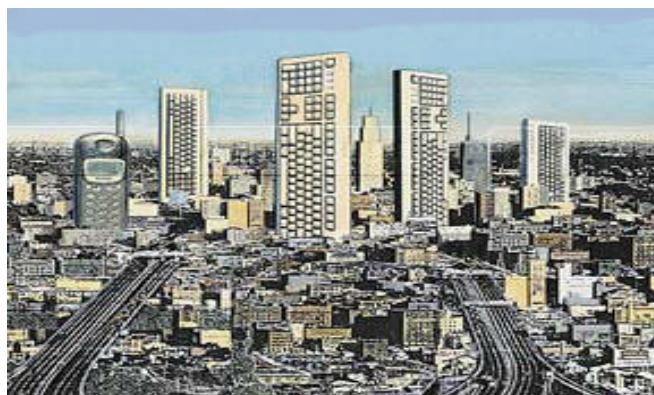


**MEASURING THE ELECTRONIC ECONOMY  
At the United States Bureau of the Census**



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## **MEASURING THE ELECTRONIC ECONOMY**

### **At the United States Bureau of the Census**

#### **1. Introduction**

The United States Bureau of the Census has embarked on an ambitious plan to measure the electronic economy. Included in the plan is the addition of Electronic Commerce (E-commerce) inquiries to almost all survey questionnaires and a request for a budget supplement to provide (1) economy-wide measures of size, nature, and direction of Electronic Business (E-business); (2) consistent and comparable descriptions of the major types of E-business, (3) analyses of how E-business affects traditional measures of domestic economic performance, and (4) a flexible surveying strategy that permits timely targeting of high priority industries and areas of policy interest. The strategy includes plans to partner with government, industry, and academia on definitions, measurement plans and priorities; to focus first on E-commerce, both business-to-consumer and business-to-business; to contract for E-business process expertise; and to adopt E-business processes to facilitate reporting and reduce reporting burden.

This paper describes the definitions being used, current E-commerce measures, and future plans.

#### **2. Definitions**

The electronic economy, E-business, and E-commerce, at times, are used interchangeably. Before measuring this relatively new phenomenon, it must be defined. Early in 1999, the Census Bureau developed definitions for three components of the electronic economy: electronic business infrastructure, electronic business, and electronic commerce. It is these definitions that are being followed in the current E-business measurement program at the Census Bureau. Following are the definitions developed by an E-business working group at the Census Bureau and included in a paper on the U.S. electronic economy prepared by Assistant Director Thomas L. Mesenbourg.<sup>1</sup>

“The three primary components of our electronic economy, and the feature shared by two of them are defined below. Each definition includes examples of its scope and content, both to clarify and elicit reactions. The definitions are intentionally broad to provide an inclusive framework for planning statistical measures, and to allow flexibility to incorporate continuing changes in the electronic economy.

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<sup>1</sup> Mesenbourg, Thomas L., “Satisfying Emerging Data Needs: Measuring Electronic Business,” U.S. Bureau of the Census, 2000.

**E-business infrastructure is the share of total economic infrastructure used to support electronic business processes and conduct electronic commerce transactions.** It includes hardware, software, telecommunications networks, support services, and human capital used in electronic business and commerce. Examples of E-business infrastructure are:

- computers, routers, and other hardware;
- satellite, wire, and optical communications and network channels; system and applications software;
- support services, such as web site development and hosting, consulting, electronic payment, and certification services; and
- human capital, such as programmers.

**Electronic business (e-business) is any process that a business organization conducts over computer-mediated network channels.** Business organizations include any for-profit, governmental, or nonprofit entity. Examples of major electronic business processes categories include online purchasing, selling, production management, logistics, as well as internal communication and support services. Within each major category one can identify more specific processes. For example, online purchasing includes the following online processes: access to vendors' products/catalogs, ordering from vendors, electronic payment to vendors, vendor managed inventory, use of electronic marketplaces and online auctions. Internal processes include email capabilities, automated employee services, training, information sharing, video conferencing, and recruiting.

