

# Updated Digital Economy Estimates – June 2021

## Abstract

This report announces new and revised estimates of gross output, value added, employment, and compensation for the digital economy as calculated by the Bureau of Economic Analysis (BEA) for the period 2005–2019. BEA first published digital economy estimates in March 2018 and subsequently published updated estimates in April 2019 and August 2020. The March 2018 estimates represent BEA’s initial efforts to lay the foundation for a digital economy satellite account and were the first set of estimates available within the framework of the national accounts.<sup>1</sup> The latest set of estimates, published here, represent the continued effort to develop a more complete set of estimates. Conceptually, a digital economy satellite account should include all goods and services related to the digital economy. BEA’s measures have iteratively evolved from including only goods and services that are “primarily digital” to expanded coverage of “partially digital” goods and services categories that include a mix of both digital and nondigital goods and services. BEA continues to explore data and methods to expand the coverage of the digital economy measures.

The estimates published in this report and on the BEA website expand the data series to include 2019 and incorporate updated underlying data from the U.S. Census Bureau used in the estimation of e-commerce and cloud services. Moreover, additional detail is provided for priced digital services to give data users more insight into the services that comprise this digital economy category. For the first time, the digital economy estimates are valued in purchasers’ prices, rather than producers’ prices. Purchasers’ prices include wholesale and retail trade margins and transportation costs, as well as sales and excise taxes collected and remitted by producers.<sup>2</sup> The digital economy estimates published to date have included some wholesale and retail trade margins, but only those associated with e-commerce transactions. Lastly, the underlying data used to produce these estimates reflect the revisions made during the 2020 annual update of the BEA Industry Economic Accounts.<sup>3</sup> The estimates published in this report should not be directly compared to estimates in previous BEA digital economy reports.

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<sup>1</sup> Satellite accounts are supplementary statistics that allow analysis of a particular aspect of the economy, such as spending on travel and tourism or on arts and culture. The methods used to produce satellite accounts are consistent with those used for “core” economic accounts.

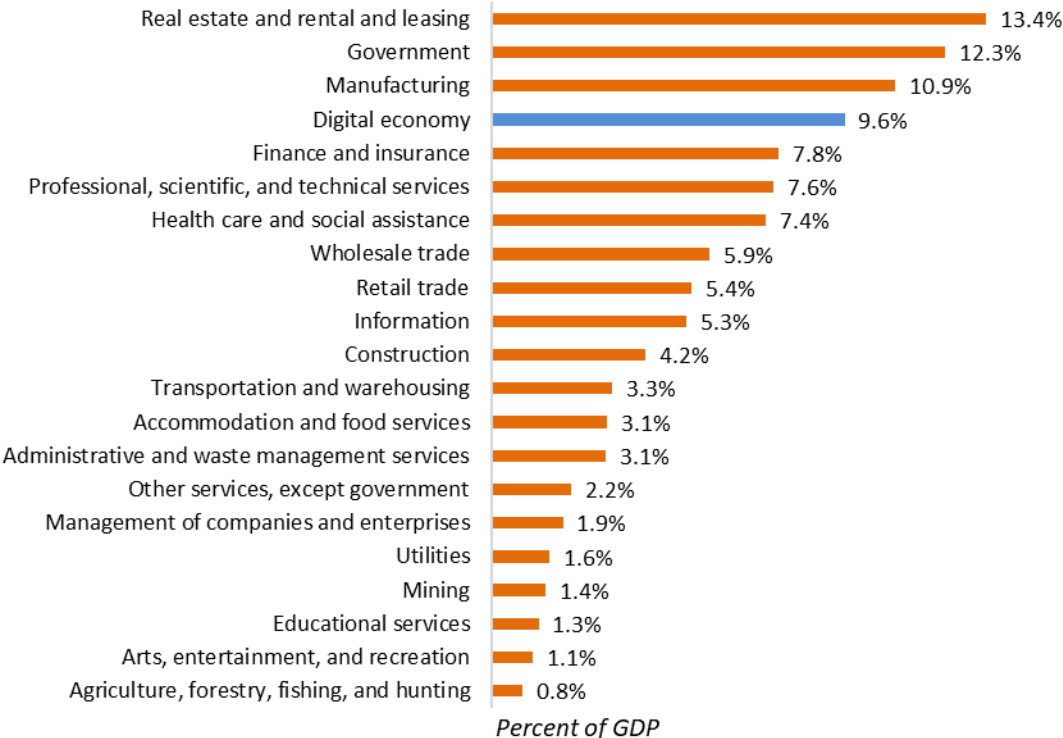
<sup>2</sup> See BEA glossary of terms for more information about [producers’ prices](#).

<sup>3</sup> [The 2020 Annual Update of the Industry Economic Accounts](#), BEA Survey of Current Business, October 2020, Volume 100, Number 10.

# Introduction

The digital economy accounted for 9.6 percent (\$2,051.6 billion) of current-dollar gross domestic product (\$21,433.2 billion) in 2019, according to new estimates from BEA. When compared with traditional U.S. industries or sectors, the digital economy ranked just below the manufacturing sector, which accounted for 10.9 percent (\$2,345.8 billion) of current-dollar gross domestic product (GDP), and above finance and insurance, which accounted for 7.8 percent (\$1,665.8 billion) of current-dollar GDP (chart 1).

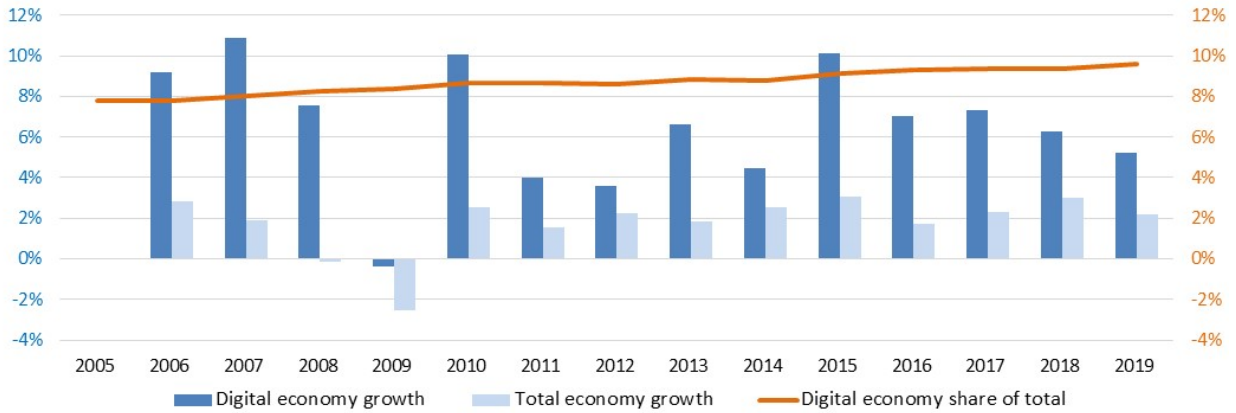
**Chart 1. Digital Economy and Industry Share of Total Gross Domestic Product, 2019**



