this rapidly evolving sector and commit to flexible, risk-based frameworks that encourage AI innovation and collaborate across borders to advance sound and interoperable practices. When appropriately regulated, AI has the potential to act as a force for good, tackling challenges and spurring economic growth for the benefit of consumers, businesses, and society.

## 5. Foster Sound Regulatory Environments

Regulation in response to the digital transformation of the economy is a given—industries recognize this, and society demands it. However, careful deliberation is essential to well-informed regulatory decisions. New regulations, designed with flexibility to account for new opportunities and challenges, might be necessary as the digital economy develops. However, it is equally possible that existing regulatory frameworks will remain effective in mitigating potential risks or, conversely, hinder

# U.S. Chamber Digital Trade Priorities

incumbent economic actors, spurring the need for less regulation due to increased competition. In all cases, rulemaking can only be adopted after a deliberative and consultative process governed by good regulatory practices that allow businesses and workers to trade, invest, and innovate with confidence.

## **6. Non-Discrimination**

The principle of non-discrimination is foundational to any trade agreement—digital or otherwise. Companies from countries with a demonstrated commitment to open markets and nondiscriminatory rules have made greater strides in the creation and development of new digital products than other countries. Companies that have succeeded in bringing outstanding products to market should not be unfairly placed at a competitive disadvantage as punishment for their success; nor should countries whose policy environment fosters such success be subject to discriminatory treatment.

## **7. Ban Forced Technology Transfers and Ensure Technology Choice**

Forced localization, local content requirements, and compelling technology transfer as conditions of market access are discriminatory in nature and violate the standards of the global rules-based trading system. These policies deter investment, stifle innovation, and deprive an economy of the transformative benefits of digital products and services. Further, companies should not be forced to transfer their technology—including source code and proprietary algorithms—to competitors or governments. Companies should be able to rely upon technologies they deem optimal for their business operations and not be limited to local and at times less competitive technologies.

## **8. Advance Risk-Based Industry Solutions to Cybersecurity**

Cyberattacks undermine trust in an economy that is increasingly reliant on technology. Governments and business agree that international law applies to cyberspace, and applying that law is essential to an open, interoperable, secure, and reliable information and communications infrastructure that supports international commerce, strengthens international security, and fosters free expression and innovation. Governments that view the private sector as a valued partner and engage in deep collaboration across borders are best positioned to safeguard their citizens and their economies. To respond to the fast-changing threat landscape, policies need to focus on flexible, risk-based approaches to cybersecurity that leverage international standards and frameworks, enabling the private sector to develop solutions that address specific cyber needs and scale them across national borders. Encryption is increasingly seen as a valuable tool to enhance privacy and security in the digital ecosystem, and policies need to support it. Encryption policies and procedures should be technology neutral, reasonable, and fully capture views across multiple sectors of the business community.

## **9. Abide by Market-Driven International Standards**

Standards are at the heart of digital products and play a growing role in digital services. Far too often, government policies fail to recognize the trade facilitating, self-regulatory attributes of a private-sector market approach to standards development in recognized international standards bodies and consortia. Governments should advance standards policies that support open and competitive markets where companies can compete on the merits. Standards development led by the private sector is the best way to promote common, technically sound approaches that deliver technology solutions and achieve policy objectives. Such standards should be voluntary, open, transparent, globally recognized, consensus-based, and technology-neutral.

# U.S. Chamber Digital Trade Priorities

## **10. Prioritize Internet Access, Consumer Choice, and Good Governance**

Governments around the world are making increased investments in digital infrastructure. While more investment is needed, unencumbered access to the Internet and a competitive, interoperable, and inclusive online environment is critical to economic and social development. The Internet is the modern marketplace, and an open Internet allows companies and customers to reach one another on a global scale. Government limitations that restrict barriers to legitimate commerce only serve to constrain the power of the Internet to support sustainable and inclusive economic growth. At the same time, safeguards need to be in place to ensure that online platforms and marketplaces can operate at scale to host a wide range of lawful speech and commerce.

## **11. Protect Intellectual Property**

The digital economy is home to creative minds that bring forth amazing products and services. Innovation and creativity drive growth, investment, and competition. In our rapidly evolving digital age, protection for cutting-edge digital products and services is critical. Patents, copyrights, trademarks, and trade secrets (including proprietary algorithms) all play central roles in technological competitiveness, protecting jobs and encouraging growth as businesses of all sizes can engage in trade in digital goods and services. This enables private sector investment in long-term, high-risk, resource intensive projects that advance the state of the art.

## **12. Modernize Customs for the Digital Era**

Small business and e-commerce are huge drivers of economic growth and job creation for every economy. Antiquated, burdensome, complex, and costly customs procedures make it difficult for businesses to compete by slowing delivery times and raising transaction costs. Modern approaches to customs that address this problem by raising de minimis thresholds, providing more efficient clearance for low value shipments, and streamlining customs procedures will support supply chains that increase economic competitiveness. Trade agreements should continue to prohibit customs duties on digital products, which is especially useful to small and mid-sized businesses that would not be able to compete on a global scale if they were required to pay those duties.

## **13. Improve Trade Facilitation with Digital Technology**

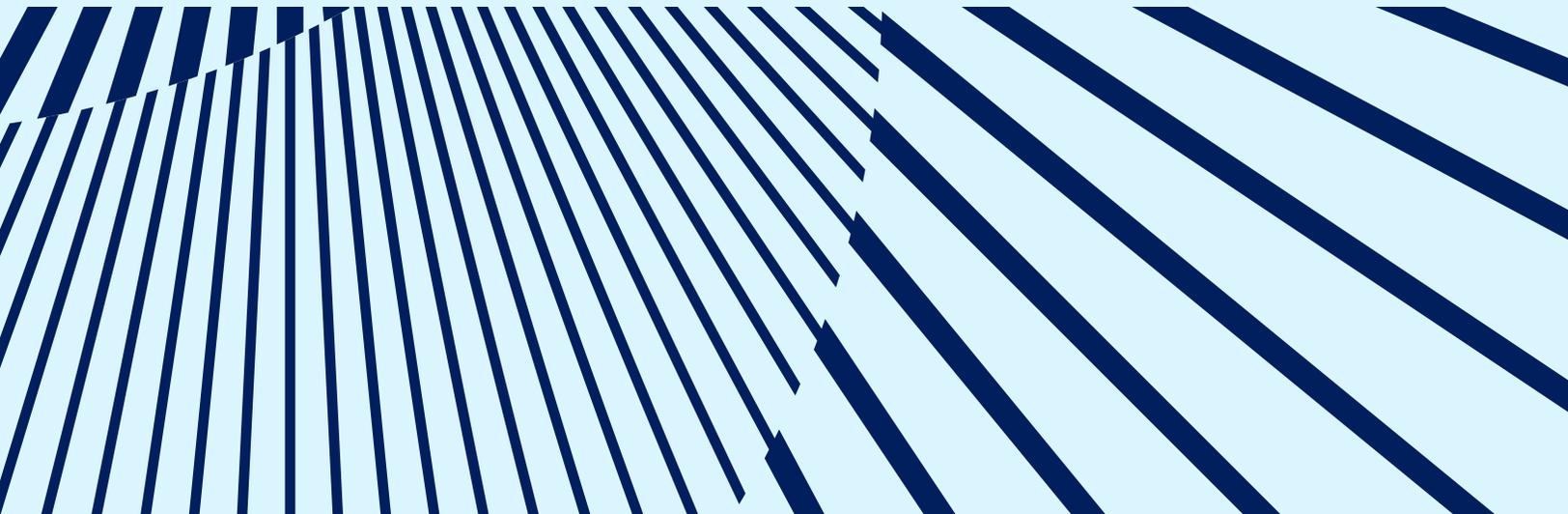
Digital trade is only possible with the advent of paperless trade, interoperable payment systems, and secure authentication methods. Digital trade agreements should embrace paperless trade since it reduces administrative barriers across borders, which maximizes the benefits of trade and foreign investment for all parties. Similarly, countries should work to improve e-invoicing and e-payment systems to ensure that they are interoperable so that the processing of payments remains efficient and reliable. Lastly, parties must agree on standards for electronic signature and authentication methods to protect consumers as well as transactions in the e-marketplace.

## **14. Seek Intergovernmental Cooperation and Accountability**

Connectivity is at the heart of the digital economic revolution. This connectivity is a key ingredient in the rising tide of international trade and investment that is boosting incomes and the creation of good jobs. In this context, policy leadership within governments and among governments is essential to securing our shared prosperity. From international forums to bilateral dialogues and trade agreements, governments must make high-standard commitments and agree to be held accountable to them.

Appendix II

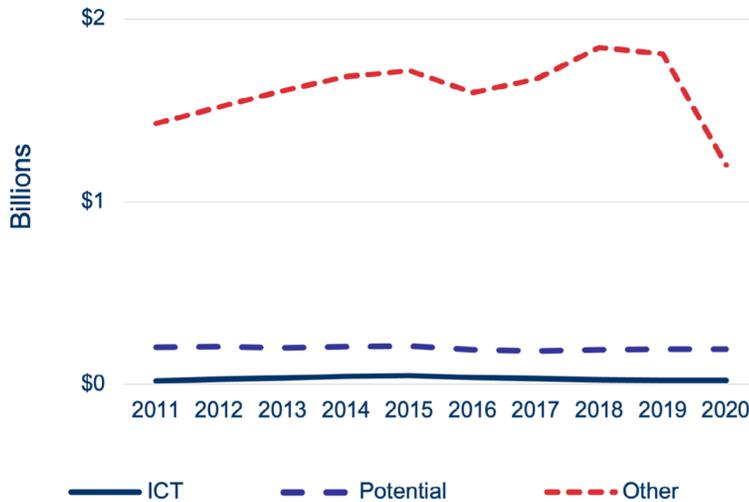
# State Digital Trade One-Pagers





# Alaska and Digital Trade

Alaska Services Exports, 2011-2020



ICT services exports grew from \$21 million in 2011 to \$24 million in 2020 (+14%), supporting 23 direct and 22 indirect jobs in 2020.

Potentially ICT-enabled services exports declined from \$204 million to \$195 million (-4%), supporting 694 direct and 498 indirect jobs in 2020.

Exports of other services grew from \$1.4 billion in 2011 to \$1.8 billion in 2019 (+27%) before collapsing in 2020 due to Covid-19.

**Alaska's digitally tradeable services exports supported 717 direct and 521 indirect American jobs in 2020.**

Top Markets for Alaska Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$6	\$92	\$99
Asia & Pacific (ex. China)	\$2	\$37	\$39
Central & South America	\$12	\$16	\$28
North America	\$3	\$24	\$27
China	\$0	\$13	\$13
Middle East & Africa	\$1	\$11	\$12

Europe was Alaska's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Alaska exports of potentially ICT-enabled services to Ireland grew from \$9 million in 2011 to \$20 million (+127%) in 2020.

The "Digital Dozen" accounted for \$88 million out of Alaska's \$218 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Alaska, 2020 (\$M)

Type (ICT in bold)	Total
Payments for Trademarks	\$44
Architectural, Engineering, and Misc. Technical Services	\$40
Business Management and Consulting Services	\$39
<b>Telecommunications Services</b>	<b>\$24</b>
Implicit Financial Services	\$22
Other	\$50

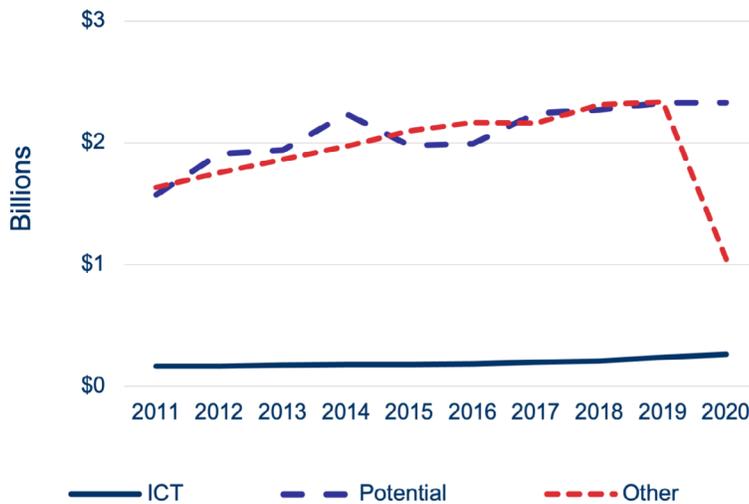
Payments for trademarks are Alaska's top potentially ICT-enabled services export in 2020, but declined from \$55 million in 2011 to \$44 million in 2020 (-19%).

Telecommunications services are the top ICT services export, growing from \$21 million in 2011 to \$24 million in 2020 (+14%).



# Alabama and Digital Trade

Alabama Services Exports, 2011-2020



ICT services exports grew from \$165 million in 2011 to \$265 million in 2020 (+60%), supporting 881 direct and 753 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.6 billion to \$2.3 billion (+48%), supporting 6,627 direct and 4,012 indirect jobs in 2020.

Exports of other services grew from \$1.6 billion in 2011 to \$2.3 billion in 2019 (+43%) before collapsing in 2020 due to Covid-19.

**Alabama's digitally tradeable services exports supported 7,508 direct and 4,765 indirect American jobs in 2020.**

Top Markets for Alabama Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$100	\$1,127	\$1,226
Asia & Pacific (ex. China)	\$72	\$459	\$531
North America	\$42	\$256	\$298
Central & South America	\$35	\$262	\$297
China	\$9	\$124	\$133
Middle East & Africa	\$8	\$99	\$107

Europe was Alabama's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Alabama exports of potentially ICT-enabled services to United Kingdom grew from \$137 million in 2011 to \$281 million (+105%) in 2020.

The "Digital Dozen" accounted for \$1.1 billion out of Alabama's \$2.6 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Alabama, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$389
Misc. Financial Services	\$376
Implicit Financial Services	\$295
<b>Computer Software Services</b>	<b>\$226</b>
Payments for Trademarks	\$200
Other	\$1,109

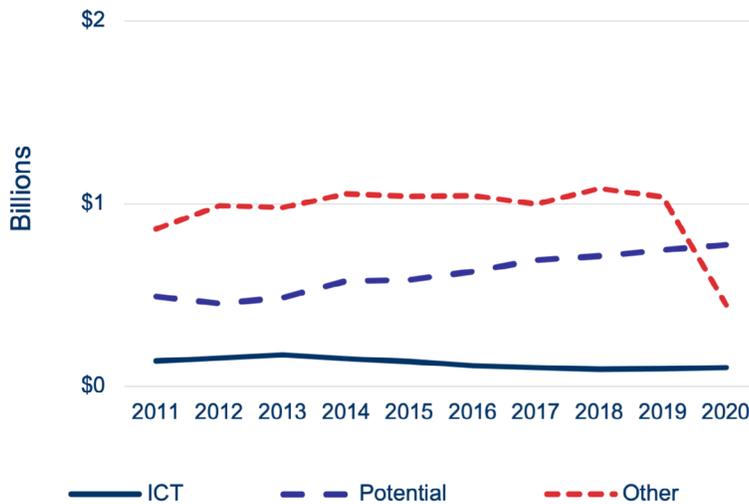
Royalties from industrial processes are Alabama's top potentially ICT-enabled services export in 2020, but declined from \$416 million in 2011 to \$389 million in 2020 (-7%).

Computer software services are the top ICT services export, growing from \$94 million in 2011 to \$226 million in 2020 (+140%).



# Arkansas and Digital Trade

Arkansas Services Exports, 2011-2020



ICT services exports declined from \$141 million in 2011 to \$104 million in 2020 (-26%), supporting 213 direct and 187 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$492 million to \$777 million (+58%), supporting 2,217 direct and 1,706 indirect jobs in 2020.

Exports of other services grew from \$860 million in 2011 to \$1.0 billion in 2019 (+21%) before collapsing in 2020 due to Covid-19.

**Arkansas' digitally tradeable services exports supported 2,430 direct and 1,894 indirect American jobs in 2020.**

Top Markets for Arkansas Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$34	\$382	\$416
Asia & Pacific (ex. China)	\$19	\$143	\$162
North America	\$15	\$106	\$120
Central & South America	\$30	\$87	\$118
China	\$2	\$34	\$36
Middle East & Africa	\$3	\$24	\$27

Europe was Arkansas' top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Arkansas exports of potentially ICT-enabled services to Singapore grew from \$10 million in 2011 to \$32 million (+220%) in 2020.

The "Digital Dozen" accounted for \$383 million out of Arkansas' \$880 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Arkansas, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$129
Payments for Trademarks	\$121
Business Management and Consulting Services	\$119
Implicit Financial Services	\$114
Advertising	\$81
Other	\$316

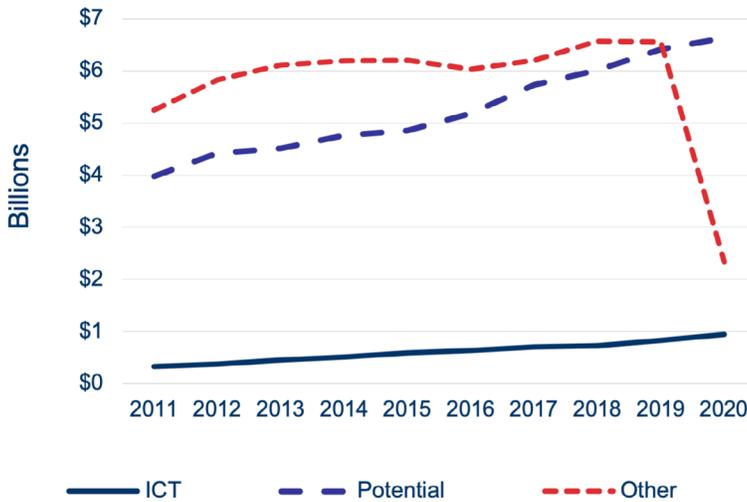
Misc. financial services are Arkansas' top potentially ICT-enabled services export in 2020, growing from \$117 million in 2011 to \$129 million in 2020 (+10%).

Telecommunications services are the top ICT services export, but declined from \$126 million in 2011 to \$55 million in 2020 (-57%).



# Arizona and Digital Trade

Arizona Services Exports, 2011-2020



ICT services exports grew from \$328 million in 2011 to \$950 million in 2020 (+190%), supporting 2,086 direct and 1,697 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$4.0 billion to \$6.6 billion (+67%), supporting 21,692 direct and 14,274 indirect jobs in 2020.

Exports of other services grew from \$5.2 billion in 2011 to \$6.6 billion in 2019 (+25%) before collapsing in 2020 due to Covid-19.

**Arizona's digitally tradeable services exports supported 23,778 direct and 15,971 indirect American jobs in 2020.**

Top Markets for Arizona Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$420	\$3,509	\$3,929
Asia & Pacific (ex. China)	\$232	\$1,257	\$1,489
Central & South America	\$104	\$700	\$804
North America	\$134	\$611	\$745
China	\$31	\$291	\$322
Middle East & Africa	\$28	\$259	\$287

Europe was Arizona's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Arizona exports of potentially ICT-enabled services to Switzerland grew from \$303 million in 2011 to \$672 million (+122%) in 2020.