**Electronic commerce is any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services.** A transaction is an event occurring within selected e-business processes (e.g., buying and selling process). An e-commerce transaction is "completed" when agreement is reached between the buyer and seller to transfer the ownership or rights to use goods or services. This electronic agreement is the trigger for determining an e-commerce transaction, not the payment. Only priced transactions will be measured, downloads of free software, for example will not be measured. E-commerce examples are the following:

- an individual purchases a book on the Internet,
- a government employee reserves a hotel room over the Internet,
- a business calls a toll free number and orders a computer using the seller's interactive telephone system,
- a business buys office supplies on-line or through an electronic auction,
- a retailer orders merchandise using an EDI network or a supplier's Extranet, and
- a manufacturing plant orders electronic components from another plant within the company using the company's Intranet

**Computer-mediated networks are electronically linked devices that communicate interactively over network channels.** Generally, both electronic devices will be computer-enabled, but at a minimum at least one device must be computer-enabled as in the case of a typical telephone linking with a computer-enabled interactive telephone system. Typically, the

interactive link involves minimal human intervention though someone activates the electronic devices, accesses the network, and may even assist with the process or transaction. For example, many E-commerce businesses are providing shoppers with the on-line capability of “chatting” with customer support representatives or even speaking with them through the use of Internet telephony software. Example of devices and networks are:

- ‘ linked electronic devices such as computers, personal digital assistants, webTV;
- ‘ Internet-enabled cellular phones, and telephones linked with interactive telephone systems;
- ‘ networks such as the Internet, Intranets, Extranets, Electronic Data Interchange (EDI) networks, and telecommunications networks. Networks may be either open or closed.”

### **3. Initiatives to Measure E-Commerce and E-Business at the Census Bureau**

Complete, reliable statistical data are needed to understand the electronic economy and its affect on economic performance. Existing surveys may be used to develop some of that data, but it is likely that new measures of economic performance developed from new statistical surveys are needed. Staff from the Bureau’s Economic Directorate have prepared a paper that “develops principles for identifying information critical to measuring the size and evaluating the potential effects of the electronic economy, relates that information to current data collection programs, and notes relevant measurement issues.”<sup>2</sup> That paper is providing the framework for plans to expand data collection efforts aimed at measuring the electronic economy.

Any new surveys or new economic measures, however, require additional funding. We have included in our 2001 budget a request for funds to develop new surveys and incorporate new measures in our economic statistical program. In the meantime, we are focusing on using existing surveys and samples to develop measures of the size of the U.S. electronic economy. Following is a discussion of those activities:

#### **3.a. Measuring E-Commerce**

The Census Bureau is implementing an ambitious program to measure E-commerce activity using its existing surveys. Specifics of the E-commerce programs are as follows:

- ***Quarterly estimates of E-commerce retail sales*** - Beginning with reference month October 1999, we began collecting E-commerce sales from retailers included in the monthly retail survey (sample of about 12,000 retailers). The first estimates were released on March 2, 2000 and reported E-commerce retail sales for the 4<sup>th</sup> quarter 1999, the Christmas holiday season. First quarter 2000 estimates were released on May 31, 2000 and 2<sup>nd</sup> quarter 2000 estimates were released on August 31, 2000. Following is a table with those data:

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<sup>2</sup> Atrostic,B.K., John Gates, and Ron Jarmin, “ Measuring the Electronic Economy: Current Status and Next Steps,” U.S. Bureau of the Census, June 2000.

<b>Period</b>	<b>Total Sales (million \$)</b>	<b>E-Commerce Sales (million \$)</b>	<b>E-Commerce As a Percent Of Total Sales</b>
4 <sup>th</sup> Quarter 1999	821,351	5,198	0.63
1 <sup>st</sup> Quarter 2000	747,934	5,240	0.70
2 <sup>nd</sup> Quarter 2000	815,685	5,518	0.68

These data are not adjusted for seasonal, holiday, and trading-day differences.