U.S. Bureau of Economic Analysis

The digital economy expanded its share of the total economy from 2005 to 2019. In 2005, the digital economy accounted for 7.8 percent (\$1,015.8 billion in current dollars) of the overall economy (chart 2). In the 2005-2019 period, the digital economy’s real value added (its inflation-adjusted contribution to U.S. GDP) saw average annual growth of 6.5 percent, compared with the 1.8 percent growth of the total economy. This trend continued in 2019 with the digital economy’s real value added increasing 5.2 percent, compared with 2.2 percent growth for the overall economy.

**Chart 2. Annual Growth and Digital Economy Share of Total Economy**

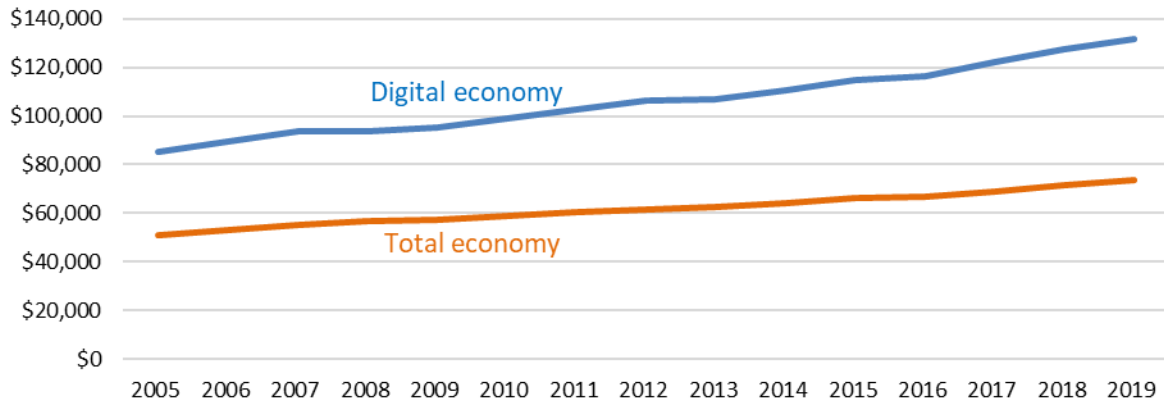


Note: Growth rates are for real (2012 dollars) value added and GDP. The digital economy share of the total economy is calculated using current dollars. U.S. Bureau of Economic Analysis

In 2019, the digital economy supported 7.7 million full- and part-time jobs, or 5.0 percent total employment in the U.S. economy (155.2 million jobs). By industry, the largest numbers of digital economy jobs were in computer systems design and related services (2.1 million), wholesale trade (1.8 million), broadcasting and telecommunications (743,000), and computer and electronic parts manufacturing (683,000).

On average, annual compensation per job in the digital economy equaled \$131,609 in 2019 compared to \$73,665 in the overall economy (chart 3). Over the 2005–2019 period, average compensation grew slightly faster for digital economy workers (3.1 percent average annual rate) than for all workers in the U.S. economy (2.7 percent).

**Chart 3. Digital Economy and Total Economy Average Compensation**



U.S. Bureau of Economic Analysis

To create digital economy estimates, BEA identified specific items, or goods and services categories, within BEA’s supply-use framework relevant to measuring the digital economy. Some items were included in full and others were partially included to reflect that only part of the value of the good or service is considered “digital.” For example, the category “watches” includes items that are both digital and non-digital, so the digital economy estimates would ideally include only the value of the digital watches; currently this item is excluded from the BEA estimates. The Appendix to this report lists the items that are currently included in the BEA digital economy estimates.

BEA used the supply-use framework to identify the industries that produce the identified digital economy goods and services and estimated output, value added, employment, compensation, and other variables for these industries. More information is available in the box “BEA Methodology for Estimating Supply-Use Tables” within this document.

### **BEA Methodology for Estimating Supply-Use Tables**

The supply-use tables are an integral and essential element of the U.S. economic accounts. First, they are the building blocks for other economic accounts. Prominent among these are the BEA's national income and product accounts (NIPAs), which feature the estimates of expenditure-based GDP. Second, the supply-use tables show how industries interact; specifically, they show how industries provide input to, and use output from, each other to produce GDP. They are a complete, balanced set of economic statistics, and they present a full accounting of industry and final-use transactions.

The core of the supply-use tables consists of two basic national-accounting tables—a “supply” table and a “use” table. The supply table shows the commodities that are available for domestic consumption. The use table shows the inputs to industry production (intermediate inputs) and the commodities that final users consume. The use table is the most frequently requested table because of its applications to the estimates of GDP.

BEA uses the North American Industry Classification System (NAICS) to classify industries. The United States, Canada, and Mexico jointly developed this classification system with the aim of improving the comparability of their economic statistics. NAICS classifies industries based on their production processes. The NAICS codes comprise six digits, which reading from left to right, indicate the general sector down to a detailed industry.

The U.S. statistical system does not currently have a separate classification system for commodities, which are groups of similar products defined by the characteristics of the product (commodity) itself rather than by the production process. At present, BEA uses a commodity classification system to assign each commodity the code of the industry in which the commodity is the primary product. The foundation for this commodity classification system is the six-digit NAICS code.

BEA prepares benchmark supply-use tables roughly every five years based on the highest quality source data, notably the U.S. Census Bureau's Economic Censuses. Largely because of their rich source data, the benchmark supply-use tables are the most important statistical source of information for comprehensive updates of the NIPAs and are widely used by other statistical agencies. BEA released the most recent benchmark supply-use tables in 2018. These accounts cover 2012 and use the 2012 NAICS for classification.

