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A New Approach to Classifying Industries in the Information Sector

Abstract

[Excerpt] The information sector is characterized as a dynamic sector with a rapidly changing landscape influenced by new ideas and technologies. By nature, this has made it extremely difficult to effectively categorize its components over time utilizing the standard methodology employed to structure the North American Industry Classification System (NAICS). With the release of January 2008 data on February 1, 2008, the Current Employment Statistics (CES) program at the Bureau of Labor Statistics upgraded from the 2002 NAICS to NAICS 2007. The update resulted in minor definitional changes within manufacturing, financial activities, and professional and technical services, but also introduced significant changes in the structure and methodology used to classify industries within the information sector in an attempt to maximize its validity over time.

Keywords

information sector, technology, North American Industry Classification System, employment, Current Employment Statistics, reclassification

Comments

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A New Approach to Classifying Industries in the Information Sector

The information sector is characterized as a dynamic sector with a rapidly changing landscape influenced by new ideas and technologies. By nature, this has made it extremely difficult to effectively categorize its components over time utilizing the standard methodology employed to structure the North American Industry Classification System (NAICS). With the release of Janu-

ary 2008 data on February 1, 2008, the Current Employment Statistics (CES)¹ program at the Bureau of Labor Statistics upgraded from the 2002 NAICS to NAICS 2007. The update resulted in minor definitional changes within manufacturing, financial activities, and professional and technical services, but also introduced significant changes in the structure and methodology used to classify industries within the information sector in an attempt to maximize its validity over time.

The Economic Classification Policy Committee (ECPC) develops recommendations for the reclassification of industries every 5 years, in collaboration with Mexico's Instituto Nacional de Estadística, Geografía e Informática (INEGI) and Statistics Canada, based on four guiding principles:²

1. Structure NAICS to group establishments on the basis of their production processes.
2. Give special attention to industries that are new, dynamic, service oriented, or involved in the production of advanced technologies.
3. Retain time-series continuity as much as possible.
4. Strive for compatibility with the two-digit level of the International Standard Industrial Classification of All Economic

Activities (ISIC) of the United Nations.

The information sector provided some unique structural challenges. Specifically, traditional telephone and television cable companies have converged to offer telephone, broadband Internet, and cable television services. This convergence made it increasingly difficult to define the industries in accordance with ECPC guidelines.

To resolve the problem, the ECPC restructured telecommunications based on the type of transmission facilities and infrastructure operated by the establishments, including network technology. With the release of NAICS 2007, telecommunications was disaggregated into four component industries: wired telecommunications carriers, wireless telecommunications carriers (except satellite), satellite telecommunications, and other telecommunications. The first three telecommunications industries are interrelated by their infrastructure, whereas the category of other telecommunications is representative of establishments that provide support activities, but have not developed their own internal telecommunications infrastructure.³

These new infrastructure-based aggregations also split Internet service providers into three distinct categories: broadband Internet service providers offering their own Internet infrastructure corresponded with

the new definition for wired telecommunications; satellite Internet service providers became part of satellite telecommunications; and dial-up Internet service providers, which require connections from external infrastructure, became a component of "other telecommunications." NAICS codes and CES tabulating codes may differ slightly due to disclosure or sample-adequacy issues. For example, the satellite telecommunications industry is an independent four-digit-level industry in NAICS, but CES includes it in "other telecommunications."

With the implementation of NAICS 2007, the wired telecommunications industry was redefined to include cable and other program distribution, along with part of Internet service providers. The wired telecommunications carriers industry has lost 319,000 jobs since its peak in December 2000. By contrast, wireless telecommunications, which underwent no structural change, experienced moderate growth of 15,000 jobs since its trough in September 2003. Altogether, telecommunications employment peaked in March 2001, and since then, 476,000 jobs have been lost through April 2009.