- **1999 Annual Retail Trade Survey** - For data year 1999 and 1998, E-commerce sales and purchases are requested from the annual sample of around 20,000 retailers. The survey is collecting two years of data since this series is being converted to a NAICS basis and the collection of two years of data permits the Census Bureau to publish a consistent NAICS time series for 1997 (Economic Census data), 1998, and 1999. Data for 1999 and 1998 for the following will be available later this year:
  - For all retail industries
    - date firm began selling on-line
    - E-commerce sales
    - E-commerce purchases; specifically, whether any goods purchased for resale were ordered over an Internet, extranet, EDI, or other on-line system. No data are requested. Respondents are asked to answer yes or no only.
    - Whether or not E-commerce sales include sales to customers located outside the United States and if so, what percent (four ranges are requested: <1%, 1%-5%, 6% - 10%, and >10%).
  - For computer and software stores, office supplies and stationery stores, and electronic shopping and mail-order houses, additional questions are asked regarding class of customer. Specifically, data are requested for the percent of total sales to households; wholesalers and other retailers; other businesses and private nonprofit institutions; and Governments.
  - For electronic shopping and mail-order houses, computer and software stores, and office supplies and stationery stores, questions on both total sales and E-commerce sales by merchandise line are requested. Sales of the following merchandise lines are requested:
 

books and magazines	computer hardware
clothing and clothing accessories	computer software
drugs, health, and beauty aids	electronics and appliances
food, beer, and wine	furniture and home furnishings
music and videos	office supplies
toys, hobby goods, and games	other merchandise

We also are requesting for the first time data on advertising revenues, both total and those derived from E-commerce.

- **1999 Wholesale Trade Survey** - Respondents are requested to report their E-commerce sales separately. A question also is included on whether or not purchases are made via E-commerce with only a yes/no answer required.
- **1999 Service Annual Survey** - This survey is expanded to provide first time coverage for about 150 new NAICS service industries. NAICS sectors covered include parts of Transportation and Warehousing; Information; parts of Finance; Rental and Leasing; Professional, Technical and Scientific Services; Administrative and Support and Waste Management and Remediation; Health Care and Social Assistance; Arts, Entertainment, and Recreation; and Personal Services. A separate survey on Accommodation and Food Surveys also is conducted. Each of the survey forms covering the industries in these sectors includes a question on E-commerce sales or receipts, in addition to the question asking when the company first began selling via E-commerce.

### **3.b. Measuring E-business**

Data year 1999 marks the Census Bureau's first attempt to measure E-business processes. In mid-June, we mailed a supplement form to 50,000 manufacturers included in the 1999 Annual Survey of Manufactures. This supplemental survey focuses on current uses or plans to use selected e-business processes and e-commerce activities. Questions on e-business include the type of computer networks used, percent of employees with access to the Internet, the use of Enterprise Resource Planning (ERP) software by the plant, and current use or plans to use different types of computer networked business processes. E-commerce questions include online purchases and online sales. This survey is establishment-based so each individual manufacturing plant included in the survey will complete the form. Results from the survey will provide benchmark measures of E-business activity in the U.S. manufacturing sector. A copy of the form being used is shown in Attachment 1.

### **3.c.. Collecting data on the Current Population Survey (CPS)**

The Economic Directorate will fund the addition of questions relating to Internet usage on the September 2001 Current Population Survey. The CPS is a household sample survey of the civilian noninstitutional population of the United States. Its primary task is to produce monthly statistics on unemployment and the labor force, as published by the Bureau of Labor Statistics. The CPS also serves as a vehicle for supplemental studies on subjects other than employment and the Economic Directorate will use this feature of the CPS to query the U.S. population on its use of the Internet. Attachment 2 is a copy of the proposed questions.

### **3.d. The North American Industry Classification System (NAICS) and E-Commerce**

The three North American countries, Canada, Mexico, and the United States adopted the North American Industry Classification System (NAICS) in 1997. The U.S. published its first data on

a NAICS basis in its 1997 Economic Census. While NAICS United States 1997 recognized 358 new industries, of which 250 were service industries, the growth of the Internet and new businesses associated with that changing technology already have rendered NAICS 1997 out of date in some sectors. For example, when NAICS 1997 was developed in 1995, the web was in its infancy and no one could have predicted that the World Wide Web would revolutionize business practices and give rise to so many new activities and businesses. Internet service providers were recognized as part of Online Service Providers in the Information sector, but web search portals, electronic auctions, electronic shopping, and business to business electronic markets were still in the future. Fortunately, the NAICS developers, while not able to predict the role the Internet would play in the economy of the 21<sup>st</sup> Century, provided for frequent updates to NAICS. To that end, NAICS will be updated for 2002 to recognize E-commerce activities. Important changes include the following:

*Wholesale Trade* - Wholesale Trade is one of the sectors that does not include three country comparability at the five-digit level. Rather, in 1997, the three countries agreed upon the boundaries of the sector and then each country created its own structure within those agreed upon boundaries. The three countries originally planned to include Wholesale Trade within its scope of work for 2002, but resource constraints and the desire to conduct a complete review of all distribution networks delayed the work until 2007. In the interim, however, the United States has restructured NAICS United States for 2002 to more closely align with the existing treatment of wholesale trade in Canada and Mexico. This also allows the U. S. to recognize the tremendous growth of business to business electronic commerce in Wholesale Trade. For 2002, the U.S. recognizes three new subsectors: 423, Merchant Wholesalers, Durable Goods; 424, Merchant Wholesalers, Nondurable Goods; and 425, Wholesale Electronic Markets and Agents and Brokers. Within the new 425 subsector, two detailed industries are recognized: 42511, Business to Business Electronic Markets, and 42512, Wholesale Trade Agents and Brokers.

*Sector 44-45, Retail Trade* - To recognize the growth of electronic shopping in this sector, additional national level detail is created for nonstore retailers. Three new six-digit industries, Electronic Shopping, NAICS 454111; Electronic Auctions, NAICS 454112; and Mail-Order Houses, NAICS 454113 are included in Retail Trade. This will allow us for the first time to measure at the industry level the growth in electronic shopping and electronic auctions.

*Sector 51, Information* - Parts of the Information sector are revised and new industries reflecting the growth of the Internet are recognized. Specifically, new industries are recognized for Internet Publishing and Broadcasting, NAICS 516111; Internet Service Providers, NAICS 518111; and Web Search Portals, NAICS 518112.

#### **4. Future Plans for E-Business and E-Commerce**

As noted earlier, the Census Bureau is seeking additional funding to expand its measurement of the electronic economy. The Atrostic, Gates, and Jarmin paper, referenced earlier, will provide the framework for planning new surveys and new measures of electronic economic activity.

Immediate plans include expansion of the Annual Wholesale Trade Survey to include non-merchant wholesalers and the introduction of a supply chain annual survey. A more complete discussion of these plans follows.

Business to business electronic markets, recognized as one of the fastest growing components of E-commerce and E-business in the United States, are not included in any current economic survey. Our monthly and annual Wholesale Trade program only includes merchant wholesalers and while many merchant wholesalers are engaged in business to business electronic commerce, much of the E-commerce/business growth is occurring in the business to business electronic markets and auctions that are being organized across the U.S. economy. Plans are to expand coverage of our annual wholesale trade program to cover all of wholesale trade, including these rapidly expanding electronic markets, if funding is secured for the E-business initiative.

Over the past year, the Census Bureau has contracted with two private organizations to conduct research directly related to E-Business. The first relates to the changing face of wholesale trade and the supply chain as a result of E-business and E-commerce and the challenges and implications of those changes for economic data collection.

To characterize these changes and advise the Census Bureau on how to measure and describe the changes within our existing survey framework, the Census Bureau contracted with Pembroke Consulting, Inc. Their report on the U.S. supply chain was issued in May 2000 and includes recommendations on questions to be added to the 2002 Economic Census. We plan to add the questions to all forms for all industries in the following NAICS sectors: Wholesale Trade; Transportation and Warehousing; and Retail Trade. These questions include the following:

**Which of the following Supply Chain functions did your establishment in 2002 perform?**

	<u>Yes</u>	<u>No</u>
<b>Transportation of goods via?</b>		
Air freight forwarding	"	"
Ocean freight forwarding	"	"
Long distance trucking	"	"
Local pick-up and delivery	"	"
<b>Logistics</b>	"	"
<b>Materials Management</b>		
Warehousing	"	"
Consolidation/deconsolidation	"	"
Less-than-truckload	"	"
Pick & Pack	"	"
<b>Customs Brokerage</b>	"	"
<b>Value Added Services</b>		
Light assembly	"	"
Packaging/repackaging	"	"
On-site storeroom management	"	"
Order processing	"	"
Customer service	"	"
Product returns	"	"
Equipment rental	"	"

Pembroke Consulting will next develop recommendations for an annual supply chain survey to be conducted if E-business funding is secured. That contract was awarded in July and we expect to have a full set of recommendations by March 2001.