## **Digital economy components**

The digital economy is composed of infrastructure, e-commerce, and priced digital services. Each of these components and the status of their inclusion in the BEA estimates is described below.

## Infrastructure

Infrastructure is the basic physical materials and organizational arrangements that support the existence and use of computer networks and the digital economy; this consists primarily of information and communication technology, or ICT, goods and services.<sup>4</sup> Table A describes the subcomponents included in infrastructure and indicates BEA's coverage of each subcomponent in the current digital economy estimates. BEA does not currently calculate the value of digital economy structures but is working to include estimates for this component in the next digital economy update.

**Table A. Infrastructure**

Infrastructure subcomponent	Subcomponent description	Status of inclusion in BEA estimates
Hardware	The manufactured physical elements that constitute a computer system including, but not limited to, monitors, hard drives, and semiconductors. Also includes communications products and audio and visual equipment products.	Included almost comprehensively
Software	The programs and other operating information used by devices such as personal computers and commercial servers, including both commercial software and software developed in-house by firms for their own use.	Included almost comprehensively
Structures	The construction of buildings where digital economy producers create digital economy goods or supply digital economy services. The structures category also includes buildings that provide support services to digital products. This includes the construction of data centers, semiconductor fabrication plants, the installations of fiber optic cables, switches, repeaters, etc.	Not yet included; part of ongoing work

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<sup>4</sup> The BEA ICT sector consists of computer and electronic product manufacturing (excluding navigational, measuring, electromedical, and control instruments manufacturing); software publishers; broadcasting and telecommunications; data processing, hosting, and related services; internet publishing and broadcasting and web search portals; and computer systems design and related services. BEA's definition is generally consistent with the internationally accepted definition of the ICT sector used and developed by the statistical offices of the OECD and the United Nations.

## E-commerce

E-commerce is the remote sale of goods and services over computer networks by methods specifically designed for the purpose of receiving or placing orders. Products purchased through e-commerce are also referred to as “digitally ordered.” E-commerce output is measured as the retail or wholesale trade margin on digitally ordered goods and services sold over the internet or through some other electronic market such as electronic data interchange. The margin is equal to total revenue earned from online sales less the cost of goods sold.

BEA used data from the Census Annual Retail Trade Survey (ARTS) and Annual Wholesale Trade Survey (AWTS) for the years 2005–2019 to estimate gross output related to e-commerce for all retail and wholesale establishments.<sup>5</sup> The proportion of online sales to total sales for each type of retail or wholesale outlet was used to partially include margins for establishments engaged in e-commerce. These ratios are applied to the values of retail and wholesale trade margin items from all outlet types from the BEA industry accounts.<sup>6</sup>

**Table B. E-Commerce**

E-commerce subcomponent	Subcomponent description	Status of inclusion in BEA estimates
Business-to-business (B2B) e-commerce	Purchasing of goods and services between businesses using the internet or other electronic means. Manufacturers, wholesalers, and other industries engage in both interfirm and intrafirm e-commerce to produce goods and services for final consumption.	Goods included almost comprehensively; inclusion of services is part of ongoing work
Business-to-consumer (B2C) e-commerce	The sale of goods and services by businesses to consumers, or retail e-commerce, using the internet or other electronic means.	Goods included almost comprehensively; inclusion of services is part of ongoing work

<sup>5</sup> See Census [Annual Retail Trade Survey](#) and [Annual Wholesale Trade Survey](#).

<sup>6</sup> This assumes that the retail and wholesale trade margins for e-commerce sales are the same as those for brick-and-mortar, or in-store, retail sales. For some outlet types for some years, data are missing, denoted by “D” (estimate withheld to avoid disclosing data of individual companies) or “S” (estimate does not meet publication standards, because of high sampling variability, or coefficient of variation is greater than 30 percent), because of poor response quality (total quantity response rate is less than 50 percent) or other concerns about the estimate's quality; data are included in higher level totals. However, the aggregate annual value of e-commerce is available for all years. In some cases, the partial value is estimated using interpolation or scaling. There was no attempt to estimate ratios for outlet types when there is no data available throughout the series or when the reason for a missing value is denoted as “NA,” not available.

## Priced digital services

Priced digital services relate to computing and communication and are performed for a fee charged to the consumer. Additionally, this category includes services that support the digital economy such as computer repair services and digital consulting services. Some data gaps still exist. For example, the estimates do not include an estimate of online learning services, which are in scope for the digital economy.

Table C describes how priced digital services are captured in the BEA digital economy estimates. For this update, BEA introduced two new priced services categories to provide more insight on the contribution of various digital services to the digital economy. The services included in “telecommunications services” and “internet and data services” were previously captured in the digital economy estimates in the category “all other priced digital services.”

**Table C. Priced Digital Services**

Priced digital services subcomponent	Subcomponent description	Status of inclusion in BEA estimates
Cloud services	Computing services based on a set of computing resources that can be accessed on-demand with low management effort, including remote and distributed hosting, storage, computing, and security services.	Included almost comprehensively
Telecommunications services	Services related to telephony, cable and satellite television, and radio broadcasting. Internet is excluded.	Included almost comprehensively
Internet and data services	Services related to providing internet access and to hosting, searching, retrieving, and streaming content and information on the web.	Partially included; part of ongoing work.
Digital intermediary services	The service of providing information on and successfully matching two independent parties to a transaction via a digital platform in return for an explicit fee. The output of these platforms typically consists of the fees paid by the producer and/or the consumer of the product being intermediated.	Not separately identified; part of ongoing work
All other priced digital services	All other purchased digital services (excluding cloud services, telecommunications services, internet and data services, and digital intermediation services).	Included, but work is ongoing to expand coverage



To estimate the value of cloud services, BEA used Economic Census product line data, Statista’s estimates of cloud services revenue, and BEA data.<sup>7</sup> Cloud services are spread across several BEA item codes that also include non-cloud services. BEA identified Economic Census product lines associated with cloud computing services and used this data to estimate the portion of each relevant item to include in cloud services.<sup>8</sup> In this update, BEA also introduced the latest available product line data from the 2017 Economic Census to improve the estimate of cloud services. The Economic Census is conducted every five years; previously, the latest year for which detailed product line data was available was 2012. BEA relies on Economic Census data for the years 2002, 2007, 2012, and 2017 to calculate estimates for cloud services. For periods between Economic Census years, BEA interpolated to fill in values for both cloud services receipts by industry and total receipts by industry. For 2018 and 2019, BEA used data from Statista’s Technology Market Outlook on U.S. cloud services market revenue to extrapolate the cloud services receipts estimated from the 2017 Economic Census.

