

**12th meeting of the
Voorburg Group on Services Statistics**

**Copenhagen
15-19 September 1997**

Measuring the information sector in Census Bureau Program

session 3

By
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Abstract: The North American Industry Classification System (NAICS) represents the first major structural revision of the Standard Industrial Classification (SIC) system since its introduction in the 1930s. One change introduced by NAICS is the creation of an Information Sector. This is significant because, for the first time ever, the U.S. industry classification system recognizes the intangible qualities of information products and the unique processes involved in their creation, production, and distribution. This paper addresses the challenges associated with measuring the Information Sector, the impact introducing NAICS will have on the Bureau's censuses and surveys, and data issues that also are being considered. The paper begins with a description of the Information Sector under NAICS, reviews the current coverage of information-related industries in the Bureau's censuses and surveys, and concludes with data issues.

Measuring the Information Sector in Census Bureau Programs

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Introduction

We are in the midst of an information age -- every bit as defining to our future social and economic development as the railroad and interstate highway systems were to the United States during the last century. They defined the spatial character of the country and provided the pathways for economic growth. The networks we built then of steel and concrete to move ever increasing amounts of goods and people, we build today of copper and glass into virtual highways carrying vast amounts of information.

The challenge confronting our national statistical agencies is no different now than it was then. We must evolve our data collection programs to provide relevant, timely and reliable statistics to policymakers and others that measure the impact of these changes. Facing that challenge, however, we are confronted by a changing regulatory environment and explosive technological developments.

The Telecommunications Act of 1996 was the most comprehensive revision of the United States' Federal telecommunications regulations in over 60 years. It will have a dramatic impact on the information industries by breaking down artificial barriers to market entry. The Act expanded the telecommunications market beyond traditional local and long-distance service providers to include cable TV operators and utility companies. Long-distance, cable television, wireless telephone companies, and others are free to provide local telephone service, while restrictions previously imposed on local exchange carriers in providing long-distance telephone services and equipment manufacturing were lifted. In addition, the Act enables telephone companies to sell video services, relaxes ownership rules for broadcasters, and provides rate deregulation for the cable industry. The law is expected to increase price competition, generate joint ventures and alliances as companies restructure and consolidate, and accelerate the existing trend toward multimedia businesses that span different telecommunications and other information markets.

Regulatory changes are not limited to the domestic front. In February 1997, an international agreement was signed that will open up international telecommunication markets. It is expected to result in an unprecedented volume of competition in telephone services worldwide. The accord allows the United States and European companies to enter each others markets, as well as those of many developing countries. The agreement goes into effect in January 1998, and covers markets comprising approximately 95% of worldwide telecommunications revenues.

New developments in digital and satellite technology also have blurred the boundaries that previously separated the information industries. Products and services will no longer be provided exclusively by a single narrowly-defined industry. For example, telephone and Internet services will become widely available through cable distributors, and computer monitors will be capable of serving as high-definition television receivers. Developments in satellite technology have led to a wide array of new wireless products, including direct broadcast satellite television, high speed satellite to PC services, personal communication services, and video-on-demand.

The growing use of the Internet, fax, electronic mail, and other on-line data transfer methods signals a movement toward increased use of electronic transmission over other traditional communication and distribution methods. In 1996, telephone industry analysts predicted that in the near future their business customers will transmit more data traffic than they do voice traffic.

The Internet has expanded tremendously the volume of information sharing and electronic dissemination. Publications, formerly distributed solely in hard-copy form, are available worldwide through the Internet. Many colleges, universities, and public libraries now provide users on-line access to their collections. Web programs are expected to change the way computer software is sold and distributed; software, much of it platform-independent, will be available on-demand through the Internet. Although use of the Internet as a retailing mechanism is still in its infancy, it is expected to have tremendous commercial potential once security deficiencies are corrected.

With this as a backdrop, the Census Bureau is beginning to examine methods for improving its coverage and data collection for the information sector. This paper describes these efforts.