The telecommunication resellers industry purchases network capabilities from external sources and resells the services to private households or businesses. The industry

¹The employment data used in this summary are from the Current Employment Statistics (CES) program, which surveys about 150,000 nonfarm businesses representing about 390,000 work sites monthly. For more information on the program's concepts and methodology, see "Current Employment Statistics Technical Notes," on the BLS Web site at <http://www.bls.gov/ces/#technical> (visited 4/27/09). CES data are available at www.bls.gov/ces. Data used in this summary are not seasonally adjusted.

²The ECPC is a committee within the Office of Management and Budget (OMB) and also includes representatives from the Bureau of Labor Statistics, the Bureau of Economic Analysis, and the Census Bureau. For more information on the ECPC and NAICS, see <http://www.census.gov/eos/www/naics/> (visited April 27, 2009).

³In order to publish a CES employment series, an industry must meet certain criteria related to employment size and sample size. The satellite telecommunications industry has failed to meet the criteria; therefore, its employment has been part of "other telecommunications" under both NAICS 2002 and 2007. This CES change is based on the standard operating procedure of classifying a CES series that has inadequate employment or an inadequate sample into the most relevant "other" industry within the sector.

has experienced difficulties since 2001 because of market saturation by cellular phone service providers, the decline of long-distance calling over landlines, and inadequate market power.⁴

Telecommunications resellers had gained 54,000 jobs in the 5 years following the industry's trough in March 1996, a period of rapid expansion in cellular phone services. Since then, resellers have lost 119,000 jobs through April 2009. The ECPC considers the industry life cycle when

⁴See "Many wireless resellers going under," *USA Today*, on the Internet at http://www.usatoday.com/money/industries/telecom/2008-05-05-wireless-resellers-cellphone_N.htm (visited 4/27/09).

evaluating an industry. This consideration, along with the fact that resellers do not possess an infrastructure to support telecommunication services independently, led the ECPC to reclassify telecommunications resellers into the residual, "other telecommunications."

Internet publishing and broadcasting had been considered an emerging industry until the tech bubble burst just prior to the 2001 recession. To compensate for the decline in the industry's size, it was combined with Web search portals to form a new five-digit industry: Internet publishing and broadcasting and Web search portals. Establishments in this industry employed 113,000 at its peak in July 2000, but by 2004 only

65,000 jobs remained. Since 2004, employment in the industry has grown, but has yet to return to its earlier peak employment level. The change in the methodology for organizing telecommunications for NAICS 2007 provided the foundation for redefining Internet service providers.

Chart 1 shows how employment in the information sector was distributed before and after the conversion. The top pie chart uses March 2006 benchmark data to represent NAICS 2002 employment ratios and the chart on the bottom uses March 2007 benchmark data to represent NAICS 2007 employment ratios. The data represent the last and first benchmark employment levels surrounding

the NAICS conversion.

Exhibit 1 illustrates the reclassification of the industries in the information sector, from NAICS 2002 to NAICS 2007.