BEA has prioritized research efforts to estimate the value of digital intermediary services in a future update of the digital economy estimates. BEA added new questions to its 2019 Benchmark Survey of U.S. Direct Investment Abroad (BE-10) to assist in measuring U.S. multinational enterprises’ digital economy activities.<sup>9</sup> To help measure gross output for priced digital services where data is scarce or lacking, BEA asked respondents for the value of sales derived from the operation of digital intermediary platforms and the provision of cloud computing services, for both U.S. parent companies and their foreign affiliates. In addition, employment and certain costs and expenses related to these services were also collected for U.S. parent companies. Data collection and validation is currently under way and results will help to inform the digital economy estimates. BEA is also investigating additional public and private data sources to supplement the data collected in the BE-10.

Chart 4 shows the share of each digital economy component to overall digital economy current dollar value added over time. There are 14 bars for each component; the first bar represents the annual share for 2005, the second for 2006, and so on. The final bar for each component represents the 2019 value and is labeled.

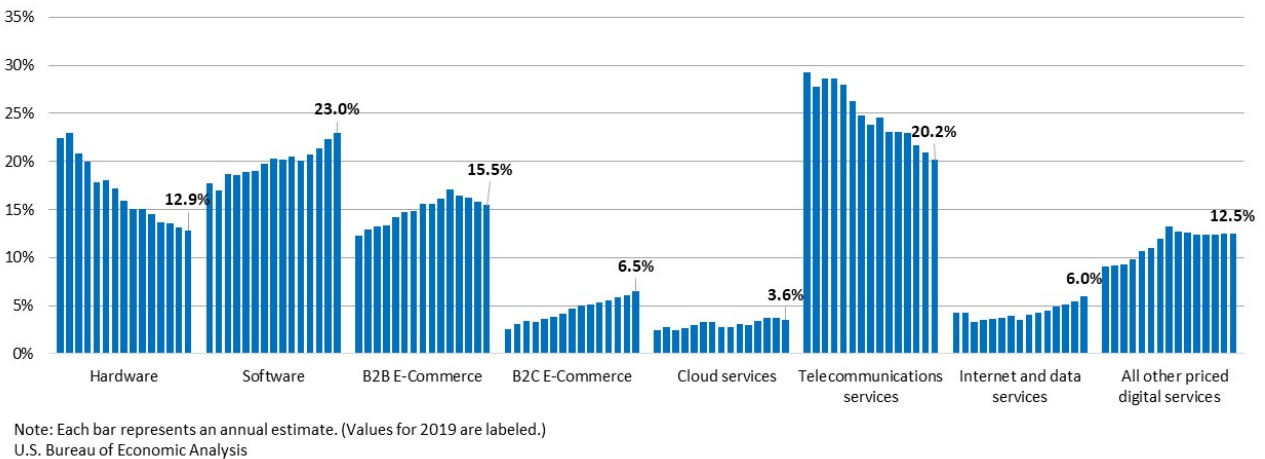
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<sup>7</sup> See Census’ [Economic Census](#) page for more information.

<sup>8</sup> For information on the specific product lines identified for cloud services, see Nicholson, J. [New Digital Economy Estimates](#), Bureau of Economic Analysis, August 2020.

<sup>9</sup> BEA Benchmark Survey of U.S. Direct Investment Abroad (BE-10): <https://www.bea.gov/be10>.

**Chart 4. Component Share of Digital Economy Current Dollar Value Added, 2005–2019**



As expected, the shares of hardware and telecommunications services have decreased over time as prices for these items have declined with technological change and as other digital economy components that rely on newer technology have grown. In 2005, telecommunications services accounted for nearly a third of all digital economy current dollar value added. This share decreased steadily to 20.2 percent by 2019. Overall trends in software, e-commerce, and internet and data services show increasing shares. In 2019, software accounted for 23.0 percent of current dollar value added compared to 17.7 percent in 2005.

## Conclusion

The full set of [digital economy estimates](#) is available on BEA’s website. BEA is actively working to develop methodology for estimating digital intermediary services and structures to provide a more complete set of estimates in a future update. Feedback and questions on the estimates can be sent to [DigitalEconomy@bea.gov](mailto:DigitalEconomy@bea.gov).