The "Digital Dozen" accounted for \$2.9 billion out of Arizona's \$7.6 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Arizona, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$1,470
<b>Royalties from Industrial Processes</b>	\$1,068
<b>Misc. Financial Services</b>	\$791
<b>Research and Development and Testing Services</b>	\$650
<b>Credit-Related Services</b>	\$540
<b>Other</b>	\$3,060

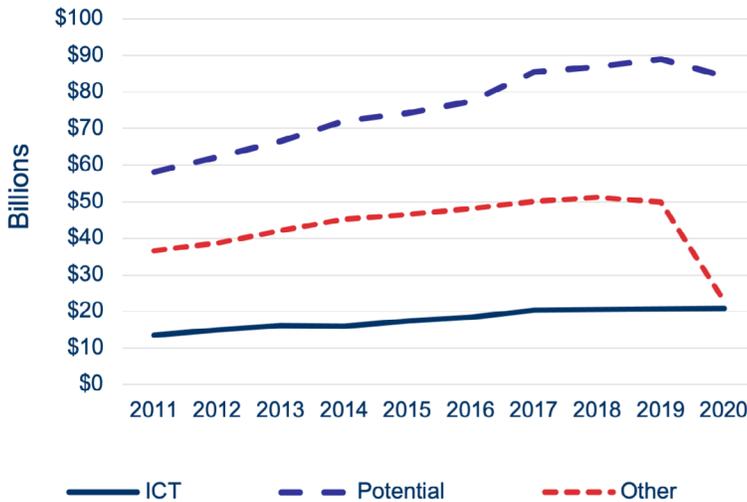
Business management and consulting services are Arizona's top potentially ICT-enabled services export in 2020, growing from \$737 million in 2011 to \$1.5 billion in 2020 (+100%).

Computer software services are the top ICT services export, growing from \$89 million in 2011 to \$328 million in 2020 (+270%).



# California and Digital Trade

California Services Exports, 2011-2020



ICT services exports grew from \$13.5 billion in 2011 to \$20.9 billion in 2020 (+54%), supporting 45,501 direct and 31,178 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$58.1 billion to \$84.4 billion (+45%), supporting 247,559 direct and 169,829 indirect jobs in 2020.

Exports of other services grew from \$36.6 billion in 2011 to \$49.8 billion in 2019 (+36%) before collapsing in 2020 due to Covid-19.

**California's digitally tradeable services exports supported 293,060 direct and 201,007 indirect American jobs in 2020.**

## Top Markets for California Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$9,459	\$43,873	\$53,333
Asia & Pacific (ex. China)	\$5,685	\$15,997	\$21,682
Central & South America	\$2,168	\$11,033	\$13,201
North America	\$2,307	\$7,558	\$9,866
China	\$804	\$3,174	\$3,978
Middle East & Africa	\$466	\$2,725	\$3,191

Europe was California's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

California exports of potentially ICT-enabled services to Singapore grew from \$1.1 billion in 2011 to \$4.8 billion (+330%) in 2020.

The "Digital Dozen" accounted for \$38.9 billion out of California's \$105 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from California, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$12,989
Research and Development and Testing Services	\$12,852
Royalties from Industrial Processes	\$12,466
<b>Royalties from Computer Software</b>	<b>\$9,940</b>
Financial Management and Advisory Services	\$9,252
Other	\$47,772

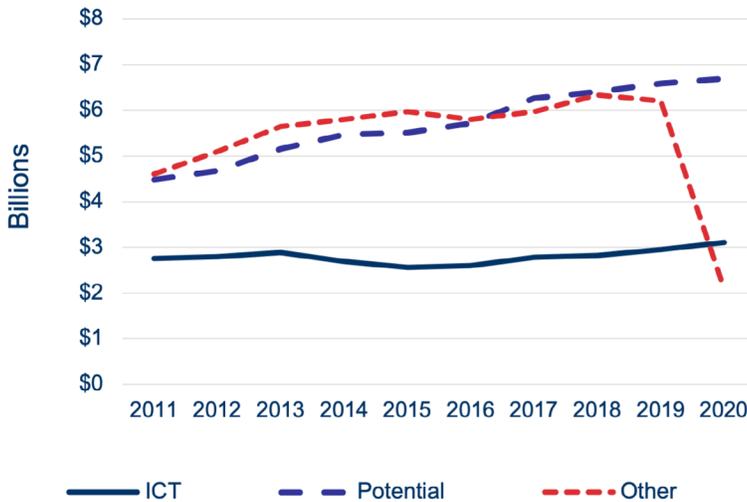
Business management and consulting services are California's top potentially ICT-enabled services export in 2020, growing from \$7.2 billion in 2011 to \$13.0 billion in 2020 (+80%).

Royalties from computer software are the top ICT services export, growing from \$9.7 billion in 2011 to \$9.9 billion in 2020 (+2%).



# Colorado and Digital Trade

Colorado Services Exports, 2011-2020



ICT services exports grew from \$2.8 billion in 2011 to \$3.1 billion in 2020 (+13%), supporting 6,695 direct and 4,653 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$4.5 billion to \$6.7 billion (+50%), supporting 20,085 direct and 15,281 indirect jobs in 2020.

Exports of other services grew from \$4.6 billion in 2011 to \$6.2 billion in 2019 (+35%) before collapsing in 2020 due to Covid-19.

**Colorado's digitally tradeable services exports supported 26,780 direct and 19,934 indirect American jobs in 2020.**

## Top Markets for Colorado Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,414	\$3,094	\$4,508
Asia & Pacific (ex. China)	\$838	\$1,248	\$2,085
Central & South America	\$317	\$1,249	\$1,566
North America	\$353	\$604	\$957
China	\$118	\$230	\$349
Middle East & Africa	\$71	\$269	\$339

Europe was Colorado's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Colorado exports of ICT services to Hong Kong grew from \$15 million in 2011 to \$153 million (+922%) in 2020.

The "Digital Dozen" accounted for \$3.6 billion out of Colorado's \$9.8 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Colorado, 2020 (\$M)

Type (ICT in bold)	Total
Financial Management and Advisory Services	\$1,399
Royalties from Computer Software	\$1,362
Business Management and Consulting Services	\$1,181
Research and Development and Testing Services	\$944
<b>Computer Software Services</b>	<b>\$900</b>
Other	\$4,022

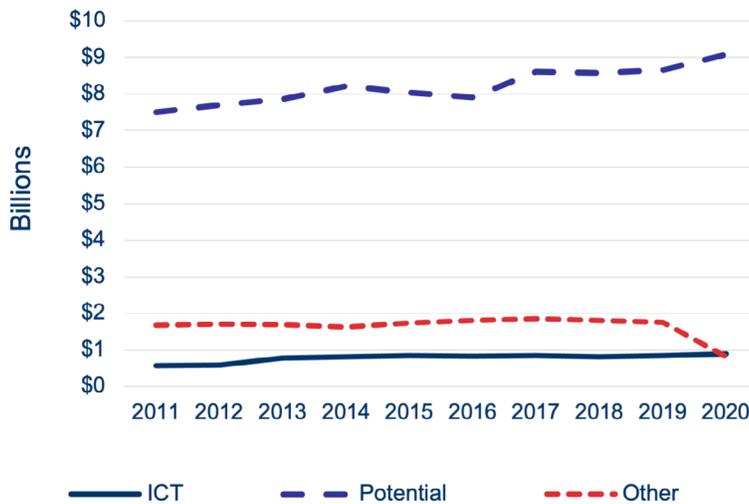
Financial management and advisory services are Colorado's top potentially ICT-enabled services export in 2020, growing from \$933 million in 2011 to \$1.4 billion in 2020 (+50%).

Royalties from computer software are the top ICT services export, but declined from \$1.9 billion in 2011 to \$1.4 billion in 2020 (-30%).



# Connecticut and Digital Trade

Connecticut Services Exports, 2011-2020



ICT services exports grew from \$569 million in 2011 to \$888 million in 2020 (+56%), supporting 2,267 direct and 1,726 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$7.5 billion to \$9.1 billion (+21%), supporting 21,584 direct and 14,908 indirect jobs in 2020.

Exports of other services grew from \$1.7 billion in 2011 to \$1.8 billion in 2019 (+4%) before collapsing in 2020 due to Covid-19.

**Connecticut's digitally tradeable services exports supported 23,851 direct and 16,634 indirect American jobs in 2020.**

Top Markets for Connecticut Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$363	\$3,489	\$3,852
Central & South America	\$126	\$2,939	\$3,065
Asia & Pacific (ex. China)	\$235	\$1,470	\$1,705
North America	\$110	\$726	\$836
Middle East & Africa	\$22	\$249	\$271
China	\$31	\$210	\$241

Europe was Connecticut's top market for digitally tradeable services, followed by Central & South America.

Connecticut exports of potentially ICT-enabled services to Singapore grew from \$106 million in 2011 to \$362 million (+243%) in 2020.

The "Digital Dozen" accounted for \$3.4 billion out of Connecticut's \$10.0 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Connecticut, 2020 (\$M)

Type (ICT in bold)	Total
Financial Management and Advisory Services	\$3,849
Research and Development and Testing Services	\$775
Insurance Services	\$730
Business Management and Consulting Services	\$718
<b>Computer Software Services</b>	<b>\$439</b>
Other	\$3,464

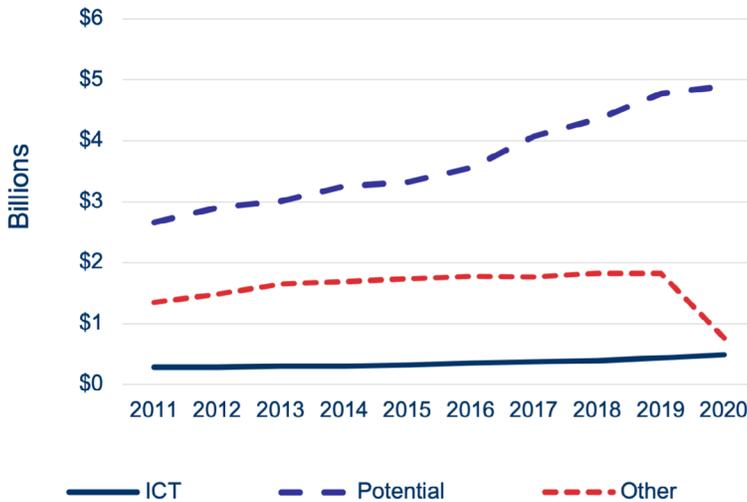
Financial management and advisory services are Connecticut's top potentially ICT-enabled services export in 2020, growing from \$2.9 billion in 2011 to \$3.8 billion in 2020 (+35%).

Computer software services are the top ICT services export, growing from \$135 million in 2011 to \$439 million in 2020 (+225%).



# District of Columbia and Digital Trade

District of Columbia Services Exports, 2011-2020



ICT services exports grew from \$286 million in 2011 to \$490 million in 2020 (+71%), supporting 1,481 direct and 1,241 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.7 billion to \$4.9 billion (+84%), supporting 16,753 direct and 12,416 indirect jobs in 2020.

Exports of other services grew from \$1.3 billion in 2011 to \$1.8 billion in 2019 (+35%) before collapsing in 2020 due to Covid-19.

**Washington's digitally tradeable services exports supported 18,233 direct and 13,657 indirect American jobs in 2020.**

Top Markets for District of Columbia Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$185	\$2,526	\$2,711
Asia & Pacific (ex. China)	\$128	\$889	\$1,017
Central & South America	\$75	\$641	\$716
North America	\$72	\$523	\$595
Middle East & Africa	\$14	\$200	\$214
China	\$16	\$108	\$123

Europe was Washington's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

District of Columbia exports of potentially ICT-enabled services to Ireland grew from \$205 million in 2011 to \$681 million (+232%) in 2020.

The "Digital Dozen" accounted for \$2.1 billion out of Washington's \$5.4 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from District of Columbia, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$1,710
<b>Legal Services</b>	\$816
<b>Advertising</b>	\$648
<b>Financial Management and Advisory Services</b>	\$526
<b>Research and Development and Testing Services</b>	\$444
<b>Other</b>	\$1,236

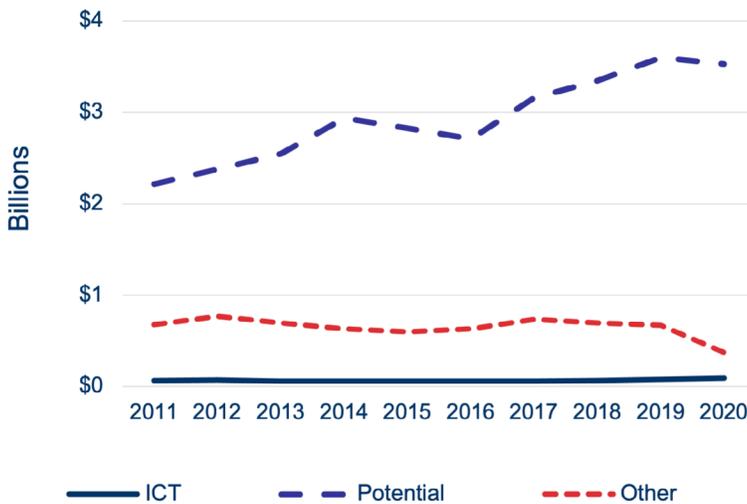
Business management and consulting services are the District's top potentially ICT-enabled services export in 2020, growing from \$726 million in 2011 to \$1.7 billion in 2020 (+136%).

Computer software services are the top ICT services export, growing from \$108 million in 2011 to \$356 million in 2020 (+229%).



# Delaware and Digital Trade

Delaware Services Exports, 2011-2020



ICT services exports grew from \$65 million in 2011 to \$95 million in 2020 (+46%), supporting 199 direct and 166 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.2 billion to \$3.5 billion (+59%), supporting 9,626 direct and 5,196 indirect jobs in 2020.

Exports of other services declined from \$679 million in 2011 to \$671 million in 2019 (-1%) before a much steeper decline in 2020 due to Covid-19.

**Delaware's digitally tradeable services exports supported 9,825 direct and 5,362 indirect American jobs in 2020.**

Top Markets for Delaware Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$44	\$1,325	\$1,369
Asia & Pacific (ex. China)	\$23	\$730	\$753
Central & South America	\$7	\$723	\$730
North America	\$15	\$371	\$385
Middle East & Africa	\$3	\$209	\$211
China	\$3	\$171	\$174

Europe was Delaware's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Delaware exports of potentially ICT-enabled services to China grew from \$80 million in 2011 to \$171 million (+114%) in 2020.

The "Digital Dozen" accounted for \$1.5 billion out of Delaware's \$3.6 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Delaware, 2020 (\$M)

Type (ICT in bold)	Total
<b>Credit-Related Services</b>	\$1,494
Misc. Financial Services	\$424
Insurance Services	\$421
Financial Management and Advisory Services	\$381
Implicit Financial Services	\$266
Other	\$640

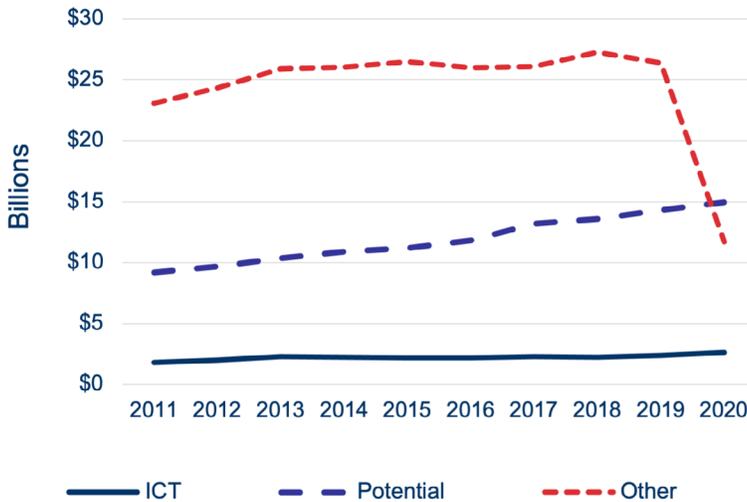
Credit-related services are Delaware's top potentially ICT-enabled services export in 2020, growing from \$855 million in 2011 to \$1.5 billion in 2020 (+75%).

Misc. computer services are the top ICT services export, but declined from \$55 million in 2011 to \$35 million in 2020 (-36%).



# Florida and Digital Trade

Florida Services Exports, 2011-2020



ICT services exports grew from \$1.8 billion in 2011 to \$2.6 billion in 2020 (+45%), supporting 5,259 direct and 4,164 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$9.2 billion to \$15.0 billion (+63%), supporting 58,870 direct and 41,260 indirect jobs in 2020.

Exports of other services grew from \$23.1 billion in 2011 to \$26.4 billion in 2019 (+14%) before collapsing in 2020 due to Covid-19.

**Florida's digitally tradeable services exports supported 64,129 direct and 45,424 indirect American jobs in 2020.**

## Top Markets for Florida Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,109	\$7,513	\$8,622
Asia & Pacific (ex. China)	\$606	\$2,778	\$3,384
Central & South America	\$411	\$1,812	\$2,223
North America	\$343	\$1,541	\$1,884
Middle East & Africa	\$76	\$713	\$789
China	\$82	\$592	\$674

Europe was Florida's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Florida exports of potentially ICT-enabled services to Ireland grew from \$599 million in 2011 to \$1.7 billion (+178%) in 2020.

The "Digital Dozen" accounted for \$6.9 billion out of Florida's \$17.6 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Florida, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$4,841
<b>Insurance Services</b>	\$1,264
<b>Legal Services</b>	\$1,118
<b>Payments for Trademarks</b>	\$1,001
<b>Financial Management and Advisory Services</b>	\$827
<b>Other</b>	\$8,533

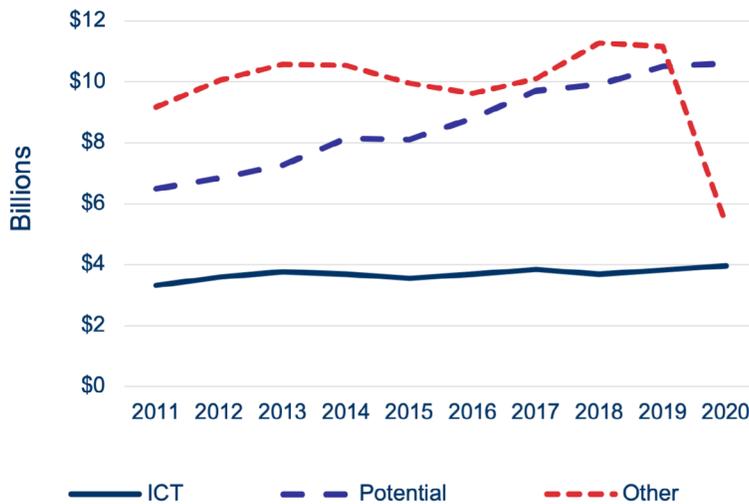
Business management and consulting services are Florida's top potentially ICT-enabled services export in 2020, growing from \$2.5 billion in 2011 to \$4.8 billion in 2020 (+91%).

Computer software services are the top ICT services export, growing from \$178 million in 2011 to \$730 million in 2020 (+309%).



# Georgia and Digital Trade

Georgia Services Exports, 2011-2020



ICT services exports grew from \$3.3 billion in 2011 to \$4.0 billion in 2020 (+20%), supporting 7,835 direct and 5,346 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$6.5 billion to \$10.6 billion (+63%), supporting 33,479 direct and 22,658 indirect jobs in 2020.

