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Fair Use in the U.S. Economy 2025 Edition

Economic Contribution of Industries Relying on Fair Use

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EXECUTIVE SUMMARY

In 2007, CCIA released a report prepared by Capital Trade, Inc. that was the first comprehensive study quantifying the U.S. economic contribution of industries relying on fair use and related legal provisions. The current report is the fifth edition of the size and performance of the fair use economy.

This study finds that in 2023, value added by fair use industries was 18 percent of the U.S. economy, employing 1 in 7 U.S. workers, and contributing $4.9 trillion to U.S. GDP. From 2017 to 2023, the real output of these primary core industries accounted for 15.7 percent of real GDP growth. The sectors experiencing the most rapid growth in value added from 2017 to 2023 reflect the growth in Internet-related sectors, including e-commerce and data processing, hosting, and related services. The economic contributions of artificial intelligence, the development of which relies on copyright limitations and exceptions including fair use, was also substantial by all measures, particularly for revenue and value added.

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The U.S. has developed one of the strongest and most innovation-friendly copyright systems in the world — including a balance of both strong enforcement mechanisms to prevent infringement, and strong limitations and exceptions to copyright protection that have become a major catalyst of U.S. economic growth and jobs. A range of exceptions to copyright protection under U.S. law, classified here under the broad heading of "fair use,"[1] sustain many industries and stimulate growth across the economy. Companies leveraging fair use generate substantial revenue, employ millions of workers, and represent nearly one-fifth of total U.S. GDP.

The beneficiaries of fair use include a broad range of companies, particularly as more U.S. businesses rely on activities that involve the Internet to grow and reach their customers. The ubiquity of the Internet and Internet-enabled services means that the economic growth fostered by fair use is widespread and generates significant consumer benefits. The development of generative AI, and AI in general, is anticipated to have a significant impact across many industries.

Examples of fair use industries include:

- manufacturers of consumer devices that allow individual copying and recording — Fair use allows browser copies, buffer copies, and space shifting on consumer electronic devices such as smart phones and smart TVs.

1 Thomas Rogers and Andrew Szamosszegi, *Economic Contribution of Industries Relying on Fair Use*, (2007 edition) at 16 and Appendix III. The relevant fair use provisions include 17 U.S.C. §§ 102(a), 102(b), 105, 107, 108, 109, 110, 112, 114, 117, 302-304, 512, and the "substantial non-infringing uses" principle from the *Betamax* case.

- software developers — Software developers benefit from the non-copyrightability of interface specifications, fair use through reverse engineering, and the ability to make back-up and essential step copies.
- cloud-based services and data centers — Fair use allows cloud service providers to make copies and create backups of copyrighted materials that have been uploaded by users.
- Internet search and web hosting providers — Fair use enables search engines and web hosting providers to index, cache, and host copyrighted materials without infringing copyright.
- educational institutions — Various educational activities are facilitated by provisions such as non-copyrightability of facts, idea/expression dichotomy, and criticism/comment on copyrighted materials when teaching.

These industries and others that depend upon fair use and related limitations and exceptions are referred to here as "fair use industries." A subset of these fair use industries, consisting of industries that produce goods and services whose activities depend in large measure on the existence of limitations and exceptions provided in U.S. copyright law, are referred to as "core fair use industries." See Appendix I for the list of core fair use industries and Appendix II for the list of "non-core" fair use industries. As summarized in the following report, core activities to the modern economy rely on fair use in situations that are integral to many industries. Copyright law and decades of case law building on a broader literature have established, for example, that fair use permits the main service provided by search engines, that software development depends on making temporary copies to facilitate the programming of interoperability, and that consumers can make copies of television and radio programming for personal use.

Fair use industries have grown dramatically within the past 20 years, and their growth has had a profound impact on the U.S. economy, while opening up new opportunities for creators.

This report contains detailed data organized by industry and summarizes economic activity and growth in five areas:

Revenue — The revenues generated by fair use industries expanded by $3.2 trillion, or 6.6 percent annually, from 2017 to 2023, reaching $10.2 trillion in 2023. In absolute terms, the most significant growth over this six-year period occurred in e-commerce.[2] Industries including Internet

2 E-commerce is enabled by fair use precedent that allows the copying required for key Internet functionalities such as browser, cache copies and search. It is also dependent, among other things, on other limitations and exceptions like ISP safe harbors, non-copyrightability of interface specifications, and backup and essential step copies.

publishing and broadcasting and web search portals, research and development, computing infrastructure, and web hosting also grew sharply.

Value Added — In 2023, value added by all fair use industries was $4.9 trillion, approximately 18 percent of total U.S. current dollar GDP. Value added equals a firm's total output minus its purchases of intermediate inputs and is the best measurement of an industry's economic contribution to national GDP. The subset of core fair use industries also grew at a faster pace than the overall economy. This subset of industries accounts for approximately 12 percent of the U.S. economy. However, in real terms, the core industries contributed 15.7 percent of real GDP growth from 2017 to 2023.

Employment — Employment in industries benefiting from fair use and related limitations and exceptions reached 22 million workers by 2023, adding 2.5 million workers since 2017. About one out of every seven workers in the United States is employed in an industry that benefits from these protections.

Payrolls — Further illustrating the rapid growth of fair use industries, total payrolls expanded rapidly, rising from $1.7 trillion in 2017 to $2.5 trillion during 2023, an increase of 46 percent.

Productivity — Productivity, the amount of goods and services that can be produced with a given number of inputs, is the foundation for rising living standards. From 2017 to 2023, the labor productivity of U.S. fair use industries increased by 3.7 percent annually to approximately $220,000 per worker. These returns benefit both labor and capital, demonstrating why employees and investors continue to be attracted to these industries.

Exports — Exports of goods and services related to fair use industries increased by 33 percent from $397 billion in 2017 to $530 billion in 2023 driven by increases in service-sector exports. The U.S. economy benefits from a substantial trade surplus attributable to fair use services industries.

The study also estimated the revenues, value added, employment, and payroll for fair use industries that benefit from artificial intelligence (AI). In each indicator, the combined core AI industries experienced more rapid growth rates than the core, non-core, and total fair use industries.

In sum, fair use industries have continued to expand sharply, driven primarily by the industries that rely most on fair use and other limitations and exceptions to copyright.

PART I: THE SIGNIFICANCE OF BALANCED, FLEXIBLE COPYRIGHT TO THE U.S. ECONOMY

One consequence of the transition to a digital economy is that copyright law now regulates many aspects of daily human activity. Nearly any fixed communication is potentially subject to copyright, and nearly any modern technology is potentially capable of copyright infringement.

As a result, the scope of copyright regulation has grown. Whereas copyright was once thought to be relevant only to a discrete set of "content" publishing industries, it now bears on activities of a substantial part of the U.S. economy, many that are far removed from content production. Business communications, interactions with digital information, and the routine use of personal technology may all be regulated by copyright regardless of the industry in which they occur.

Copyright limitations and exceptions like fair use respond to this new reality by ensuring that industrial policy designed to promote commercial content production does not overwhelm other aspects of the economy, prevent the production of other products and services, and ultimately cause aggregate economic harm. Industries which rely on limitations and exceptions to copyright like fair use for freedom to operate have expanded considerably now that digital technology permeates the economy. These industries are referred to as the "fair use economy." As the following research demonstrates, the fair use economy accounts for 18% of U.S. GDP and employs roughly 1 in 7 Americans. Whereas fair use might once have been regarded as a niche area of law, it is now a defining characteristic of the U.S. economy. The fair use economy is also a defining aspect of the U.S. trade portfolio. Services exports from industries that rely on fair use increased by 40 percent between 2017 and 2023, and are now approximately seven times the value of goods exports of fair use industries.

The roots of the economic importance of fair use can be traced to the famous 1984 Supreme Court decision, *Sony v. Universal Studios, Inc.*, 464 U.S. 417 (1984) ("*Betamax*"), regarding the Betamax home videocassette recorder, the precursor to modern DVRs. As described in **Box 2**, the Court held that home recording and library-building by Sony's consumers was a fair use, and that copyright should not thwart home recording by members of the public. This laid the foundation for the consumer electronics industry, and later, numerous Internet-related technologies.

One of the benefits of the flexible fair use doctrine is its adaptability, which can cover unanticipated new uses and technologies. Whereas narrow prescriptive exceptions drafted around specific technologies become

outdated rapidly, the flexibility of the fair use doctrine has enabled both consumer electronics and online services. The breathing space provided by fair use has facilitated a thriving technology industry in the United States. New online products and services almost inevitably involve some transitory copying, if only for technological purposes. This makes the fair use doctrine a necessity, as licensing every time an image is copied into a computer's memory, for example, would be prohibitively expensive and time-consuming.

Fair use has proven to be critical to other industries as well. For example, the varied industries that encompass the entertainment industry all rely on fair use.[3] Fair use is also crucial in the context of education and reporting the news, which depend upon reproducing and disseminating primary sources. This reliance often becomes most apparent in litigation, as all of these industries have defended ordinary business conduct before courts by relying on the fair use doctrine.[4]

Fair use and the current U.S. flexible and balanced copyright regime has been critical to the development and growth of artificial intelligence ("AI") in the United States. The economic impact of AI is expected to be significant, leading to increases in innovation, productivity and economic growth in the United States and other countries. In the short term, the buildout of AI-related infrastructure is evident in the relatively rapid expansion of fair use sectors directly related to AI. Employment in information technology industries related to AI is expected to expand relatively rapidly over the next decade.[5] A recent academic study found that AI could add between $2.6 trillion to $7.9 trillion to the global economy annually through 2040.[6] An economic report from the U.S. Copyright Office on generative AI highlighted how fair use and related exceptions to copyright were key to rapidly advancing AI and the benefits it brings.[7]

3 Katharine Trendacosta, "*Fair Use Protects Everyone—Even the Disney Corporation*," Electronic Frontier Foundation, Sep. 26, 2025, https://www.eff.org/deeplinks/2025/09/fair-use-protects-everyone-even-disney-corporation.

4 U.S. Copyright Office Fair Use Index, https://www.copyright.gov/fair-use/ (last updated Aug. 2025). See also a number of institutions that track and comment on specific legal matters involving fair use, including the Stanford Copyright and Fair Use Center and The University of California, Irvine's IP, Arts, and Technology Clinic.

5 Javier Colato, Lindsey Ice, and Sofia Laycock, "Industry and occupational employment projections overview and highlights, 2023–33," Monthly Labor Review, U.S. Bureau of Labor Statistics, November 2024, https://doi.org/10.21916/mlr.2024.21.

6 Miller, Sprigman, and Sundararajan, "The Economic Importance of Fair Use for the Development of Generative Artificial Intelligence", June 2025, https://ccianet.org/research/case-studies/economic-importance-of-fair-use-for-development-of-generative-artificial-intelligence/

7 Brent Lutes, "Identifying the Economic Implications of Artificial Intelligence for Copyright Policy," U.S. Copyright Office, February 2025, https://www.copyright.gov/economic-research/economic-implications-of-ai/Identifying-the-Economic-Implications-of-Artificial-Intelligence-for-Copyright-Policy-FINAL.pdf

In addition to being critical to a vast number of U.S. constituencies, fair use has also gained recognition abroad as a crucial information technology policy. While fair use is a principle of uniquely American origin, nearly 50 other countries have adopted limitations and exceptions into their domestic copyright law.[8] Notably, the EU, Japan and Singapore have adopted text and data mining (TDM) exceptions that can cover commercial AI model training.

8 Jonathan Band & Jonathan Gerafi, *The Fair Use/Fair Dealing Handbook*, Joint PIJIP/TLS Research Paper Series 141 (policybandwidth Nov. 2024), https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1140&context=research

PART II. Economic Contribution of Fair Use and Information Technology Dependent Industries to the U.S. Economy

I. Introduction

This report provides updated information on U.S. industries that depend on and/or benefit from limitations and exceptions to copyright laws, including the fair use of copyrighted materials. This "fair use" economy has grown in importance since the publication of the original CapTrade study, which was published in 2007 and covered data through 2006.[9] Subsequent updates found that the fair use economy continued to grow, even during the Great Recession.[10]

Fair use in the strict sense is an important statutory restriction on the rights conferred on original works by the U.S. Copyright Act of 1976:[11] According to Sec. 107, "[t]he fair use of a copyrighted work for . . . purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research is not an infringement of copyright."[12] The fair use doctrine, and other limitations and exceptions to copyright,[13] have grown in importance with the rise of the digital economy, as fair use permits a range of activities that are critical to many high technology businesses, including search portals and web hosting.[14] In the discussion that follows, the term "fair use" sometimes will be used as a shorthand expression referring to the full range of limitations and exceptions in U.S. copyright law.

Industries benefiting from fair use continue to have a profound impact on the U.S. economy, which has been significantly transformed during the past 30 years. Increasing manufactured imports and technological advances have led to a large decline in manufacturing employment in the United States.[15] Growth in service sector output and employment has been instrumental in creating new U.S. jobs, both directly through the creation

9 See Thomas Rogers and Andrew Szamosszegi, *Fair Use in the U.S. Economy: Economic Contribution of Industries Relying on Fair Use* (CCIA-2007).

10 Updates of the study were published in 2010, 2011, and 2017.

11 See Einhorn (2004), especially at page 1.

12 17 U.S.C. § 107. See Einhorn (2004) at 1 and 8, fn. 5.

13 The complete set of limitations and exceptions studied herein are listed in Part II and described further in Appendix I.

14 See testimony by Jonathan Band on "Fair Use: Its Effects on Consumers and Industry," before the Committee on Energy and Commerce, Subcommittee on Commerce, Trade, and Consumer Protection (November 16, 2005).

15 See Autor, Dorn, Hanson, (2013), especially pages 2121-2168.

of new firms, and indirectly through intermediate demands of these new firms and spending by their employees. For example, according to an analysis of high-tech industries by the U.S. Bureau of Labor Statistics, employment in high-tech services was only slightly larger than in high-tech manufacturing industries in 1994. However, employment in high-tech services industries grew by 3.4 million workers through 2014 while employment in high tech manufacturing industries declined by one million workers.[16] This industry sector includes establishments that provide expertise in accounting, research, information technology (IT), and many other fields.