## Appendix. BEA Items Included in the Digital Economy Estimates

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
1	333242	Semiconductor manufacturing equipment	Fully	Fully							
2	333242	Semiconductor manufacturing equipment parts	Fully	Fully							
3	33329N	Digital electronic prepress systems, components, and elements, including color and black and white scanners, digitizers, and recorder	Fully	Fully							
4	33399P	Other general-purpose machinery manufacturing, not elsewhere classified Repair Work	Fully	Fully							
5	334111	Host computers, multiusers (mainframes, super computers, medium scale systems, UNIX servers, PC servers)	Fully	Fully							
6	334111	Single user computers, microprocessor-based, capable of supporting attached peripherals (personal computers, workstations, portable computers)	Fully	Fully							
7	334111	Other computers, including array and other analog, hybrid, and special purpose	Fully	Fully							
8	334111	Electronic computers not specified by kind, total	Fully	Fully							
9	334112	Computer storage devices (except parts, attachments, and accessories)	Fully	Fully							
10	334112	Parts, attachments, and accessories for computer storage devices	Fully	Fully							
11	334112	Computer storage device, not specified by kind, total	Fully	Fully							
12	334113	Input devices, all types	Fully	Fully							
13	334113	Impact printers	Fully	Fully							
14	334113	Nonimpact printers	Fully	Fully							
15	334113	Digital cameras	Fully	Fully							
16	334113	Optical scanning devices	Fully	Fully							
17	334113	Monitors, accessories, and other peripheral equipment	Fully	Fully							
18	334113	Parts, attachments, and accessories for computer peripheral (input-output) equipment	Fully	Fully							
19	334113	Point-of-sale terminals and funds-transfer devices	Fully	Fully							
20	334113	Parts and attachments for point of sale terminals and fund-transfer devices	Fully	Fully							
21	334113	Other computer peripheral equipment, not specified by kind, total	Fully	Fully							
22	334118	Computer terminals (excl. parts/attachments/accessories/etc.)	Fully	Fully							
23	334118	Parts, attachments, and accessories for computer terminals (except point-of-sale and funds-transfer devices)	Fully	Fully							
24	334118	Computer terminals, not specified by kind, total	Fully	Fully							
25	334210	Parts, components, and subassemblies for telephone switching equipment	Fully	Fully							
26	334210	Telephone switching equipment	Fully	Fully							
27	334210	Carrier line equipment & nonconsumer modems	Fully	Fully							
28	334210	Parts, components, and subassemblies for other telephone and telegraph equipment	Fully	Fully							
29	334210	Telephone sets, including wireless phone sets, excluding cell phones	Fully	Fully							
30	334210	Wireline voice equipment	Fully	Fully							
31	334210	Data communications equipment (including routers, gateways, bridges, terminal servers, and concentrators)	Fully	Fully							
32	334210	Telephone apparatus, not specified by kind	Fully	Fully							
33	334220	Other communication systems and equipment	Fully	Fully							
34	334220	Broadcast, studio parts and accessories	Fully	Fully							
35	334220	Broadcast, studio, and related electronic equipment	Fully	Fully							
36	334220	Cellular handsets (cell phones)	Fully	Fully							
37	334220	Wireless networking equipment	Fully	Fully							
38	334220	Radio station equipment including satellite, airborne and earth-based (fixed and mobile)	Fully	Fully							
39	334220	Antenna systems, sold separately	Fully	Fully							
40	334220	Radio and TV broadcasting and wireless communications equipment, not specified by kind	Fully	Fully							

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
41	334290	Alarm systems, including electric sirens and horns	Fully	Fully							
42	334290	Vehicular and pedestrian traffic control equipment, including electric railway signals and attachments	Fully	Fully							
43	334290	Intercommunications systems, including inductive paging systems (selective paging), except telephone and telegraph	Fully	Fully							
44	334290	Other communications equipment, not specified by kind	Fully	Fully							
45	334310	Home, portable, and automobile radios and radio-phonograph-tape recorder-compact disc combinations	Fully	Fully							
46	334310	Television receivers, including combination models	Fully	Fully							
47	334310	Public address systems, including musical instrument amplifiers	Fully	Fully							
48	334310	Speakers, including loudspeakers systems and loudspeakers sold separately, and commercial sound equipment	Fully	Fully							
49	334310	Consumer audio and video equipment, including audio and video recorders and players (camcorders) and power amplifiers, including preamplifiers	Fully	Fully							
50	334310	Audio and video equipment, not specified by kind, total	Fully	Fully							
51	334412	Bare printed circuit board manufacturing	Fully	Fully							
52	334413	Semiconductor and related device manufacturing	Fully	Fully							
53	334416	Capacitors for electronic circuitry	Fully	Fully							
54	334416	Resistors for electronic circuitry	Fully	Fully							
55	334416	Electronic coils, transformers, and other inductors	Fully	Fully							
56	334417	Electronic connectors	Fully	Fully							
57	334418	External modems, consumer	Fully	Fully							
58	334418	Printed circuit assemblies, loaded boards and modules (printed circuit boards with inserted electronic components)	Fully	Fully							
59	334418	Printed circuit assembly (electronic assembly), not specified by kind, total	Fully	Fully							
60	334419	Electron tubes and parts, excluding glass blanks	Fully	Fully							
61	334419	Other electronic component manufacturing	Fully	Fully							
62	334611	Software reproducing	Fully	Fully							
63	334612	Reproduction of audio discs, records, & compact discs	Fully	Fully							
64	334612	Reproduction of recording media, not specified by kind	Fully	Fully							
65	334612	Audio discs, records, and compact discs (CD), full-length	Fully	Fully							
66	334612	Audio tapes, cassette, full-length	Fully	Fully							
67	334612	Reproduction of video recording media	Fully	Fully							
68	334612	Reproduction of audio tapes	Fully	Fully							
69	334613	Magnetic tape	Fully	Fully							
70	334613	Optical disks	Fully	Fully							
71	334613	Rigid magnetic disks	Fully	Fully							
72	334613	Flexible magnetic discs and other recording media, including parts	Fully	Fully							
73	33592M	Fiber optic cable for communication, not specified by kind, total	Fully	Fully							
74	33592M	Fiber optic cable, communication applications	Fully	Fully							
75	33592M	Fiber optic cable, all other applications	Fully	Fully							
76	33592M	Power wire and cable, made from nonferrous metals (purchased wire)	Fully	Fully							
77	33592M	Electronic wire and cable, made of nonferrous metals (purchased wire)	Fully	Fully							
78	33592M	Telephone and telegraph wire and cable, made of nonferrous metals (purchased wire)	Fully	Fully							
79	33592M	Other communication and energy wires, not specified by kind, total	Fully	Fully							
80	335999	Semiconductor battery chargers, automotive	Fully	Fully							