We also have contracted with IBM to conduct a second body of research regarding E-business. Their work is divided into two phases: (1) determining if NAICS 2002 adequately measures the E-business economy of the United States (their preliminary work suggests that NAICS 2002 does describe the 2000 U.S. economy) and (2) determining the drivers of E-business to help us design the proper questions and gather the correct data to measure the E-business economy. Both of these studies will be completed in late fall or early winter.

## **8. Conclusion**

The Census Bureau is moving rapidly to design surveys and questions that will help policy analysts and businesses understand the changing U.S. economy. Securing additional funding is essential for this measurement program to move forward. In the meantime, we will continue to measure E-commerce sales on existing surveys to at least gauge the size of the U.S. electronic commerce economy.

## Attachment 1.



U.S. DEPARTMENT OF COMMERCE  
Economics and Statistics Administration  
U.S. CENSUS BUREAU  
FORM  
**MA-1000(EC)**  
(6-9-2000)

### **ANNUAL SURVEY OF MANUFACTURES COMPUTER NETWORK USE SUPPLEMENT**

OMB No. 0607-0449: Approval Expires 11/30/2001

Mail your completed form to:  
**U.S. CENSUS BUREAU**  
1201 East Tenth Street  
Jeffersonville, IN 47132-0001

Please read the definitions on the back of the cover letter before answering the questions. If you still need help or have questions about filling out this form —

- E-mail us at [ma1000ec@census.gov](mailto:ma1000ec@census.gov)  
—OR—
- Call 301-457-4673 between 8:00 a.m. and 4:00 p.m., eastern time, Monday through Friday.  
—OR—
- Write to the U.S. Census Bureau at the address above.

For the answer categories, please indicate your response by shading the appropriate circle completely, as illustrated below.

- Yes  
 No

(Please correct any errors in name, address, and ZIP Code.)

**YOUR RESPONSE IS REQUIRED BY LAW.** Title 13, United States Code, requires businesses and other organizations that receive this questionnaire to answer the questions and return the report to the U.S. Census Bureau. By the same law, **YOUR CENSUS REPORT IS CONFIDENTIAL.** It may be seen only by U.S. Census Bureau employees and may be used only for statistical purposes. Copies retained in respondents' files are immune from legal process.

**1** Which of the following computer networks does this plant use? Mark all that apply.

- Internet     Local area network (LAN)     Extranet     None – Go to 5  
 Intranet     EDI Network     Other     Don't know

**2** What percent of employees at this plant have access of any kind to the Internet?

\_\_\_\_\_ %

**3** Does this plant use fully integrated Enterprise Resource Planning (ERP) software?

- Yes     No     Don't know

**4** Does this plant place orders online (Internet, Intranet, EDI Network, or Extranet) for purchasing materials or supplies?

- Yes     No – Go to 5

a. In 1999, what percent of total value of purchases were ordered online?

\_\_\_\_\_ %

b. Which computer network is used most frequently to place online orders for materials or supplies? Mark only one.

- Internet     EDI Network     Other – Specify \_\_\_\_\_     Don't know  
 Intranet     Extranet

**5** Does this plant accept orders online (Internet, Intranet, EDI Network, or Extranet) for its manufactured products from customers, including interplant transfers?

- Yes     No – Go to 6

a. In 1999, what percent of total value of shipments were from online orders?

\_\_\_\_\_ %

b. Which computer network is used most frequently to accept online orders for its manufactured products? Mark only one.