Such growth is expected to continue. For example, employment in professional, scientific, and technical services, one of the fastest growing core industries in this study, is projected to increase by 10.5 percent, more than double the growth rate projected by the Bureau of Labor Statistics for total wage and salary employment.[17]

The growing importance of the fair use economy and the Internet in general has led to a number of studies of the digital economy and digital trade. A study by the United States International Trade Commission published in August 2014 found that domestic commerce and international trade conducted via the Internet in the U.S. and global economies increased U.S. real GDP by 3.4-to-4.8 percent, increased real wages by 4.5-to-5.0 percent, and increased employment by up to 2.4 million full-time equivalent employees.[18] According to the Commission, these gains arise due to enhanced productivity and lower trade costs.[19] The Commission's analysis includes a comprehensive explanation of how the gains from digitally intensive industries, which rely on fair use, translate into gains for the broader U.S. economy:

> Higher productivity in certain digitally intensive industries due to the Internet increases output in these industries while lowering costs of producers and therefore prices to consumers. These gains in digitally intensive industries spill over to the rest of the economy and lead to economy-wide effects. Higher demand for workers in the digitally intensive industries drives up wages in the labor market, draws workers from other sectors of the economy, and can also increase aggregate employment as more workers are brought into the labor force. The

16 See Wolf and Terrell (2014) for more insight.

17 Elka Torpey, "The fastest growing industry sector, 2023–33: Professional, scientific, and technical services," *Career Outlook,* U.S. Bureau of Labor Statistics, February 2025.

18 See U.S. International Trade Commission, *Digital Trade in the U.S. and Global Economies, Part 2* (August 2014) at 13.

19 *Id.* at 17.

> productivity-based reductions in costs translate into lower prices for consumers, and this increases the purchasing power of their wages.[20]

New firms have played a central role in the fair use economy. Startups in the core fair use space have generated new jobs while sometimes disrupting established industries and underperforming firms.[21] While some leading U.S. companies have grown rapidly in a short period of time, there are numerous under-the-radar firms that are benefiting from the business opportunities provided by fair use.[22] Though the net job creation of disruptive startups is not always positive in the short run, their productivity-enhancing innovations are indisputably beneficial. The creation of new businesses and business activities has in turn fueled demand from other sectors of the U.S. economy, transformed a host of business processes, and opened up new avenues for accessing entertainment and information. For example, the so-called App Economy supported an estimated 2.56 million U.S. jobs in January 2022, an increase of 835,000 jobs since December 2016.[23]

As explained in the previous editions of the *Fair Use in the U.S. Economy* study, the fair use of copyrighted material and other limitations and exceptions are an important foundation of the Internet economy. For example, one force driving the expansion of the Internet as a tool for commerce and education is users' ability to locate useful information with widely available search engines.[24] The courts have held that the main service provided by search engines is fair use.[25] Absent the exceptions to copyright law provided by the fair use doctrine, search engine firms and others would face uncertain liability for infringement, a significant deterrent to providing this valuable service. Such an outcome would thwart the educational purposes and growing commerce facilitated by Internet search engines, thereby reducing the economic contribution of the Internet.

20 *Id.* at 16.

21 See Forrest (2015) for more insight on how tech startups impact the economy, particularly in terms of job creation.

22 See Weinberger (2015) on successful tech startups that help run the internet, behind the scenes.

23 Michael Mandel and Jordan Shapiro, U.S. App Economy Update, 2022, Progressive Policy Institute, May 2022.

24 Search engine software copies vast quantities of information from publicly accessible websites onto the search engine's database. Users then access the search engine's database for relevant information, retrieving links to the original site as well as to the "cache" copy of the website stored in the database.

25 The Ninth Circuit in *Kelly v. Arriba Soft Corp.*, 336 F.3d 811 (9th Cir. 2003), found that the caching of reduced-sized images copied from websites, and the display of these images in response to search queries, constituted a fair use. It reaffirmed that proposition in *Perfect 10, Inc. v. Amazon.com*, 508 F.3d 1146 (9th Cir. 2007). Similarly, the district court in *Field v. Google Inc.*, 412 F. Supp. 2d 1106 (D. Nev. 2006), excused Google's display of text cached in its search database as a fair use.

Other important activities made possible by fair use include software development, which in many cases requires the making of temporary copies of existing programs to facilitate software interoperability,[26] and web hosting, which could be liable for any infringement by users but for limitations and exceptions.[27] The fair use doctrine also permits end users of copyrighted material to make digital copies of programming for personal use. Thus, because of fair use, consumers can enjoy copyrighted programming at a later time ("time shifting"),[28] transfer the material from one device to another ("space shifting"),[29] and make temporary cache copies of websites on the random access memory (RAM) of their computers.[30] The utility derived from these activities has spawned consumer purchases of a broad range of products such as digital video recorders (DVRs) and smart phones, stimulating additional economic activity in the United States and in all of the countries where the devices used for these activities are manufactured. In the past decade or so, courts have also explained that fair use permits text and data mining,[31] interoperability,[32] and AI training.[33]

With respect to interoperability, *Sega v. Accolade*, *Sony v. Connectix*, and *Google v. Oracle* form the jurisprudential bedrock ensuring that copyright law remains an engine for progress rather than a tool for monopoly in software development. *Sega* and *Connectix* establish that fair use permits the necessary, intermediate copying involved in reverse engineering when the specific intent is to achieve interoperability. By permitting the reverse engineering essential to distinguishing between protectable creative expression and the unprotectable functional specifications required to make systems talk to one another, courts in *Sega* and *Connectix* prevented platform holders from locking out third-party innovation. The Supreme Court in *Google* affirmed that reimplementing functional declaring code to unlock developer creativity is a valid, transformative use under the fair use test. Consequently, this legal framework ensures that copyright cannot be weaponized to prevent competitors from building new, compatible

26 Fair use permits the copying that occurs during the course of software reverse engineering. See *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992); *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832 (Fed. Cir. 1992); *Sony Computer Ent. v. Connectix Corp.*, 203 F.3d 596 (9th Cir. 2000).

27 Section 512(c) of the Digital Millennium Copyright Act (DMCA) provides safe harbors for the entities hosting user content.

28 *See Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

29 *See Recording Indus*.try *Ass'n of America v. Diamond Multimedia Sys. Inc.*, 180 F.3d 1072 (9th Cir. 1999).

30 *See Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146 (9th Cir. 2007).

31 *Authors Guild v. Google*, 804 F.3d 202 (2d Cir. 2015); *Authors Guild, Inc. v HathiTrust*, 755 F.3d 87 (2d Cir. 2014).

32 *Google LLC v. Oracle Am., Inc.*, 593 U.S. 1 (2021).

33 *Bartz v. Anthropic PBC*, No. 24-cv-5417 (N.D. Cal. June 23, 2025); *Kadrey v. Meta Platforms, Inc.*, No. 23-cv-03417 (N.D. Cal. June 25, 2025).

products through their own independent engineering, thereby preserving a competitive marketplace where innovation thrives on the ability to build upon and interface with existing standards.

Copyright protection, which provides an incentive for the production of creative works, also has a positive and quantifiable impact on the U.S. economy. The positive aspects of copyright protection should not, however, obscure or diminish the important role of fair use as an economic driver in the digital age.

This report presents a comprehensive quantification of the growing economic significance of industries benefiting from fair use. The methodology used in the report defines a set of "core industries" that either would not exist, or would be much smaller, but for the limitations and exceptions to copyright law. It also evaluates the secondary sectors or non-core industries that benefit from fair use. The industry NAICS codes and definitions for core and non-core industries are presented in Appendix I and Appendix II, respectively.

II. Economic Contribution of Fair Use Industries

This section presents estimates of the revenues, value added, payroll, employment levels, productivity, and trade of the core and non-core industries benefiting from fair use.

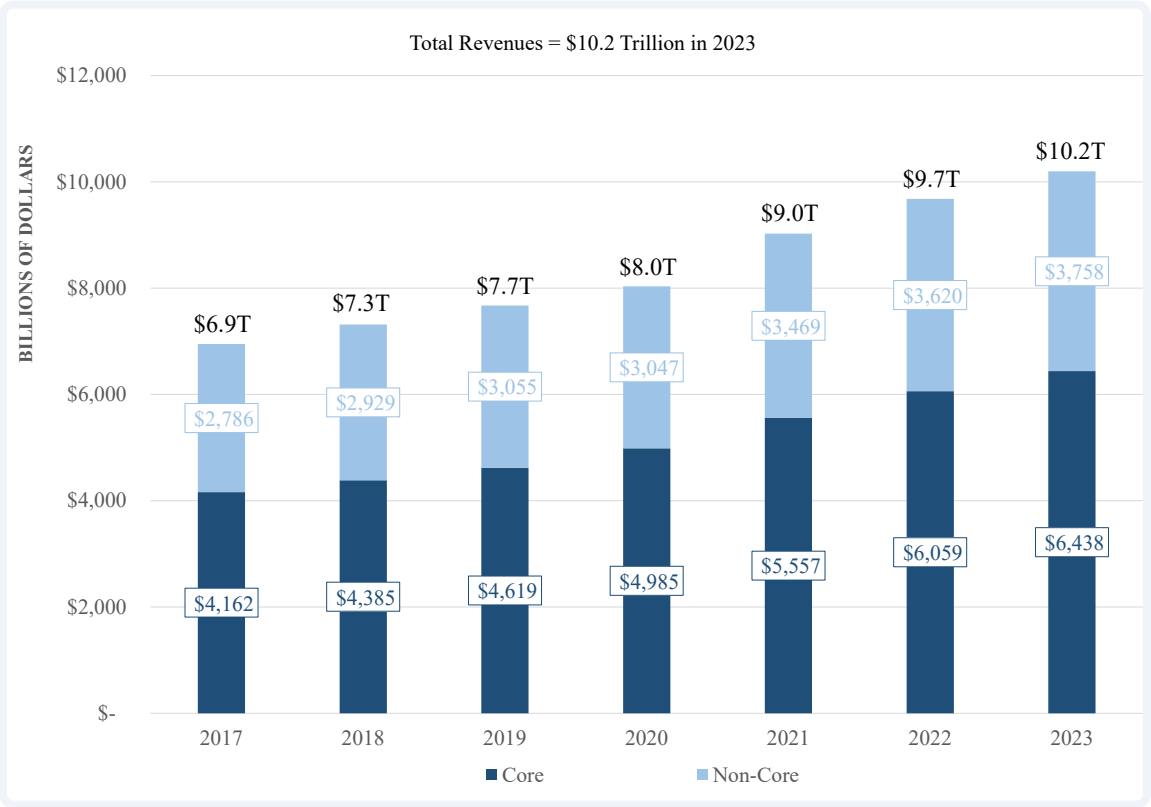
A. Revenue

Chart 1 illustrates the estimated revenues for the fair use core and non-core industries from 2017 to 2023. Total revenue of fair use industries increased from $6.9 trillion in 2017 to $10.2 trillion in 2023, or by approximately $3.3 trillion dollars. Since 2002, fair use revenues have expanded by $6.7 trillion. Since 2017, the core industry revenues expanded by 7.5 percent on average while non-core industries grew 5.1 percent on average.[34] Overall, fair use revenues rose 6.6 percent annually. As a result, core industries' share of fair use revenues increased from 60 percent to 63 percent.[35]

34 Growth rates are reported as compound average growth rates (CAGR).

35 Appendix III contains tables detailing revenue for each core and non-core industry.

Chart 1. Revenues of Fair Use Industries



Sources: U.S. Census Bureau and Bureau of Economic Analysis

Revenue growth of fair use industries is now driven almost entirely by services industries. Though the revenues of the included manufacturing industries expanded after 2020, they now account for less than 3 percent of revenues. Large revenue increases occurred in *ecommerce* and *management, scientific, and technical consulting services*. Large percentage gains occurred in the *computing infrastructure providers, data processing, web hosting, and related services* industry and in the *research and development in the physical, engineering, and life sciences* industry. As discussed above, revenue and other indicators in these industries reflect the strong growth in demand for AI.

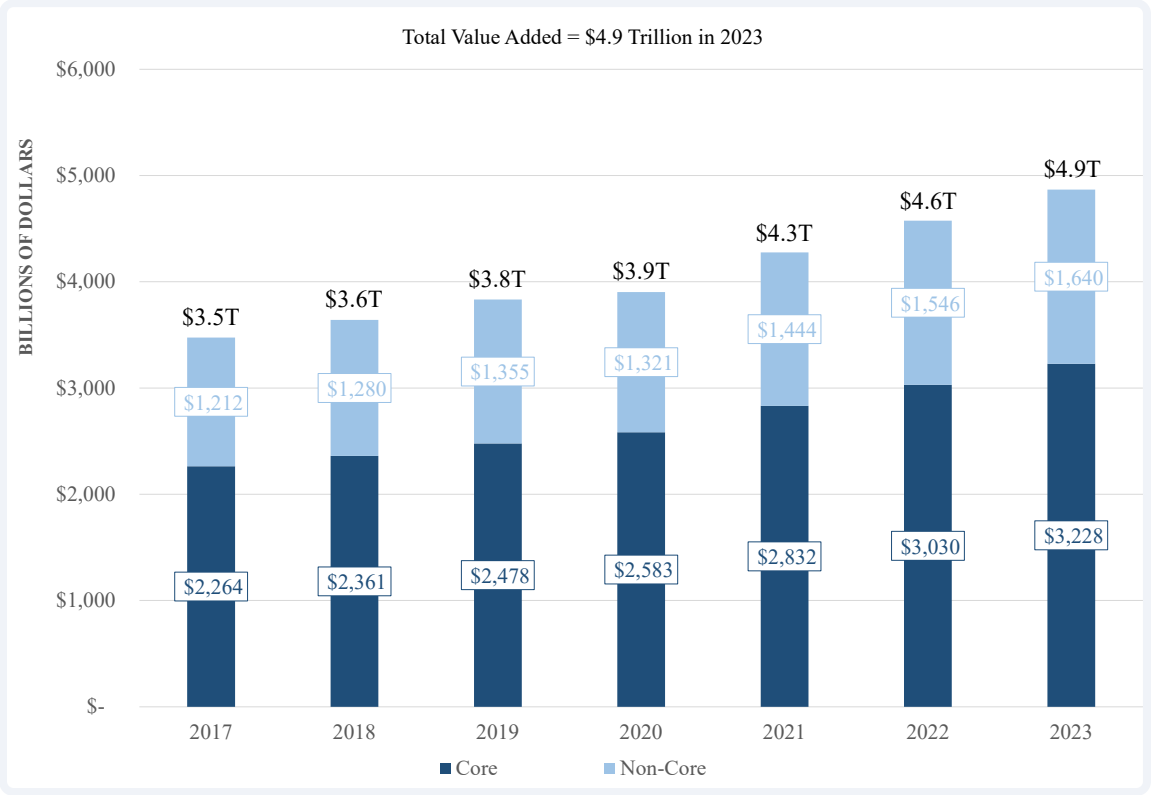
B. Value Added

Value added measures the contribution of each industry's labor and capital to its gross output and to GDP. Industry value added equals an industry's gross output minus its purchased intermediate inputs. Value added is an important tool to measure economic growth because it does not include value added by another industry or double count own-industry value added.