Exports of other services grew from \$9.2 billion in 2011 to \$11.2 billion in 2019 (+22%) before collapsing in 2020 due to Covid-19.

**Georgia's digitally tradeable services exports supported 41,314 direct and 28,004 indirect American jobs in 2020.**

## Top Markets for Georgia Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,743	\$5,139	\$6,882
Asia & Pacific (ex. China)	\$1,011	\$1,955	\$2,966
Central & South America	\$544	\$1,336	\$1,879
North America	\$431	\$1,282	\$1,713
China	\$144	\$423	\$567
Middle East & Africa	\$91	\$461	\$552

Europe was Georgia's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Georgia exports of potentially ICT-enabled services to Singapore grew from \$138 million in 2011 to \$402 million (+192%) in 2020.

The "Digital Dozen" accounted for \$6.0 billion out of Georgia's \$14.6 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Georgia, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$1,935
<b>Royalties from Computer Software</b>	<b>\$1,775</b>
Misc. Financial Services	\$1,736
Credit-Related Services	\$1,352
Implicit Financial Services	\$959
Other	\$6,814

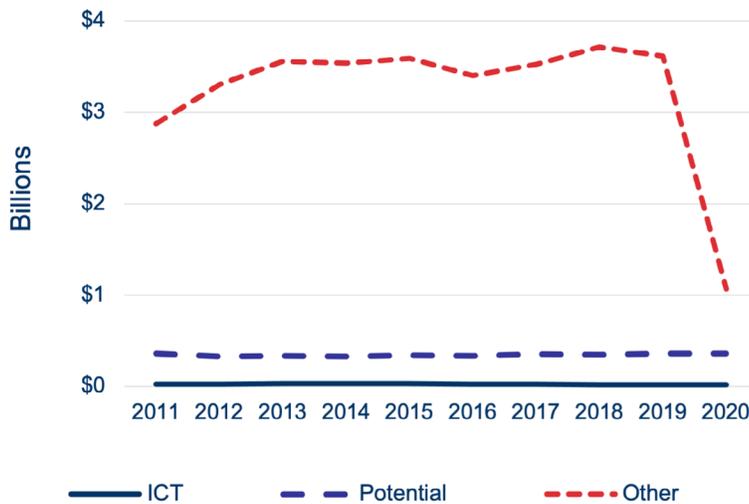
Business management and consulting services are Georgia's top potentially ICT-enabled services export in 2020, growing from \$1.2 billion in 2011 to \$1.9 billion in 2020 (+67%).

Royalties from computer software are the top ICT services export, but declined from \$1.9 billion in 2011 to \$1.8 billion in 2020 (-5%).



# Hawaii and Digital Trade

Hawaii Services Exports, 2011-2020



ICT services exports declined from \$23 million in 2011 to \$22 million in 2020 (-6%), supporting 57 direct and 50 indirect jobs in 2020.

Potentially ICT-enabled services exports declined slightly from \$364 million to \$362 million (-1%), supporting 1,282 direct and 1,052 indirect jobs in 2020.

Exports of other services grew from \$2.9 billion in 2011 to \$3.6 billion in 2019 (+26%) before collapsing in 2020 due to Covid-19.

**Hawaii's digitally tradeable services exports supported 1,340 direct and 1,102 indirect American jobs in 2020.**

Top Markets for Hawaii Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$7	\$151	\$158
Asia & Pacific (ex. China)	\$5	\$82	\$86
North America	\$4	\$54	\$58
Central & South America	\$6	\$29	\$34
China	\$1	\$26	\$26
Middle East & Africa	\$0	\$20	\$20

Europe was Hawaii's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Hawaii exports of potentially ICT-enabled services to India grew from \$3 million in 2011 to \$10 million (+177%) in 2020.

The "Digital Dozen" accounted for \$179 million out of Hawaii's \$384 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Hawaii, 2020 (\$M)

Type (ICT in bold)	Total
Payments for Trademarks	\$81
Misc. Personal, Cultural, and Recreational Services	\$45
Misc. Business, Professional, and Technical Services	\$44
Insurance Services	\$28
Architectural, Engineering, and Misc. Technical Services	\$28
Other	\$157

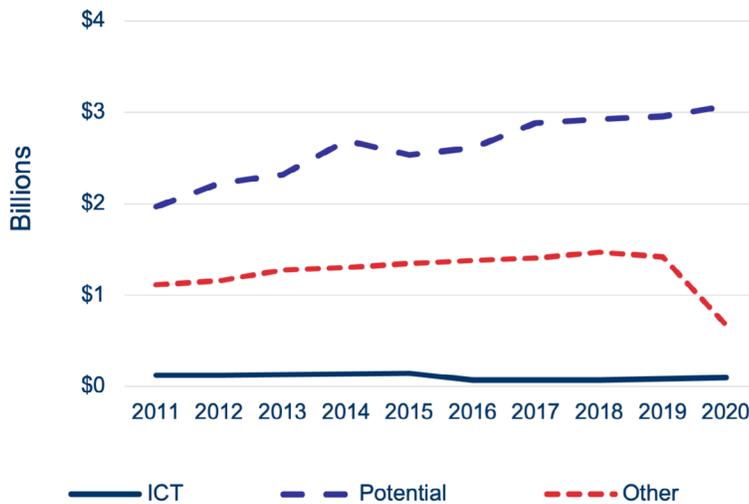
Payments for trademarks are Hawaii's top potentially ICT-enabled services export in 2020, growing from \$64 million in 2011 to \$81 million in 2020 (+25%).

Computer software services are the top ICT services export, growing from \$6.6 million in 2011 to \$13 million in 2020 (+99%).



# Iowa and Digital Trade

Iowa Services Exports, 2011-2020



ICT services exports declined from \$123 million in 2011 to \$101 million in 2020 (-18%), supporting 205 direct and 169 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.0 billion to \$3.1 billion (+56%), supporting 8,453 direct and 4,905 indirect jobs in 2020.

Exports of other services grew from \$1.1 billion in 2011 to \$1.4 billion in 2019 (+27%) before collapsing in 2020 due to Covid-19.

**Iowa's digitally tradeable services exports supported 8,658 direct and 5,074 indirect American jobs in 2020.**

Top Markets for Iowa Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$45	\$1,413	\$1,459
Asia & Pacific (ex. China)	\$24	\$680	\$704
Central & South America	\$11	\$405	\$416
North America	\$15	\$333	\$348
China	\$3	\$147	\$151
Middle East & Africa	\$3	\$87	\$89

Europe was Iowa's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Iowa exports of potentially ICT-enabled services to United Kingdom grew from \$181 million in 2011 to \$391 million (+116%) in 2020.

The "Digital Dozen" accounted for \$1.4 billion out of Iowa's \$3.2 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Iowa, 2020 (\$M)

Type (ICT in bold)	Total
Insurance Services	\$911
Royalties from Industrial Processes	\$650
Misc. Financial Services	\$428
Implicit Financial Services	\$290
Research and Development and Testing Services	\$215
Other	\$676

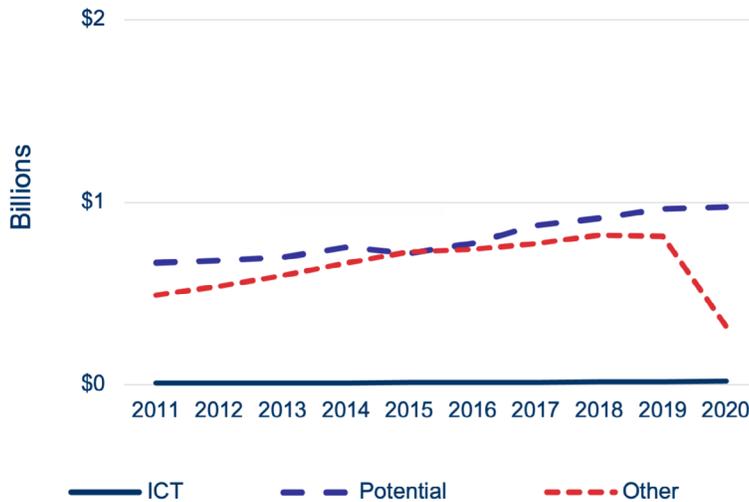
Insurance services are Iowa's top potentially ICT-enabled services export in 2020, growing from \$480 million in 2011 to \$911 million in 2020 (+90%).

Misc. computer services are the top ICT services export, but declined from \$78 million in 2011 to \$32 million in 2020 (-59%).



# Idaho and Digital Trade

Idaho Services Exports, 2011-2020



ICT services exports grew from \$8.6 million in 2011 to \$20 million in 2020 (+129%), supporting 53 direct and 46 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$670 million to \$973 million (+45%), supporting 2,810 direct and 1,936 indirect jobs in 2020.

Exports of other services grew from \$491 million in 2011 to \$812 million in 2019 (+66%) before collapsing in 2020 due to Covid-19.

**Idaho's digitally tradeable services exports supported 2,863 direct and 1,982 indirect American jobs in 2020.**

Top Markets for Idaho Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$8	\$524	\$532
Asia & Pacific (ex. China)	\$5	\$204	\$209
North America	\$4	\$83	\$86
Central & South America	\$3	\$81	\$83
China	\$1	\$50	\$50
Middle East & Africa	\$0	\$31	\$31

Europe was Idaho's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Idaho exports of potentially ICT-enabled services to Singapore grew from \$16 million in 2011 to \$71 million (+342%) in 2020.

The "Digital Dozen" accounted for \$363 million out of Idaho's \$993 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Idaho, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$255
Research and Development and Testing Services	\$212
Business Management and Consulting Services	\$89
Misc. Financial Services	\$80
Implicit Financial Services	\$71
Other	\$286

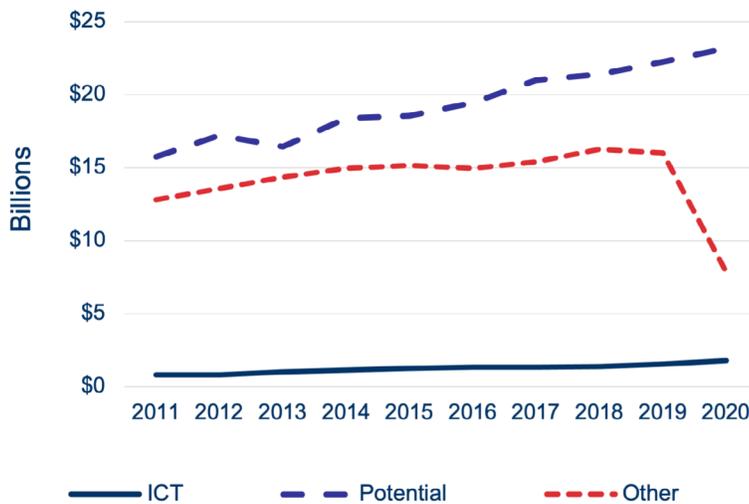
Royalties from industrial processes are Idaho's top potentially ICT-enabled services export in 2020, growing from \$207 million in 2011 to \$255 million in 2020 (+24%).

Computer software services are the top ICT services export, growing from \$1.2 million in 2011 to \$12 million in 2020 (+866%).



# Illinois and Digital Trade

Illinois Services Exports, 2011-2020



ICT services exports grew from \$806 million in 2011 to \$1.8 billion in 2020 (+120%), supporting 4,850 direct and 4,038 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$15.8 billion to \$23.2 billion (+47%), supporting 68,617 direct and 48,509 indirect jobs in 2020.

Exports of other services grew from \$12.8 billion in 2011 to \$16.0 billion in 2019 (+25%) before collapsing in 2020 due to Covid-19.

**Illinois' digitally tradeable services exports supported 73,467 direct and 52,547 indirect American jobs in 2020.**

Top Markets for Illinois Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$744	\$10,794	\$11,538
Central & South America	\$190	\$4,415	\$4,605
Asia & Pacific (ex. China)	\$463	\$4,083	\$4,547
North America	\$263	\$2,356	\$2,619
Middle East & Africa	\$53	\$811	\$864
China	\$59	\$732	\$791

Europe was Illinois' top market for digitally tradeable services, followed by Central & South America.

Illinois exports of ICT services to Canada grew from \$71 million in 2011 to \$206 million (+188%) in 2020.

The "Digital Dozen" accounted for \$9.7 billion out of Illinois' \$25.0 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Illinois, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$4,528
<b>Financial Management and Advisory Services</b>	\$3,742
<b>Royalties from Industrial Processes</b>	\$1,876
<b>Misc. Financial Services</b>	\$1,802
<b>Insurance Services</b>	\$1,739
<b>Other</b>	\$11,295

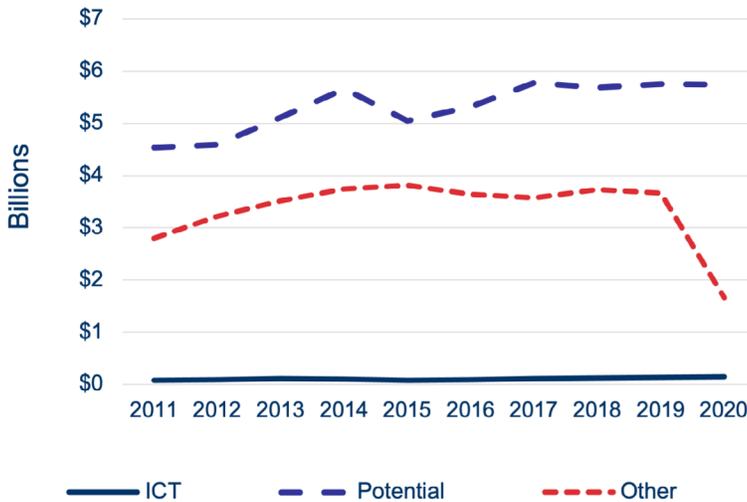
Business management and consulting services are Illinois' top potentially ICT-enabled services export in 2020, growing from \$2.2 billion in 2011 to \$4.5 billion in 2020 (+110%).

Computer software services are the top ICT services export, growing from \$270 million in 2011 to \$1.0 billion in 2020 (+282%).



# Indiana and Digital Trade

Indiana Services Exports, 2011-2020



ICT services exports grew from \$75 million in 2011 to \$152 million in 2020 (+102%), supporting 501 direct and 426 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$4.5 billion to \$5.7 billion (+26%), supporting 15,137 direct and 10,571 indirect jobs in 2020.

Exports of other services grew from \$2.8 billion in 2011 to \$3.7 billion in 2019 (+31%) before collapsing in 2020 due to Covid-19.

**Indiana's digitally tradeable services exports supported 15,637 direct and 10,997 indirect American jobs in 2020.**

## Top Markets for Indiana Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$59	\$3,135	\$3,193
Asia & Pacific (ex. China)	\$42	\$1,342	\$1,384
North America	\$24	\$414	\$438
Central & South America	\$19	\$386	\$404
China	\$5	\$309	\$314
Middle East & Africa	\$4	\$153	\$157

Europe was Indiana's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Indiana exports of potentially ICT-enabled services to Switzerland grew from \$520 million in 2011 to \$927 million (+78%) in 2020.

The "Digital Dozen" accounted for \$2.1 billion out of Indiana's \$5.9 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Indiana, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Industrial Processes</b>	\$2,217
<b>Research and Development and Testing Services</b>	\$1,603
<b>Insurance Services</b>	\$623
<b>Payments for Trademarks</b>	\$373
<b>Business Management and Consulting Services</b>	\$181
<b>Other</b>	\$896

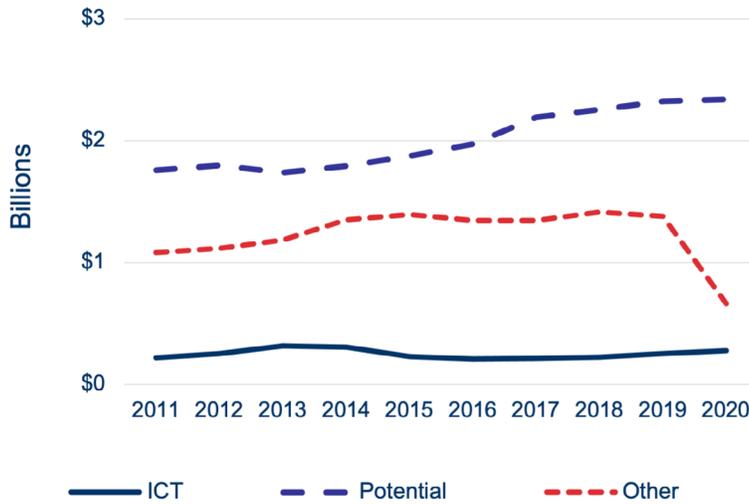
Royalties from industrial processes are Indiana's top potentially ICT-enabled services export in 2020, remaining around \$2.2 billion in both 2011 and 2020 (+1%).

Computer software services are the top ICT services export, growing from \$20 million in 2011 to \$127 million in 2020 (+531%).



# Kansas and Digital Trade

Kansas Services Exports, 2011-2020



ICT services exports grew from \$221 million in 2011 to \$280 million in 2020 (+26%), supporting 841 direct and 722 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.8 billion to \$2.3 billion (+33%), supporting 8,013 direct and 5,192 indirect jobs in 2020.

Exports of other services grew from \$1.1 billion in 2011 to \$1.4 billion in 2019 (+27%) before collapsing in 2020 due to Covid-19.

**Kansas' digitally tradeable services exports supported 8,854 direct and 5,914 indirect American jobs in 2020.**

Top Markets for Kansas Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$104	\$1,250	\$1,353
Asia & Pacific (ex. China)	\$71	\$464	\$534
Central & South America	\$45	\$268	\$313
North America	\$43	\$200	\$243
Middle East & Africa	\$8	\$83	\$91
China	\$9	\$75	\$84

Europe was Kansas' top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Kansas exports of potentially ICT-enabled services to Singapore grew from \$48 million in 2011 to \$143 million (+201%) in 2020.

The "Digital Dozen" accounted for \$1.0 billion out of Kansas' \$2.6 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Kansas, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$697
Research and Development and Testing Services	\$378
<b>Computer Software Services</b>	<b>\$205</b>
Insurance Services	\$202
Royalties from Industrial Processes	\$201
Other	\$937

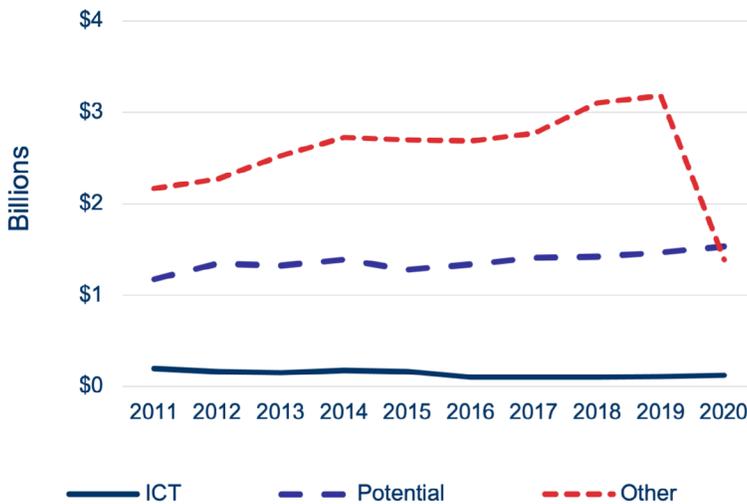
Business management and consulting services are Kansas' top potentially ICT-enabled services export in 2020, growing from \$435 million in 2011 to \$697 million in 2020 (+60%).