Defining the Information Sector

Measuring the significance of information services and technology in the United States economy has been hampered by the lack of an agreed upon definition of the information sector. Further, the industries one would typically include in any definition of information (telecommunications, computer services, and publishing, as examples) are spread throughout the U.S. Standard Industrial Classification (SIC). As a result, there has been no consistency in their coverage in Census Bureau programs, nor in the frequency of our data collection, data content, or methodology for estimating industry activity.

The U.S., through its Economic Classification Policy Committee (ECPC) and in full partnership with the Instituto de Estadística, Geografía e Informática (INEGI) of Mexico, and Statistics Canada, recently adopted a new economic classification system -- the North American Industry Classification System (NAICS). By engendering uniformity and comparability of statistics among our three countries, NAICS will provide insight into the evolving interrelationships of the North American economies. It also will enable us to measure more explicitly the changes in new technologies, and the growth and diversification of services that has marked our three countries. NAICS also will enable us to produce industry statistics comparable to those using the United

Nation's International Standard Industrial Classification (ISIC, Revision 3) for about sixty high level groupings.

NAICS represents the first major structural revision of the U.S. SIC since its introduction in the mid-1930s. The original SIC codes described an economy that was primarily agricultural- and industrial-based. The code's basic hierarchical structure and major industry divisions had remained almost unchanged since its introduction. Despite subsequent revisions (the most recent in 1987), the SIC continued to be widely regarded as outdated and inadequate in its ability to reflect the emerging technology sectors, the growth of service industries, and the importance of trade and the global economy.

NAICS is organized in a hierarchical structure, much like the existing U.S. SIC. It was developed, however, with a single principle of aggregation -- that producing units with similar production processes are grouped together.

NAICS has brought about many changes; none more significant than the creation of a new Information sector. Hierarchically, this category is equivalent to what is known as a "Division" in the SIC. The Information sector is significant in that it groups establishments involved in producing other than traditional goods and services. It includes establishments primarily engaged in:

- o creating, producing, or manipulating products with intellectual property content.
- o disseminating information products other than through traditional retail and wholesale distribution channels, and
- o processing data.

The intangible qualities unique to information products and the processes involved in their creation, production, and distribution warranted the creation of a separate sector distinct from goods and services. Unlike goods and/or services, information products:

- o derive value from their informational, educational, cultural, or entertainment content and not from their tangible properties.
- o are easily copied and as a result are often protected by copyright law. Only those possessing the rights to these works are authorized to reproduce, alter or distribute them.
- o do not require direct contact between the consumer and supplier in their delivery.
- o may be distributed in various forms.

- o may have value added during their distribution.

There are 34 industries recognized in the Information sector, 20 of which are new. Included are publishing (newspapers, books, periodicals), broadcasting, motion pictures and sound recording, and telecommunications. Some of the new or revised industries are software publishers, music publishers, paging, cellular and other wireless telecommunications, telecommunication resellers, and satellite communications.

Not unlike services, a more broad or narrow view of information can be taken. It can be easily argued that advertising, marketing research, and public opinion polling could be defined within the scope of information. These establishments, however, also have shared characteristics with those found in Professional, Scientific, and Technical Services and are classified there. Similarly, independent artists, writers, and performers that contribute to the creative input of many of the information industries are instead classified in Arts, Entertainment and Recreation Services.

NAICS also recognizes the growth of information technologies with the creation of a new subsector in manufacturing covering computer and electronic products and their components. The manufacture of computers, communications equipment, audio and video equipment, semiconductors, and the reproduction of packaged software are grouped here.

Nearly all of the NAICS Information industries are contained within Divisions 22 (Publishing, Printing and Reproduction of Recorded Media), 64 (Post and Telecommunications), 72 (Computer and Related Activities), and 92 (Recreation, Cultural and Sporting Activities) of ISIC, Revision 3 facilitating international comparisons. Only radio and television broadcasting, and other publishing cannot be assigned to an ISIC division without further breakdown.

Most of ISIC 32 is included in the NAICS subsector covering computers and electronic products manufacturing. However, other ISIC Divisions (22 and 31) that also link to this subsector have significant activities classified elsewhere in NAICS.

Attachment 1 shows a detailed list of the NAICS Information service and technology industries and their SIC equivalents.