As shown in Chart 2, the value added for the fair use industries increased significantly from $3.5 trillion in 2017 to $4.9 trillion in 2023. For context,

value added by fair use industries was $1.7 trillion in 2002. The core industries accounted for approximately two-thirds of fair use value added during this six-year period.

Chart 2. Value Added of Fair Use Industries



Sources: U.S. Census Bureau and Bureau of Economic Analysis

The value added by the fair use industries increased by $1.4 trillion from 2017 to 2023, while U.S. current dollar GDP expanded by $8.1 trillion. Thus, the increase in fair use value added accounted for 17 percent of the increase in U.S. current dollar GDP during this period.

In contrast to current dollar or *nominal* GDP, *real* GDP controls for inflation, and is therefore a better indicator of a country's true economic growth. Consistent with prior reports, the estimate covers only the contribution of the core industries to real GDP growth.

As reported in the 2011 report, the fair use core industries contributed 19.7 percent to U.S. real GDP growth from 2002 to 2009.[36] From 2012 to 2014, the core fair use industries contributed 6.7 percent to U.S. real GDP growth.[37] From 2017 to 2023, the core industries contributed 15.7

36 See Rogers and Szamosszegi (2011) at page 20.

37 See CCIA, Fair Use in the U.S. Economy, 2017 ed., at 17.

percent of the real GDP growth experienced during this period.[38] The following fair use core industries made large contributions to real GDP growth: *ecommerce*; *legal services*;[39] *insurance carriers (except direct life)*;[40] *computing infrastructure providers, data processing, web hosting, and related services*; and *research and development in the physical, engineering, and life sciences*.

C. Employment and Payroll

The fair use-related industries in this study continue to be major employers in the U.S. economy. Chart 3 below shows the number of employees from 2017 to 2023. Employment related to fair use increased from 19.6 million workers in 2017 to 22.1 million workers in 2023. In 2002, there were 16.9 million workers in fair use industries.

Employment in the core industries increased from 11.8 million employees in 2017 to 13.3 million in 2023. Employment in the non-core industries expanded from 7.8 million employees in 2017 to 8.8 million workers in 2023.[41] In 2023, core industries accounted for approximately 60 percent of total employment by fair use industries.

Employment in both core and non-core industries declined modestly in 2020 during the COVID-19 pandemic and did not surpass 2019 levels until 2022. However, employment growth in 2022 and 2023 was strong. In 2023, employment in fair use industries accounted for approximately 14 percent of total U.S. non-farm employment.[42] That is, about one out of every seven workers in the United States is employed in an industry that benefits from the protection afforded by fair use.

38 Appendix V contains the underlying data for this calculation.

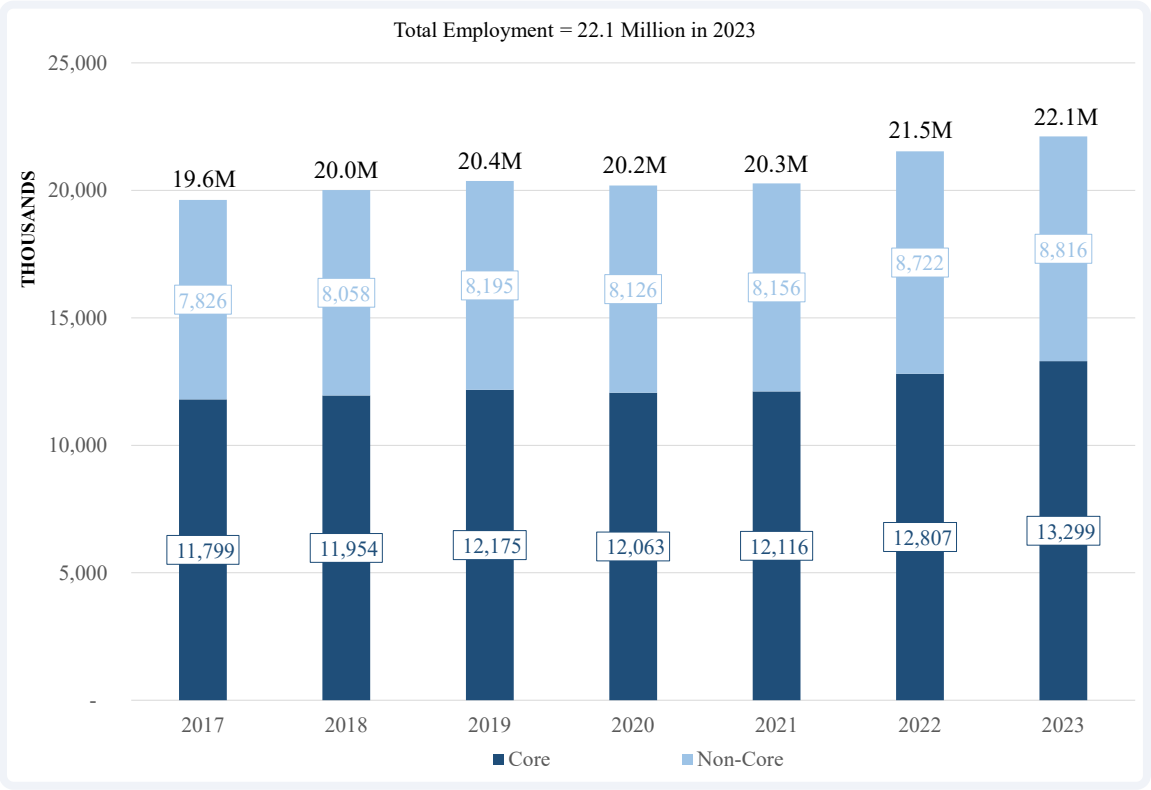
39 The fair use doctrine allows lawyers to use copyrighted materials as evidence, for example.

40 Fair use makes certain types of businesses and creative activities, such as documentary filmmaking, less risky to insure.

41 Appendix VI contains tables detailing employment for each core and non-core industry.

42 See Bureau of Economic Analysis for Current Employment Statistics data on employment by industry.

Chart 3. Employment of Fair Use Industries



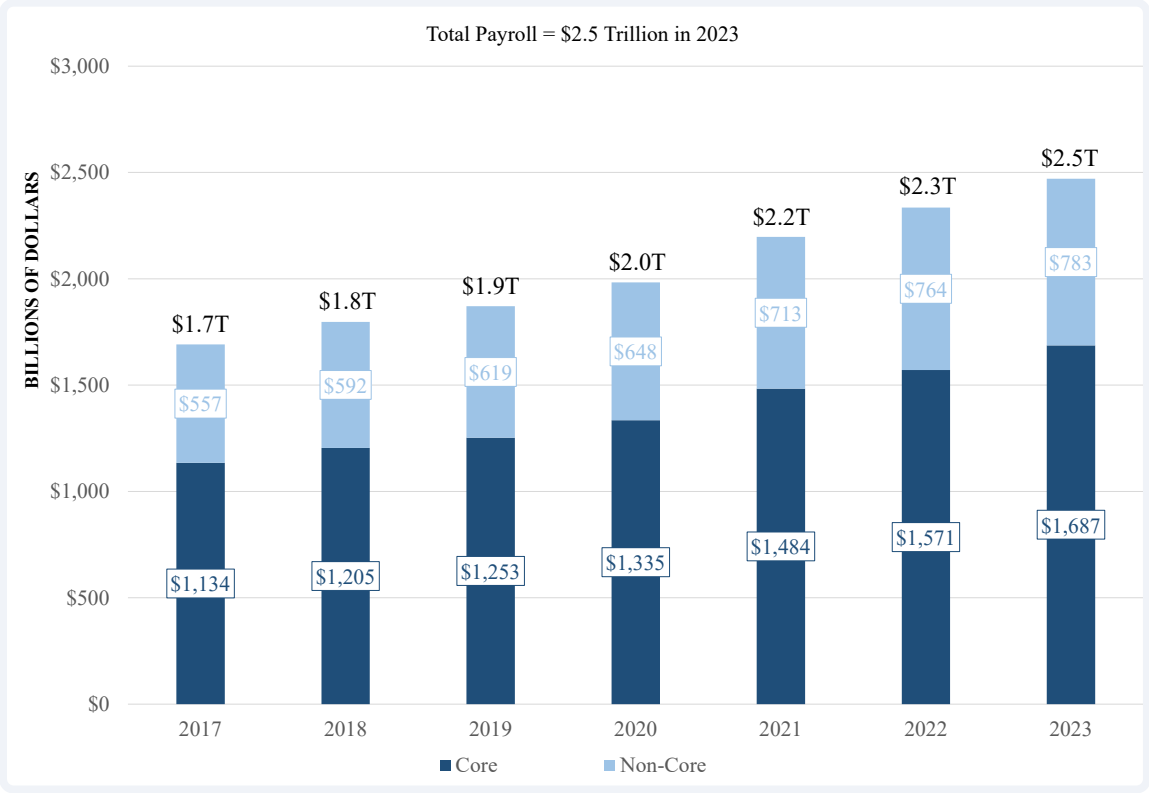
Sources: U.S. Census Bureau and Bureau of Labor Statistics

Payroll in fair use industries continues to expand. Chart 4 shows that total fair use industry payroll increased by 46 percent from approximately $1.7 trillion in 2017 to $2.5 trillion in 2023. In 2017, core industry payroll was $1.1 trillion. By 2023, payroll in core industries amounted to $1.7 trillion, accounting for 68 percent of fair use payrolls.[43] In real terms, the payroll of core fair use industries increased by 20 percent from 2017 to 2023, while the payroll of non-core industries grew by 13 percent.[44]

43 Appendix VII contains tables detailing payroll for each core and non-core industry.

44 Payroll values were deflated by the consumer price index for urban consumers (series ID CUUR0000SA0,CUUS0000SA0).

Chart 4. PAYROLL of Fair Use Industries



Sources: U.S. Census Bureau and Bureau of Labor Statistics

Payroll per employee at fair use-related firms has continued to expand. Table 1 below indicates that payroll per employee at core fair use-related industries expanded from approximately $96,000 in 2017 to approximately $127,000 in 2023. In 2002, payroll per worker at core fair use-related industries was approximately $53,000 per year. Payroll per employee at core industries, $127,000 in 2023, continues to exceed the $89,000 average payroll at non-core industries.

Table 1. Payroll Per Employee of Fair Use-Related Industries

	Dollars per Employee						
	2017	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Core	96,151	100,803	102,888	110,639	122,447	122,680	126,860
Non-core	71,176	73,525	75,483	79,756	87,457	87,569	88,833
Total	86,191	89,819	91,863	98,209	108,369	108,456	111,701

Sources: Authors' estimates based on data from the U.S. Census Bureau and Bureau of Labor Statistics.

D. Productivity

On the supply side, a country's economic growth depends overwhelmingly on two factors: changes in the level of productive inputs such as labor and capital, and the productivity with which those inputs are used. In other words, an economy experiences economic growth if it adds inputs (*e.g.,* more workers and more machines), increases the output associated with a given level of inputs, or does both.

In order to improve the earnings for labor, by increasing real hourly wages, for example, it is necessary to increase labor productivity.[45] Rising productivity is therefore important to long-term improvements in living standards. The positive impacts of information technology on productivity have been well documented.[46] Many anticipate that AI will enhance U.S. and global productivity in the coming years.[47] Prior fair use studies have demonstrated relatively high levels of worker productivity in fair use industries.

Table 2 contains estimates of value added per employee, a common measure of labor productivity, for the core and non-core fair use industries. In the core industries, average labor productivity expanded from approximately $192,000 per worker in 2017 to approximately $243,000 in 2023, representing an annual growth rate of 4.7 percent. In non-core industries, average labor productivity rose from $155,000 to $186,000 over the same period, or 3.8 percent annually. These productivity levels exceed economy-wide labor productivity, approximately $178,000 in 2023, by a wide margin.[48]

45 For example, if growth is achieved solely by adding workers without increasing productivity, then wages will not rise in the long term.

46 See Brynjolfsson and Hitt (2003). See also, Jorgenson and Stiroh (2000); Harchaoui, Tarkhani, and Khanam (2004).; Economic Report of the President (2002) at pages 58-60; and Landefeld and Fraumeni (2001) at pages 23-39.

47 Alexander Cline, James A. Kahn, and Robert W. Rich, Is High Productivity Growth Returning? Federal Reserve Bank of Cleveland No. EC 2025-01.

48 The national total is based on current dollar GDP divided by the annual average of seasonally adjusted monthly nonfarm employment levels reported by BLS (series ID CEU0000000001). It thus overstates economy-wide productivity by not including agricultural labor.

Table 2. Value Added Per Employee of Fair Use-Related Industries

	Dollars per Employee						
	2017	2018	2019	2020	2021	2022	2023
Core	191,877	197,477	203,508	214,140	233,729	236,566	242,686
Non-core	154,829	158,805	165,381	162,514	177,079	177,227	186,015
Total	177,103	181,905	188,169	193,361	210,936	212,527	220,095

Sources: Authors' estimates based on data from the U.S. Census Bureau and Bureau of Labor Statistics.

On an inflation-adjusted basis, real productivity of core industries expanded 3 percent, while productivity of non-industries declined by 2 percent over the period.[49]

E. Trade

The globalization of the U.S. economy has been one of the primary economic trends in recent decades. However, the extent to which the U.S. economy relies on trade has stabilized. U.S. trade in goods and services accounted for 28 percent of U.S. GDP in 2015.[50] In 2023, the trade ratio was 24.9 percent. While the United States runs a large deficit in merchandise trade, it traditionally has run a surplus in services trade, and is believed to hold a comparative advantage in many service sectors. In 2023, the United States balance in goods trade was -$1,074 billion, while the balance in services trade was +$276.8 billion.[51]

Exports are an increasingly important source of sales for firms benefiting from fair use.[52] U.S. manufacturers have a long history in foreign markets, but many Internet firms are relatively new exporters. Due to international differences in copyright law and the importance of the Internet to the U.S. economy, U.S. trade officials have incorporated certain online service provider safe harbors into free trade agreements. Such provisions are necessary for U.S. Internet service exporters, such as ISPs and search engines, to fully exercise their comparative advantages in foreign markets. It is likely that differences in copyright laws in different countries will have an impact on AI exports as well.

49 Productivity was deflated by the GDP deflator (FRED series A191RI1Q225SBEA). Abnormally high U.S. inflation began during 2021 and persisted into 2023. This inflated the growth of indicators measured in dollars.

50 *See* Bureau of Economic Analysis, "Gross Domestic Product: Second Quarter 2016 (Second Estimate)," BEA 16-44, August 26, 2016, at Table 3. Exports of goods and services in 2015 were $ 2,264.3 billion, imports were $ 2,786.3 billion, and U.S. current dollar GDP was $ 18,036.6 billion.