- Internet     EDI Network     Other – Specify \_\_\_\_\_     Don't know  
 Intranet     Extranet

**CONTINUE ON REVERSE SIDE**

<b>6</b>	For each of the following items, to whom does this <b>plant</b> provide information online (Internet, Intranet, EDI Network, or Extranet)? <i>Mark all that apply.</i>	Other company units	External customers	External suppliers	None of these
	a. Design specifications .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	b. Product descriptions or catalog .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	c. Demand projections .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	d. Order status .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	e. Production schedules .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	f. Inventory data .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	g. Logistics or transportation .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>7</b>	For each of the following <b>computer networked business processes</b> , please indicate below whether this <b>plant</b> currently uses or plans to begin using by December 2002.	Uses now	Plans to use by 12/2002	No plans to use by 12/2002	
a. Purchasing	(1) Access to vendors' products or catalogs .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(2) Ordering from vendors .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(3) Payment to vendors .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(4) Vendor management of your inventory .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(5) Online bidding .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(6) Using electronic marketplaces linking specialized business buyers and sellers .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
b. Orders of Manufactured Products	(1) Access to your products or catalogs .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(2) Ordering by your customers .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(3) Payment by your customers .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(4) Management of your customer's inventory .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(5) Customer support .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
c. Production Management	(1) Integrated CAD/CAE (Computer Aided Design/Computer Aided Engineering) .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(2) Design of the production process .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(3) Production scheduling .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(4) Production monitoring .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(5) Test and acceptance of product .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(6) Outsourcing of research and development .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
d. Logistics	(1) Order fulfillment .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(2) Order tracking .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(3) Transportation and shipping .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(4) Automated warehouse .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
e. Communication and Support Services	(1) E-mail within the plant .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(2) E-mail with vendors or customers .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(3) Employee training .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(4) Employee recruiting .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(5) Employee management of own benefits (retirement, payroll deductions, etc.) .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	(6) Requests for maintenance or repairs .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
<b>8</b>	Please identify any other important <b>computer networked business processes</b> not listed above.				
<b>9</b>	Please provide an electronic mail (E-mail) address for this plant or the person completing this form.				
	<input type="checkbox"/> No E-mail address available	<input type="checkbox"/> Don't know E-mail address			
<b>10</b>	Name and telephone number of person to contact regarding this report. <i>Please print or type.</i>				
		Area code	Number	Extension	

**Attachment 2.**

**Read: ‘The next section asks questions about members of the household and their use of computers and the Internet.’**

- PQ1. School is one common place for people to use computers. Is this person—go through household roster attending or enrolled in regular school?** (Read if necessary: Regular school includes nursery school, kindergarten, elementary school, high school, and schooling that leads to a college or professional school degree.)  
Universe: persons ages 3-15 and 25-60 (Skip pattern--Persons 16-24 enrolled in school identified in basic CPS.)

<1> Yes

<2> No

<D>

<R>

- PQ2. Does this person—go through household roster use a computer?**

Universe: all people ages 3 and over.

<1> Yes (Go to PQ3)

<2> No (Go to PQ9)

<D>

<R>

- PQ3. Where does this person—go through roster of computer users use a computer?**

Universe: Answered ‘<1> Yes’ to PQ2 and either HQ=1, and/or employed, and/or in enrolled school

A) At home?

Universe: Answered ‘<1> Yes’ to HQ1

<1> Yes

<2> No

<D>

<R>

B) At your main job?

Universe: Ages 15 and older who had a job in basic CPS (PUMLR=1 or 2)

<1> Yes

<2> No

<D>  
<R>

C) At school?

Universe: Answered ‘<1> Yes’ to PQ1 (enrolled in school)

<1> Yes  
<2> No

<D>  
<R>

**PQ4. Where [else][use if ‘<1> Yes’ to PQ3A,B, or C] does this person—go through some other location Computer use roster use the Computer?**

(Read all responses. Check all that apply)

Universe: Answering ‘<1> Yes’ to PQ2

- <1> At a someone else’s house
- <2> At a public library
- <3> At a school [Universe: if PQ1 = 2]
- <4> At a community center
- <5> Other/Specify \_\_\_\_\_
- <6> No other place

<D>  
<R>

**PQ5 At home, what does this person—go through home computer use roster do on the computer? (Read all responses. Check all that apply.)**

Universe: Answering ‘<1> Yes’ to PQ2

- <1> Word processing or desktop publishing
- <2> Games
- <3> Connect to Internet, online service, or email
- <4> Spread sheets or databases (read only for people 12 and over)
- <5> Graphics and design (read only for people 12 and over)

<D>  
<R>

**PQ6 Does this person—go through home computer use roster use the home computer to:**

(Read all responses. Check all that apply.)