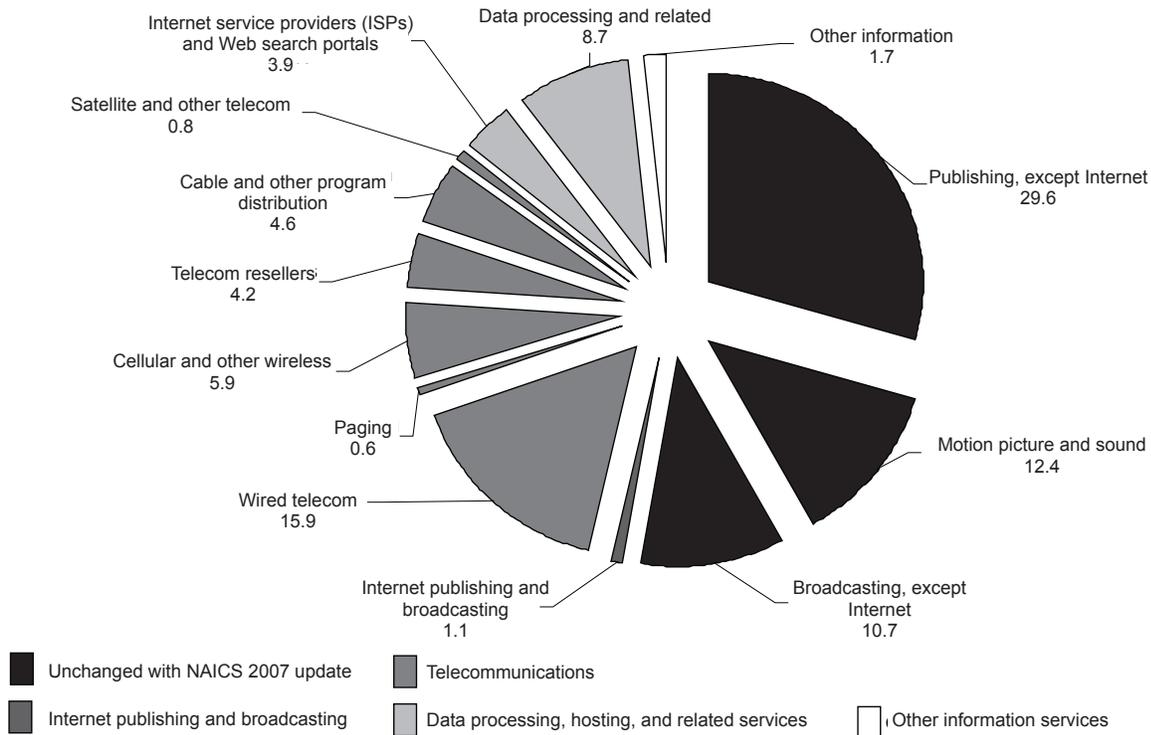
For additional information, contact Brett Caillier, an economist in the Division of Current Employment Statistics, Office of Employment and Unemployment Statistics. E-mail: caillier.brett@bls.gov. Telephone: 202-691-6555.

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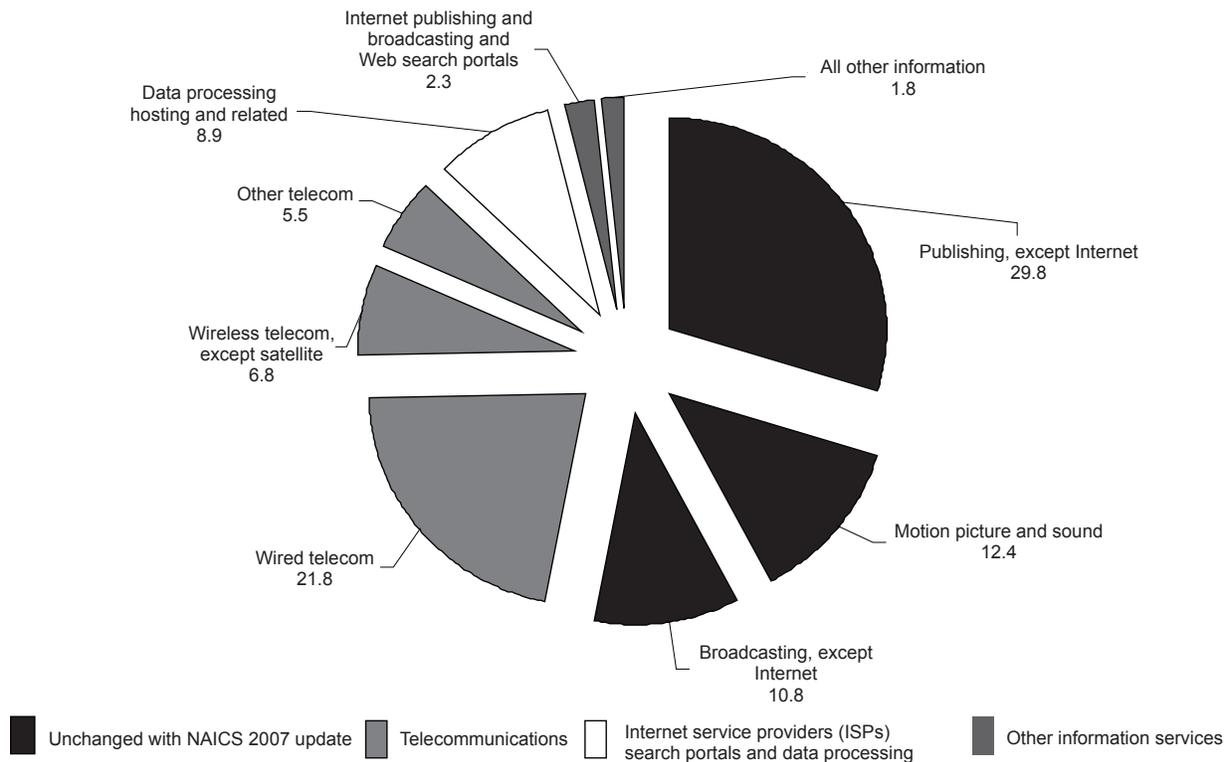
Chart 1. Employment distribution for industries in the information sector, NAICS 2002 to NAICS 2007