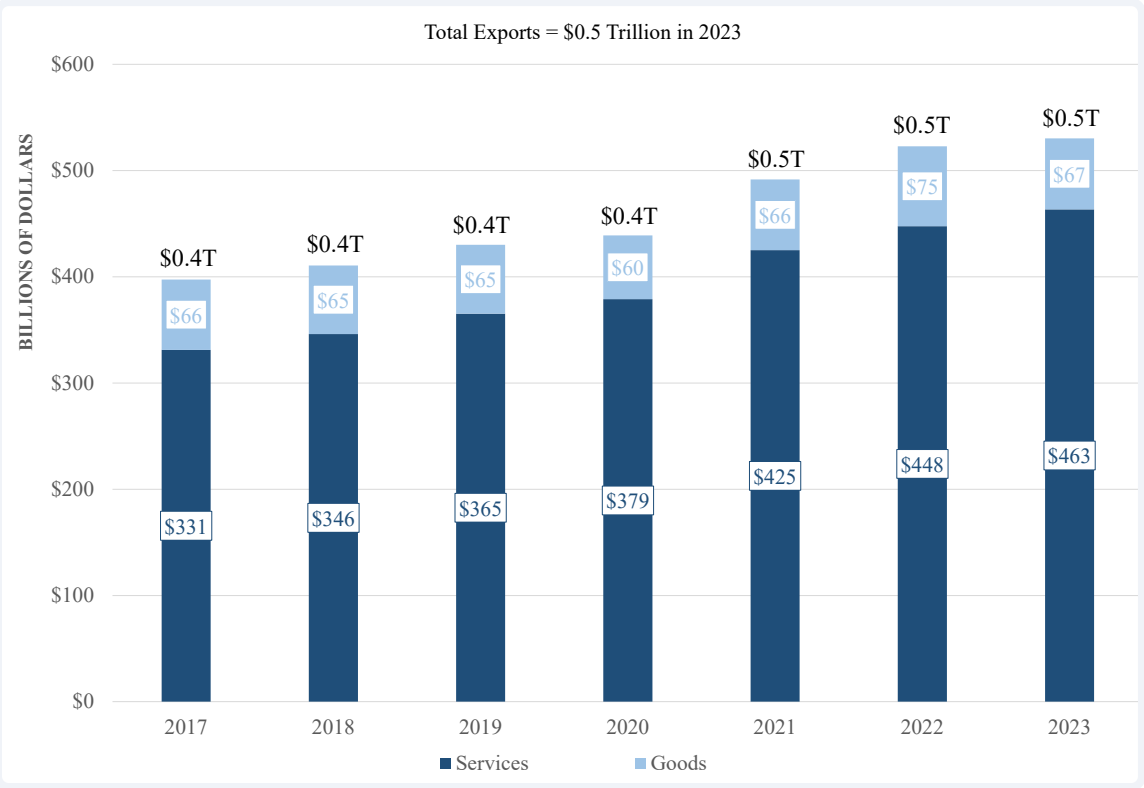
51 Bureau of Economic Analysis, "Table 1.1.5. Gross Domestic Product" (accessed August 6, 2025).

52 Though the revenue from the goods and services exports of fair use industries is included in the revenues and value added already measured above, exports are also reported separately in order to highlight the growing importance of trade to those industries.

Chart 5 shows that estimated fair use industry exports increased by 33 percent from $397 billion in 2017 to $530 billion in 2023.[53] Due to the high level of aggregation of services trade data, it is not practical to distinguish between core and non-core exports. Accordingly, Chart 5 highlights exports of total fair use goods and services.

Unlike overall exports, which are dominated by goods, fair use industry exports are oriented towards services. Financial services continue to constitute the largest portion of fair use service exports, accounting for 38 percent of total services exports in 2023.[54] Other leading categories with significant export growth include *computer and information services* and *business and management consulting and public relations services*.

Chart 5. Exports of Fair Use Industries



Sources: Bureau of Economic Analysis

F. Artificial Intelligence

The development of AI, generative AI in particular, relies on the limitations and exceptions provided by U.S. copyright law, including fair use. Consistent with the balanced approach to copyright provided by fair use,

53 Appendix VIII contains tables detailing fair use exports of goods and services by category.

54 Analysts in financial firms rely on fair use to analyze copyrighted data and reports, and to use that information in their client-facing analyses and commentary.

these limitations and exceptions enable developers of generative AI to train their systems while protecting the interests of rightsholders.[55]

The proliferation of AI, particularly generative AI, has accelerated rapidly but is still very recent. Accordingly, official data specific to economic activity around AI is usually sparse or not yet available. According to the U.S. Census Bureau, Artificial Intelligence research and development laboratories or services" falls under NAICS **541715**, a code which captures numerous other research-oriented industries.[56]

AI (via Google Search) identifies the following industries as being associated with AI as well:

NAICS 541519 — Other Computer-Related Services: This is a common code in federal contracting for various computer services that may involve AI.

NAICS 541511 — Custom Computer Programming Services: This code covers custom software solutions including AI applications.

NAICS 541512 — Computer Systems Design Services: This category includes designing and integrating computer systems that may incorporate AI.

NAICS 518210 — Data Processing, Hosting, and Related Services: This code includes services crucial for AI development and deployment.

NAICS 511210 — Software Publishers: This code encompasses software products including AI applications and SaaS.[57]

AI (via ChatGPT) also identified **NAICS 541513** — Computer Facilities Management Services: This code includes on-site management and operation of clients' computer systems and/or data processing facilities, which can use AI and machine learning to make computer facilities more efficient.

These six industries are also considered core fair use industries. Given the growing importance of AI, one would expect that the indicators of the AI-related core industries performed better (i.e., experienced more rapid

55 Cameron Miller, Christopher Sprigman, and Arun Sundararajan, The Economic Importance of Fair Use, Data Catalyst institute (June 2025) at 11.

56 NAICS 541715 is a basket category for Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology). This category also includes research for life sciences, agriculture, geology, and aerospace, among many other scientific fields. *See* Census Bureau, North American Industry Classification System, https://www.census.gov/naics/?input=541715&year=2022&details=541715.

57 The code for Software publishers in the 2022 NAICS is 513210.

growth) than the fair use industries as a whole. As discussed below, this is indeed the case.

AI covers several activity areas including software development, semiconductor production, and even energy infrastructure. Some firms specialize in AI technology, while others (especially larger firms) operate across various other technology-related activities.

AI, like the Internet, can facilitate certain corporate functions, thereby increasing productivity within firms. To the extent that fair use industries are exposed to AI, it is possible that they will experience gains in output and productivity.

This section attempts to characterize AI's growing economic contribution by combining data for the above six industries, and by referencing other facts and analyses that shed light on the growing economic role of AI.

Revenue

The U.S. is recognized as the global leader in AI entrepreneurship. By one estimate, it is home to one-quarter of the world's approximately 70,000 AI companies, or roughly 17,500 firms.[58] Only a handful of these are public companies — the largest of which have diverse portfolios of operations.[59]

The AI industry is also characterized by myriad startups, many of whom will eventually exit the market and likely be replaced by newcomers. Yet, a few standout firms indicate the direction in which the industry is headed. Semiconductor firm Nvidia, which largely focuses on chips for AI end uses, has seen revenues skyrocket — rising from $9.7 billion in 2017 to $26.9 billion in 2022, and rapidly reaching $130.5 billion in 2024.[60] OpenAI recently announced that it nearly doubled its annual recurring revenue from $5.5 to $10 billion, just three years after launching its flagship product ChatGPT.[61] The performance of these firms gives testament to the profound impact AI is starting to have on the U.S. economy.

58 https://ascendixtech.com/how-many-ai-companies-are-there/

59 As a result, analysis of these firms' AI segments is generally infeasible, as those firms report earnings on a consolidated basis in their public financial filings.

60 https://s201.q4cdn.com/141608511/files/doc_financials/2025/annual/NVIDIA-2025-Annual-Report.pdf at 4. Nvidia's fiscal year runs from February of the preceding year to January of the filing year (i.e. its 2025 Annual Report is almost entirely reflective of 2024). Approximately half of its sales were in the U.S. See 2025 Annual Report at 42.

61 https://www.cnbc.com/2025/06/09/openai-hits-10-billion-in-annualized-revenue-fueled-by-chatgpt-growth.html. Annual recurring revenue (ARR) excludes licensing revenue from Microsoft and large one-time deals. The company expects ARR to reach $12.7 billion this year and $125 billion by 2029. OpenAI is a privately held company and therefore does not have public financial filings.

Not surprisingly, revenue trends bear this out. The revenues of the six AI-related fair use industries identified above rose from $970 billion in 2017 to $1.7 trillion in 2023. This 78 percent increase is large relative to the 47 percent increase experienced by all fair use industries over this period.

Value Added

An important feature of AI is that its economic contribution extends far beyond the AI industry itself. This is because AI can be a productivity-enhancing tool across many industries, from healthcare to finance to transportation, and beyond. This increase in productivity should lead to meaningful increases in output.

AI uptake is still in its early stages. In 2021, 1 percent of U.S. firms reported "performing or funding artificial intelligence technology R&D."[62] According to a similar survey the following year, only 2.9 percent of U.S. firms reported "Use of artificial intelligence as a production technology for goods and services."[63] That figure had climbed to roughly 6 percent by the end of 2024, and surpassed 9 percent by mid-2025.[64] Among workers, around 20 to 40 percent report having used AI in the workplace, according to a review of recent surveys published by the Federal Reserve.[65] This is generally expected to increase over the medium-to-long term, and the degree to which this occurs results in widely varying estimates of AI's impact on productivity and output.

The table below shows various estimates of AI's impact on productivity and output in the United States and globally.[66] The general view is that AI is likely to enhance productivity and GDP over the next decade.

62 https://ncses.nsf.gov/surveys/annual-business-survey/2022#tableCtr11517 Table CET-5 and CET-6

63 https://ncses.nsf.gov/surveys/annual-business-survey/2023#data Table 74 and 75

64 Census Bureau, "Business Trends and Outlook Survey" (data as of July 3, 2025), available at https://www.census.gov/hfp/btos/data_downloads.

65 https://www.federalreserve.gov/econres/notes/feds-notes/measuring-ai-uptake-in-the-workplace-20240205.html

66 For each category in the table, estimates are approximately ordered from least to most optimistic.

	Increase From Baseline (%)	Time Horizon	Market
	Productivity		
Acemoglu	0.55-0.71	2034	U.S.
Goldman	1.5	2033	U.S.
McKinsey	0.5-3.4	2040	Global
	Output (GDP)		
Acemoglu	0.9-1.8	2034	U.S.
Goldman	7.0	2033	Global
JP Morgan	8.5	2034	Global
PwC	14.0	2030	Global & N. Am.
McKinsey	1.5-3.4	Annual	Global

The data collected for this report are consistent with expectations that AI will enhance value added and growth. The value added of the six AI-related fair use industries identified above rose from $607 billion in 2017 to $1.141 trillion in 2023. This 88 percent increase is large relative to the 40 percent increase experienced by all fair use industries over this period.

Employment

Many AI firms are characterized by high value added per employee. These firms are engaged in R&D-oriented segments of AI, such as chip design or large language model development, versus other segments such as chip manufacturing or AI infrastructure. Employees at AI firms — particularly those in data science and software development — tend to be both highly educated and skilled. Researchers at Georgetown University estimate that 10.4 percent of the existing labor force in 2022 was qualified to work in AI (including sales and product development), with those that already work in or "could laterally move into" technical AI positions comprising only 3.7 percent.[67] Such AI firms therefore tend to be labor-intensive, but with human capital highly concentrated among a relatively small number of individuals.

The two firms mentioned above reflect this dynamic. Nvidia had 36,000 employees globally at the start of 2024,[68] equating to $3.6 million in annual revenue per employee in that year. Roughly half of these

67 https://cset.georgetown.edu/publication/the-u-s-ai-workforce-analyzing-current-supply-and-growth/

68 https://s201.q4cdn.com/141608511/files/doc_financials/2025/annual/NVIDIA-2025-Annual-Report.pdf at 11

employees are located in the U.S.[69] OpenAI's employee headcount is thought to be between 3,500 and 6,000,[70] implying approximately $1.6-2.8 million in revenue per employee. Moreover, the industry's impact on labor productivity (and therefore output) across the broader economy is potentially enormous, as discussed above.

Employment in the six AI-related fair use industries increased from 3.6 million employees in 2017 to 4.7 million in 2023. This 28 percent increase was healthy, but not nearly as impressive as the 78 percent and 88 percent increases in these industries' revenue and value added, respectively.

Payroll

Annual payroll in the fair use-related AI industries reviewed here rose from $388 billion in 2017 to $636 billion in 2023, an increase of 63 percent. Payroll per employee increased from $107,411 in 2017 to $136,621 in 2023, an increase of 27 percent. Value added per employee increased 46percent, from $167,670 in 2017 to $245,247 in 2023.

AI's impact on Gross Investment

The expenditure method for measuring economic output of an economy computes gross domestic product (GDP) as the sum of consumption, investment, government spending, and net exports.[71] It is well known that the computer processing power required for AI is helping to drive an explosion in the construction of data centers. Expenditures to construct data centers would be recorded in government statistics as investments and would show up as growing investment in the national income and product accounts.