Universe: Answering ‘<1> Yes’ to PQ2 and age 12 years or more.

- <1> Manage household records or finances?

- <2> Work at home?
- <3> Complete school assignments?
- <4> Other. Specify \_\_\_\_\_

<D>  
<R>

**PQ7 At this person's—go through work computer use roster main job, what does he/she do on the computer?**

(Read all responses. Check all that apply.)

- <1> Word processing or desktop publishing
- <2> Connect to email, the Internet, or online service
- <3> Calendar or scheduling
- <4> Spread sheets or databases
- <5> Graphics and design
- <6> Programming
- <7> Other? Is so, what?\_\_\_\_\_

<D>  
<R>

**PQ8. When this person—go through School Computer use roster uses a computer at school, does he/she use it...?**

(Read all responses. Check one only.)

Universe: Answered ‘<1> Yes’ to PQ3c (use at school) and age < 16 or school level is HS or below

- <1> Only during school hours
- <2> Before or after school hours
- <3> Both during school hours and before or after school hours

<D>  
<R>

**Read: The following questions ask about how household members may have used the Internet.**

**PQ9. Does this person—go through household roster use the Internet?**

Universe: all people ages 3 and over.

- <1> Yes
- <2> No

<D>  
<R>

**PQ10. Where does this person—go through roster of Internet users use the Internet?**

Universe: Answered ‘<1> Yes’ to PQ9

- A) At home?  
Universe: Age 3 and over

<1> Yes  
<2> No

<D>  
<R>

- B) At your main job?  
Universe: Ages 15 and older who said they had a job in basic CPS

<1> Yes  
<2> No

<D>  
<R>

- C) At school?  
Universe: Answered ‘<1> Yes’ to PQ1 (enrolled in school) or in school from basic CPS

<1> Yes  
<2> No

<D>  
<R>

**PQ11. Where [else][--use if ‘<1> Yes’ to PQ10A,B, or C] this person—go through some other location Internet use roster use the Internet?**

(Read all responses. Check all that apply)  
Universe: Answering ‘<1> Yes’ to PQ9

- <1> At a someone else’s house
- <2> At a public library
- <3> At a school [Universe: if PQ1 = 2, enrolled in school]
- <4> At a community center
- <5> Other/Specify \_\_\_\_\_
- <6> No other place

<D>  
<R>

**PQ12. Through what means does this person access the Internet?**

Universe: Answered ‘<1> Yes’ to PQ9--use the internet

(Read all responses. Check all that apply.)

- <1> A computer or laptop (GOTO PQ14)
- <2> Some means other than a computer or laptop (GOTO PQ13)

<D>  
<R>

**PQ13. Other than a computer or laptop, how does this person access the Internet?**

(Do NOT read. Check all that apply)

Universe: Answered ‘<1> Yes’ to PQ12

- <1> TV based Internet device
- <2> Personal Digital Assistant (PDA)/Hand-holds
- <3> Cellular phone or pager
- <4> Other Specify \_\_\_\_\_

<D>  
<R>

**PQ14. The next few questions ask about this person's—go through roster of Internet users Internet use.**

(Read all categories. Check all that apply)

Universe: Answered ‘<1> Yes’ to PQ9

- A) Does this person use the Internet for –
- <1> Email or instant messaging
  - <2> Chats, chat rooms, or LISTSERVs
  - <3> Telephone calls
  - <4> Games
  - <5> Viewing tv or movies or listening to radio

<D>  
<R>

- B) Does this person use the Internet to search for information about –

Universe: Answered ‘<1> Yes’ to PQ9 and age 12 or over.

- <1> Products or services (if no, don't ask research question PQ19 later on)
- <2> Health services or practices
- <3> Government services or agencies
- <4> News, weather, sports or other information

<D>  
<R>

C) Does this person use the Internet for –

Universe: Answered ‘<1> Yes’ to PQ9 and age 12 or over.