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services				
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services	
81	335999	Semiconductor battery chargers, industrial and railroad	Fully	Fully								
82	335999	Semiconductor high-voltage power supplies in excess of 2 kV	Fully	Fully								
83	335999	All other AC to DC semiconductor power conversion and rectifying apparatus (except for electronic circuitry)	Fully	Fully								
84	339930	Other electronic toys and games, including home video games (excluding cartridges, disks, and tapes)	Fully	Fully								
85	423100	Wholesale trade margin, Automobile and Other Motor Vehicle	Partially			Partially						
86	423100	Wholesale trade margin, Motor Vehicle Supplies and New Parts	Partially			Partially						
87	423100	Wholesale trade margin, Tire and Tube	Partially			Partially						
88	423100	Wholesale trade margin, Motor Vehicle Parts (Used)	Partially			Partially						
89	423200	Wholesale trade margin, Furniture	Partially			Partially						
90	423200	Wholesale trade margin, Home Furnishing	Partially			Partially						
91	423300	Wholesale trade margin, Lumber, Plywood, Millwork, and Wood Panel	Partially			Partially						
92	423300	Wholesale trade margin, Brick, Stone, and Related Construction Material	Partially			Partially						
93	423300	Wholesale trade margin, Roofing, Siding, and Insulation Material	Partially			Partially						
94	423300	Wholesale trade margin, Other Construction Material	Partially			Partially						
95	423400	Wholesale trade margin, Photographic Equipment and Supplies	Partially			Partially						
96	423400	Wholesale trade margin, Office Equipment	Partially			Partially						
97	423400	Wholesale trade margin, Computer and Computer Peripheral Equipment and Software	Partially			Partially						
98	423400	Wholesale trade margin, Other Commercial Equipment	Partially			Partially						
99	423400	Wholesale trade margin, Medical, Dental, and Hospital Equipment and Supplies	Partially			Partially						
100	423400	Wholesale trade margin, Ophthalmic Goods	Partially			Partially						
101	423400	Wholesale trade margin, Other Professional Equipment and Supplies	Partially			Partially						
102	423500	Wholesale trade margin, Metal Service Centers and Other Metal	Partially			Partially						
103	423500	Wholesale trade margin, Coal and Other Mineral and Ore	Partially			Partially						
104	423600	Wholesale trade margin, Electrical Apparatus and Equipment, Wiring Supplies, and Related Equipment	Partially			Partially						
105	423600	Wholesale trade margin, Household Appliances, Electric Housewares, and Consumer Electronics	Partially			Partially						
106	423600	Wholesale trade margin, Other Electronic Parts and Equipment	Partially			Partially						
107	423700	Wholesale trade margin, Hardware	Partially			Partially						
108	423700	Wholesale trade margin, Plumbing and Heating Equipment and Supplies (Hydronics)	Partially			Partially						
109	423700	Wholesale trade margin, Warm Air Heating and Air-Conditioning Equipment and Supplies	Partially			Partially						
110	423700	Wholesale trade margin, Refrigeration Equipment and Supplies	Partially			Partially						
111	423800	Wholesale trade margin, Construction and Mining (except Oil Well) Machinery and Equipment	Partially			Partially						
112	423800	Wholesale trade margin, Farm and Garden Machinery and Equipment	Partially			Partially						
113	423800	Wholesale trade margin, Industrial Machinery and Equipment	Partially			Partially						
114	423800	Wholesale trade margin, Industrial Supplies	Partially			Partially						
115	423800	Wholesale trade margin, Service Establishment Equipment and Supplies	Partially			Partially						
116	423800	Wholesale trade margin, Transportation Equipment and Supplies (except Motor Vehicle)	Partially			Partially						
117	423900	Wholesale trade margin, Sporting and Recreational Goods and Supplies	Partially			Partially						
118	423900	Wholesale trade margin, Toy and Hobby Goods and Supplies	Partially			Partially						
119	423900	Wholesale trade margin, Recyclable Material	Partially			Partially						
120	423900	Wholesale trade margin, Jewelry, Watch, Precious Stone, and Precious Metal	Partially			Partially						

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
121	423900	Wholesale trade margin, Other Miscellaneous Durable Goods	Partially			Partially					
122	424100	Wholesale trade margin, Printing and Writing Paper	Partially			Partially					
123	424100	Wholesale trade margin, Stationery and Office Supplies	Partially			Partially					
124	424100	Wholesale trade margin, Industrial and Personal Service Paper	Partially			Partially					
125	424200	Wholesale trade margin, Drugs and Druggists' Sundries	Partially			Partially					
126	424300	Wholesale trade margin, Piece Goods, Notions, and Other Dry Goods	Partially			Partially					
127	424300	Wholesale trade margin, Men's and Boys' Clothing and Furnishings	Partially			Partially					
128	424300	Wholesale trade margin, Women's, Children's, and Infants' Clothing and Accessories	Partially			Partially					
129	424300	Wholesale trade margin, Footwear	Partially			Partially					
130	424400	Wholesale trade margin, General Line Grocery	Partially			Partially					
131	424400	Wholesale trade margin, Packaged Frozen Food	Partially			Partially					
132	424400	Wholesale trade margin, Dairy Product (except Dried or Canned)	Partially			Partially					
133	424400	Wholesale trade margin, Poultry and Poultry Product	Partially			Partially					
134	424400	Wholesale trade margin, Confectionery	Partially			Partially					
135	424400	Wholesale trade margin, Fish and Seafood	Partially			Partially					
136	424400	Wholesale trade margin, Meat and Meat Product	Partially			Partially					
137	424400	Wholesale trade margin, Fresh Fruit and Vegetable	Partially			Partially					
138	424400	Wholesale trade margin, Other Grocery and Related Products	Partially			Partially					
139	424500	Wholesale trade margin, Grain and Field Bean	Partially			Partially					
140	424500	Wholesale trade margin, Livestock	Partially			Partially					
141	424500	Wholesale trade margin, Other Farm Product Raw Material	Partially			Partially					
142	424600	Wholesale trade margin, Plastics Materials and Basic Forms and Shapes	Partially			Partially					
143	424600	Wholesale trade margin, Other Chemical and Allied Products	Partially			Partially					
144	424700	Wholesale trade margin, Petroleum Bulk Stations and Terminals	Partially			Partially					
145	424700	Wholesale trade margin, Petroleum and Petroleum Products (except Bulk Stations and Terminals)	Partially			Partially					
146	424800	Wholesale trade margin, Beer and Ale	Partially			Partially					
147	424800	Wholesale trade margin, Wine and Distilled Alcoholic Beverage	Partially			Partially					
148	424900	Wholesale trade margin, Farm Supplies	Partially			Partially					
149	424900	Wholesale trade margin, Book, Periodical, and Newspaper	Partially			Partially					
150	424900	Wholesale trade margin, Flower, Nursery Stock, and Florists' Supplies	Partially			Partially					
151	424900	Wholesale trade margin, Tobacco and Tobacco Product	Partially			Partially					
152	424900	Wholesale trade margin, Paint, Varnish, and Supplies	Partially			Partially					
153	424900	Wholesale trade margin, Other Miscellaneous Nondurable Goods	Partially			Partially					
154	425110	Wholesale trade margin output, Business to Business Electronic Markets	Fully			Fully					
155	425110	Wholesale trade nonmargin output, Business to Business Electronic Markets	Fully			Fully					
156	441110	Retail Trade Margin, New Car Dealers	Partially				Partially				
157	441120	Retail Trade Margin, Used Car Dealers	Partially				Partially				
158	441210	Retail Trade Margin, Recreational Vehicle Dealers	Partially				Partially				
159	441222	Retail Trade Margin, Boat Dealers	Partially				Partially				
160	441228	Retail Trade Margin, Motorcycle, ATV, and All Other Motor Vehicle Dealers	Partially				Partially				
161	441310	Retail Trade Margin, Automotive Parts and Accessories Stores	Partially				Partially				
162	441320	Retail Trade Margin, Tire Dealers	Partially				Partially				
163	442110	Retail Trade Margin, Furniture Stores	Partially				Partially				
164	442210	Retail Trade Margin, Floor Covering Stores	Partially				Partially				
165	442290	Retail Trade Margin, Window Treatment Stores	Partially				Partially				
166	442290	Retail Trade Margin, All Other Home Furnishings Stores	Partially				Partially				
167	443141	Retail Trade Margin, Household Appliance Stores	Partially				Partially				
168	443142	Retail Trade Margin, Electronics Stores	Partially				Partially				
169	444110	Retail Trade Margin, Home Centers	Partially				Partially				
170	444120	Retail Trade Margin, Paint and Wallpaper Stores	Partially				Partially				