Computer software services are the top ICT services export, growing from \$17 million in 2011 to \$205 million in 2020 (+1118%).



# Kentucky and Digital Trade

Kentucky Services Exports, 2011-2020



ICT services exports declined from \$192 million in 2011 to \$127 million in 2020 (-34%), supporting 256 direct and 218 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.2 billion to \$1.5 billion (+31%), supporting 4,666 direct and 2,955 indirect jobs in 2020.

Exports of other services grew from \$2.2 billion in 2011 to \$3.2 billion in 2019 (+47%) before collapsing in 2020 due to Covid-19.

**Kentucky's digitally tradeable services exports supported 4,922 direct and 3,173 indirect American jobs in 2020.**

Top Markets for Kentucky Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$52	\$784	\$836
Asia & Pacific (ex. China)	\$27	\$304	\$331
North America	\$19	\$165	\$184
Central & South America	\$22	\$158	\$179
China	\$4	\$73	\$77
Middle East & Africa	\$4	\$44	\$48

Europe was Kentucky's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Kentucky exports of potentially ICT-enabled services to Switzerland grew from \$96 million in 2011 to \$172 million (+80%) in 2020.

The "Digital Dozen" accounted for \$685 million out of Kentucky's \$1.7 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Kentucky, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Industrial Processes</b>	\$313
<b>Business Management and Consulting Services</b>	\$251
<b>Insurance Services</b>	\$241
<b>Payments for Trademarks</b>	\$201
<b>Misc. Financial Services</b>	\$116
<b>Other</b>	\$536

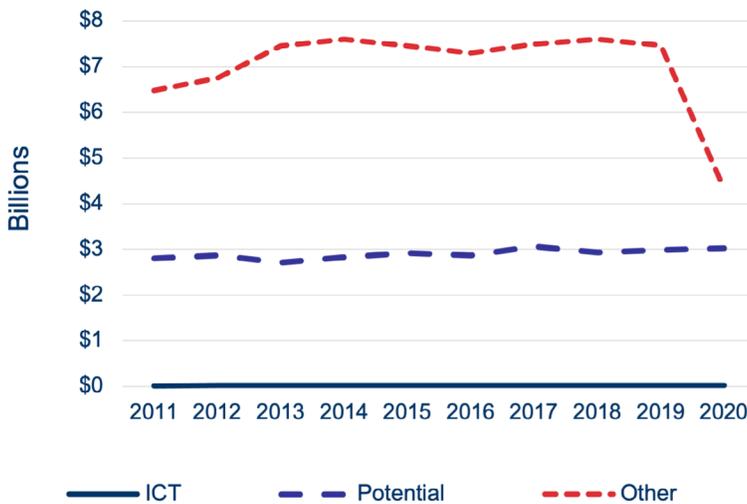
Royalties from industrial processes are Kentucky's top potentially ICT-enabled services export in 2020, but declined from \$377 million in 2011 to \$313 million in 2020 (-17%).

Computer software services are the top ICT services export, growing from \$9.2 million in 2011 to \$39 million in 2020 (+330%).



# Louisiana and Digital Trade

Louisiana Services Exports, 2011-2020



ICT services exports grew from \$21 million in 2011 to \$29 million in 2020 (+38%), supporting 49 direct and 43 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.8 billion to \$3.0 billion (+8%), supporting 9,320 direct and 6,061 indirect jobs in 2020.

Exports of other services grew from \$6.5 billion in 2011 to \$7.5 billion in 2019 (+15%) before collapsing in 2020 due to Covid-19.

**Louisiana's digitally tradeable services exports supported 9,368 direct and 6,104 indirect American jobs in 2020.**

Top Markets for Louisiana Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$10	\$1,674	\$1,685
Asia & Pacific (ex. China)	\$5	\$552	\$557
North America	\$5	\$283	\$288
Central & South America	\$9	\$208	\$217
China	\$1	\$210	\$210
Middle East & Africa	\$0	\$99	\$100

Europe was Louisiana's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Louisiana exports of potentially ICT-enabled services to Switzerland grew from \$230 million in 2011 to \$467 million (+103%) in 2020.

The "Digital Dozen" accounted for \$1.1 billion out of Louisiana's \$3.1 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Louisiana, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Industrial Processes</b>	\$1,283
Business Management and Consulting Services	\$327
Payments for Trademarks	\$252
Legal Services	\$248
A/V Services (Personal)	\$237
Other	\$709

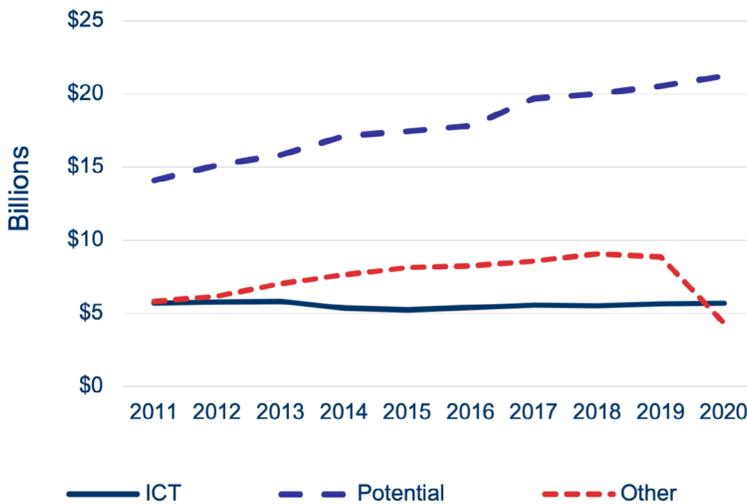
Royalties from industrial processes are Louisiana's top potentially ICT-enabled services export in 2020, but declined from \$1.4 billion in 2011 to \$1.3 billion in 2020 (-11%).

Telecommunications services are the top ICT services export, but declined from \$18 million in 2011 to \$16 million in 2020 (-9%).



# Massachusetts and Digital Trade

Massachusetts Services Exports, 2011-2020



ICT services exports were \$5.7 billion in both 2011 in 2020, supporting 12,667 direct and 8,141 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$14.1 billion to \$21.3 billion (+51%), supporting 53,944 direct and 36,704 indirect jobs in 2020.

Exports of other services grew from \$5.8 billion in 2011 to \$8.9 billion in 2019 (+53%) before collapsing in 2020 due to Covid-19.

**Massachusetts' digitally tradeable services exports supported 66,611 direct and 44,845 indirect American jobs in 2020.**

## Top Markets for Massachusetts Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$2,684	\$9,500	\$12,185
Central & South America	\$415	\$5,295	\$5,710
Asia & Pacific (ex. China)	\$1,653	\$3,687	\$5,340
North America	\$585	\$1,580	\$2,165
China	\$238	\$553	\$791
Middle East & Africa	\$109	\$627	\$736

Europe was Massachusetts' top market for digitally tradeable services, followed by Central & South America.

Massachusetts exports of potentially ICT-enabled services to Singapore grew from \$264 million in 2011 to \$1.2 billion (+361%) in 2020.

The "Digital Dozen" accounted for \$9.1 billion out of Massachusetts' \$26.9 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Massachusetts, 2020 (\$M)

Type (ICT in bold)	Total
Financial Management and Advisory Services	\$6,463
<b>Royalties from Computer Software</b>	<b>\$3,430</b>
Research and Development and Testing Services	\$3,404
Business Management and Consulting Services	\$2,715
Royalties from Industrial Processes	\$1,985
Other	\$8,943

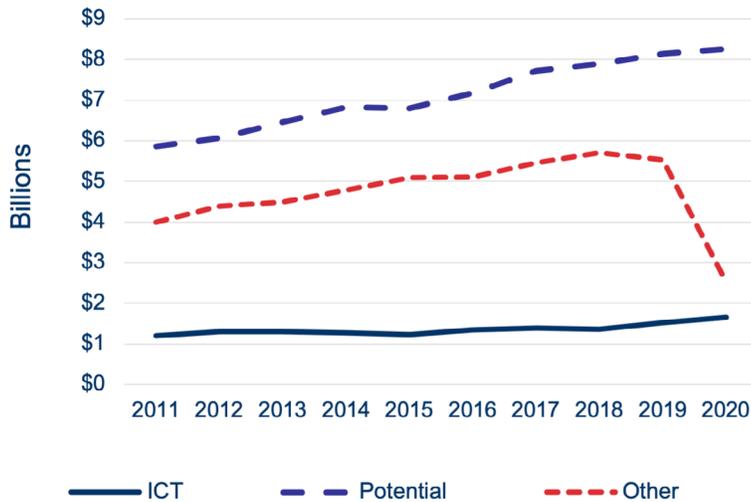
Financial management and advisory services are Massachusetts' top potentially ICT-enabled services export in 2020, growing from \$3.8 billion in 2011 to \$6.5 billion in 2020 (+68%).

Royalties from computer software are the top ICT services export, but declined from \$5.0 billion in 2011 to \$3.4 billion in 2020 (-31%).



# Maryland and Digital Trade

Maryland Services Exports, 2011-2020



ICT services exports grew from \$1.2 billion in 2011 to \$1.7 billion in 2020 (+39%), supporting 4,931 direct and 4,119 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$5.9 billion to \$8.3 billion (+41%), supporting 26,671 direct and 17,164 indirect jobs in 2020.

Exports of other services grew from \$4.0 billion in 2011 to \$5.5 billion in 2019 (+38%) before collapsing in 2020 due to Covid-19.

**Maryland's digitally tradeable services exports supported 31,602 direct and 21,283 indirect American jobs in 2020.**

Top Markets for Maryland Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$637	\$4,192	\$4,829
Asia & Pacific (ex. China)	\$433	\$1,498	\$1,931
Central & South America	\$246	\$1,485	\$1,731
North America	\$242	\$548	\$790
Middle East & Africa	\$49	\$297	\$346
China	\$54	\$241	\$294

Europe was Maryland's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Maryland exports of potentially ICT-enabled services to Ireland grew from \$465 million in 2011 to \$1.2 billion (+159%) in 2020.

The "Digital Dozen" accounted for \$3.5 billion out of Maryland's \$9.9 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Maryland, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$2,346
Financial Management and Advisory Services	\$1,647
Research and Development and Testing Services	\$1,397
<b>Computer Software Services</b>	<b>\$1,163</b>
Royalties from Industrial Processes	\$776
Other	\$2,596

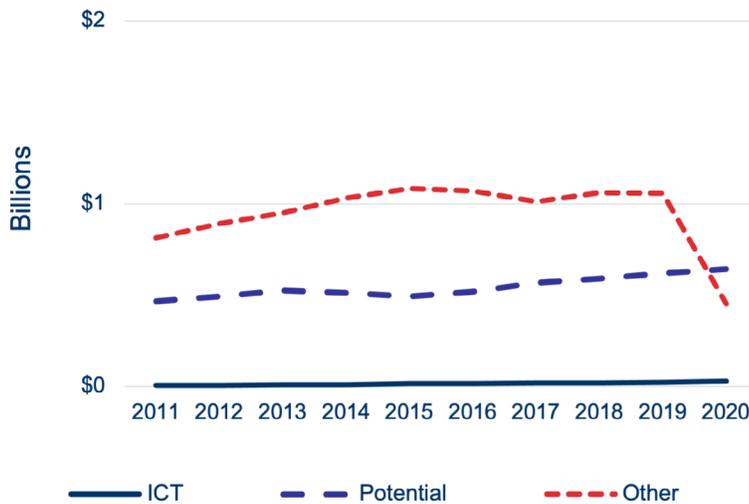
Business management and consulting services are Maryland's top potentially ICT-enabled services export in 2020, growing from \$1.2 billion in 2011 to \$2.3 billion in 2020 (+89%).

Computer software services are the top ICT services export, growing from \$389 million in 2011 to \$1.2 billion in 2020 (+199%).



# Maine and Digital Trade

Maine Services Exports, 2011-2020



ICT services exports grew from \$6.7 million in 2011 to \$29 million in 2020 (+333%), supporting 101 direct and 87 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$468 million to \$641 million (+37%), supporting 2,215 direct and 1,521 indirect jobs in 2020.

Exports of other services grew from \$814 million in 2011 to \$1.1 billion in 2019 (+30%) before collapsing in 2020 due to Covid-19.

**Maine's digitally tradeable services exports supported 2,316 direct and 1,607 indirect American jobs in 2020.**

Top Markets for Maine Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$11	\$310	\$321
Asia & Pacific (ex. China)	\$8	\$132	\$140
North America	\$5	\$73	\$78
Central & South America	\$3	\$71	\$74
China	\$1	\$28	\$29
Middle East & Africa	\$1	\$26	\$27

Europe was Maine's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Maine exports of potentially ICT-enabled services to Ireland grew from \$29 million in 2011 to \$69 million (+140%) in 2020.

The "Digital Dozen" accounted for \$287 million out of Maine's \$670 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Maine, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$124
Insurance Services	\$87
Misc. Financial Services	\$66
Payments for Trademarks	\$59
Research and Development and Testing Services	\$49
Other	\$285

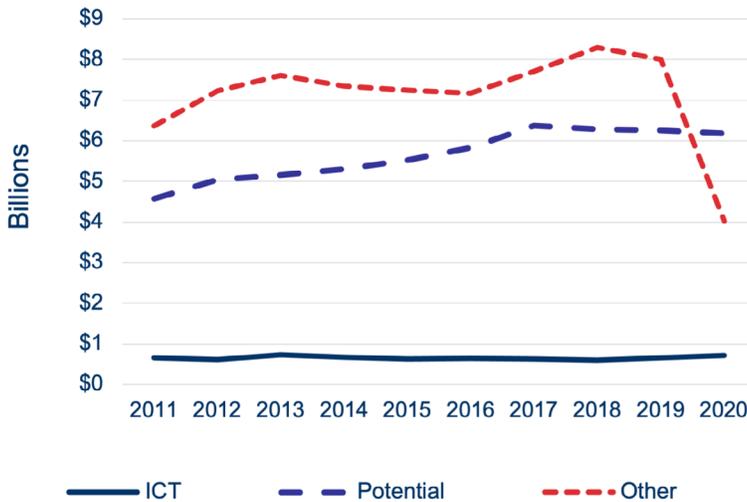
Business management and consulting services are Maine's top potentially ICT-enabled services export in 2020, growing from \$69 million in 2011 to \$124 million in 2020 (+79%).

Computer software services are the top ICT services export, growing from \$2.3 million in 2011 to \$27 million in 2020 (+1067%).



# Michigan and Digital Trade

Michigan Services Exports, 2011-2020



ICT services exports grew from \$652 million in 2011 to \$721 million in 2020 (+11%), supporting 2,088 direct and 1,686 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$4.6 billion to \$6.2 billion (+35%), supporting 18,512 direct and 13,823 indirect jobs in 2020.

Exports of other services grew from \$6.4 billion in 2011 to \$8.0 billion in 2019 (+26%) before collapsing in 2020 due to Covid-19.

**Michigan's digitally tradeable services exports supported 20,600 direct and 15,509 indirect American jobs in 2020.**

Top Markets for Michigan Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$304	\$3,075	\$3,379
Asia & Pacific (ex. China)	\$200	\$1,292	\$1,492
North America	\$103	\$758	\$861
Central & South America	\$69	\$547	\$616
China	\$26	\$275	\$301
Middle East & Africa	\$20	\$235	\$255

Europe was Michigan's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Michigan exports of potentially ICT-enabled services to Singapore grew from \$104 million in 2011 to \$336 million (+221%) in 2020.

The "Digital Dozen" accounted for \$2.9 billion out of Michigan's \$6.9 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Michigan, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$1,180
Business Management and Consulting Services	\$819
Insurance Services	\$675
Architectural, Engineering, and Misc. Technical Services	\$639
Advertising	\$629
Other	\$2,965

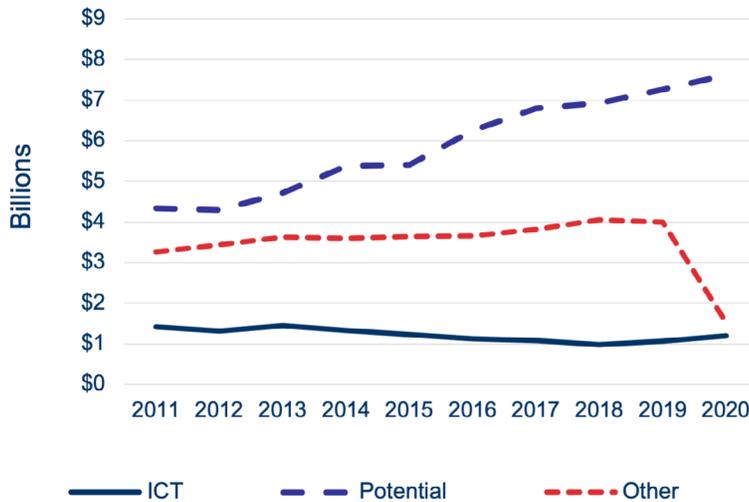
Royalties from industrial processes are Michigan's top potentially ICT-enabled services export in 2020, growing from \$934 million in 2011 to \$1.2 billion in 2020 (+26%).

Computer software services are the top ICT services export, growing from \$147 million in 2011 to \$458 million in 2020 (+212%).



# Minnesota and Digital Trade

Minnesota Services Exports, 2011-2020



ICT services exports declined from \$1.4 billion in 2011 to \$1.2 billion in 2020 (-16%), supporting 2,693 direct and 1,965 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$4.3 billion to \$7.6 billion (+76%), supporting 22,705 direct and 16,223 indirect jobs in 2020.

Exports of other services grew from \$3.3 billion in 2011 to \$4.0 billion in 2019 (+22%) before collapsing in 2020 due to Covid-19.

**Minnesota's digitally tradeable services exports supported 25,399 direct and 18,188 indirect American jobs in 2020.**

Top Markets for Minnesota Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$546	\$3,839	\$4,385
Asia & Pacific (ex. China)	\$322	\$1,393	\$1,715
Central & South America	\$106	\$1,026	\$1,132
North America	\$147	\$828	\$975
China	\$45	\$287	\$332
Middle East & Africa	\$29	\$240	\$269

Europe was Minnesota's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Minnesota exports of potentially ICT-enabled services to Ireland grew from \$336 million in 2011 to \$882 million (+163%) in 2020.

The "Digital Dozen" accounted for \$3.5 billion out of Minnesota's \$8.8 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Minnesota, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$1,425
Royalties from Industrial Processes	\$1,210
Misc. Financial Services	\$858
Insurance Services	\$634
Advertising	\$626
Other	\$4,063

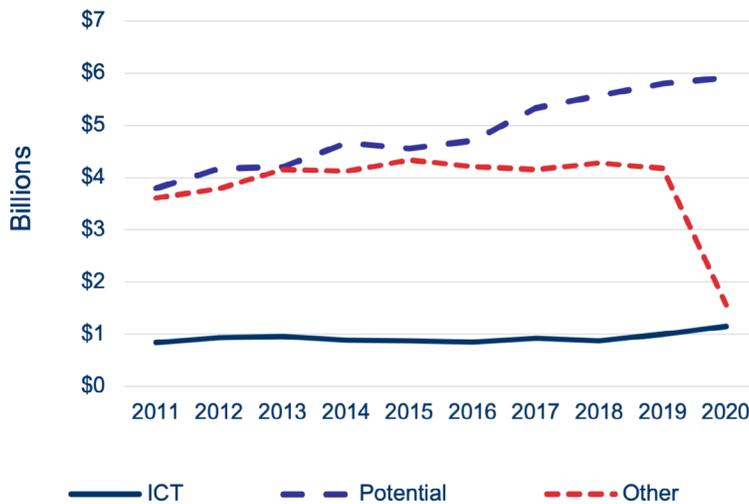
Business management and consulting services are Minnesota's top potentially ICT-enabled services export in 2020, growing from \$403 million in 2011 to \$1.4 billion in 2020 (+253%).