(In percent)

Information--NAICS 2002



Information--NAICS 2007



NOTE: The NAICS 2002 chart uses March 2006 benchmark data and the NAICS 2007 chart uses March 2007 benchmark data to develop employment ratios for each NAICS structure.

Exhibit 1. Reclassification of the information sector, NAICS 2002 to NAICS 2007

NAICS 2002	Change(s)
511—Publishing industries, except Internet	None
512—Motion picture and sound recording	None
515—Broadcasting, except Internet	None
516—Internet publishing and broadcasting	<i>Discontinued and moved</i> into new NAICS 2007 industry Internet publishing and broadcasting and Web search portals (51913)
517—Telecommunications	—
5171—Wired telecommunications carriers	<i>Combined</i> with 5175—Cable and other program distribution and with the broadband Internet service providers (for example, cable, DSL) portion of 518
517212—Cellular and other wireless carriers	<i>Discontinued and combined</i> with paging (517211) as Wireless telecommunications carriers (5172)
5173—Telecommunications resellers	<i>Discontinued and moved</i> to Other telecommunications (5179) as Telecommunications resellers (517911)
5175—Cable and other program distribution	<i>Discontinued and moved</i> into Wired telecommunications carriers (5171)
5179—Satellite and other telecommunications	<i>Moved</i> to Other telecommunications (5179) and <i>combined</i> with the Internet service providers providing services via client-supplied telecommunications connection portion of 518
518—Internet search providers, search portals, and data processing	<i>Changed</i> in scope. <i>Moved</i> the Web search portals portion of 518 to Internet publishing and broadcasting and Web search portals (51913) and moved the Internet service providers providing services via client-supplied telecommunications connection portion of 518 to Other telecommunications (5179). Also moved the Broadband Internet service providers (for example, cable, DSL) portion of 518 to Wired telecommunications carriers (5171)
519—Other information services	<i>Moved</i> to All other information services (51919)
NAICS 2007	Composed of 2002 NAICS industries
511—Publishing industries, except Internet	511—Publishing industries, except Internet
512—Motion picture and sound recording	512—Motion picture and sound recording
515—Broadcasting, except Internet	515—Broadcasting, except Internet
517—Telecommunications	—
5171—Wired telecommunications carriers	5171—Wired telecommunications carriers; 5175—Cable and other program distribution; and the broadband Internet service providers (e.g., cable, DSL) portion of 518
5172—Wireless telecommunications carriers, except satellite	517211—Paging and 517212—Cellular and other wireless carriers
5179—Other telecommunications	5179—Satellite and other telecommunications and the Internet service providers providing services via client-supplied telecommunications connection portion of 518
517911—Telecommunications resellers	5173—Telecommunications resellers
518—Data processing, hosting and related services	Part of Internet search providers, search portals, and data processing (518)
519—Other information services	—
51913—Internet publishing and broadcasting and Web search portals	The Web search portals portion of Internet search providers, search portals, and data processing (518) and Internet publishing and broadcasting (516)
51919—All other information services	519—Other information services

NOTE: Detailed employment ratio tables for the NAICS 2007 update can be found at <http://www.bls.gov/ces/cesnaics07.htm>.