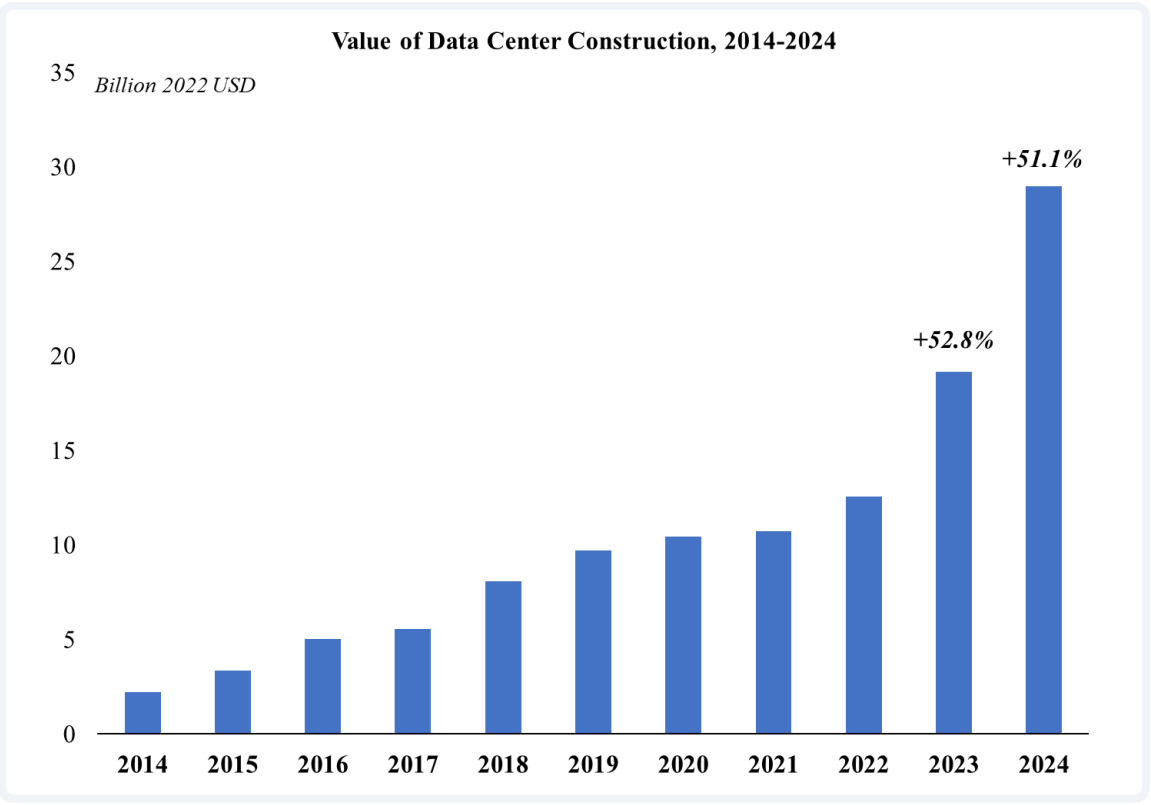
As shown in Chart 6 below, the value of data center construction more than doubled between 2022 and 2024. This accelerating trend is expected to continue. For example, Apple recently announced a 4-year, $500 billion investment for data center expansion, including the construction of a 250,000 square foot facility in Houston, Texas to support its AI

69 Nvidia reported 29,600 global employees for fiscal 2024. U.S.-based employment was estimated at roughly 16,500 employees as of mid-2024. See https://s201.q4cdn.com/141608511/files/doc_financials/2024/ar/NVIDIA-2024-Annual-Report.pdf at 11. See also https://www.greatplacetowork.com/certified-company/1000184.

70 Two sources place the headcount at 3,531, with one of them dating this figure to September 2024. See https://technologymagazine.com/company/open-ai and https://seo.ai/blog/how-many-people-work-at-openai. A professional contact directory estimates a headcount of 5,947 at the time of writing. See https://rocketreach.co/openai-profile_b4b96bf9fb1f8b85.

71 See, for example, N. Gregory Mankiw, Principles of Economics, Eighth Edition (Cengage: 2015) at 479.

system, Apple Intelligence.[72] Similarly, the Stargate Project — a joint venture announced in early 2025 between OpenAI and three major investors — will entail a 4-year, $500 billion investment to construct 20 half-million-square-foot data centers.[73] The project also involves the construction of a dedicated natural gas plant and storage of renewable energy. These massive projects have major implications for additional economic contribution. According to a recent PricewaterhouseCoopers report, data centers accounted for more than $727 billion in U.S. economic contribution in 2023 alone, as well as more than 4.6 million direct and indirect jobs.[74]



One key variable influencing uptake is the degree to which AI can replace or complement tasks associated with a particular job. Jobs that heavily rely on manual labor, in-person services, or situation-specific problem-solving are (at least at this juncture) less "exposed" to AI. Conversely, jobs

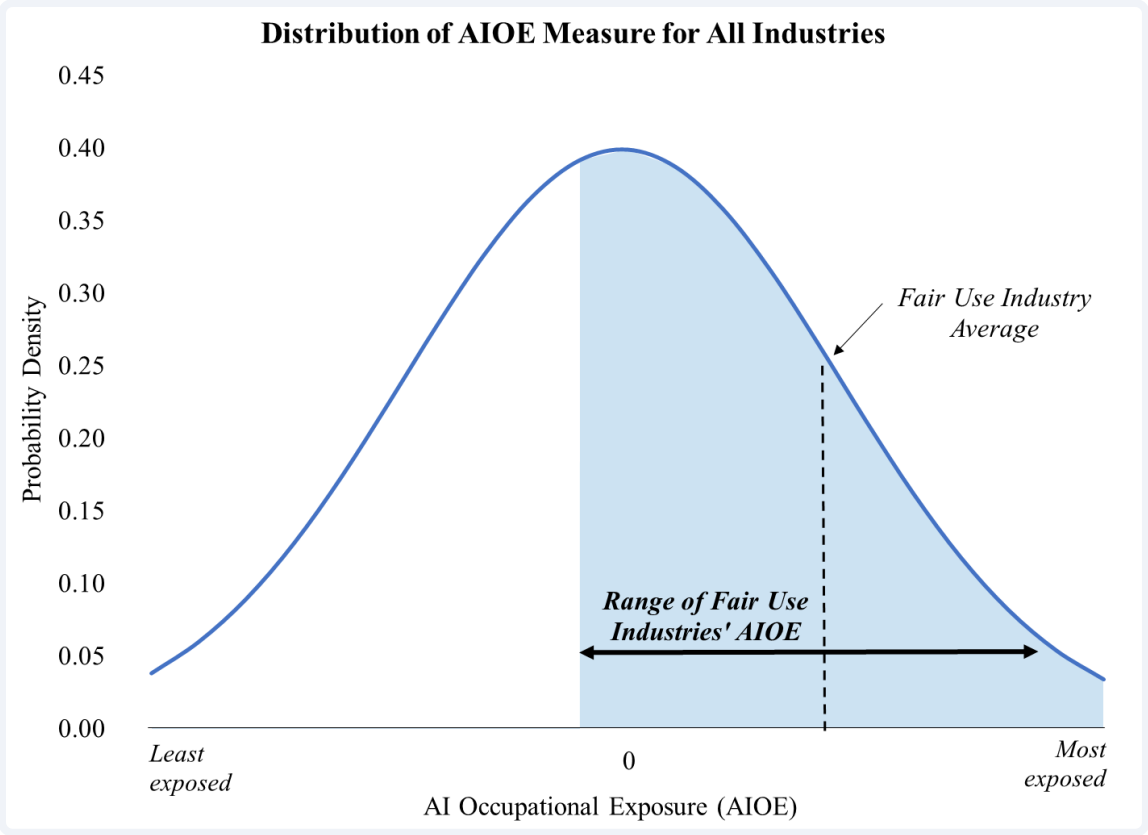
72 David Chernicoff, "From Billions to Trillions: Data Centers' New Scale of Investment," *Data Center Frontier* (March 13, 2025), available at https://www.datacenterfrontier.com/machine-learning/article/55272808/from-billions-to-trillions-data-centers-new-scale-of-investment.

73 Id.

74 PricewaterhouseCoopers, "Economic Contributions of Data Centers in the United States: 2017-2023" (February 2025) at 15, available at https://static1.squarespace.com/static/63a4849eab1c756a1d3e97b1/t/67b38f78e9cf125daf756112/1739820925392/Data%2BCenter%2BEconomic%2BContribution%2BStudy%2B2025_Final.pdf

with a high degree of routine tasks that can be automated or aided by AI are more exposed to the technology.[75]

The AI Occupational Exposure (AIOE) measure developed by Felten, Raj, and Seamans (2021)[76] suggests that the fair use economy is highly exposed to AI. As shown in the chart below, the AIOE average for fair use industries is well above the average (zero) for all industries, ranking in the 83rd percentile. Only 7.0 percent of fair use industries fall below the all-industry average.[77]



The implication of this analysis indicates that fair use industries as a whole are likely to reap productivity and output gains associated with high exposure to AI. These gains will further boost the economic contribution of fair use in the medium-to-long term.

75 An extensive literature discusses the extent to which certain types of employment will be displaced or merely altered as a result of certain technologies. Though this is an important and worthwhile debate, it is still emergent with respect to AI, and too complex to address in this analysis.

76 The AIOE is taken from E. Felten, M. Raj, and R. Seamans (2021), "Occupational, industry, and geographic exposure to artificial intelligence: A novel dataset and its potential uses," *Strategic Management Journal, 42*(12), 2195–2217. This measure combines data from Electronic Frontier Foundation (EFF) AI Progress Measurement and the U.S. Department of Labor's Occupational Information Network (O*NET) database. The AOIE is publicly accessible at https://github.com/AIOE-Data/AIOE.

77 These are Video Tape and Disc Rental, Printing and Related Support Activities, Communication and Energy Wire and Cable Manufacturing, and Promoters of Performing Arts, Sports, and Similar Events.

III. CONCLUSION

The fair use economy has continued to expand since the end of the Great Recession, reflecting the growth of the Internet and the increased use of it by businesses and consumers. The fair use economy is changing. Output is increasingly driven by the core Internet-based industries that depend most on fair use and other limitations and exceptions to copyright. The sectors developing AI are experiencing increases in revenue, value added, employment, and payroll consistent with expectation that AI, which benefits from fair use limitations and exceptions, will have a profound economic impact.

In 2023, the fair use economy accounted for $10.2 trillion in revenues and $4.9 trillion in value added, roughly 18 percent of U.S. GDP. It employed over 22 million people and supported an annual payroll of more than $2.5 trillion. Additionally, the fair use economy generated $530 billion in exports and fueled rapid productivity growth.

The protection afforded by fair use has been a major contributing factor to these economic gains and will continue to support growth as the U.S. economy becomes even more dependent on information industries.

APPENDIX I: Fair Use Industry Definitions, Core

Core Industry	2022 NAICS Codes	Detailed NAICS Description
Commercial and Service Industry Machinery Manufacturing	333310	This industry comprises establishments primarily engaged in manufacturing commercial and service industry machinery, such as optical instruments and lenses (except ophthalmic), photographic and photocopying equipment, automatic vending machinery, commercial laundry and drycleaning machinery, office machinery, automotive maintenance equipment (except mechanics' handtools), and commercial-type cooking equipment.
Computer and Peripheral Equipment Manufacturing	334111, 334112, 334118	This industry comprises establishments primarily engaged in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers; and computer peripheral equipment, such as storage devices, printers, monitors, and input/output devices and terminals. Computers can be analog, digital, or hybrid. Digital computers, the most common type, are devices that do all of the following: (1) store the processing program or programs and the data immediately necessary for the execution of the program; (2) can be freely programmed in accordance with the requirements of the user; (3) perform arithmetical computations specified by the user; and (4) execute, without human intervention, a processing program that requires the computer to modify its execution by logical decision during the processing run. Analog computers are capable of simulating mathematical models and comprise at least analog, control, and programming elements.
Audio and Video Equipment Manufacturing	3343	This industry comprises establishments primarily engaged in manufacturing electronic audio and video equipment for home entertainment, motor vehicles, and public address and musical instrument amplification. Examples of products made by these establishments are digital video recorders, televisions, stereo equipment, speaker systems, household-type video cameras, jukeboxes, and amplifiers for musical instruments and public address systems.
Semiconductor and Related Device Manufacturing	334413	This U.S. industry comprises establishments primarily engaged in manufacturing semiconductors and related solid-state devices. Examples of products made by these establishments are integrated circuits, memory chips, microprocessors, diodes, transistors, solar cells, and other optoelectronic devices.
Manufacturing and Reproducing Magnetic and Optical Media	3346	This industry comprises establishments primarily engaged in (1) manufacturing optical and magnetic media, such as blank audio tapes, blank video tapes, and blank diskettes, and/or (2) mass duplicating (i.e., making copies) audio, video, software, and other data on magnetic, optical, and similar media. These establishments do not generally develop software or produce audio or video content.
Electronic Shopping and Mail-Order Houses	4541 1/	This industry comprises establishments primarily engaged in retailing all types of merchandise using nonstore means, such as catalogs, toll free telephone numbers, or electronic media, such as interactive television or the Internet. Included in this industry are establishments primarily engaged in retailing from catalog showrooms of mail-order houses.
Motion Picture and Video Industries	5121	This industry group comprises establishments primarily engaged in the production and/or distribution of motion pictures, videos, television programs, or commercials; in the exhibition of motion pictures; or in the provision of postproduction and related services.
Record Production and Distribution	51225	This industry comprises establishments primarily engaged in record production and/or releasing, promoting, and distributing sound recordings to wholesalers, retailers, or directly to the public. These establishments contract with artists, arrange and finance the production of original master recordings, and/or produce master recordings themselves, such as digital music and compact discs. Establishments in this industry hold the copyright to the master recording, or obtain reproduction and distribution rights to master recordings produced by others, and derive most of their revenues from the sales, leasing, licensing, or distribution of master recordings.
Publishing Industries, Broadcasting and Content Providers, Web Search Portals, Libraries, Archives, and Other Information Services	513, 516, 519	Industries in the Publishing Industries subsector group establishments engaged in publishing newspapers, magazines, other periodicals, books, directories, and software. In general, establishments known as publishers issue copies of works for which they usually possess copyright. Works may be in one or more formats including print form, CD-ROM, proprietary electronic networks, or exclusively on the Internet. Publishers may publish works originally created by others for which they have obtained the rights and/or works that they have created in-house. Publishers may publish only and license rights to others to distribute their content, or they may publish and distribute content they create or own. Software publishing is included here because the activity, creation of a copyrighted product and bringing it to market, is equivalent to the creation process for other types of intellectual products.; Industries in the Broadcasting and Content Providers subsector include establishments that create content or acquire the right to distribute content and subsequently broadcast or distribute that content. The industry groups (Radio and Television Broadcasting Stations and Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers) are based on differences in the methods of communication and the nature of services provided. The Radio and Television Broadcasting Stations industry group includes establishments that operate radio or television broadcasting stations for the programming and transmission of programs to the public. Programming may originate in their own studio, from an affiliated network, or from external sources. The Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers industry group includes establishments providing media streaming distribution services, operating social network sites, operating media broadcasting and cable television networks, and supplying information, such as news reports, articles, pictures, and features, to the news media. The establishments classified in this subsector are often engaged in the production and purchase of programs and other textual, audio, and/or video content, and they typically generate revenues from the sale of advertising space and air time, subscriptions, donations, subsidies, and/or the sale of programs.; Industries in the Web Search Portals, Libraries, Archives, and Other Information Services subsector group establishments supplying information, storing and providing access to information, searching and retrieving information, and operating Web sites that use search engines to allow for searching information on the Internet. The main components of the subsector are libraries, archives, and Web search portals.
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	518	The Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services subsector groups establishments that provide computing infrastructure, data processing services, Web hosting services (except software publishing), and related services, including streaming support services (except streaming distribution services)
Securities and commodity contracts intermediation and brokerage	5231	This industry group comprises establishments primarily engaged in putting capital at risk in the process of underwriting securities issues or in making markets for securities and commodities; and those acting as agents and/or brokers between buyers and sellers of securities and commodities, usually charging a commission.
Other financial investment activities	5239	This industry group comprises establishments primarily engaged in one of the following: (1) acting as principals in buying or selling financial contracts (except investment bankers, securities dealers, and commodity contracts dealers); (2) acting as agents (i.e., brokers) (except securities brokerages and commodity contracts brokerages) in buying or selling financial contracts; or (3) providing other investment services (except securities and commodity exchanges), such as portfolio management; investment advice; and trust, fiduciary, and custody services.