Current Census Bureau Data Collection Programs Covering the Information Sector

The Census Bureau currently collects data for many of the industries comprising the NAICS information sector, although not in a single census or survey. At present, data collection programs, generally, are organized by Division of the SIC. This results in a total of six different surveys and censuses collecting various financial and other operating statistics for Information sector-related firms. Moreover, data content is not standardized. The type and detail of information collected varies according to each survey or census. Differences also occur by industry within a survey.

Economic census data are collected every five years for years ending in "2" and "7". The next census takes place this year (1997) and will reflect the introduction of NAICS. Most annual surveys will implement NAICS beginning in calendar year 2000 for the 1999 reference year. The publishing industries will be surveyed annually on a NAICS basis one year earlier.

Following are brief descriptions of the Bureau's current surveys and censuses that cover Information-related industries:

Telecommunications and Broadcasting:

1. Annual Survey Coverage

The Annual Survey of Communication Services (ASCS) provides national-level estimates of revenues and expenditures for the telephone, radio and television broadcasting, cable television, and other communication services industries (SIC 48).

The ASCS is based on a probability sample selected from all employer businesses that make Social Security payments for employees. Data are collected at an enterprise (company) and legal entity (Federal Identification Number or EIN) level depending upon the size of the selected sampling unit. Samples are reselected every 5 years to reflect the latest results of the economic census, and are updated quarterly to account for new businesses and firms that have gone out of business.

Data collected in this survey include: total revenue and revenue by source, total operating expenditures and operating expenditures by type, and other industry-specific information.

The survey was introduced in 1991 (covering the 1989 and 1990 reference years), and has been conducted each year thereafter. All industries covered by this survey are part of the new NAICS Information sector.

2. Economic Census Coverage

The 1992 Census of Transportation, Communications, and Utilities marked the initial coverage of the telecommunications and broadcasting industries in the economic censuses.

Data for the broadcasting and cable industries were collected on an establishment basis. Telephone data were collected for multi-establishment firms at the state level. We will collect the data in a similar manner in the 1997 Census. Census results are produced at the national and state levels, and for selected metropolitan areas.

The census and the ASCS collect similar types of revenue data. Although the census collects less expenditure data, it does collect annual and first quarter payroll, and maintenance and repairs. The census asks firms to report the number of their employees and capital expenditures for new construction, neither of which is included in the ASCS.

The census also determines if the establishment is involved in exporting its services and, if so, the dollar volume of those exports.

Software Publishing, Motion Pictures, and Information and Data Processing Services:

1. Annual Survey Coverage

The Service Annual Survey (SAS) provides national-level estimates of operating receipts of taxable firms, and revenues and total expenditures of tax-exempt firms in selected service industries. The survey covers most industries classified in Division I of the SIC, and has been mailed annually since 1982. Its sample selection procedures are similar to those of the Annual Survey of Communication Services.

The SAS also collects information on operating receipts by source for selected industries. Of the NAICS Information industries covered by the SAS, only a few -- software, data processing, and information retrieval services -- report this additional detail.

2. Economic Census Coverage

The Census of Service Industries collects data from taxable and tax-exempt establishments in selected service industries. The Census has been mailed every five years since 1972; from 1933 through 1967, selected service industry statistics were published periodically as part of the Census of Business.

In general, the census collects a wider range of data than does the Service Annual Survey. Basic data are obtained on an establishment basis and include receipts and revenue by source, number of employees, and annual and first quarter payroll (the only expense items collected). Total operating expenditures are collected for tax-exempt firms only. We also collect the dollar volume of exported services for selected industries. Data from the census are produced at the national and state levels, and for selected metropolitan areas.

The Business Expenditures Survey, taken every five years in conjunction with the census, produces national level data on capital expenditures, depreciable assets, and operating expenditures for the industries included in the SAS.

Newspaper, Periodical and Book Publishing:

1. Annual Survey of Manufactures

The Annual Survey of Manufactures (ASM) provides data on the products and activities of employer establishments classified under Manufacturing. The publishing industries that are part of the NAICS Information sector are currently covered by this survey (except

software publishing). The ASM has been mailed annually since 1949, with a new sample introduced every five years.