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
171	444130	Retail Trade Margin, Hardware Stores	Partially				Partially				
172	444190	Retail Trade Margin, Other Building Material Dealers	Partially				Partially				
173	444210	Retail Trade Margin, Outdoor Power Equipment Stores	Partially				Partially				
174	444220	Retail Trade Margin, Nursery, Garden Center, and Farm Supply Stores	Partially				Partially				
175	445100	Retail Trade Margin, Supermarkets and Other Grocery (except Convenience) Stores	Partially				Partially				
176	445100	Retail Trade Margin, Convenience Stores	Partially				Partially				
177	445210	Retail Trade Margin, Meat Markets	Partially				Partially				
178	445220	Retail Trade Margin, Fish and Seafood Markets	Partially				Partially				
179	445230	Retail Trade Margin, Fruit and Vegetable Markets	Partially				Partially				
180	445291	Retail Trade Margin, Baked Goods Stores	Partially				Partially				
181	445292	Retail Trade Margin, Confectionery and Nut Stores	Partially				Partially				
182	445299	Retail Trade Margin, All Other Specialty Food Stores	Partially				Partially				
183	445310	Retail Trade Margin, Beer, Wine, and Liquor Stores	Partially				Partially				
184	446110	Retail Trade Margin, Pharmacies and Drug Stores	Partially				Partially				
185	446120	Retail Trade Margin, Cosmetics, Beauty Supplies, and Perfume Stores	Partially				Partially				
186	446130	Retail Trade Margin, Optical Goods Stores	Partially				Partially				
187	446190	Retail Trade Margin, Food (Health) Supplement Stores	Partially				Partially				
188	446190	Retail Trade Margin, All Other Health and Personal Care Stores	Partially				Partially				
189	448110	Retail Trade Margin, Men's Clothing Stores	Partially				Partially				
190	448120	Retail Trade Margin, Women's Clothing Stores	Partially				Partially				
191	448130	Retail Trade Margin, Children's and Infants' Clothing Stores	Partially				Partially				
192	448140	Retail Trade Margin, Family Clothing Stores	Partially				Partially				
193	448159	Retail Trade Margin, Clothing Accessories Stores	Partially				Partially				
194	448159	Retail Trade Margin, Other Clothing Stores	Partially				Partially				
195	448210	Retail Trade Margin, Shoe Stores	Partially				Partially				
196	448310	Retail Trade Margin, Jewelry Stores	Partially				Partially				
197	448320	Retail Trade Margin, Luggage and Leather Goods Stores	Partially				Partially				
198	44XXXX	Retail trade margin--secondary production of another industry	Partially				Partially				
199	451110	Retail Trade Margin, Sporting Goods Stores	Partially				Partially				
200	451120	Retail Trade Margin, Hobby, Toy, and Game Stores	Partially				Partially				
201	451130	Retail Trade Margin, Sewing, Needlework, and Piece Goods Stores	Partially				Partially				
202	451140	Retail Trade Margin, Musical Instrument and Supplies Stores	Partially				Partially				
203	451210	Retail Trade Margin, Book Stores	Partially				Partially				
204	451210	Retail Trade Margin, News Dealers and Newsstands	Partially				Partially				
205	452111	Retail Trade Margin, Department Stores (except Discount Department Stores)	Partially				Partially				
206	452112	Retail Trade Margin, Discount Department Stores	Partially				Partially				
207	452910	Retail Trade Margin, Warehouse Clubs and Supercenters	Partially				Partially				
208	452990	Retail Trade Margin, All Other General Merchandise Stores	Partially				Partially				
209	453110	Retail Trade Margin, Florists	Partially				Partially				
210	453210	Retail Trade Margin, Office Supplies and Stationery Stores	Partially				Partially				
211	453220	Retail Trade Margin, Gift, Novelty, and Souvenir Stores	Partially				Partially				
212	453310	Retail Trade Margin, Used Merchandise Stores	Partially				Partially				
213	453910	Retail Trade Margin, Pet and Pet Supplies Stores	Partially				Partially				
214	453920	Retail Trade Margin, Art Dealers	Partially				Partially				
215	453930	Retail Trade Margin, Manufactured (Mobile) Home Dealers	Partially				Partially				
216	453991	Retail Trade Margin, Tobacco Stores	Partially				Partially				
217	453998	Retail Trade Margin, All Other Miscellaneous Store Retailers (except Tobacco Stores)	Partially				Partially				

Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
218	454111	Retail Trade Margin, Electronic Shopping	Fully				Fully				
219	454112	Non-margin retail trade, Electronic Auctions	Fully				Fully				
220	454390	Retail Trade Margin, Other Direct Selling Establishments	Partially				Partially				
221	511210	Application software publishing (other than games)	Fully	Partially				Partially			
222	511210	System software publishing	Fully	Partially				Partially			
223	511210	Game software publishing	Fully	Partially				Partially			
224	511210	Software related technical support services	Fully	Partially				Partially			
225	511210	Licensing of rights to reproduce & distribute computer software	Fully	Partially				Partially			
226	511210	Inventory change for software publishers	Fully	Partially				Partially			
227	512110	Audiovisual works sold directly to the consumer, including digital downloads	Fully							Fully	
228	512110	Licensing of rights to distribute, exhibit, broadcast, or rent audiovisual works and licensing of rights for merchandising, use of concepts, and other uses of audiovisual works	Fully						Fully		
229	515110	Air-time sales for the broadcasting of radio program content	Fully						Fully		
230	515110	Licensing of rights to broadcast radio programs	Fully						Fully		
231	515120	Air-time sales for the broadcasting of television program content	Fully						Fully		
232	515120	Licensing of rights to broadcast television programs	Fully						Fully		
233	515120	Public and non-commercial programming services - TV (includes contributions, gifts, and grants)	Fully						Fully		
234	515210	Licensing of rights to distribute specialty television or audio programming content	Fully						Fully		
235	517110	Broadband (always on) internet access services	Fully							Fully	
236	517110	Basic fixed local telephony (other than telecom resellers) - (Includes subscriber line and calling feature charges)	Fully						Fully		
237	517110	Internet telephony	Fully						Fully		
238	517110	Force account, telephone equipment installation	Fully						Fully		
239	517110	Basic fixed long distance and all distance telephony (other than telecom resellers)	Fully						Fully		
240	517110	Licensing of rights to use intellectual property of wired telecom carriers	Fully						Fully		
241	517110	Multichannel programming distribution services (analog and digital) (includes startup and reconnect fees)	Fully						Fully		
242	517110	Private network services (other than satellite telecom)	Fully						Fully		
243	517110	Carrier services (other than satellite telecom) - (Includes network access and Internet backbone services)	Fully						Fully		
244	517210	Mobile local, all distance and long distance telephony (other than telecom resellers) - (Includes mobile telephony calling feature charges)	Fully						Fully		
245	517210	Licensing of rights to use intellectual property of wireless telecom carriers	Fully						Fully		
246	517210	Paging, mobile dispatch, and specialized wireless services	Fully						Fully		
247	517410	Satellite telecommunications services - (includes carrier services and private network services of satellite telecommunications)	Fully						Fully		
248	517911	Basic fixed local telephony (provided by telecommunications resellers) - (Includes subscriber line and calling feature charges)	Fully						Fully		
249	517911	Basic fixed long distance and all distance telephony (provided by telecommunications resellers)	Fully						Fully		
250	517911	Licensing of rights to use intellectual property of telecom resellers	Fully						Fully		
251	517911	Mobile telephony services (provided by telecommunications resellers) - (Includes mobile telephony calling feature charges)	Fully						Fully		
252	517919	Licensing of rights to use intellectual property of all other telecommunications	Fully						Fully		
253	517919	Narrowband (dial-up) internet access services and other telecommunications services	Fully							Fully	
254	518210	Business process management services (includes provision of facility)	Fully					Partially		Partially	
255	518210	Application service provisioning, website hosting, and other IT infrastructure provisioning services (includes collocation and streaming services)	Fully					Partially		Partially	
256	518210	Data management, processing, storage, and information and document transformation services	Fully					Partially		Partially	
257	51821A	Auxiliary Data Processing Services	Fully					Partially		Partially	
258	519130	Internet publishing & broadcasting - subscriptions & sales	Fully					Partially		Partially	



Count	BEA NAICS-Based Item Code Category	Item Description	Digital economy	Infrastructure		E-Commerce		Priced Digital Services			
				Hardware	Software	B2B	B2C	Cloud services	Telecommunications services	Internet and data services	Other priced digital services
259	519130	Licensing of rights to use intellectual property of internet publishers and broadcasters	Fully					Partially		Partially	
260	541410	Interior Design Services (except Sales of Products)	Partially					Partially			
261	541410	Sales of Products Specified as Part of an Integrated Interior Design Service	Partially					Partially			
262	541420	Industrial Design Services	Partially					Partially			
263	541430	Graphic Design Services	Partially					Partially			
264	541490	Other Specialized Design Services	Partially					Partially			
265	541511	Own-account software	Fully	Partially				Partially			
266	541511	Custom Computer Programming	Fully	Partially				Partially			
267	541512	Computer Systems Design Services	Fully					Partially			Partially
268	541513	Computer Facilities Management Services	Fully					Partially			Partially
269	541519	Other Computer Related Services	Fully					Partially			Partially
270	54170A	For sale auxiliary scientific research and development semiconductor and other electronic component manufacturing	Fully	Fully							
271	54170A	For sale auxiliary scientific research and development (taxable) other computer & electric product manufacturing	Fully	Fully							
272	54170N	For sale academic scientific research and development (tax exempt) semiconductor and other electronic component manufacturing	Fully	Fully							
273	54170N	For sale academic scientific research and development (tax exempt) other computer & electric product manufacturing	Fully	Fully							
274	54170N	For sale scientific research and development (tax exempt) semiconductor and other electronic component manufacturing	Fully	Fully							
275	54170N	For sale scientific research and development (tax exempt) other computer & electric product manufacturing	Fully	Fully							
276	54170P	For sale scientific research and development (taxable) semiconductor and other electronic component manufacturing	Fully	Fully							
277	54170P	For sale scientific research and development (taxable) other computer & electric product manufacturing	Fully	Fully							
278	54170P	Own account scientific research and development (taxable) semiconductor and other electronic component manufacturing	Fully	Fully							
279	54170P	Own account scientific research and development (taxable) other computer & electric product manufacturing	Fully	Fully							
280	61142N	Expenses of Computer training schools (tax exempt)	Fully								Fully
281	61142N	Tax exempt receipts from sales of Computer training schools (tax exempt)	Fully								Fully
282	61142P	Computer training schools (taxable)	Fully								Fully
283	61142P	Outright sale of original works of intellectual property of Computer training schools(taxable) (taxable)	Fully								Fully
284	61142P	Licensing of rights to use intellectual property of Computer training schools(taxable)	Fully								Fully
285	61159P	Other technical & trade schools (taxable)	Fully								Fully
286	811210	Consumer electronics repair and maintenance	Fully								Fully
287	811210	Computer & office machine repair & maintenance	Fully								Fully
288	811210	Communications equipment repair and maintenance	Fully								Fully
289	961100	Used computer hardware, software, and supplies	Fully	Fully							
290	961100	Used computing equipment	Fully	Fully							
291	962000	Used tvs	Fully	Fully							
292	962000	Used communication equipment	Fully	Fully							