APPENDIX I: Fair Use Industry Definitions, Core

Direct life insurance carriers	524 /2	Industries in the Insurance Carriers and Related Activities subsector group establishments that are primarily engaged in one of the following: (1) underwriting (assuming the risk, assigning premiums, and so forth) annuities and insurance policies or (2) facilitating such underwriting by selling insurance policies and by providing other insurance and employee benefit related services.
Insurance carriers, except direct life insurance	524 /2	
Other Investment Pools and Funds	5259	This industry group comprises legal entities (i.e., investment pools and/or funds) organized to pool securities or other assets (except insurance and employee benefit funds) on behalf of shareholders, unitholders, or beneficiaries.
Video Tape and Disc Rental	532282	This U.S. industry comprises establishments primarily engaged in renting prerecorded video tapes and discs for home electronic equipment, including renting through vending machines.
Legal Services	5411	This industry group comprises establishments primarily engaged in offering legal services, such as those offered by offices of lawyers offices of notaries, and title abstract and settlement offices, and paralegal services.
Architectural, Engineering, and Related Services	5413	This industry group comprises establishments primarily engaged in architectural, engineering, and related services, such as drafting services, building inspection services, geophysical surveying and mapping services, surveying and mapping (except geophysical) services, and testing services.
Graphic Design Services	54143	This industry comprises establishments primarily engaged in planning, designing, and managing the production of visual communication in order to convey specific messages or concepts, clarify complex information, or project visual identities. These services can include the design of printed materials, packaging, advertising, signage systems, and corporate identification (logos). This industry also includes commercial artists engaged exclusively in generating drawings and illustrations requiring technical accuracy or interpretative skills.
Research and Development in the Physical, Engineering, and Life Sciences	54171	This industry comprises establishments primarily engaged in conducting research and experimental development in the physical, engineering, and life sciences, such as agriculture, electronics, environmental, biology, botany, biotechnology, computers, chemistry, food, fisheries, forests, geology, health, mathematics, medicine, nanotechnology, oceanography, pharmacy, physics, veterinary, and other allied subjects.
All other educational services	6111, 6112, 6113	This industry comprises establishments primarily engaged in furnishing academic courses and associated course work that comprise a basic preparatory education. A basic preparatory education ordinarily constitutes kindergarten through 12th grade. This industry includes school boards and school districts.; This industry comprises establishments primarily engaged in furnishing academic, or academic and technical, courses and granting associate degrees, certificates, or diplomas below the baccalaureate level. The requirement for admission to an associate or equivalent degree program is at least a high school diploma or equivalent general academic training. Instruction may be provided in diverse settings, such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance-learning methods. The training provided by these establishments may include the use of simulators and simulation methods.; This industry comprises establishments primarily engaged in furnishing academic courses and granting degrees at baccalaureate or graduate levels. The requirement for admission is at least a high school diploma or equivalent general academic training. Instruction may be provided in diverse settings, such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance-learning methods. The training provided by these establishments may include the use of simulators and simulation methods.
Performing Arts Companies	7111	This industry group comprises establishments primarily engaged in producing live presentations involving the performances of actors and actresses, singers, dancers, musical groups and artists, and other performing artists.
Independent Artists, Writers, and Performers	7115	This industry comprises independent (i.e., freelance) individuals primarily engaged in performing in artistic productions, in creating artistic and cultural works or productions, or in providing technical expertise necessary for these productions. This industry also includes athletes and other celebrities exclusively engaged in endorsing products and making speeches or public appearances for which they receive a fee.
Electronic and Precision Equipment Repair and Maintenance	8112	This industry comprises establishments primarily engaged in repairing and maintaining one or more of the following: (1) consumer electronic equipment; (2) computers; (3) office machines; (4) communication equipment; and (5) other electronic and precision equipment and instruments, without retailing these products as new. Establishments in this industry repair items, such as microscopes, radar and sonar equipment, televisions, stereos, video recorders, computers, fax machines, photocopying machines, two-way radios, cellular telephones, and other communications equipment, scientific instruments, and medical equipment.

1/ NAICS code 4541 was retired in the 2022 revision,

2/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.

APPENDIX II: Fair Use Industry Definitions, Non-Core

Non-Core Industry	2022 NAICS Codes	Detailed NAICS Description
Securities and commodity exchanges	5232	This industry comprises establishments primarily engaged in furnishing physical or electronic marketplaces for the purpose of facilitating the buying and selling of stocks, stock options, bonds, or commodity contracts.
Insurance agencies, brokerages, and related activities	524 /1	Industries in the Insurance Carriers and Related Activities subsector group establishments that are primarily engaged in one of the following: (1) underwriting (assuming the risk, assigning premiums, and so forth) annuities and insurance policies or (2) facilitating such underwriting by selling insurance policies and by providing other insurance and employee benefit related services.
Business Schools and Computer and Management Training, Technical and Trade Schools, Other Schools and Instruction, Educational Support Services	6114, 6115, 6116, 6117	This industry group comprises establishments primarily engaged in one of the following: (1) offering courses in office procedures and secretarial and stenographic skills and may offer courses in basic office skills, such as word processing; (2) conducting computer training (except computer repair); or (3) offering an array of short duration courses and seminars for management and professional development. Instruction may be provided in diverse settings, such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance-learning methods. The training provided by these establishments may include the use of simulators and simulation methods.; This industry comprises establishments primarily engaged in offering vocational and technical training in a variety of technical subjects and trades. The training often leads to job-specific certification. Instruction may be provided in diverse settings, such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance-learning methods. The training provided by these establishments may include the use of simulators and simulation methods.; This industry group comprises establishments primarily engaged in offering or providing instruction (except academic schools, colleges, and universities; business, computer, and management instruction; and technical and trade instruction). Instruction may be provided in diverse settings, such as the establishment's or client's training facilities, educational institutions, the workplace, or the home, and through diverse means, such as correspondence, television, the Internet, or other electronic and distance learning methods. The training provided by these establishments may include the use of simulators and simulation methods.; This industry comprises establishments primarily engaged in providing non-instructional services that support educational processes or systems.
Printing and Related Support Activities	323	Industries in the Printing and Related Support Activities subsector print products, such as newspapers, books, labels, business cards, stationery, business forms, and other materials, and perform support activities, such as data imaging, platemaking services, and bookbinding. The support activities included here are an integral part of the printing industry, and a product (a printing plate, a bound book, or a computer disk or file) that is an integral part of the printing industry is almost always provided by these operations.
Communications Equipment Manufacturing	3342	This industry group comprises establishments primarily engaged in manufacturing wire telephone and data communications equipment, radio and television broadcast and wireless communications equipment, and all other communications equipment.
Communication and Energy Wire and Cable Manufacturing	33592	This industry comprises establishments primarily engaged in insulating fiber optic cable, and manufacturing insulated nonferrous wire and cable from nonferrous wire drawn in other establishments.
Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	42343	This industry comprises establishments primarily engaged in the merchant wholesale distribution of computers, computer peripheral equipment, loaded computer boards, and/or computer software.
Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	42362	This industry comprises establishments primarily engaged in the merchant wholesale distribution of household-type gas and electric appliances (except water heaters and heating stoves (i.e., noncooking)), room air-conditioners, and/or household-type audio or video equipment.
Other Electronic Parts and Equipment Merchant Wholesalers	4236901	This industry comprises establishments primarily engaged in the merchant wholesale distribution of electronic parts and equipment (except electrical apparatus and equipment, wiring supplies, and construction materials; electrical and electronic appliances; and television sets and radios).
Electrical and electronic goods agents and brokers	42512036	This industry comprises wholesale trade agents and brokers acting on behalf of buyers or sellers in the wholesale distribution of goods, including those that use the Internet or other electronic means to bring together buyers and sellers. Agents and brokers do not take title to the goods being sold but rather receive a commission or fee for their service. Agents and brokers for all durable and nondurable goods are included in this industry.
Business to Business Electronic Markets	425110	This industry comprises business-to-business electronic markets bringing together buyers and sellers of goods using the Internet or other electronic means and generally receiving a commission or fee for the service. Business-to-business electronic markets for durable and nondurable goods are included in this industry.

APPENDIX II: Fair Use Industry Definitions, Non-Core

Telecommunications	517 - Non-ISP /2	Industries in the Telecommunications subsector group establishments that provide telecommunications and the services related to that activity (e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; Internet access; telecommunications reselling services). The Telecommunications subsector is primarily engaged in operating and/or providing access to facilities for the transmission of voice, data, text, sound, and video. Transmission facilities may be based on a single technology or a combination of technologies. Establishments primarily engaged as independent contractors in the installation and maintenance of telecommunications systems are classified in Sector 23, Construction.
Computer Systems Design and Related Services	5415	This industry comprises establishments primarily engaged in providing expertise in the field of information technologies through one or more of the following activities: (1) writing, modifying, testing, and supporting software to meet the needs of a particular customer; (2) planning and designing computer systems that integrate computer hardware, software, and communication technologies; (3) on-site management and operation of clients' computer systems and/or data processing facilities; and (4) other professional and technical computer related advice and services.
Management, Scientific, and Technical Consulting Services	5416	This industry group comprises establishments primarily engaged in providing advice and assistance to businesses and other organizations on management, environmental, scientific, and technical issues.
Promoters of Performing Arts, Sports, and Similar Events	7113	This industry group comprises establishments primarily engaged in organizing, promoting, and/or managing live performing arts productions, sports events, and similar events, held in facilities that they manage and operate or in facilities that are managed and operated by others.
Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	7114	This industry comprises establishments of agents and managers primarily engaged in representing and/or managing creative and performing artists, sports figures, entertainers, and other public figures. The representation and management includes activities, such as representing clients in contract negotiations; managing or organizing clients' financial affairs; and generally promoting the careers of their clients.
Book Stores and News Dealers	4592	This industry comprises establishments primarily engaged in retailing new books, newspapers, magazines, and other periodicals (without publishing).
Electronics and Appliance Retailers	449210	This industry comprises establishments primarily engaged in one of the following: (1) retailing an array of new household-type appliances and consumer-type electronic products, such as televisions, computers, electronic tablets, and cameras; (2) specializing in retailing a single line of new consumer-type electronic products; (3) retailing these new products in combination with repair and support services; (4) retailing new prepackaged or downloadable computer software (without publishing); and/or (5) retailing prerecorded audio and video media, such as downloadable digital music and video files (without production or publishing), CDs, and DVDs.

1/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.
2/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this report, ISP values have been added to core and subtracted from non-core

APPENDIX III: Revenue Data for Fair Use Industries (Millions of Dollars)

Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
333310	Commercial and Service Industry Machinery Manufacturing	1,545	1,268	1,011	828	1,021	1,272	1,205
334111, 334112, 334118	Computer and Peripheral Equipment Manufacturing	20,349	21,962	21,380	20,022	20,816	19,838	20,993
3343	Audio and Video Equipment Manufacturing	3,010	3,010	3,010	3,787	4,467	5,093	5,704
334413	Semiconductor and Related Device Manufacturing	51,830	50,458	50,942	54,656	59,500	62,435	62,355
3346	Manufacturing and Reproducing Magnetic and Optical Media	1,800	1,705	1,326	1,137	1,800	1,614	1,614
4541	Electronic Shopping and Mail-Order Houses	513,132	573,802	645,454	874,332	1,002,629	1,101,255	1,223,595
5121	Motion Picture and Video Industries	88,587	95,344	96,883	83,033	94,943	108,617	112,155
51225	Record Production and Distribution	7,344	7,982	8,781	9,180	10,457	12,847	13,323
513, 516, 519	Publishing Industries, Broadcasting and Content Providers, Web Search Portals, Libraries, Archives, and Other Information Services	649,883	665,670	661,127	680,823	721,424	937,877	958,619
518	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	157,477	185,005	206,276	228,530	276,524	329,466	349,617
5231	Securities and commodity contracts intermediation and brokerage	244,104	260,901	274,632	284,440	322,080	324,832	378,042
5239	Other financial investment activities	339,965	358,780	397,120	456,836	599,468	451,606	517,943
524 /2	Direct life insurance carriers	91,900	93,000	92,400	90,800	99,300	109,100	118,300
524 /2	Insurance carriers, except direct life insurance	588,400	622,600	639,700	674,800	676,000	725,400	713,600
5259	Other Investment Pools and Funds	49,303	46,735	46,171	48,771	56,602	59,734	64,526
532282	Video Tape and Disc Rental	2,128	2,193	2,236	2,121	2,539	588	598
5411	Legal Services	354,700	358,800	371,000	374,700	412,300	437,800	447,700
5413	Architectural, Engineering, and Related Services	312,495	330,170	350,777	345,294	366,467	406,514	433,899
54143	Graphic Design Services	8,551	8,953	9,496	9,590	11,433	9,785	10,335
54171	Research and Development in the Physical, Engineering, and Life Sciences	153,313	167,540	190,651	203,017	239,635	331,224	363,320
6111, 6112, 6113	All other educational services	282,500	289,400	298,600	275,400	292,100	323,400	345,700
7111	Performing Arts Companies	16,157	16,794	17,547	12,625	12,683	18,271	21,988
7115	Independent Artists, Writers, and Performers	19,914	22,013	23,511	18,330	25,567	28,629	25,189
8112	Electronic and Precision Equipment Repair and Maintenance	4,612	4,654	4,826	4,783	4,848	16,664	17,825
	Core Industries Subtotal	**3,962,999**	**4,188,739**	**4,414,858**	**4,757,836**	**5,314,602**	**5,823,862**	**6,208,143**
	Estimated ISP Revenues 1/	**198,676**	**196,345**	**203,965**	**226,910**	**242,115**	**235,345**	**230,210**
	Core Industries Total	**4,161,676**	**4,385,085**	**4,618,823**	**4,984,746**	**5,556,716**	**6,059,207**	**6,438,353**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

2/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.