Basic data collected in the ASM include value of shipments, number of employees, and annual and first quarter payroll. A subsample of respondents report additional information which include cost of materials, inventories, new capital expenditures, fuel and energy costs, hours worked, and payroll supplements. The ASM will convert to NAICS for the 1998 reference year 1998.

2. Economic Census

The Census of Manufactures, like the ASM, collects data from all manufacturing establishments with at least one employee. Data provided by the census is the same as for the ASM, but in more detail. Basic data obtained for all establishments include total revenue, annual and first quarter payroll, and employment. Some establishments report additional data which include inventories, capital expenditures, cost of materials, energy consumed, and shipments. The 1997 census questions pertaining to the publishing industry are expected to remain very similar to those asked in 1992.

Data Content

We also must identify, within the NAICS framework, the statistical measures required to assess the impact of information services and technology on our economy. These measures will be defined by the statistical needs of policy makers and other data users, and the ability of businesses to provide the information. Co-operation between the Bureau and other U.S. Federal statistical agencies, and international statistical organizations concerned with producing data for the Information sector also is necessary to specify the more detailed categories of outputs and inputs in terms of their values and, where possible, physical units. In addition, we must consider requirements for statistical reliability, frequency, timeliness, comparability with previously published data, and geographic detail. We are working with finite resources, and ultimately must decide how much we can afford to invest in any one of these data improvements.

The ECPC has begun focusing its attention towards developing a NAICS Product Classification System that will be implemented with the 2002 Economic Census. In the interim, we are not changing the content of the 1997 Economic Censuses appreciably from 1992, except to the extent that additional data are needed to classify an establishment to the correct NAICS industry. Attachments 2 and 3 provide a list of those data elements collected in the 1992 and 1997 Censuses for the telecommunications, and broadcasting and cable television industries, respectively.

We currently are evaluating our annual data collection programs covering the information industries to determine the sufficiency of the existing data and to ensure that all significant "product" detail are captured in these programs. Attachments 2 and 3 also provide a list of the data items collected in the 1996 ASCS.

As previously described, the data detail we currently collect in our annual surveys varies significantly between industries. While the data are quite detailed for telecommunications and broadcasting, we produce only annual estimates of the total dollar volume of receipts for the motion picture industries and virtually no data for sound recording.

We will implement the expanded product detail and other data improvements in a new annual survey of information for the 1999 reference year -- the same time we introduce NAICS. This new survey will consolidate the Bureau's statistical coverage of the NAICS Information industries into a single annual program.

Beyond measuring the output of the Information sector, it is equally important to measure information services and technology as intermediate inputs to the production of other economic sectors. It has been said that "computers are everywhere, except in the productivity statistics." Accurately measuring the diffusion of these services and technologies is difficult at best, but continuing our efforts at improving the statistical data will help.

Summary

Whether or not we subscribe to the notion of an "information age," it is clear that the information industries are growing rapidly. Their growth is largely due to the extraordinary advances in telecommunications and other information technologies, deregulation, and the growing importance of information in all areas of economic production.

Measuring the economic and societal impact of these changes is our challenge. The adoption of NAICS is a significant first step towards meeting that goal. NAICS brings together, for the first time, those activities involved in transforming information into a commodity that is produced and distributed.

Much more remains to be done. We also must define the statistical measures that are required to assess the impact of information services and technologies on our economy. Policy goals and other data user needs must be clearly defined in order to ensure our future data collections are up to the task. Anticipated limited resources will force us to choose among various improvement alternatives. Co-operation between the various Federal statistical agencies is essential.

The Bureau will introduce NAICS effective with the 1997 Economic Censuses that are scheduled to be mailed at the end of this calendar year. We also are beginning to evaluate the scope and content of our existing surveys covering information-related industries in anticipation of making improvements effective with the 1999 reference year.