Royalties from computer software are the top ICT services export, but declined from \$1.0 billion in 2011 to \$415 million in 2020 (-59%).



# Missouri and Digital Trade

Missouri Services Exports, 2011-2020



ICT services exports grew from \$842 million in 2011 to \$1.2 billion in 2020 (+37%), supporting 2,690 direct and 2,262 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$3.8 billion to \$5.9 billion (+56%), supporting 16,764 direct and 11,676 indirect jobs in 2020.

Exports of other services grew from \$3.6 billion in 2011 to \$4.2 billion in 2019 (+16%) before collapsing in 2020 due to Covid-19.

**Missouri's digitally tradeable services exports supported 19,454 direct and 13,938 indirect American jobs in 2020.**

Top Markets for Missouri Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$497	\$2,772	\$3,269
Asia & Pacific (ex. China)	\$280	\$1,173	\$1,452
Central & South America	\$132	\$779	\$911
North America	\$170	\$678	\$849
China	\$36	\$267	\$303
Middle East & Africa	\$36	\$238	\$273

Europe was Missouri's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Missouri exports of potentially ICT-enabled services to Singapore grew from \$65 million in 2011 to \$266 million (+312%) in 2020.

The "Digital Dozen" accounted for \$3.0 billion out of Missouri's \$7.1 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Missouri, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$835
Royalties from Industrial Processes	\$721
Implicit Financial Services	\$583
Credit-Related Services	\$573
<b>Computer Software Services</b>	<b>\$479</b>
Other	\$3,874

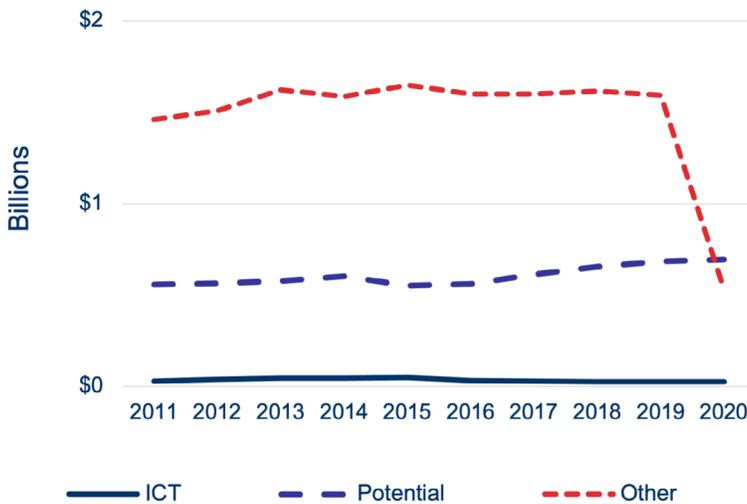
Misc. financial services are Missouri's top potentially ICT-enabled services export in 2020, growing from \$657 million in 2011 to \$835 million in 2020 (+27%).

Computer software services are the top ICT services export, growing from \$85 million in 2011 to \$479 million in 2020 (+464%).



# Mississippi and Digital Trade

Mississippi Services Exports, 2011-2020



ICT services exports declined from \$31 million in 2011 to \$26 million in 2020 (-14%), supporting 36 direct and 33 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$558 million to \$694 million (+24%), supporting 2,027 direct and 1,372 indirect jobs in 2020.

Exports of other services grew from \$1.5 billion in 2011 to \$1.6 billion in 2019 (+9%) before collapsing in 2020 due to Covid-19.

**Mississippi's digitally tradeable services exports supported 2,063 direct and 1,404 indirect American jobs in 2020.**

Top Markets for Mississippi Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$8	\$317	\$324
Asia & Pacific (ex. China)	\$3	\$141	\$144
North America	\$4	\$86	\$90
Central & South America	\$11	\$79	\$90
China	\$0	\$42	\$42
Middle East & Africa	\$1	\$29	\$29

Europe was Mississippi's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Mississippi exports of potentially ICT-enabled services to United Kingdom grew from \$56 million in 2011 to \$89 million (+58%) in 2020.

The "Digital Dozen" accounted for \$311 million out of Mississippi's \$721 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Mississippi, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$113
Payments for Trademarks	\$103
Implicit Financial Services	\$97
Royalties from Industrial Processes	\$87
Credit-Related Services	\$58
Other	\$263

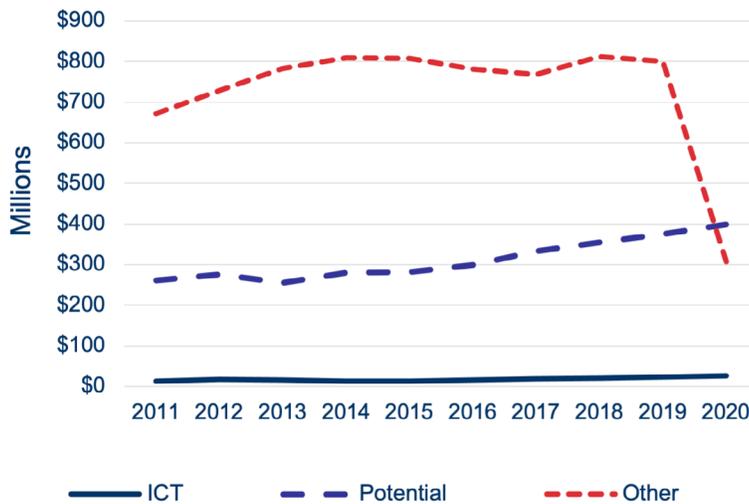
Misc. financial services are Mississippi's top potentially ICT-enabled services export in 2020, growing from \$96 million in 2011 to \$113 million in 2020 (+18%).

Telecommunications services are the top ICT services export, but declined from \$30 million in 2011 to \$22 million in 2020 (-29%).



# Montana and Digital Trade

Montana Services Exports, 2011-2020



ICT services exports grew from \$14 million in 2011 to \$26 million in 2020 (+90%), supporting 79 direct and 68 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$261 million to \$399 million (+53%), supporting 1,435 direct and 1,002 indirect jobs in 2020.

Exports of other services grew from \$671 million in 2011 to \$801 million in 2019 (+19%) before collapsing in 2020 due to Covid-19.

**Montana's digitally tradeable services exports supported 1,514 direct and 1,070 indirect American jobs in 2020.**

Top Markets for Montana Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$10	\$188	\$197
Asia & Pacific (ex. China)	\$6	\$73	\$79
North America	\$5	\$49	\$54
Central & South America	\$4	\$45	\$50
China	\$1	\$24	\$25
Middle East & Africa	\$1	\$20	\$20

Europe was Montana's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Montana exports of potentially ICT-enabled services to United Kingdom grew from \$30 million in 2011 to \$61 million (+102%) in 2020.

The "Digital Dozen" accounted for \$184 million out of Montana's \$425 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Montana, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$97
Implicit Financial Services	\$70
Business Management and Consulting Services	\$58
Payments for Trademarks	\$45
Misc. Personal, Cultural, and Recreational Services	\$35
Other	\$121

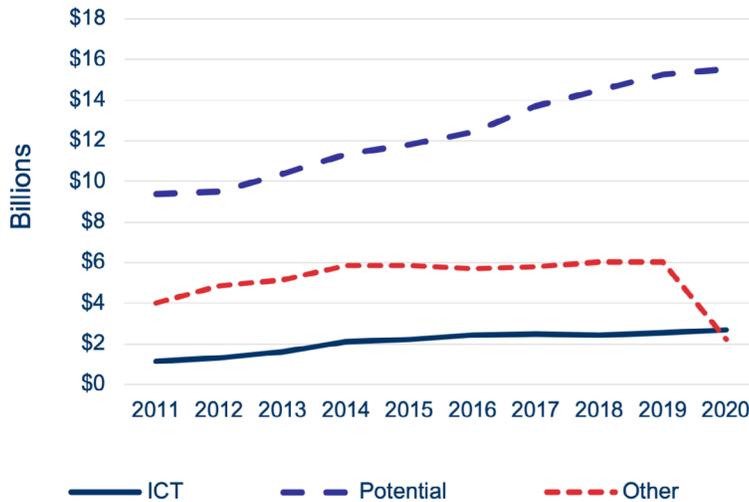
Misc. financial services are Montana's top potentially ICT-enabled services export in 2020, growing from \$65 million in 2011 to \$97 million in 2020 (+49%).

Computer software services are the top ICT services export, growing from \$2.7 million in 2011 to \$19 million in 2020 (+610%).



# North Carolina and Digital Trade

North Carolina Services Exports, 2011-2020



ICT services exports grew from \$1.1 billion in 2011 to \$2.7 billion in 2020 (+136%), supporting 5,512 direct and 3,677 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$9.4 billion to \$15.5 billion (+66%), supporting 44,805 direct and 27,678 indirect jobs in 2020.

Exports of other services grew from \$4.0 billion in 2011 to \$6.0 billion in 2019 (+51%) before collapsing in 2020 due to Covid-19.

**North Carolina's digitally tradeable services exports supported 50,318 direct and 31,355 indirect American jobs in 2020.**

Top Markets for North Carolina Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,267	\$8,138	\$9,405
Asia & Pacific (ex. China)	\$736	\$2,918	\$3,654
Central & South America	\$224	\$1,941	\$2,165
North America	\$297	\$1,296	\$1,593
China	\$106	\$675	\$780
Middle East & Africa	\$58	\$545	\$604

Europe was North Carolina's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

North Carolina exports of potentially ICT-enabled services to Switzerland grew from \$753 million in 2011 to \$1.6 billion (+110%) in 2020.

The "Digital Dozen" accounted for \$6.7 billion out of North Carolina's \$18.2 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from North Carolina, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$2,917
Research and Development and Testing Services	\$2,443
Misc. Financial Services	\$2,440
Business Management and Consulting Services	\$2,231
Implicit Financial Services	\$1,715
Other	\$6,477

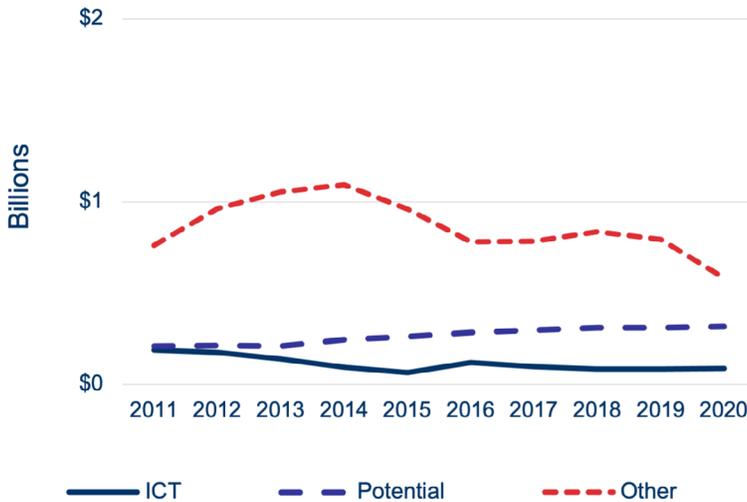
Royalties from industrial processes are North Carolina's top potentially ICT-enabled services export in 2020, growing from \$2.7 billion in 2011 to \$2.9 billion in 2020 (+8%).

Royalties from computer software are the top ICT services export, growing from \$672 million in 2011 to \$1.3 billion in 2020 (+92%).



# North Dakota and Digital Trade

North Dakota Services Exports, 2011-2020



ICT services exports declined from \$188 million in 2011 to \$86 million in 2020 (-54%), supporting 145 direct and 62 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$211 million to \$316 million (+50%), supporting 835 direct and 485 indirect jobs in 2020.

Exports of other services grew from \$762 million in 2011 to \$793 million in 2019 (+4%) before collapsing in 2020 due to Covid-19.

**North Dakota's digitally tradeable services exports supported 980 direct and 546 indirect American jobs in 2020.**

Top Markets for North Dakota Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$43	\$157	\$200
Asia & Pacific (ex. China)	\$26	\$59	\$84
North America	\$7	\$38	\$44
Central & South America	\$6	\$37	\$43
China	\$4	\$16	\$20
Middle East & Africa	\$1	\$9	\$10

Europe was North Dakota's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

North Dakota exports of potentially ICT-enabled services to United Kingdom grew from \$23 million in 2011 to \$46 million (+102%) in 2020.

The "Digital Dozen" accounted for \$163 million out of North Dakota's \$402 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from North Dakota, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Computer Software</b>	<b>\$80</b>
Misc. Financial Services	\$79
Implicit Financial Services	\$55
Payments for Trademarks	\$54
Business Management and Consulting Services	\$32
Other	\$103

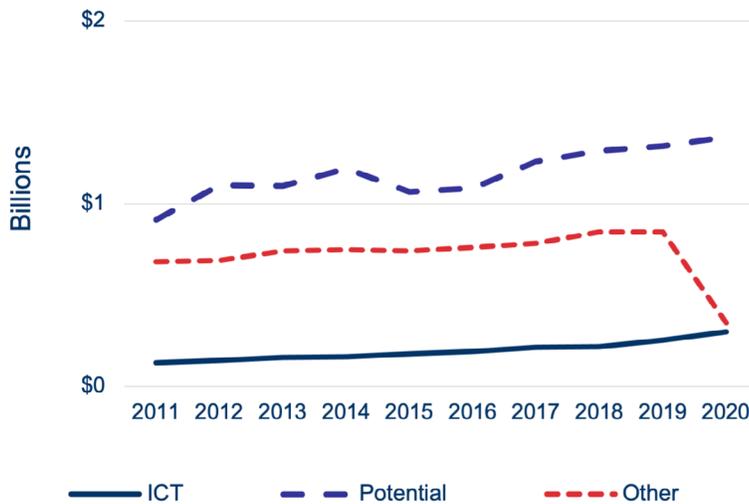
Royalties from computer software are the top ICT services export, but declined from \$167 million in 2011 to \$80 million in 2020 (-52%).

Misc. financial services are North Dakota's top potentially ICT-enabled services export in 2020, growing from \$65 million in 2011 to \$79 million in 2020 (+21%).



# Nebraska and Digital Trade

Nebraska Services Exports, 2011-2020



ICT services exports grew from \$130 million in 2011 to \$300 million in 2020 (+131%), supporting 587 direct and 477 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$913 million to \$1.4 billion (+49%), supporting 4,120 direct and 2,383 indirect jobs in 2020.

Exports of other services grew from \$682 million in 2011 to \$844 million in 2019 (+24%) before collapsing in 2020 due to Covid-19.

**Nebraska's digitally tradeable services exports supported 4,707 direct and 2,859 indirect American jobs in 2020.**

## Top Markets for Nebraska Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$139	\$628	\$767
Asia & Pacific (ex. China)	\$72	\$298	\$371
Central & South America	\$26	\$177	\$203
North America	\$43	\$153	\$196
China	\$10	\$62	\$72
Middle East & Africa	\$9	\$45	\$54

Europe was Nebraska's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Nebraska exports of potentially ICT-enabled services to Japan grew from \$70 million in 2011 to \$117 million (+69%) in 2020.

The "Digital Dozen" accounted for \$757 million out of Nebraska's \$1.7 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Nebraska, 2020 (\$M)

Type (ICT in bold)	Total
<b>Insurance Services</b>	\$397
Royalties from Industrial Processes	\$173
Misc. Financial Services	\$170
Business Management and Consulting Services	\$140
Payments for Trademarks	\$114
Other	\$668

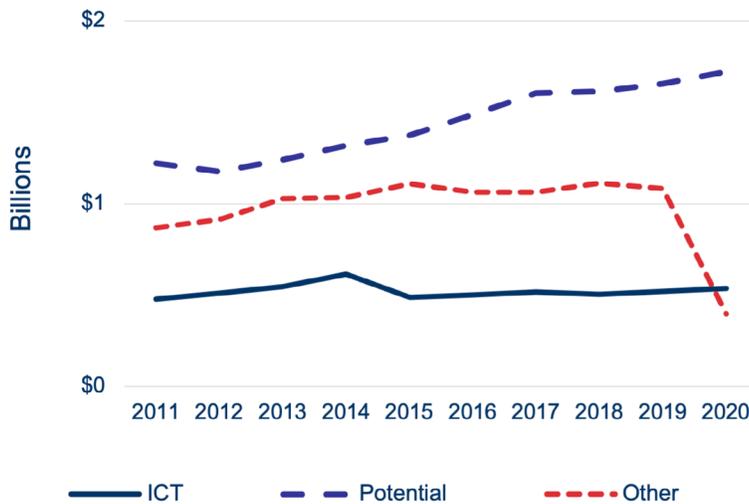
Insurance services are Nebraska's top potentially ICT-enabled services export in 2020, growing from \$206 million in 2011 to \$397 million in 2020 (+93%).

Misc. computer services are the top ICT services export, growing from \$80 million in 2011 to \$110 million in 2020 (+37%).



# New Hampshire and Digital Trade

New Hampshire Services Exports, 2011-2020



ICT services exports grew from \$478 million in 2011 to \$535 million in 2020 (+12%), supporting 1,197 direct and 803 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.2 billion to \$1.7 billion (+41%), supporting 5,361 direct and 3,675 indirect jobs in 2020.

Exports of other services grew from \$868 million in 2011 to \$1.1 billion in 2019 (+25%) before collapsing in 2020 due to Covid-19.

**New Hampshire's digitally tradeable services exports supported 6,558 direct and 4,478 indirect American jobs in 2020.**

Top Markets for New Hampshire Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$250	\$860	\$1,110
Asia & Pacific (ex. China)	\$152	\$339	\$491
Central & South America	\$42	\$259	\$301
North America	\$59	\$151	\$210
China	\$22	\$56	\$78
Middle East & Africa	\$10	\$56	\$66

Europe was New Hampshire's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

New Hampshire exports of potentially ICT-enabled services to Ireland grew from \$95 million in 2011 to \$229 million (+142%) in 2020.