APPENDIX III: Revenue Data for Fair Use Industries (Millions of Dollars)

Non-Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
5232	Securities and commodity exchanges	11,827	12,641	13,306	13,781	15,605	16,492	19,193
524 /2	Insurance agencies, brokerages, and related activities	362,900	381,800	400,600	425,400	458,000	492,400	546,300
6114, 6115, 6116, 6117	Business Schools and Computer and Management Training, Technical and Trade Schools, Other Schools and Instruction, Educational Support Services	65,718	70,187	74,043	71,239	81,666	89,552	100,667
323	Printing and Related Support Activities	82,751	82,033	79,982	73,214	77,008	90,914	90,914
3342	Communications Equipment Manufacturing	34,864	38,268	38,033	36,977	37,094	41,261	41,142
33592	Communication and Energy Wire and Cable Manufacturing	10,936	10,648	11,224	10,744	13,046	13,767	13,767
42343	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	259,741	271,819	279,165	273,811	308,053	331,350	321,918
42362	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	117,889	123,991	122,841	120,890	144,898	140,116	143,930
4236901	Other Electronic Parts and Equipment Merchant Wholesalers	199,734	210,073	218,896	224,469	275,895	248,707	255,478
42512036	Electrical and electronic goods agents and brokers	75,321	65,743	75,901	44,844	87,076	96,647	74,528
425110	Business to Business Electronic Markets	3,101	2,706	2,727	1,624	1,877	2,481	2,529
517 - Non-ISP	Telecommunications	418,123	434,004	451,704	455,119	498,841	412,716	405,599
5415	Computer Systems Design and Related Services	442,827	478,916	482,330	496,148	529,799	600,591	626,936
5416	Management, Scientific, and Technical Consulting Services	561,400	603,300	660,600	686,800	792,800	883,700	949,600
7113	Promoters of Performing Arts, Sports, and Similar Events	29,367	31,758	34,261	20,968	29,478	40,930	47,526
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	7,868	8,509	9,179	5,618	7,898	10,812	12,555
4592	Book Stores and News Dealers	10,403	10,252	10,600	12,216	17,363	15,385	14,684
449210	Electronics and Appliance Retailers	91,247	92,806	89,659	72,939	92,777	91,697	90,630
	Non-Core Industries Subtotal	**2,984,693**	**3,125,800**	**3,259,017**	**3,273,712**	**3,711,291**	**3,854,861**	**3,988,106**
	Estimated ISP Revenues 1/	**198,676**	**196,345**	**203,965**	**226,910**	**242,115**	**235,345**	**230,210**
	Non-Core Industries Total	**2,786,017**	**2,929,454**	**3,055,052**	**3,046,802**	**3,469,176**	**3,619,516**	**3,757,896**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

2/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.

APPENDIX IV: Value Added Data for Fair Use Industries (Millions of Dollars)

Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
333310	Commercial and Service Industry Machinery Manufacturing	897	856	613	485	631	777	737
334111, 334112, 334118	Computer and Peripheral Equipment Manufacturing	7,793	8,411	8,188	7,668	7,972	7,991	8,456
3343	Audio and Video Equipment Manufacturing	1,691	1,691	1,691	2,128	2,510	2,545	2,850
334413	Semiconductor and Related Device Manufacturing	29,962	29,169	29,449	31,596	34,396	34,331	34,287
3346	Manufacturing and Reproducing Magnetic and Optical Media	976	924	719	616	976	826	826
4541	Electronic Shopping and Mail-Order Houses	122,218	136,669	153,735	208,249	238,807	262,298	291,437
5121	Motion Picture and Video Industries	57,393	54,918	51,404	42,787	52,300	63,115	63,295
51225	Record Production and Distribution	4,758	4,598	4,659	4,730	5,760	7,465	7,519
513, 516, 519	Publishing Industries, Broadcasting and Content Providers, Web Search Portals, Libraries, Archives, and Other Information Services	404,015	419,619	423,868	427,900	462,403	520,859	534,030
518	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	86,157	92,770	112,522	129,056	151,132	200,484	232,706
5231	Securities and commodity contracts intermediation and brokerage	125,169	129,297	134,386	140,751	149,171	140,284	172,135
5239	Other financial investment activities	175,398	180,535	182,231	224,117	297,738	219,144	226,459
524 /2	Direct life insurance carriers	54,800	55,100	58,700	57,500	57,500	61,700	63,300
524 /2	Insurance carriers, except direct life insurance	314,500	331,400	347,700	354,300	340,100	363,900	370,300
5259	Other Investment Pools and Funds	2,130	313	564	345	6,735	6,202	5,889
532282	Video Tape and Disc Rental	1,296	1,313	1,343	1,287	1,354	314	318
5411	Legal Services	266,400	277,100	290,100	288,500	326,500	348,800	362,700
5413	Architectural, Engineering, and Related Services	198,405	209,275	222,508	211,733	223,832	252,879	277,714
54143	Graphic Design Services	5,612	5,923	6,270	6,433	7,805	6,159	6,726
54171	Research and Development in the Physical, Engineering, and Life Sciences	72,575	79,898	86,922	98,987	110,933	150,052	169,924
6111, 6112, 6113	All other educational services	194,076	201,444	210,680	197,266	204,690	216,093	227,838
7111	Performing Arts Companies	10,290	10,748	10,986	8,145	7,236	10,348	13,396
7115	Independent Artists, Writers, and Performers	12,683	14,087	14,721	11,826	14,587	16,215	15,346
8112	Electronic and Precision Equipment Repair and Maintenance	129	136	143	141	155	167	181
	Core Industries Subtotal	**2,149,322**	**2,246,195**	**2,354,102**	**2,456,547**	**2,705,221**	**2,892,948**	**3,088,371**
	Estimated ISP Value Added 1/	**114,594**	**114,397**	**123,585**	**126,623**	**126,569**	**136,789**	**139,178**
	Core Industries Total	**2,263,916**	**2,360,591**	**2,477,687**	**2,583,170**	**2,831,790**	**3,029,737**	**3,227,549**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

2/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.

APPENDIX IV: Value Added Data for Fair Use Industries (Millions of Dollars)

Non-Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
5232	Securities and commodity exchanges	6,065	6,265	6,511	6,819	7,227	7,122	8,739
524 /2	Insurance agencies, brokerages, and related activities	199,600	209,100	225,100	222,500	239,800	261,200	287,500
6114, 6115,6116,6117	Business Schools and Computer and Management Training, Technical and Trade Schools, Other Schools and Instruction, Educational Support Services	45,148	48,856	52,242	51,027	57,228	59,838	66,346
323	Printing and Related Support Activities	49,210	48,783	47,564	43,539	45,795	54,028	54,028
3342	Communications Equipment Manufacturing	19,883	21,824	21,690	21,088	21,155	20,576	20,517
33592	Communication and Energy Wire and Cable Manufacturing	4,299	4,186	4,413	4,224	5,129	5,667	5,667
42343	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	34,973	35,911	38,125	39,420	40,388	45,404	46,398
42362	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	15,873	16,381	16,776	17,404	18,997	19,200	20,745
4236901	Other Electronic Parts and Equipment Merchant Wholesalers	26,893	27,754	29,894	32,316	36,171	34,080	36,822
42512036	Electrical and electronic goods agents and brokers	10,142	8,686	10,366	6,456	11,416	13,243	10,742
425110	Business to Business Electronic Markets	417	358	372	234	246	340	365
517 - Non-ISP	Telecommunications	243,206	253,803	274,815	255,077	265,231	244,411	248,822
5415	Computer Systems Design and Related Services	303,653	330,685	343,381	354,173	377,659	411,968	434,292
5416	Management, Scientific, and Technical Consulting Services	204,400	217,000	232,800	228,700	271,100	314,300	336,300
7113	Promoters of Performing Arts, Sports, and Similar Events	18,703	20,324	21,451	13,529	16,818	23,182	28,956
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	5,011	5,445	5,747	3,625	4,506	6,124	7,649
4592	Book Stores and News Dealers	2,478	2,420	2,542	2,933	4,012	3,596	3,631
449210	Electronics and Appliance Retailers	21,733	21,906	21,501	17,512	21,439	21,434	22,410
	Non-Core Industries Subtotal	**1,326,281**	**1,394,083**	**1,478,876**	**1,447,200**	**1,570,887**	**1,682,503**	**1,779,105**
	Estimated ISP Value Added 1/	**114,594**	**114,397**	**123,585**	**126,623**	**126,569**	**136,789**	**139,178**
	Non-Core Industries Total	**1,211,686**	**1,279,687**	**1,355,291**	**1,320,578**	**1,444,319**	**1,545,714**	**1,639,927**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

2/ Revenues and value added reported for insurance-related activities under NAICS sector 524 are derived from BEA Gross output tables.

APPENDIX V: Estimated Contribution of Core Industry Value Added to GDP

		Chain-type quantity index							Real value added 1/		
2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023	2017	2023	Contribution to change in GDP
333310	Commercial and Service Industry Machinery Manufacturing	100	95	72	59	72	98	113	829	941	0.0%
334111, 334112, 334118	Computer and Peripheral Equipment Manufacturing	100	107	101	93	99	104	112	8,218	9,195	0.0%
3343	Audio and Video Equipment Manufacturing	100	99	100	129	155	173	204	1,648	3,356	0.0%
334413	Semiconductor and Related Device Manufacturing	100	95	95	101	107	110	111	31,187	34,492	0.0%
3346	Manufacturing and Reproducing Magnetic and Optical Media	100	94	74	65	104	97	102	951	972	0.0%
4541	Electronic Shopping and Mail-Order Houses	100	111	130	172	210	195	243	162,137	393,324	2.9%
5121	Motion Picture and Video Industries	100	96	88	72	87	109	108	59,624	64,429	0.1%
51225	Record Production and Distribution	100	97	96	96	116	156	155	4,943	7,654	0.0%
513, 516, 519	Publishing Industries, Broadcasting and Content Providers, Web Search Portals, Libraries, Archives, and Other Information Services	100	101	102	102	108	119	122	418,703	509,363	1.1%
518	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	100	103	124	141	161	208	236	91,515	216,326	1.5%
5231	Securities and commodity contracts intermediation and brokerage	100	110	116	132	160	132	160	106,686	170,284	0.8%
5239	Other financial investment activities	100	110	113	150	228	147	150	149,498	224,023	0.9%
524 /2	Direct life insurance carriers	100	99	105	102	103	112	112	56,149	63,147	0.1%
524 /2	Insurance carriers, except direct life insurance	100	112	116	129	118	133	150	274,577	412,567	1.7%
5259	Other Investment Pools and Funds	100	22	57	28	473	1,136	1,504	1,229	18,480	0.2%
532282	Video Tape and Disc Rental	100	103	105	101	112	28	29	1,275	373	0.0%
5411	Legal Services	100	107	117	123	145	163	180	234,668	423,280	2.3%
5413	Architectural, Engineering, and Related Services	100	108	117	112	116	135	156	189,554	296,207	1.3%
54143	Graphic Design Services	100	107	113	117	143	118	141	5,479	7,707	0.0%
54171	Research and Development in the Physical, Engineering, and Life Sciences	100	116	128	159	183	251	292	62,089	181,270	1.5%
6111, 6112, 6113	All other educational services	100	106	114	110	117	126	139	179,485	249,699	0.9%
7111	Performing Arts Companies	100	106	110	84	74	107	150	9,714	14,553	0.1%
7115	Independent Artists, Writers, and Performers	100	113	119	99	121	136	139	11,973	16,672	0.1%
8112	Electronic and Precision Equipment Repair and Maintenance	100	108	119	123	143	175	230	114	262	0.0%
517 (Estimated ISP share)	Internet Service Providers	100	98	105	107	104	110	112	118,760	132,750	0.2%
TOTAL CORE									**2,181,005**	**3,451,327**	**15.7%**

1/ Represents the dollar-denominated level of output when the chain-type index ratios (i.e. 2017 to 2018 and 2018 to 2019) are applied to estimated nominal industry output for 2020

2/ Includes ISP value added.

Sources: APPENDIX 4; Bureau of Economic Analysis (http://www.bea.gov/industry/gdpbyind_data.htm); J. Steven Landefeld and Robert P. Parker, "BEA's Chain Indexes,

APPENDIX VI: Employment Data for Fair Use Industries (Thousands)

Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
333310	Commercial and Service Industry Machinery Manufacturing	4	3	3	3	3	3	3
334111, 334112, 334118	Computer and Peripheral Equipment Manufacturing	123	122	123	120	115	116	115
3343	Audio and Video Equipment Manufacturing	34	34	32	32	30	31	31
334413	Semiconductor and Related Device Manufacturing	179	182	185	186	188	200	204
3346	Manufacturing and Reproducing Magnetic and Optical Media	34	34	32	32	30	31	31
4541	Electronic Shopping and Mail-Order Houses	409	430	436	467	502	505	493
5121	Motion Picture and Video Industries	388	396	392	254	331	397	350
51225	Record Production and Distribution	5	6	6	6	7	7	7
51111 /1	Newspaper publishers	169	153	139	134	116	112	91
51114, 51119 /1	Directory, and mailing list publishers; Other publishers	42	33	34	32	29	32	30
5112 1/	Software Publishers	644	672	690	737	769	875	1,011
519 1/	Other information services	302	318	337	363	364	391	409
518	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	318	331	343	362	402	466	485
5231	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	451	456	453	442	444	462	475
5239	Other financial investment activities	468	482	491	498	520	558	586
5241	Insurance Carriers and Related Activities	1,544	1,539	1,552	1,569	1,551	1,544	1,654
5259	Other Investment Pools and Funds	7	9	10	11	13	17	18
532282	Video Tape and Disc Rental	156	149	145	122	121	129	133
5411	Legal Services	1,137	1,142	1,151	1,129	1,153	1,178	1,187
5413	Architectural, Engineering, and Related Services	1,499	1,536	1,575	1,558	1,594	1,663	1,719
54143	Graphic Design Services	63	62	61	55	57	59	58
54171	Research and Development in the Physical, Engineering, and Life Sciences	600	629	670	703	765	828	861
6111, 6112, 6113	All other educational services	2,978	2,993	3,061	3,057	2,800	2,950	3,087
7111	Performing Arts Companies	89	90	95	52	59	90	97
7115	Independent Artists, Writers, and Performers	51	51	53	41	49	58	60
8112	Electronic and Precision Equipment Repair and Maintenance	103	103	105	100	105	106	106
	Core Industries Total	**11,799**	**11,954**	**12,175**	**12,063**	**12,116**	**12,807**	**13,299**

1/ NAICS codes 51111, 51114, 51119, 5112, 519, 5151, and 5152 are reported as the combined sectors 513, 516, and 519 in other tables as these industries were split amongst those sectors in the 2022 revision, which prevents reporting on a disaggregated basis. Current employment data is available on the 2017 NAICS basis and is reported as such here. Disaggregated employment data allows for more precise calculations of productivity.