1997 NAICS to 1987 U.S. SIC

Source: Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
51	Information			
511	Publishing Industries			
5111	Newspaper, Periodical, Book and Database Publishers			
51111	Newspaper Publishers	E	2711	Newspapers: Publishing or Publishing and Printing
51112	Periodical Publishers	E	2721	Periodicals: Publishing or Publishing and Printing
51113	Book Publishers	E	2731	Books: Publishing or Publishing and Printing
51114	Database and Directory Publishers	N	*2741	Miscellaneous Publishing (database publishers)
51119	Other Publishers			
511191	Greeting Card Publishers	E	*2771	Greeting Cards
511199	All Other Publishers	R	*2741	Miscellaneous Publishing (except database and sheet music publishing)
5112	Software Publishers			
51121	Software Publishers	R	*7372	Prepackaged Software (software publishing)
512	Motion Picture and Sound Recording Industries			
5121	Motion Picture and Video Industries			
51211	Motion Picture and Video Production	E	7812	Motion Picture and Video Tape Production
51212	Motion Picture and Video Distribution	E	7822	Motion Picture and Video Tape Distribution (except video tape and cassette wholesalers)

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--Not Elsewhere Classified

1997 NAICS to 1987 U.S. SIC

Source: Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
			*7829	Services Allied to Motion Picture Distribution (film libraries)
51213	Teleproduction and Other Post-Production Services	N	*7819	Services Allied to Motion Picture Production (teleproduction and post-production services)
51214	Motion Picture and Video Exhibition			
512141	Motion Picture Theaters, Except Drive-Ins	E	7832	Motion Picture Theaters, Except Drive-Ins
512142	Drive-In Motion Picture Theaters	E	7833	Drive-In Motion Picture Theaters
51219	Other Motion Picture and Video Industries	N	*7819	Services Allied to Motion Picture Production (except casting bureaus, wardrobe and equipment rental, talent payment services, teleproduction and other post-production services)
			7829	Services Allied to Motion Picture Distribution (except film libraries)
5122	Sound Recording Industries			
51221	Record Production Companies	N	*8999	Services, NEC (music royalties, sheet and record)
51222	Integrated Record Companies	N	*3652	Phonograph Records and Prerecorded Audio Tapes and Disks (integrated record companies, except duplication only)
51223	Music Publishers	N	*8999	Services, NEC (music publishing)
51224	Sound Recording Studios	N	*7389	Business Services, NEC (recording studios)
51229	Other Sound Recording Industries	N	*7389	Business Services, NEC (audio taping services)
			*7922	Theatrical Producers (except Motion Picture) and Miscellaneous Theatrical Services (producers of radio programs)

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--Not Elsewhere Classified

1997 NAICS to 1987 U.S. SIC**Source:** Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
513	Broadcasting and Telecommunications			
5131	Radio and Television Broadcasting			
51311	Radio Broadcasting			
513111	Radio Networks	N	*4832	Radio Broadcasting Stations (networks)
513112	Radio Stations	N	*4832	Radio Broadcasting Stations (except networks)
51312	Television Broadcasting	N	4833	Television Broadcasting Stations
5132	Cable Networks and Program Distribution			
51321	Cable Networks	N	*4841	Cable and Other Pay Television Services (cable networks)
51322	Cable and Other Program Distribution	N	*4841	Cable and Other Pay Television Services (except cable networks)
5133	Telecommunications			
51331	Wired Telecommunications Carriers	N	*4813	Telephone Communications, Except Radiotelephone (except resellers)
			4822	Telegraph and Other Message Communications
51332	Wireless Telecommunications Carriers (except Satellite)			
513321	Paging	N	*4812	Radiotelephone Communications (paging carriers)
513322	Cellular and Other Wireless Telecommunications	N	*4812	Radiotelephone Communication (cellular carriers)

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--Not Elsewhere Classified

1997 NAICS to 1987 U.S. SIC**Source:** Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
			*4899	Communications Services, NEC (radio dispatch)
51333	Telecommunications Resellers	N	*4812	Radio Communications (paging and cellular resellers)
			*4813	Telephone Communications, Except Radiotelephone (resellers)
51334	Satellite Telecommunications	N	*4899	Communications Services, NEC (satellite communications)
51339	Other Telecommunications	N	*4899	Communications Services, NEC (except radio dispatch, satellite communications)
514	Information Services and Data Processing Services			
5141	Information Services			
51411	News Syndicates	E	7383	News Syndicates
51412	Libraries and Archives	E	8231	Libraries
51419	Other Information Services			
514191	On-Line Information Services	E	7375	Information Retrieval Services
514199	All Other Information Services	N	*8999	Services, NEC (miscellaneous information providers)
5142	Data Processing Services			
51421	Data Processing Services	E	7374	Computer Processing and Data Preparation and Processing Services