The "Digital Dozen" accounted for \$849 million out of New Hampshire's \$2.3 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from New Hampshire, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$388
<b>Royalties from Computer Software</b>	<b>\$280</b>
Research and Development and Testing Services	\$234
Royalties from Industrial Processes	\$221
Financial Management and Advisory Services	\$199
Other	\$935

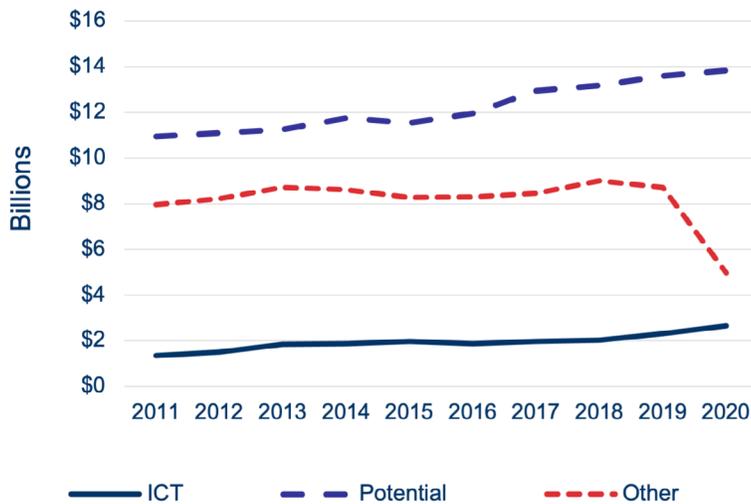
Business management and consulting services are New Hampshire's top potentially ICT-enabled services export in 2020, growing from \$185 million in 2011 to \$388 million in 2020 (+110%).

Royalties from computer software are the top ICT services export, but declined from \$418 million in 2011 to \$280 million in 2020 (-33%).



# New Jersey and Digital Trade

New Jersey Services Exports, 2011-2020



ICT services exports grew from \$1.4 billion in 2011 to \$2.7 billion in 2020 (+95%), supporting 6,778 direct and 5,437 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$10.9 billion to \$13.8 billion (+26%), supporting 42,874 direct and 30,453 indirect jobs in 2020.

Exports of other services grew from \$8.0 billion in 2011 to \$8.7 billion in 2019 (+9%) before collapsing in 2020 due to Covid-19.

**New Jersey's digitally tradeable services exports supported 49,652 direct and 35,890 indirect American jobs in 2020.**

Top Markets for New Jersey Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,134	\$7,252	\$8,387
Asia & Pacific (ex. China)	\$694	\$2,715	\$3,409
Central & South America	\$294	\$1,681	\$1,974
North America	\$368	\$1,260	\$1,628
China	\$91	\$454	\$545
Middle East & Africa	\$75	\$457	\$532

Europe was New Jersey's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

New Jersey exports of potentially ICT-enabled services to Singapore grew from \$256 million in 2011 to \$880 million (+244%) in 2020.

The "Digital Dozen" accounted for \$6.3 billion out of New Jersey's \$16.5 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from New Jersey, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$3,175
Royalties from Industrial Processes	\$2,138
Research and Development and Testing Services	\$2,062
<b>Computer Software Services</b>	<b>\$1,311</b>
Financial Management and Advisory Services	\$1,005
Other	\$6,787

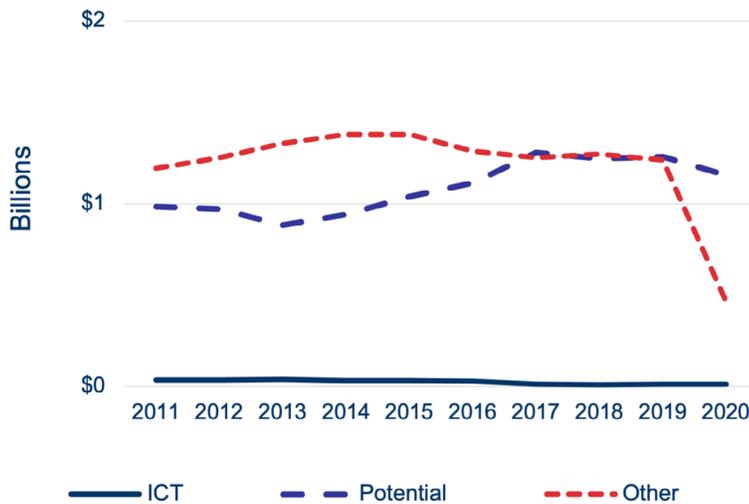
Business management and consulting services are New Jersey's top potentially ICT-enabled services export in 2020, growing from \$1.5 billion in 2011 to \$3.2 billion in 2020 (+115%).

Computer software services are the top ICT services export, growing from \$389 million in 2011 to \$1.3 billion in 2020 (+237%).



# New Mexico and Digital Trade

New Mexico Services Exports, 2011-2020



ICT services exports declined from \$36 million in 2011 to \$13 million in 2020 (-62%), supporting 37 direct and 32 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$985 million to \$1.2 billion (+17%), supporting 3,486 direct and 2,188 indirect jobs in 2020.

Exports of other services grew from \$1.2 billion in 2011 to \$1.2 billion in 2019 (+4%) before collapsing in 2020 due to Covid-19.

**New Mexico's digitally tradeable services exports supported 3,523 direct and 2,220 indirect American jobs in 2020.**

Top Markets for New Mexico Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$4	\$596	\$600
Asia & Pacific (ex. China)	\$3	\$284	\$287
North America	\$2	\$107	\$110
Central & South America	\$3	\$89	\$92
China	\$0	\$43	\$44
Middle East & Africa	\$0	\$35	\$35

Europe was New Mexico's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

New Mexico exports of potentially ICT-enabled services to Singapore grew from \$20 million in 2011 to \$106 million (+429%) in 2020.

The "Digital Dozen" accounted for \$516 million out of New Mexico's \$1.2 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from New Mexico, 2020 (\$M)

Type (ICT in bold)	Total
Research and Development and Testing Services	\$423
A/V Services (Personal)	\$276
Payments for Trademarks	\$86
Business Management and Consulting Services	\$45
A/V Services (Live Events)	\$39
Other	\$299

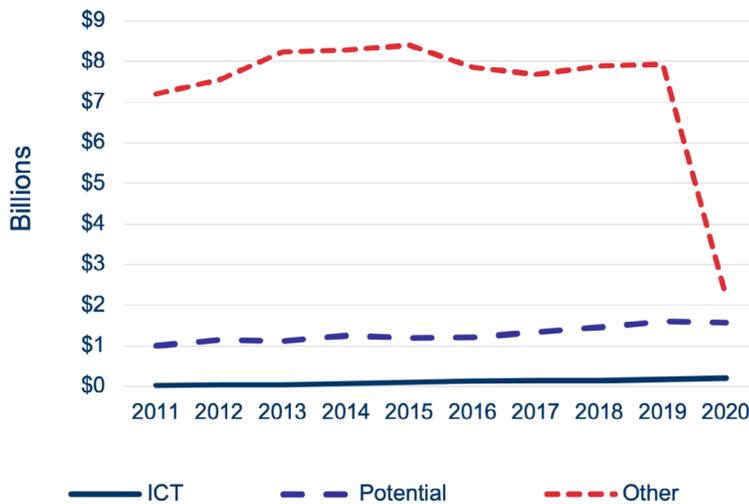
Research and development and testing services are New Mexico's top potentially ICT-enabled services export in 2020, growing from \$281 million in 2011 to \$423 million in 2020 (+51%).

Computer software services are the top ICT services export, growing from \$2.1 million in 2011 to \$8.8 million in 2020 (+310%).



# Nevada and Digital Trade

Nevada Services Exports, 2011-2020



ICT services exports grew from \$34 million in 2011 to \$210 million in 2020 (+510%), supporting 331 direct and 265 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.0 billion to \$1.6 billion (+56%), supporting 5,013 direct and 3,796 indirect jobs in 2020.

Exports of other services grew from \$7.2 billion in 2011 to \$7.9 billion in 2019 (+10%) before collapsing in 2020 due to Covid-19.

**Nevada's digitally tradeable services exports supported 5,343 direct and 4,060 indirect American jobs in 2020.**

Top Markets for Nevada Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$101	\$630	\$731
Asia & Pacific (ex. China)	\$47	\$347	\$394
North America	\$30	\$215	\$245
Central & South America	\$20	\$175	\$195
Middle East & Africa	\$6	\$103	\$109
China	\$7	\$100	\$106

Europe was Nevada's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Nevada exports of potentially ICT-enabled services to Canada grew from \$99 million in 2011 to \$163 million (+64%) in 2020.

The "Digital Dozen" accounted for \$794 million out of Nevada's \$1.8 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Nevada, 2020 (\$M)

Type (ICT in bold)	Total
<b>Credit-Related Services</b>	\$476
Payments for Trademarks	\$169
Misc. Financial Services	\$135
Misc. Personal, Cultural, and Recreational Services	\$105
Advertising	\$105
Other	\$790

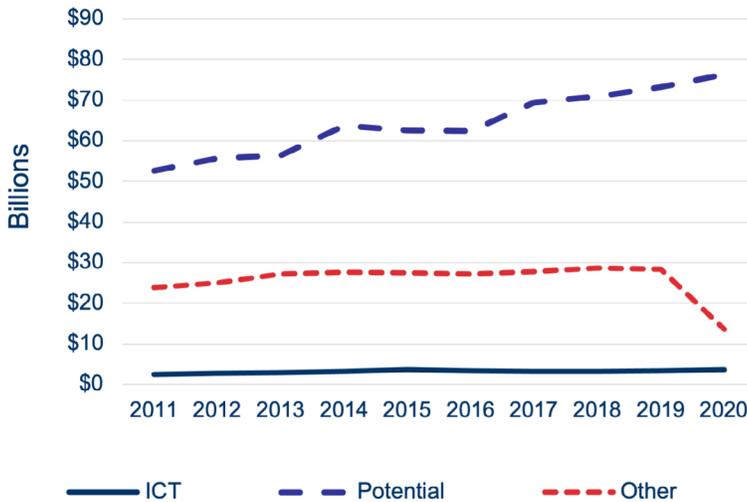
Credit-related services are Nevada's top potentially ICT-enabled services export in 2020, growing from \$259 million in 2011 to \$476 million in 2020 (+84%).

Misc. computer services are the top ICT services export, growing from \$2.2 million in 2011 to \$94 million in 2020 (+4120%).



# New York and Digital Trade

New York Services Exports, 2011-2020



ICT services exports grew from \$2.4 billion in 2011 to \$3.6 billion in 2020 (+49%), supporting 7,041 direct and 5,561 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$52.6 billion to \$76.3 billion (+45%), supporting 187,434 direct and 132,194 indirect jobs in 2020.

Exports of other services grew from \$23.9 billion in 2011 to \$28.5 billion in 2019 (+19%) before collapsing in 2020 due to Covid-19.

**New York's digitally tradeable services exports supported 194,475 direct and 137,755 indirect American jobs in 2020.**

## Top Markets for New York Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,429	\$30,471	\$31,900
Central & South America	\$746	\$20,232	\$20,978
Asia & Pacific (ex. China)	\$791	\$12,445	\$13,235
North America	\$452	\$8,149	\$8,601
Middle East & Africa	\$105	\$2,638	\$2,743
China	\$106	\$2,235	\$2,342

Europe was New York's top market for digitally tradeable services, followed by Central & South America.

New York exports of potentially ICT-enabled services to Ireland grew from \$1.8 billion in 2011 to \$4.8 billion (+168%) in 2020.

The "Digital Dozen" accounted for \$31.2 billion out of New York's \$79.9 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from New York, 2020 (\$M)

Type (ICT in bold)	Total
<b>Financial Management and Advisory Services</b>	\$20,913
Misc. Financial Services	\$9,328
Securities Transactions	\$5,887
Implicit Financial Services	\$5,861
Advertising	\$5,653
Other	\$32,238

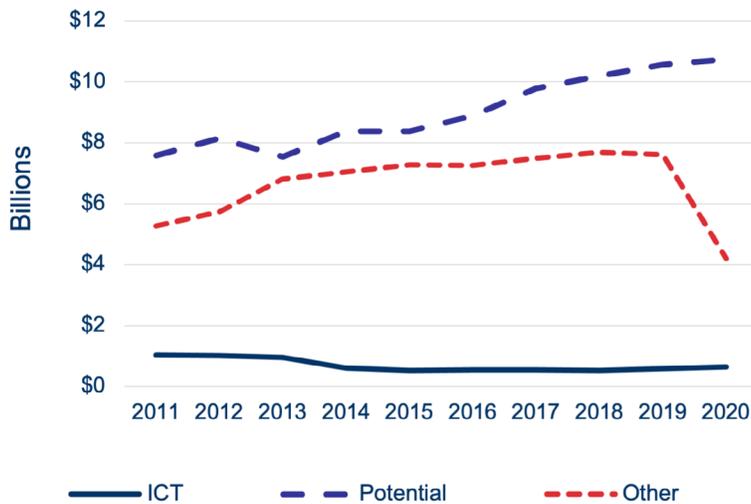
Financial management and advisory services are New York's top potentially ICT-enabled services export in 2020, growing from \$13.0 billion in 2011 to \$20.9 billion in 2020 (+61%).

Telecommunications services are the top ICT services export, but declined from \$1.8 billion in 2011 to \$1.2 billion in 2020 (-36%).



# Ohio and Digital Trade

### Ohio Services Exports, 2011-2020



ICT services exports declined from \$1.0 billion in 2011 to \$646 million in 2020 (-38%), supporting 1,796 direct and 1,446 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$7.6 billion to \$10.7 billion (+42%), supporting 32,683 direct and 20,752 indirect jobs in 2020.

Exports of other services grew from \$5.3 billion in 2011 to \$7.6 billion in 2019 (+44%) before collapsing in 2020 due to Covid-19.

**Ohio's digitally tradeable services exports supported 34,479 direct and 22,198 indirect American jobs in 2020.**

### Top Markets for Ohio Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$266	\$5,100	\$5,365
Asia & Pacific (ex. China)	\$173	\$2,100	\$2,273
Central & South America	\$78	\$1,366	\$1,444
North America	\$90	\$1,164	\$1,254
China	\$22	\$554	\$576
Middle East & Africa	\$17	\$446	\$464

Europe was Ohio's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Ohio exports of potentially ICT-enabled services to India grew from \$68 million in 2011 to \$162 million (+137%) in 2020.

The "Digital Dozen" accounted for \$4.7 billion out of Ohio's \$11.4 billion in exports of digitally tradeable services in 2020.

### Top Digitally Tradeable Services Exports from Ohio, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$1,844
Royalties from Industrial Processes	\$1,644
Credit-Related Services	\$1,362
Insurance Services	\$1,239
Implicit Financial Services	\$1,076
Other	\$4,225

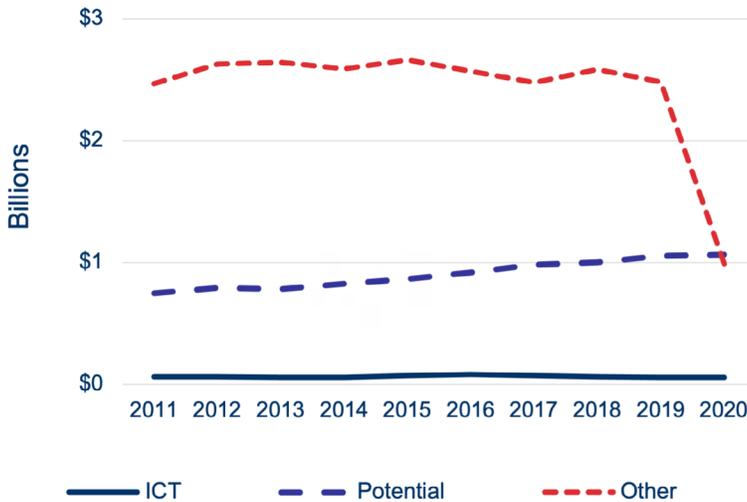
Misc. financial services are Ohio's top potentially ICT-enabled services export in 2020, growing from \$1.4 billion in 2011 to \$1.8 billion in 2020 (+32%).

Computer software services are the top ICT services export, growing from \$221 million in 2011 to \$385 million in 2020 (+74%).



# Oklahoma and Digital Trade

Oklahoma Services Exports, 2011-2020



ICT services exports declined from \$64 million in 2011 to \$59 million in 2020 (-7%), supporting 80 direct and 72 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$749 million to \$1.1 billion (+42%), supporting 3,549 direct and 2,260 indirect jobs in 2020.

Exports of other services grew from \$2.5 billion in 2011 to \$2.5 billion in 2019 (+1%) before collapsing in 2020 due to Covid-19.

**Oklahoma's digitally tradeable services exports supported 3,629 direct and 2,332 indirect American jobs in 2020.**

Top Markets for Oklahoma Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$17	\$521	\$538
Asia & Pacific (ex. China)	\$8	\$209	\$217
Central & South America	\$23	\$128	\$152
North America	\$8	\$119	\$127
China	\$1	\$48	\$49
Middle East & Africa	\$1	\$41	\$43

Europe was Oklahoma's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Oklahoma exports of potentially ICT-enabled services to United Kingdom grew from \$79 million in 2011 to \$131 million (+67%) in 2020.

The "Digital Dozen" accounted for \$458 million out of Oklahoma's \$1.1 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Oklahoma, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$182
Payments for Trademarks	\$175
Misc. Business, Professional, and Technical Services	\$100
Implicit Financial Services	\$86
Misc. Financial Services	\$86
Other	\$498

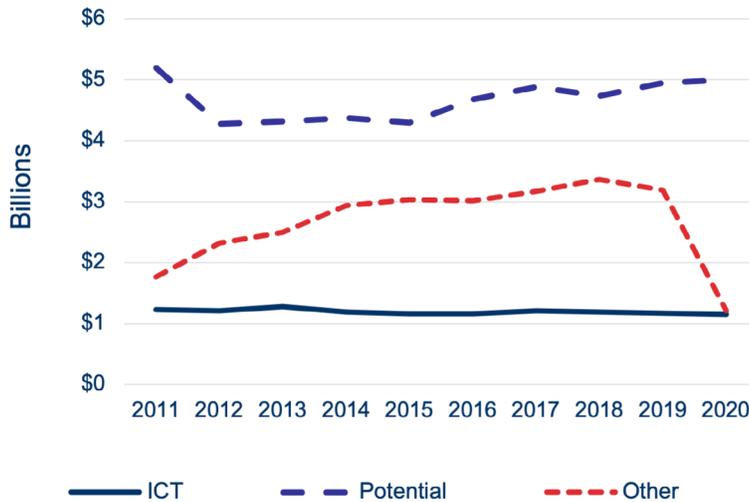
Business management and consulting services are Oklahoma's top potentially ICT-enabled services export in 2020, growing from \$122 million in 2011 to \$182 million in 2020 (+49%).

Telecommunications services are the top ICT services export, but declined from \$60 million in 2011 to \$47 million in 2020 (-21%).



# Oregon and Digital Trade

Oregon Services Exports, 2011-2020



ICT services exports finished 2020 at 2011 levels, \$1.2 billion, supporting 2,042 direct and 1,093 indirect jobs in 2020.

Potentially ICT-enabled services exports declined from \$5.2 billion to \$5.0 billion (-4%), supporting 11,932 direct and 8,502 indirect jobs in 2020.

Exports of other services grew from \$1.8 billion in 2011 to \$3.2 billion in 2019 (+80%) before collapsing in 2020 due to Covid-19.

**Oregon's digitally tradeable services exports supported 13,974 direct and 9,595 indirect American jobs in 2020.**

Top Markets for Oregon Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$576	\$2,888	\$3,464
Asia & Pacific (ex. China)	\$329	\$1,122	\$1,451
North America	\$105	\$336	\$441
Central & South America	\$77	\$272	\$348
China	\$50	\$266	\$316
Middle East & Africa	\$19	\$114	\$133

Europe was Oregon's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Oregon exports of potentially ICT-enabled services to Singapore grew from \$142 million in 2011 to \$479 million (+238%) in 2020.