APPENDIX VI: Employment Data for Fair Use Industries (Thousands)

Non-Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
5151 1/	Radio and television broadcasting	210	204	213	220	215	218	212
5152 1/	Cable and other subscription programming	51	51	54	54	58	54	50
5232	Securities and commodity exchanges	5	5	6	6	6	7	7
5242	Agencies, brokerages, and other insurance related activities	1,052	1,142	1,177	1,230	1,248	1,322	1,311
6114, 6115, 6116, 6117	Business Schools and Computer and Management Training, Technical and Trade Schools, Other Schools and Instruction, Educational Support Services	710	739	748	775	688	794	839
3231	Printing and Related Support Activities	444	439	429	415	370	389	386
33592	Communication and Energy Wire and Cable Manufacturing	18	24	25	25	23	23	24
3342	Communications Equipment Manufacturing	136	133	133	136	138	138	138
42343	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	223	221	224	220	220	233	234
42362	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	177	176	176	169	170	177	180
42369	Other Electronic Parts and Equipment Merchant Wholesalers	137	145	143	136	136	142	144
42511, 425120	Business to Business Electronic Markets, Wholesale Trade Agents and Brokers	291	284	273	266	240	250	244
449210	Electronics stores	260	252	239	217	172	170	148
4592	Book stores and news dealers	83	70	64	63	46	51	52
517312, 5174, 5179	Satellite Telecommunications, Other Telecommunications	369	391	374	353	338	336	319
5415	Wireless Telecommunications Carriers (except Satellite), Computer Systems Design and Related Services	2,051	2,118	2,195	2,197	2,310	2,454	2,469
7113, 7114	Promoters of Performing Arts, Sports, and Similar Events; Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	170	178	181	111	127	171	191
5251	Funds, Trusts, and Other Financial Vehicles	5	6	7	8	8	10	12
5416	Management, Scientific, and Technical Consulting Services	1,433	1,482	1,535	1,528	1,643	1,784	1,856
	Non-Core Industries Total	**7,826**	**8,058**	**8,195**	**8,126**	**8,156**	**8,722**	**8,816**

1/ NAICS codes 51111, 51114, 51119, 5112, 519, 5151, and 5152 are reported as the combined sectors 513, 516, and 519 in other tables as these industries were split amongst those sectors in the 2022 revision, which prevents reporting on a disaggregated basis. Current employment data is available on the 2017 NAICS basis and is reported as such here. Disaggregated employment data allows for more precise calculations of productivity.

APPENDIX VII: Annual Payroll for Fair Use Industries (Millions of Dollars)

Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
333310	Commercial and Service Industry Machinery Manufacturing	256	240	236	204	222	251	237
334111, 334112, 334118	Computer and Peripheral Equipment Manufacturing	3,129	3,417	3,370	3,329	4,027	4,112	3,845
3343	Audio and Video Equipment Manufacturing	565	637	679	670	698	821	861
334413	Semiconductor and Related Device Manufacturing	11,195	11,660	11,887	12,789	13,266	14,901	16,028
3346	Manufacturing and Reproducing Magnetic and Optical Media	462	439	417	394	371	412	320
4541	Electronic Shopping and Mail-Order Houses	34,925	37,230	37,498	43,016	51,114	54,405	58,685
5121	Motion Picture and Video Industries	16,466	17,231	17,807	15,978	17,645	18,787	18,795
51225	Record Production and Distribution	1,277	1,433	1,482	1,560	1,751	1,785	2,032
513, 516, 519	Publishing Industries, Broadcasting and Content Providers, Web Search Portals, Libraries, Archives, and Other Information Services	190,033	210,097	222,066	257,170	305,994	315,890	356,685
518	Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	53,798	57,689	62,259	67,047	83,931	83,194	92,959
5231	Securities and commodity contracts intermediation and brokerage	84,457	85,337	84,227	88,335	101,600	108,835	109,317
5239	Other financial investment activities	111,249	116,159	120,022	128,066	149,739	157,728	160,545
5241	Insurance Carriers	141,050	148,695	150,298	156,428	160,662	167,224	177,160
525	Funds, Trusts, and Other Financial Vehicles	537	669	1,012	1,096	1,414	1,707	1,669
532282	Video Tape and Disc Rental	218	205	199	173	152	155	147
5411	Legal Services	107,546	111,027	115,422	119,578	129,409	138,075	144,008
5413	Architectural, Engineering, and Related Services	125,593	135,935	141,639	144,754	150,292	164,570	178,976
54143	Graphic Design Services	3,071	3,053	3,065	2,965	3,126	3,390	3,204
54171	Research and Development in the Physical, Engineering, and Life Sciences	88,119	97,647	104,597	114,772	128,230	138,527	149,789
6111, 6112, 6113	All other educational services	120,520	124,702	132,184	134,678	138,612	148,258	163,604
7111	Performing Arts Companies	4,689	4,916	5,085	3,206	3,607	5,333	5,823
7115	Independent Artists, Writers, and Performers	8,425	8,638	9,460	8,483	10,026	11,490	10,279
8112	Electronic and Precision Equipment Repair and Maintenance	1,583	1,546	1,545	1,516	1,593	1,697	1,653
	Core Industries Subtotal	**1,109,161**	**1,178,604**	**1,226,457**	**1,306,206**	**1,457,481**	**1,541,547**	**1,656,622**
	Estimated ISP Payroll 1/	**25,300**	**26,376**	**26,196**	**28,431**	**26,047**	**29,638**	**30,524**
	Core Industries Total	**1,134,461**	**1,204,979**	**1,252,653**	**1,334,637**	**1,483,529**	**1,571,186**	**1,687,146**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

APPENDIX VII: Annual Payroll for Fair Use Industries (Millions of Dollars)

Non-Core Industries

2022 NAICS Codes	Description	2017	2018	2019	2020	2021	2022	2023
5232	Securities and commodity exchanges	1,303	1,315	1,451	1,413	1,462	1,566	1,603
5242	Agencies, Brokerages, and Other Insurance Related Activities	70,564	80,308	84,949	91,878	98,895	107,610	115,183
6114, 6115, 6116, 6117	Business Schools and Computer and Management Training, Technical and Trade Schools, Other Schools and Instruction, Educational Support Services	22,517	23,753	25,079	24,539	28,475	32,170	34,052
323	Printing and Related Support Activities	20,827	21,051	20,650	19,047	19,531	21,675	22,169
3342	Communications Equipment Manufacturing	8,033	8,084	7,653	7,756	7,647	8,319	9,008
33592	Communication and Energy Wire and Cable Manufacturing	1,466	1,483	1,512	1,514	1,494	1,550	1,756
42343	Computer and Computer Peripheral Equipment and Software Merchant Wholesalers	20,828	20,477	20,380	21,521	24,388	25,808	27,749
42362	Household Appliances, Electric Housewares, and Consumer Electronics Merchant Wholesalers	3,946	4,132	4,414	4,504	5,176	5,143	5,125
42369	Other Electronic Parts and Equipment Merchant Wholesalers	32,449	33,258	33,926	34,138	38,944	39,987	41,781
425	Wholesale Electronic Markets and Agents and Brokers	15,538	15,673	15,517	14,989	16,061	17,504	17,549
517	Telecommunications (Non-ISP)	82,026	84,807	84,759	85,081	83,276	81,795	83,948
5415	Computer Systems Design and Related Services	177,788	190,707	201,742	222,622	247,745	261,708	250,783
5416	Management, Scientific, and Technical Consulting Services	107,962	116,785	125,563	132,946	150,437	169,629	184,227
7113	Promoters of Performing Arts, Sports, and Similar Events	5,207	5,516	5,854	4,720	5,173	7,139	7,705
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	2,521	2,687	2,931	2,539	2,907	3,899	3,921
4592	Book Stores and News Dealers	1,285	1,254	1,142	896	1,003	1,144	1,202
449210	Electronics and Appliance Retailers	8,059	7,566	7,257	6,421	6,764	6,741	5,925
	Non-Core Industries Subtotal	**582,318**	**618,856**	**644,780**	**676,526**	**739,378**	**793,388**	**813,687**
	Estimated ISP Payroll 1/	**25,300**	**26,376**	**26,196**	**28,431**	**26,047**	**29,638**	**30,524**
	Non-Core Industries Total	**557,019**	**592,481**	**618,584**	**648,095**	**713,331**	**763,750**	**783,163**

1/ ISPs have been counted in non-core industries since the 2007 NAICS revision. In this table, ISP values have been added to core and subtracted from non-core.

APPENDIX VIII: U.S. Exports for Fair Use Industries, Goods (Millions of Dollars)

Goods	2017	2018	2019	2020	2021	2022	2023
Communication & Energy Wires & Cables	5,616	5,518	5,603	4,649	5,790	2,847	2,724
Manufacturing and reproducing magnetic and optical media	2,377	2,112	2,072	1,872	1,931	1,672	1,480
Semiconductors and related devices	27,458	27,367	30,382	30,530	33,993	28,755	24,079
AV Equipment	3,526	3,298	2,926	2,412	2,605	3,060	3,785
Communications Equipment	17,075	16,361	14,616	12,531	13,187	13,399	15,387
Computer and peripheral equipment	3,526	3,298	2,926	2,412	2,605	19,116	3,785
Photographic and photocopying equipment	1,820	1,925	1,853	1,554	1,630	1,512	11,018
Printing and related support	4,799	4,633	4,540	3,985	4,682	4,852	4,596
Total	**66,196**	**64,511**	**64,918**	**59,946**	**66,424**	**75,212**	**66,854**

1/ Software publisher's exports have been reclassified as a service export.

APPENDIX IX: U.S. Exports for Fair Use Industries, Services (Millions of Dollars)

Sector	2017	2018	2019	2020	2021	2022	2023
Financial Services	131,733	136,273	142,546	150,838	171,304	167,025	175,288
Insurance Services	18,976	19,119	18,589	20,035	23,027	23,352	24,594
Telecommunications	10,220	8,736	7,725	7,365	6,212	6,037	6,705
Education Services	2,444	1,969	2,297	4,171	6,117	5,369	4,391
Computer and Information Services	37,437	41,378	52,701	52,906	57,671	65,368	71,778
Business and management consulting and public relations services	54,100	59,340	65,456	74,011	85,623	96,599	97,662
Research and Development	45,550	48,370	47,455	44,436	47,647	54,672	51,137
Movies and Television Programming	1,581	1,539	1,129	1,277	1,874	1,793	1,921
Architectural and Engineering Services	14,955	14,884	12,223	9,641	9,479	11,223	12,573
Legal Services	11,301	11,473	12,544	12,565	14,037	13,677	14,611
Sports and Performing Arts	711	534	516	214	156	306	414
Trade-Related Serivces	2,177	2,524	2,051	1,465	1,942	2,181	2,368
Total	**331,185**	**346,139**	**365,232**	**378,924**	**425,089**	**447,602**	**463,442**

1/ Software publisher's exports have been reclassified as a service export.

2/ Some sectors have been redefined since the previous edition of CCIA's Fair Use Study. Service exports for a given industry may not be directly comparable with exports for a similarly titled industry reported in the 2016 report.

APPENDIX X: AI Industries

2022 NAICS Code	Description	Revenue						
		2017	2018	2019	2020	2021	2022	2023
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	94,105	102,837	127,882	169,341	264,687	195,739	214,706
541519	Other Computer-Related Services	24,054	26,237	29,312	33,937	43,547	54,973	57,403
541511	Custom Computer Programming Services	194,566	212,224	237,102	274,511	352,250	278,509	290,822
541512	Computer Systems Design Services	204,182	222,713	248,821	288,078	369,659	243,316	258,198
518210	Data Processing, Hosting, and Related Services	157,477	185,005	242,333	351,671	617,521	329,466	349,617
513210	Software Publishers	276,234	293,762	334,686	418,566	597,803	492,930	534,787
541513	Computer Facilities Management Services	20,025	21,843	24,403	28,253	36,255	23,793	24,845
Total for all AI Industries		970,643	1,064,619	1,244,540	1,564,357	2,281,722	1,618,726	1,730,377

2022 NAICS Code	Description	Value Added						
		2017	2018	2019	2020	2021	2022	2023
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	44,547	49,042	58,304	82,568	122,530	88,674	100,418
541519	Other Computer-Related Services	16,494	18,116	20,868	24,226	31,042	37,708	39,765
541511	Custom Computer Programming Services	133,417	146,538	168,798	195,958	251,097	191,040	201,459
541512	Computer Systems Design Services	140,010	153,780	177,141	205,643	263,506	166,900	178,859
518210	Data Processing, Hosting, and Related Services	86,157	92,770	132,191	198,597	337,501	200,484	232,706
513210	Software Publishers	172,830	182,230	227,116	297,433	434,442	325,395	370,622
541513	Computer Facilities Management Services	13,732	15,082	17,373	20,169	25,844	16,320	17,210
Total for all AI Industries		607,186	657,558	801,791	1,024,593	1,465,962	1,026,521	1,141,039

APPENDIX X: AI Industries

2022 NAICS Code	Description	Payroll						
		2017	2018	2019	2020	2021	2022	2023
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	56,289	60,507	65,471	69,423	75,958	82,441	88,224
541519	Other Computer-Related Services	11,434	12,235	13,103	15,205	14,579	19,538	20,860
541511	Custom Computer Programming Services	82,287	90,631	96,021	106,686	121,462	132,731	125,776
541512	Computer Systems Design Services	75,395	78,876	83,524	90,418	100,546	98,204	93,602
518210	Data Processing, Hosting, and Related Services	53,798	57,689	62,259	67,047	83,931	83,194	92,959
513210	Software Publishers	101,094	111,215	116,618	136,726	158,914	172,774	203,679
541513	Computer Facilities Management Services	8,672	8,967	9,094	10,313	11,158	11,235	10,545
Total for all AI Industries		388,968	420,118	446,089	495,819	566,548	600,117	635,645

2022 NAICS Code	Description	Employment (Thousands)						
		2017	2018	2019	2020	2021	2022	2023
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	401	416	436	453	489	520	543
541519	Other Computer-Related Services	113	114	116	116	127	135	131
541511	Custom Computer Programming Services	891	928	971	977	1,027	1,109	1,112
541512	Computer Systems Design Services	977	1,003	1,033	1,030	1,082	1,132	1,148
518210	Data Processing, Hosting, and Related Services	526	547	553	557	553	570	630
513210	Software Publishers	644	672	690	737	769	875	1,011
541513	Computer Facilities Management Services	70	73	75	74	75	78	79
Total for all AI Industries		3,621	3,753	3,874	3,943	4,121	4,419	4,653