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--Not Elsewhere Classified

1997 NAICS to 1987 U.S. SIC

Source: Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
334	Computer and Electronic Product Manufacturing			
3341	Computer and Peripheral Equipment Manufacturing			
33411	Computer and Peripheral Equipment Manufacturing			
334111	Electronic Computer Manufacturing	E	3571	Electronic Computers
334112	Computer Storage Device Manufacturing	E	3572	Computer Storage Devices
334113	Computer Terminal Manufacturing	E	3575	Computer Terminals
334119	Other Computer Peripheral Equipment Manufacturing	R	3577	Computer Peripheral Equipment, NEC
			*3578	Calculating and Accounting Machines, Except Electronic Computers (point of sale terminals and fund transfer devices)
			*3699	Electrical Machinery, Equipment and Supplies, NEC (bar code scanners)
3342	Communications Equipment Manufacturing			
33421	Telephone Apparatus Manufacturing	R	*3661	Telephone and Telegraph Apparatus (except telephone transformers and consumer external modems)
33422	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	R	3663	Radio and Television Broadcasting and Communication Equipment
			*3679	Electronic Components, NEC (communication equipment)

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--not elsewhere classified

1997 NAICS to 1987 U.S. SIC

Source: Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
33429	Other Communications Equipment Manufacturing	E	3669	Communications Equipment, NEC
3343	Audio and Video Equipment Manufacturing			
33431	Audio and Video Equipment Manufacturing	E	3651	Household Audio and Video Equipment
3344	Semiconductor and Other Electronic Component Manufacturing			
33441	Semiconductor and Other Electronic Component Manufacturing			
334411	Electron Tube Manufacturing	E	3671	Electron Tubes
334412	Printed Circuit board Manufacturing	E	3672	Printed Circuit Boards
334413	Semiconductor and Related Device Manufacturing	E	3674	Semiconductors and Related Devices
334414	Electronic Capacitor Manufacturing	E	3675	Electronic Capacitors
334415	Electronic Resistor Manufacturing	E	3676	Electronic Resistors
334416	Electronic Coil, Transformer, and Other Inductor Manufacturing	R	*3661	Telephone and Telegraph Apparatus (telephone transformers)
			3677	Electronic Coils, Transformers, and Other Inductors
			*3825	Instruments for Measuring and Testing of Electricity and Electrical Signals (portable instrument transformers)
334417	Electronic Connector Manufacturing	E	3678	Electronic Connectors
334418	Printed Circuit/Electronics Assembly	N	*3679	Electronic Components, NEC (printed circuit/electronic assembly)

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1997 NAICS to 1987 U.S. SIC**Source:** Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
	Manufacturing			manufacturing)
			*3661	Telephone and Telegraph Apparatus (consumer external modems)
334419	Other Electronic Component Manufacturing	R	*3679	Electronic Components, (NEC (other electronic components)
3345	Navigational, Measuring, Medical, and Control Instruments Manufacturing			
33451	Navigational, Measuring, Medical, and Control Instruments Manufacturing			
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	R	*3842	Orthopedic, Prosthetic and Surgical Appliances and Supplies (electronic hearing aids)
			*3845	Electromedical and Electrotherapeutic Apparatus (other electromedical and electrotherapeutic apparatus)
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	E	3812	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical Systems and Instruments
334512	Automatic Environmental Control Manufacturing for Residential, Commercial and Appliance Use	E	3822	Automatic Controls for Regulating Residential and Commercial Environments and Appliances
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	E	3823	Industrial Instruments for Measurement, Display, and Control of Process Variables; and Related Products
334514	Totalizing Fluid Meter and Counting Device Manufacturing	E	3824	Totalizing Fluid Meters and Counting Devices