The "Digital Dozen" accounted for \$2.0 billion out of Oregon's \$6.2 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Oregon, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$2,251
Research and Development and Testing Services	\$1,577
<b>Royalties from Computer Software</b>	<b>\$817</b>
Payments for Trademarks	\$238
Advertising	\$181
Other	\$1,090

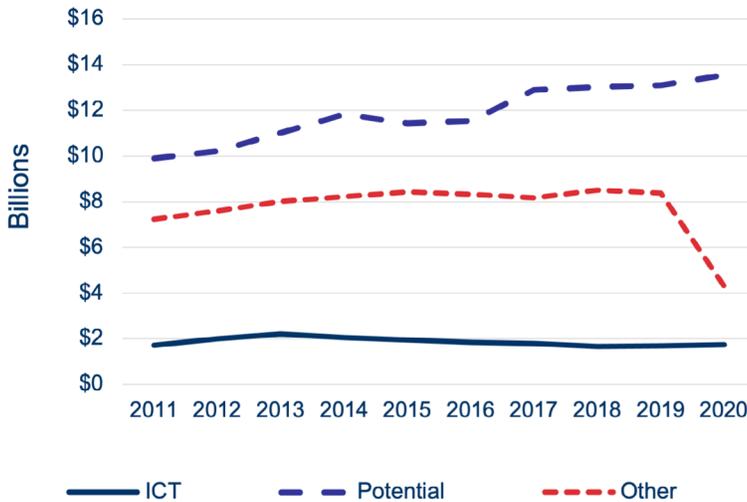
Royalties from industrial processes are Oregon's top potentially ICT-enabled services export in 2020, but declined from \$3.2 billion in 2011 to \$2.3 billion in 2020 (-29%).

Royalties from computer software are the top ICT services export, but declined from \$1.1 billion in 2011 to \$817 million in 2020 (-28%).



# Pennsylvania and Digital Trade

Pennsylvania Services Exports, 2011-2020



ICT services exports grew from \$1.7 billion in 2011 to \$1.8 billion in 2020 (+2%), supporting 3,719 direct and 3,183 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$9.9 billion to \$13.6 billion (+37%), supporting 35,169 direct and 24,709 indirect jobs in 2020.

Exports of other services grew from \$7.2 billion in 2011 to \$8.4 billion in 2019 (+16%) before collapsing in 2020 due to Covid-19.

**Pennsylvania's digitally tradeable services exports supported 38,887 direct and 27,892 indirect American jobs in 2020.**

Top Markets for Pennsylvania Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$594	\$5,623	\$6,217
Central & South America	\$480	\$3,367	\$3,847
Asia & Pacific (ex. China)	\$346	\$2,491	\$2,837
North America	\$233	\$1,193	\$1,426
Middle East & Africa	\$56	\$446	\$502
China	\$43	\$423	\$466

Europe was Pennsylvania's top market for digitally tradeable services, followed by Central & South America.

Pennsylvania exports of potentially ICT-enabled services to Singapore grew from \$173 million in 2011 to \$666 million (+284%) in 2020.

The "Digital Dozen" accounted for \$5.6 billion out of Pennsylvania's \$15.3 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Pennsylvania, 2020 (\$M)

Type (ICT in bold)	Total
<b>Financial Management and Advisory Services</b>	\$4,061
<b>Research and Development and Testing Services</b>	\$1,529
<b>Insurance Services</b>	\$1,247
<b>Royalties from Industrial Processes</b>	\$1,110
<b>Business Management and Consulting Services</b>	\$1,012
<b>Other</b>	\$6,345

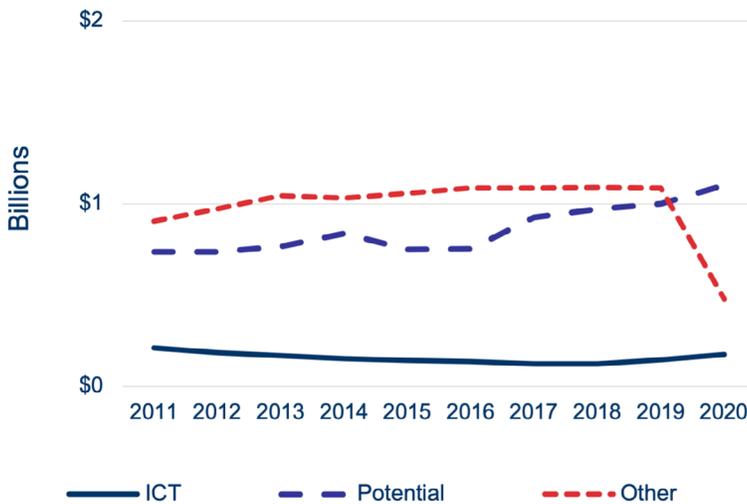
Financial management and advisory services are Pennsylvania's top potentially ICT-enabled services export in 2020, growing from \$2.7 billion in 2011 to \$4.1 billion in 2020 (+50%).

Telecommunications services are the top ICT services export, but declined from \$1.2 billion in 2011 to \$844 million in 2020 (-29%).



# Rhode Island and Digital Trade

Rhode Island Services Exports, 2011-2020



ICT services exports declined from \$210 million in 2011 to \$175 million in 2020 (-17%), supporting 456 direct and 382 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$736 million to \$1.1 billion (+50%), supporting 2,866 direct and 1,845 indirect jobs in 2020.

Exports of other services grew from \$905 million in 2011 to \$1.1 billion in 2019 (+20%) before collapsing in 2020 due to Covid-19.

**Rhode Island's digitally tradeable services exports supported 3,322 direct and 2,227 indirect American jobs in 2020.**

Top Markets for Rhode Island Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$77	\$441	\$518
Central & South America	\$15	\$275	\$290
Asia & Pacific (ex. China)	\$46	\$199	\$245
North America	\$27	\$108	\$135
China	\$6	\$42	\$48
Middle East & Africa	\$5	\$35	\$39

Europe was Rhode Island's top market for digitally tradeable services, followed by Central & South America.

Rhode Island exports of potentially ICT-enabled services to Ireland grew from \$27 million in 2011 to \$66 million (+146%) in 2020.

The "Digital Dozen" accounted for \$529 million out of Rhode Island's \$1.3 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Rhode Island, 2020 (\$M)

Type (ICT in bold)	Total
Financial Management and Advisory Services	\$252
Insurance Services	\$154
Misc. Financial Services	\$129
Securities Transactions	\$124
<b>Computer Software Services</b>	<b>\$91</b>
Other	\$526

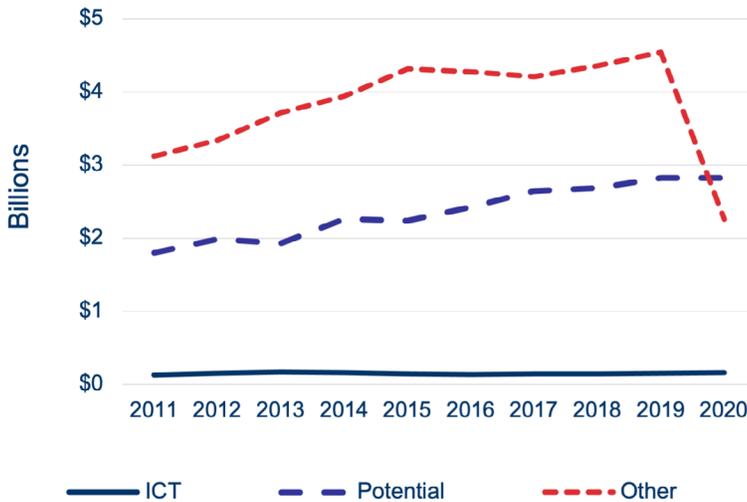
Financial management and advisory services are Rhode Island's top potentially ICT-enabled services export in 2020, growing from \$156 million in 2011 to \$252 million in 2020 (+62%).

Computer software services are the top ICT services export, growing from \$20 million in 2011 to \$91 million in 2020 (+357%).



# South Carolina and Digital Trade

South Carolina Services Exports, 2011-2020



ICT services exports grew from \$128 million in 2011 to \$165 million in 2020 (+29%), supporting 381 direct and 308 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$1.8 billion to \$2.8 billion (+57%), supporting 9,673 direct and 6,618 indirect jobs in 2020.

Exports of other services grew from \$3.1 billion in 2011 to \$4.5 billion in 2019 (+46%) before collapsing in 2020 due to Covid-19.

**South Carolina's digitally tradeable services exports supported 10,054 direct and 6,926 indirect American jobs in 2020.**

## Top Markets for South Carolina Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$66	\$1,482	\$1,548
Asia & Pacific (ex. China)	\$39	\$543	\$582
North America	\$23	\$277	\$300
Central & South America	\$29	\$245	\$274
China	\$5	\$146	\$152
Middle East & Africa	\$4	\$127	\$131

Europe was South Carolina's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

South Carolina exports of potentially ICT-enabled services to Switzerland grew from \$125 million in 2011 to \$328 million (+163%) in 2020.

The "Digital Dozen" accounted for \$1.1 billion out of South Carolina's \$3.0 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from South Carolina, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$687
Royalties from Industrial Processes	\$605
Credit-Related Services	\$348
Payments for Trademarks	\$217
Architectural, Engineering, and Misc. Technical Services	\$151
Other	\$981

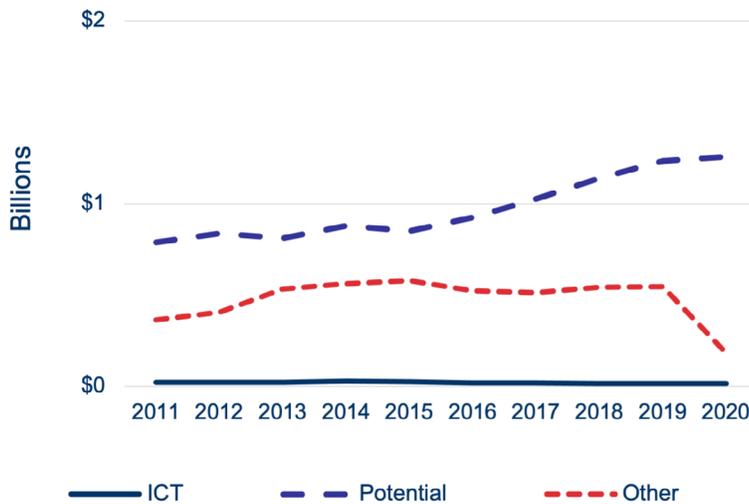
Business management and consulting services are South Carolina's top potentially ICT-enabled services export in 2020, growing from \$262 million in 2011 to \$687 million in 2020 (+162%).

Computer software services are the top ICT services export, growing from \$10 million in 2011 to \$70 million in 2020 (+580%).



# South Dakota and Digital Trade

South Dakota Services Exports, 2011-2020



ICT services exports declined from \$23 million in 2011 to \$17 million in 2020 (-27%), supporting 25 direct and 23 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$788 million to \$1.3 billion (+59%), supporting 3,453 direct and 1,885 indirect jobs in 2020.

Exports of other services grew from \$364 million in 2011 to \$547 million in 2019 (+50%) before collapsing in 2020 due to Covid-19.

**South Dakota's digitally tradeable services exports supported 3,478 direct and 1,907 indirect American jobs in 2020.**

Top Markets for South Dakota Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$4	\$542	\$546
Asia & Pacific (ex. China)	\$2	\$236	\$239
Central & South America	\$7	\$188	\$195
North America	\$2	\$150	\$152
China	\$0	\$73	\$73
Middle East & Africa	\$0	\$66	\$67

Europe was South Dakota's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

South Dakota exports of potentially ICT-enabled services to United Kingdom grew from \$111 million in 2011 to \$196 million (+77%) in 2020.

The "Digital Dozen" accounted for \$564 million out of South Dakota's \$1.3 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from South Dakota, 2020 (\$M)

Type (ICT in bold)	Total
Misc. Financial Services	\$450
Credit-Related Services	\$384
Implicit Financial Services	\$222
Insurance Services	\$54
Payments for Trademarks	\$47
Other	\$117

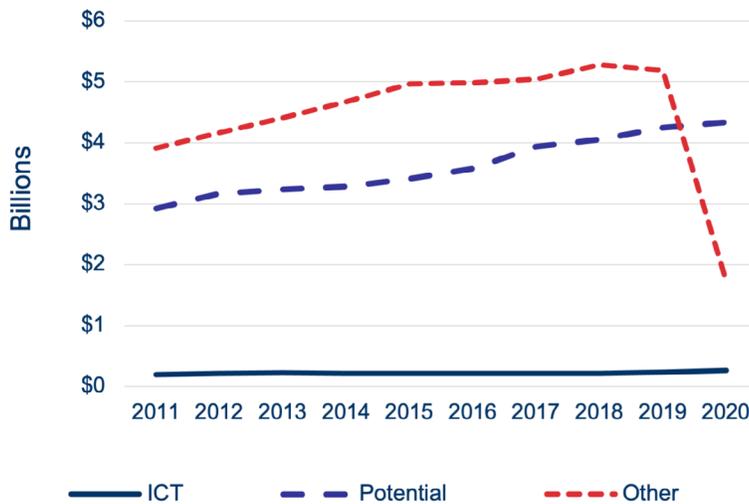
Misc. financial services are South Dakota's top potentially ICT-enabled services export in 2020, growing from \$284 million in 2011 to \$450 million in 2020 (+59%).

Telecommunications services are the top ICT services export, but declined from \$23 million in 2011 to \$14 million in 2020 (-40%).



# Tennessee and Digital Trade

Tennessee Services Exports, 2011-2020



ICT services exports grew from \$198 million in 2011 to \$268 million in 2020 (+35%), supporting 497 direct and 392 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.9 billion to \$4.3 billion (+48%), supporting 16,269 direct and 10,750 indirect jobs in 2020.

Exports of other services grew from \$3.9 billion in 2011 to \$5.2 billion in 2019 (+33%) before collapsing in 2020 due to Covid-19.

**Tennessee's digitally tradeable services exports supported 16,766 direct and 11,143 indirect American jobs in 2020.**

Top Markets for Tennessee Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$116	\$2,384	\$2,500
Asia & Pacific (ex. China)	\$61	\$776	\$837
North America	\$36	\$441	\$477
Central & South America	\$40	\$412	\$452
China	\$8	\$164	\$172
Middle East & Africa	\$7	\$158	\$165

Europe was Tennessee's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Tennessee exports of potentially ICT-enabled services to Switzerland grew from \$209 million in 2011 to \$445 million (+113%) in 2020.

The "Digital Dozen" accounted for \$1.8 billion out of Tennessee's \$4.6 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Tennessee, 2020 (\$M)

Type (ICT in bold)	Total
<b>Business Management and Consulting Services</b>	\$1,544
Royalties from Industrial Processes	\$552
Payments for Trademarks	\$357
Insurance Services	\$344
Misc. Business, Professional, and Technical Services	\$232
Other	\$1,576

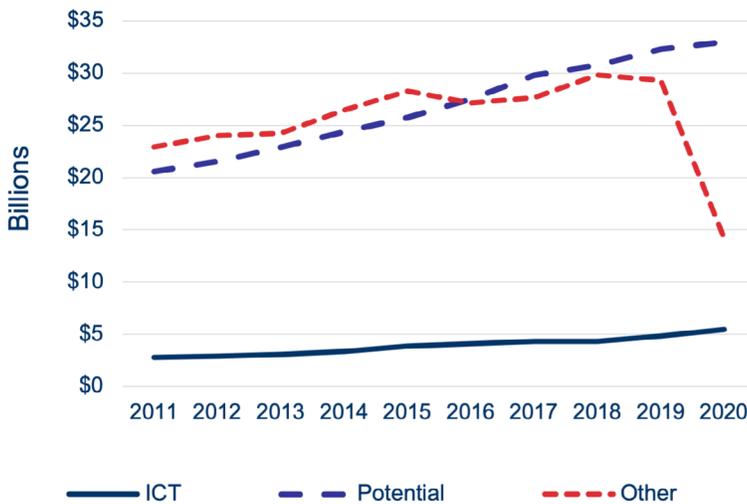
Business management and consulting services are Tennessee's top potentially ICT-enabled services export in 2020, growing from \$697 million in 2011 to \$1.5 billion in 2020 (+122%).

Misc. computer services are the top ICT services export, but declined from \$74 million in 2011 to \$67 million in 2020 (-9%).



# Texas and Digital Trade

Texas Services Exports, 2011-2020



ICT services exports grew from \$2.8 billion in 2011 to \$5.5 billion in 2020 (+97%), supporting 13,070 direct and 10,685 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$20.5 billion to \$33.0 billion (+61%), supporting 105,041 direct and 67,451 indirect jobs in 2020.

Exports of other services grew from \$22.9 billion in 2011 to \$29.3 billion in 2019 (+28%) before collapsing in 2020 due to Covid-19.

**Texas' digitally tradeable services exports supported 118,111 direct and 78,136 indirect American jobs in 2020.**

Top Markets for Texas Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$2,290	\$17,805	\$20,094
Asia & Pacific (ex. China)	\$1,343	\$5,946	\$7,290
Central & South America	\$735	\$3,982	\$4,717
North America	\$763	\$2,667	\$3,430
China	\$175	\$1,396	\$1,571
Middle East & Africa	\$164	\$1,183	\$1,347

Europe was Texas' top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Texas exports of potentially ICT-enabled services to Switzerland grew from \$1.6 billion in 2011 to \$4.0 billion (+150%) in 2020.

The "Digital Dozen" accounted for \$13.6 billion out of Texas' \$38.5 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Texas, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$8,696
Royalties from Industrial Processes	\$7,589
Research and Development and Testing Services	\$2,791
Financial Management and Advisory Services	\$2,570
<b>Computer Software Services</b>	<b>\$2,406</b>
Other	\$14,408

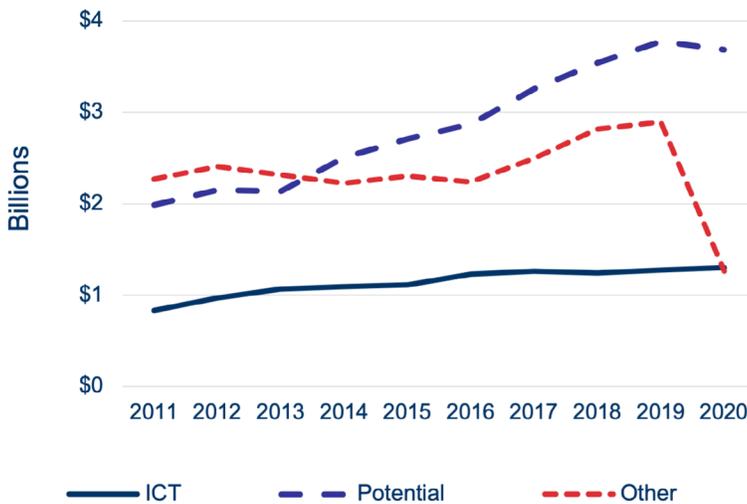
Business management and consulting services are Texas' top potentially ICT-enabled services export in 2020, growing from \$4.0 billion in 2011 to \$8.7 billion in 2020 (+117%).

Computer software services are the top ICT services export, growing from \$382 million in 2011 to \$2.4 billion in 2020 (+530%).