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--not elsewhere classified

1997 NAICS to 1987 U.S. SIC**Source:** Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	R	*3825	Instruments for Measuring and Testing of Electricity and Electrical Signals (except portable instrument transformers)
334516	Analytical Laboratory Instrument Manufacturing	E	3826	Laboratory Analytical Instruments
334517	Irradiation Apparatus Manufacturing	R	3844	X-ray Apparatus and Tubes and Related Irradiation Apparatus
			*3845	Electromedical and Electrotherapeutic Apparatus (CT and CAT Scanners)
334518	Watch, Clock, and Part Manufacturing	R	*3495	Wire Springs (clock and watch springs)
			*3579	Office Machines, NEC (time clocks and other time recording devices)
			*3873	Watches, Clocks, Clockwork Operated Devices, and Parts
334519	Other Measuring and Controlling Device Manufacturing	R	*3829	Measuring and Controlling Devices, NEC (except medical thermometers)
3346	Manufacturing and Reproducing Magnetic and Optical Media			
33461	Manufacturing and Reproducing Magnetic and Optical Media			
334611	Software Reproducing	N	*7372	Prepackaged Software (reproduction of software)
334612	Prerecorded Compact Disc (except Software), Tape, and Record Reproducing	N	*3652	Phonograph Records and Prerecorded Audio Tapes and Disks (reproduction of all other media except video)
			*7819	Services Allied to Motion Picture Production (reproduction of

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--not elsewhere classified

1997 NAICS to 1987 U.S. SIC**Source:** Federal Register, July 5, 1996 (Vol. 61, No. 130)

1997 NAICS Code	1997 NAICS Description	Status Code	1987 SIC Code	1987 SIC Description
				video)
334613	Magnetic and Optical Recording Media Manufacturing	E	3695	Magnetic and Optical Recording Media

E--existing industry ♦ **N**--new industry ♦ **R**--revised industry ♦ *****--part of ♦ **NEC**--not elsewhere classified

**Comparison of Telephone Industry Data Collected in the 1996 Annual Survey of
Communication Services, and the 1992 and 1997 Economic Censuses**

Item	1996 ASCS	1992 Census	1997 Census
Revenue			
Local service	Yes	Yes	Yes
Long distance service	Yes	Yes	Yes
Network access	Yes	Yes	Yes
Cellular and other radiotelephone	Yes	Yes	Yes
Directory advertising	Yes	Yes	Yes
Telegraph and other wired telecommunications	Yes	Yes	Yes
Paging, beeper, radio dispatching services	No	No	Yes
Satellite telecommunications, cable TV, MVPD	No	No	Yes
On-line information services, internet access	No	No	Yes
Sale, lease, or rental of equipment/merchandise	No	Yes	Yes
Equipment repair	No	No	Yes
Other operating revenue	Yes	Yes	Yes
Local service revenue from:			
Residential customers	Yes	No	No
Other customers	Yes	No	No
Long-distance service revenue from:			
Residential customers	Yes	No	No
Other customers	Yes	No	No
Network access revenue from:			
Residential customers	Yes	No	No
Other customers	Yes	No	No
Total revenue from:			
Residential customers	No	Yes	Yes

**Comparison of Telephone Industry Data Collected in the 1996 Annual Survey of
Communication Services, and the 1992 and 1997 Economic Censuses**

Other customers	No	Yes	Yes
Local service revenue from:			
Intrastate service	Yes	No	No
Interstate service	Yes	No	No
Long-distance service revenue from:			
Intrastate service	Yes	No	No
Interstate service	Yes	No	No
Network access revenue from:			
Intrastate service	Yes	No	No
Interstate service	Yes	No	No
Cellular telephone revenue from:			
Air time	Yes	No	Yes
Basic service	Yes	No	Yes
Long-distance service	Yes	No	Yes
Roaming charges	Yes	No	Yes
Operating Expenses			
Annual payroll	Yes	Yes	Yes
Employer contributions to employee benefit plans	Yes	No	No
Access charges	Yes	No	No
Depreciation and amortization charges for:			
Buildings, offices and structures	Yes	No	No
Communication systems	Yes	No	No
Vehicles, machinery and equipment, and other tangible assets	Yes	No	No
Lease and rental costs for:			
Buildings, offices, and structures	Yes	No	No
Communication systems	Yes	No	No

**Comparison of Telephone Industry Data Collected in the 1996 Annual Survey of
Communication Services, and the 1992 and 1997 Economic Censuses**

Vehicles, and other machinery and equipment	Yes	No	No
Costs of purchased repairs for:			
Buildings, offices, and structures	Yes	No	No
Communication systems	Yes	No	No
Vehicles, and other machinery and equipment	Yes	No	No
Cost of insurance	Yes	No	No
Cost of telephone and other purchased communication services	Yes	No	No
Cost of purchased utilities	Yes	No	No
Cost of purchased advertising	Yes	No	No
Taxes and licenses	Yes	No	No
Other operating expenses	Yes	No	No
Exported Services	No	No	Yes
Construction Activity			
Capital expenditures for new construction	No	Yes	Yes
Renovation and repairs	No	Yes	Yes
Employment	No	Yes	Yes

Comparison of Broadcasting and Cable Television Industry Data Collected in the 1996 Annual Survey of Communication Services, and the 1992 and 1997 Economic Censuses

Item	1996 ASCS	1992 Census	1997 Census
Revenue			
Radio and television broadcasters:			
Station time sales:			
Network compensation	Yes	Yes	Yes
National/regional advertising	Yes	Yes	Yes
Local advertising	Yes	Yes	Yes
Network time sales	Yes	Yes	Yes
Cable and pay television:			
Advertising	Yes	Yes	Yes
Program revenue	Yes	Yes	Yes
Basic service	Yes	Yes	Yes
Pay-per-view	Yes	Yes	Yes
New product tier service	No	No	Yes
Leased access receipts	No	No	Yes
Installation fees	Yes	Yes	Yes
Other cable and pay television revenue	Yes	Yes	Yes
Distribution of television programs	No	No	Yes
On-line information systems and Internet access fees	No	No	Yes
Telephone service (local, long distance, network access)	No	No	Yes
Satellite telecommunications	No	No	Yes
Rent or lease of equipment	No	No	Yes
Other operating revenue	Yes	Yes	Yes
Subsidies, gifts, loans, contributions, and grants	Yes	Yes	Yes
Other nonoperating income	Yes	Yes	Yes

Comparison of Broadcasting and Cable Television Industry Data Collected in the 1996 Annual Survey of Communication Services, and the 1992 and 1997 Economic Censuses

Total Revenue			
Residential customers	No	No	Yes
Other customers	No	No	Yes
Expenses			
Annual payroll	Yes	Yes	Yes
Employer contributions to employee benefit plans	Yes	No	No
Depreciation and amortization charges:			
Buildings, offices and structures	Yes	No	No
Transmission systems	Yes	No	No
Vehicles, machinery and equipment, and other tangible assets	Yes	No	No
Lease and rental costs:			
Buildings, offices and structures	Yes	No	No
Transmission systems	Yes	No	No
Vehicles, and other machinery and equipment	Yes	No	No
Cost of purchased repairs:			
Buildings, offices and structures	Yes	No	No
Transmission systems	Yes	No	No
Vehicles, and other machinery and equipment	Yes	No	No
Cost of insurance	Yes	No	No
Cost of telephone and other purchases communication services	Yes	No	No
Cost of purchased utilities	Yes	No	No
Cost of purchased advertising	Yes	No	No
Taxes and licenses	Yes	No	No
Radio and television broadcasters:			
Broadcast rights	Yes	No	No
Music license fees	Yes	No	No

Comparison of Broadcasting and Cable Television Industry Data Collected in the 1996 Annual Survey of Communication Services, and the 1992 and 1997 Economic Censuses

Network compensation fees	Yes	No	No
Cable and pay television:			
Retransmission consent fee	Yes	No	No
Program and production costs	Yes	No	No
Other operating expenses	Yes	No	No
Exported services	No	No	No
Construction activity			
Capital expenditures for new construction	No	Yes	Yes
Renovation and repair	No	Yes	Yes
Number of cable subscribers	No	No	Yes