# Utah and Digital Trade

Utah Services Exports, 2011-2020



ICT services exports grew from \$832 million in 2011 to \$1.3 billion in 2020 (+56%), supporting 2,799 direct and 1,782 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.0 billion to \$3.7 billion (+86%), supporting 11,009 direct and 7,170 indirect jobs in 2020.

Exports of other services grew from \$2.3 billion in 2011 to \$2.9 billion in 2019 (+27%) before collapsing in 2020 due to Covid-19.

**Utah's digitally tradeable services exports supported 13,809 direct and 8,951 indirect American jobs in 2020.**

Top Markets for Utah Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$618	\$1,749	\$2,367
Asia & Pacific (ex. China)	\$375	\$773	\$1,148
North America	\$134	\$379	\$513
Central & South America	\$96	\$413	\$509
China	\$54	\$177	\$232
Middle East & Africa	\$25	\$188	\$212

Europe was Utah's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Utah exports of potentially ICT-enabled services to Ireland grew from \$134 million in 2011 to \$373 million (+179%) in 2020.

The "Digital Dozen" accounted for \$2.0 billion out of Utah's \$5.0 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Utah, 2020 (\$M)

Type (ICT in bold)	Total
Credit-Related Services	\$874
<b>Royalties from Computer Software</b>	<b>\$776</b>
Misc. Financial Services	\$556
Research and Development and Testing Services	\$521
<b>Computer Software Services</b>	<b>\$337</b>
Other	\$1,921

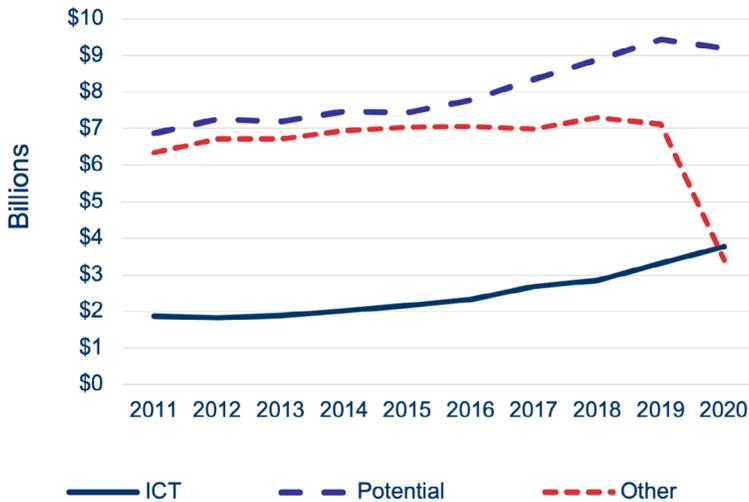
Credit-related services are Utah's top potentially ICT-enabled services export in 2020, growing from \$354 million in 2011 to \$874 million in 2020 (+147%).

Royalties from computer software are the top ICT services export, growing from \$642 million in 2011 to \$776 million in 2020 (+21%).



# Virginia and Digital Trade

Virginia Services Exports, 2011-2020



ICT services exports grew from \$1.9 billion in 2011 to \$3.8 billion in 2020 (+102%), supporting 11,657 direct and 9,855 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$6.9 billion to \$9.2 billion (+34%), supporting 34,501 direct and 23,060 indirect jobs in 2020.

Exports of other services grew from \$6.3 billion in 2011 to \$7.1 billion in 2019 (+12%) before collapsing in 2020 due to Covid-19.

**Virginia's digitally tradeable services exports supported 46,158 direct and 32,915 indirect American jobs in 2020.**

Top Markets for Virginia Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$1,543	\$4,841	\$6,385
Asia & Pacific (ex. China)	\$1,030	\$1,702	\$2,731
North America	\$585	\$905	\$1,491
Central & South America	\$378	\$975	\$1,353
Middle East & Africa	\$116	\$463	\$579
China	\$127	\$301	\$428

Europe was Virginia's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Virginia exports of ICT services to Japan grew from \$108 million in 2011 to \$357 million (+232%) in 2020.

The "Digital Dozen" accounted for \$5.3 billion out of Virginia's \$13.0 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Virginia, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$3,615
<b>Computer Software Services</b>	<b>\$2,768</b>
Credit-Related Services	\$1,463
Research and Development and Testing Services	\$648
Advertising	\$480
Other	\$3,997

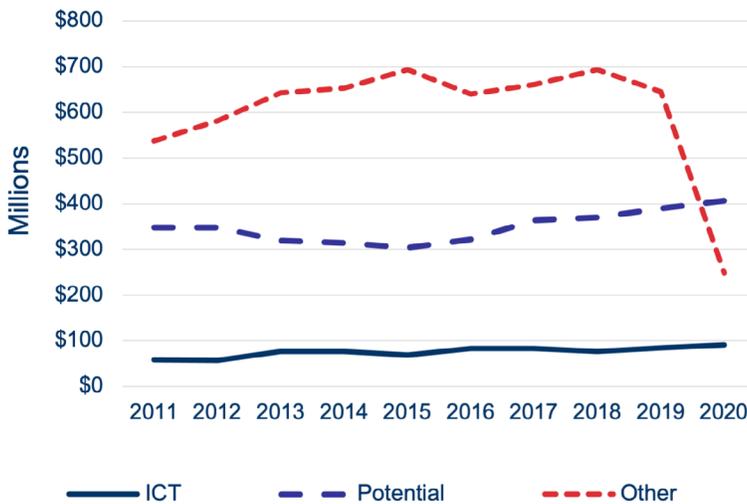
Business management and consulting services are Virginia's top potentially ICT-enabled services export in 2020, growing from \$2.2 billion in 2011 to \$3.6 billion in 2020 (+61%).

Computer software services are the top ICT services export, growing from \$887 million in 2011 to \$2.8 billion in 2020 (+212%).



# Vermont and Digital Trade

Vermont Services Exports, 2011-2020



ICT services exports grew from \$59 million in 2011 to \$91 million in 2020 (+54%), supporting 263 direct and 199 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$348 million to \$407 million (+17%), supporting 1,557 direct and 1,049 indirect jobs in 2020.

Exports of other services grew from \$537 million in 2011 to \$646 million in 2019 (+20%) before collapsing in 2020 due to Covid-19.

**Vermont's digitally tradeable services exports supported 1,820 direct and 1,248 indirect American jobs in 2020.**

Top Markets for Vermont Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$39	\$220	\$259
Asia & Pacific (ex. China)	\$27	\$78	\$105
North America	\$12	\$41	\$53
Central & South America	\$7	\$36	\$43
China	\$4	\$17	\$21
Middle East & Africa	\$2	\$15	\$17

Europe was Vermont's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Vermont exports of potentially ICT-enabled services to United Kingdom grew from \$32 million in 2011 to \$48 million (+50%) in 2020.

The "Digital Dozen" accounted for \$198 million out of Vermont's \$498 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Vermont, 2020 (\$M)

Type (ICT in bold)	Total
Business Management and Consulting Services	\$141
<b>Computer Software Services</b>	<b>\$56</b>
Insurance Services	\$44
Royalties from Industrial Processes	\$41
<b>Royalties from Computer Software</b>	<b>\$34</b>
Other	\$183

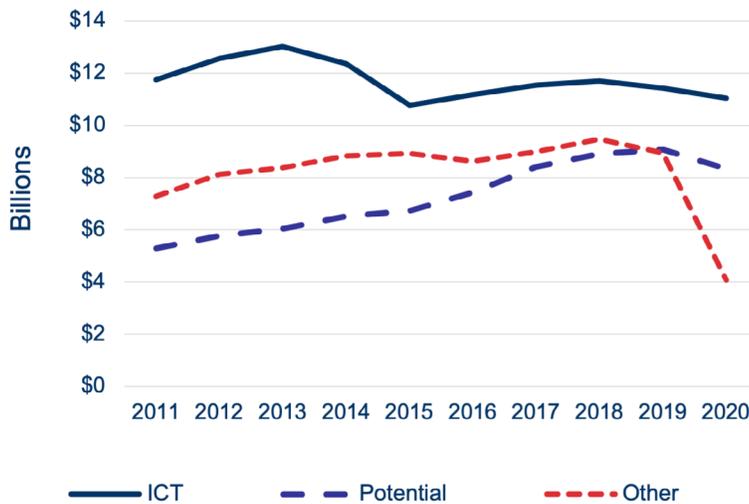
Business management and consulting services are Vermont's top potentially ICT-enabled services export in 2020, growing from \$72 million in 2011 to \$141 million in 2020 (+95%).

Computer software services are the top ICT services export, growing from \$15 million in 2011 to \$56 million in 2020 (+273%).



# Washington and Digital Trade

Washington Services Exports, 2011-2020



ICT services exports declined from \$11.7 billion in 2011 to \$11.0 billion in 2020 (-6%), supporting 19,891 direct and 9,703 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$5.3 billion to \$8.3 billion (+58%), supporting 25,378 direct and 17,438 indirect jobs in 2020.

Exports of other services grew from \$7.3 billion in 2011 to \$8.9 billion in 2019 (+23%) before collapsing in 2020 due to Covid-19.

**Washington's digitally tradeable services exports supported 45,269 direct and 27,141 indirect American jobs in 2020.**

Top Markets for Washington Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$5,484	\$4,495	\$9,979
Asia & Pacific (ex. China)	\$3,253	\$2,069	\$5,322
North America	\$877	\$598	\$1,475
Central & South America	\$762	\$571	\$1,333
China	\$496	\$249	\$746
Middle East & Africa	\$158	\$348	\$506

Europe was Washington's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Washington exports of potentially ICT-enabled services to Singapore grew from \$127 million in 2011 to \$929 million (+633%) in 2020.

The "Digital Dozen" accounted for \$6.6 billion out of Washington's \$19.4 billion in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Washington, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Computer Software</b>	<b>\$9,338</b>
Research and Development and Testing Services	\$3,609
<b>Computer Software Services</b>	<b>\$905</b>
Business Management and Consulting Services	\$844
Trade-Related Services	\$599
Other	\$4,070

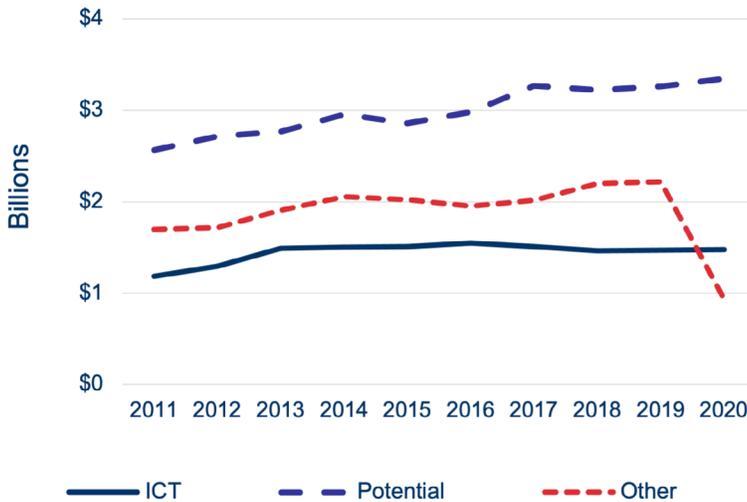
Royalties from computer software are the top ICT services export, but declined from \$11.4 billion in 2011 to \$9.3 billion in 2020 (-18%).

Research and development and testing services are Washington's top potentially ICT-enabled services export in 2020, growing from \$1.9 billion in 2011 to \$3.6 billion in 2020 (+87%).



# Wisconsin and Digital Trade

Wisconsin Services Exports, 2011-2020



ICT services exports grew from \$1.2 billion in 2011 to \$1.5 billion in 2020 (+25%), supporting 2,545 direct and 1,342 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$2.6 billion to \$3.3 billion (+30%), supporting 9,168 direct and 6,100 indirect jobs in 2020.

Exports of other services grew from \$1.7 billion in 2011 to \$2.2 billion in 2019 (+31%) before collapsing in 2020 due to Covid-19.

**Wisconsin's digitally tradeable services exports supported 11,713 direct and 7,443 indirect American jobs in 2020.**

## Top Markets for Wisconsin Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$735	\$1,563	\$2,298
Asia & Pacific (ex. China)	\$417	\$767	\$1,183
Central & South America	\$105	\$413	\$518
North America	\$133	\$362	\$495
China	\$63	\$144	\$207
Middle East & Africa	\$25	\$97	\$121

Europe was Wisconsin's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Wisconsin exports of potentially ICT-enabled services to Singapore grew from \$48 million in 2011 to \$184 million (+285%) in 2020.

The "Digital Dozen" accounted for \$1.9 billion out of Wisconsin's \$4.8 billion in exports of digitally tradeable services in 2020.

## Top Digitally Tradeable Services Exports from Wisconsin, 2020 (\$M)

Type (ICT in bold)	Total
<b>Royalties from Computer Software</b>	<b>\$1,046</b>
Insurance Services	\$809
Royalties from Industrial Processes	\$608
Research and Development and Testing Services	\$438
Payments for Trademarks	\$328
Other	\$1,598

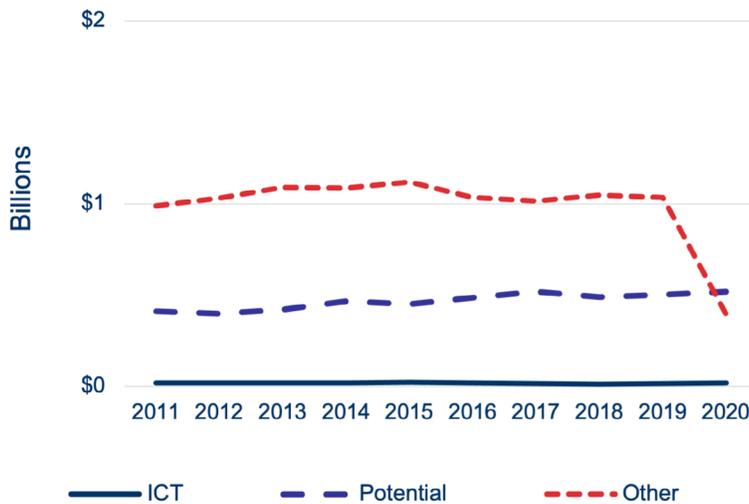
Royalties from computer software are the top ICT services export, growing from \$963 million in 2011 to \$1.0 billion in 2020 (+9%).

Insurance services are Wisconsin's top potentially ICT-enabled services export in 2020, growing from \$554 million in 2011 to \$809 million in 2020 (+46%).



# West Virginia and Digital Trade

West Virginia Services Exports, 2011-2020



ICT services exports declined from \$19 million in 2011 to \$18 million in 2020 (-4%), supporting 33 direct and 28 indirect jobs in 2020.

Potentially ICT-enabled services exports grew from \$413 million to \$518 million (+25%), supporting 1,526 direct and 987 indirect jobs in 2020.

Exports of other services grew from \$987 million in 2011 to \$1.0 billion in 2019 (+5%) before collapsing in 2020 due to Covid-19.

**West Virginia's digitally tradeable services exports supported 1,558 direct and 1,015 indirect American jobs in 2020.**

Top Markets for West Virginia Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$7	\$283	\$290
Asia & Pacific (ex. China)	\$3	\$98	\$102
North America	\$3	\$49	\$52
Central & South America	\$4	\$38	\$42
China	\$1	\$34	\$35
Middle East & Africa	\$0	\$15	\$15

Europe was West Virginia's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

West Virginia exports of potentially ICT-enabled services to Switzerland grew from \$39 million in 2011 to \$78 million (+100%) in 2020.

The "Digital Dozen" accounted for \$197 million out of West Virginia's \$536 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from West Virginia, 2020 (\$M)

Type (ICT in bold)	Total
Royalties from Industrial Processes	\$180
Payments for Trademarks	\$76
Business Management and Consulting Services	\$61
Legal Services	\$56
Insurance Services	\$28
Other	\$135

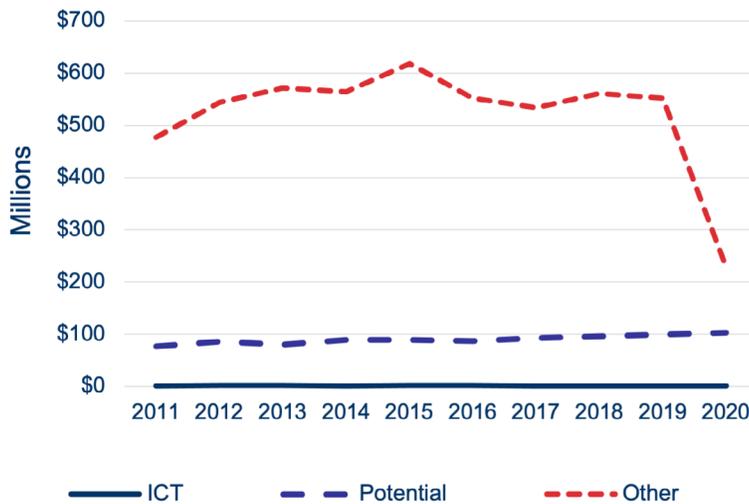
Royalties from industrial processes are West Virginia's top potentially ICT-enabled services export in 2020, but declined from \$185 million in 2011 to \$180 million in 2020 (-3%).

Telecommunications services are the top ICT services export, but declined from \$16 million in 2011 to \$5.4 million in 2020 (-67%).



# Wyoming and Digital Trade

Wyoming Services Exports, 2011-2020



ICT services exports declined slightly from \$1.2 million in 2011 to \$1.0 million in 2020 (-17%).

Potentially ICT-enabled services exports grew from \$77 million to \$103 million (+35%), supporting 322 direct and 267 indirect jobs in 2020.

Exports of other services grew from \$477 million in 2011 to \$552 million in 2019 (+16%) before collapsing in 2020 due to Covid-19.

**Wyoming's digitally tradeable services exports supported 323 direct and 268 indirect American jobs in 2020.**

Top Markets for Wyoming Digitally Tradeable Services, 2020 (\$M)

Country	ICT	Potential	Total
Europe	\$0	\$50	\$50
Asia & Pacific (ex. China)	\$0	\$21	\$21
North America	\$0	\$12	\$12
China	\$0	\$10	\$10
Central & South America	\$1	\$6	\$7
Middle East & Africa	\$0	\$5	\$5

Europe was Wyoming's top market for digitally tradeable services, followed by Asia & Pacific (ex. China).

Wyoming exports of potentially ICT-enabled services to Ireland grew from \$5 million in 2011 to \$13 million (+165%) in 2020.

The "Digital Dozen" accounted for \$39.6 million out of Wyoming's \$104 million in exports of digitally tradeable services in 2020.

Top Digitally Tradeable Services Exports from Wyoming, 2020 (\$M)

Type (ICT in bold)	Total
Payments for Trademarks	\$39
Misc. Personal, Cultural, and Recreational Services	\$16
Royalties from Industrial Processes	\$12
Business Management and Consulting Services	\$9.6
Implicit Financial Services	\$7.9
Other	\$20

Payments for trademarks are Wyoming's top potentially ICT-enabled services export in 2020, but declined from \$42 million in 2011 to \$39 million in 2020 (-7%).

Telecommunications services are the sole ICT services export, accounting for all of the \$1.0 million in ICT exports in 2020.



U.S. Chamber of Commerce