- <1> Trading stocks, bonds, or mutual funds
- <2> Online banking
- <3> Purchasing products or services (if no to make purchases, don't ask purchase question PQ17 later on)

<D>  
<R>

D) Does this person use the Internet for –

- <1> Homework
- <2> Academic courses online
- <3> Vocational or job-related courses online (Ask only if person age 15 or more)

<D>  
<R>

E) Has this person used the Internet to search for a job?

Universe: Answered ‘<1> Yes’ to PQ9 and age 15 or over.

(if yes, go to job search PQ15, after job search question, return for F, below)

- <1> Yes
- <2> No

<D>  
<R>

F) Does this person use the Internet for any other purpose?

- <1> Yes (specify \_\_\_\_\_)
- <2> No

<D>  
<R>

NOTE: All responses go to PQ16.

**PQ15. How did this person use the Internet to search for a job?**

Universe: Answered ‘<1> Yes’ for PQ14E

(Read all responses. Check all that apply.)

- <1> Read online job ads or searched online job listings
- <2> Submitted a resume or application to an employer
- <3> Posted resume on job listing site or service
- <4> Posted resume on own or personal web site
- <5> Researched information about potential employers
- <6> Other/Specify \_\_\_\_\_

<D>

<R>

NOTE: All responses RETURN TO PQ14-F

**PQ16. When this person—go through School Internet use roster uses the Internet at school, does he/she use it...?**

Universe: Answered ‘<1> Yes’ to PQ10c (Internet use at school) and age < 16 or level is HS or below

- <1> Only during school hours
- <2> Before or after school hours
- <3> Both during school hours and before or after school hours

<D>

<R>

**Read: The next several questions ask about how members of the household may have used the Internet to shop in the recent past.**

**PQ17. During the past 30 days, has this person--go through Internet use anywhere roster PURCHASED products or services through the Internet for personal or household use?**

Universe: Answered ‘Purchase products or services’--PQ14-C-3 and age 12 years or more.

<1> Yes

<2> No

<D>

<R>

**PQ18. During the past 30 days, which of the following did this person PURCHASE on the Internet?**

(Read all responses. Check all that apply).

Universe: Answered ‘<1> Yes’ to PQ17.

- <1> Computer hardware
- <2> Computer software
- <3> Flowers/cards/gifts
- <4> Videos/Movies
- <5> Books/Magazines
- <6> Music CDs/Tapes/Albums
- <7> Consumer electronics
- <8> Clothing/Accessories
- <9> Entertainment/Concerts/Plays/Movie tickets
- <10> Travel arrangements/Air/Car/Hotel
- <11> Others (specify) \_\_\_\_\_

<D>

<R>

**PQ19. During the past 30 days, has this person—go through Internet use anywhere roster made purchases OFFLINE for personal or household use as a result of RESEARCH conducted using the Internet?**

(read if necessary...’Offline’ purchases refer to goods or services purchased in a store, through mail order, through telephone orders, or through other means not on the Internet.)

Universe: Answered PQ14-B find information on ‘<1> Products or services’ and age 12 years or more

<1> Yes

<2> No

<D>

<R>

**PQ20. During the past 30 days, which of the following did this person purchase OFFLINE as a result of research conducted using the Internet?**

(Read all responses. Check all that apply).

Universe: Answered ‘<1> Yes’ to PQ19

- <1> Computer hardware
- <2> Computer software
- <3> Flowers/cards/gifts
- <4> Videos/Movies
- <5> Books/Magazines
- <6> Music CDs/Tapes/Albums
- <7> Consumer electronics

- <8> Clothing/Accessories
- <9> Entertainment/Concerts/Plays/Movie tickets
- <10> Travel arrangements/Air/Car/Hotel
- <11> Others (specify) \_\_\_\_\_

<D>  
<R>

Read: The following questions ask about how household members may have used the Internet during the past 12 months.

**AU1. During the past 12 months, has a member of this household used the Internet to research or comparison shop for a large purchase in excess of \$2,000?**

Universe: Primary respondent only, answering for households where at least one person in household answered '<1> Yes' to PQ9 (uses the Internet). (Note to reviewers: these are household questions.)

- <1> Yes (Go to AU2)
- <2> No (Go to JM1)

<D>  
<R>

**AU2. What, during the past 12 months, has a member of this household used the Internet to comparison shop for or purchase in excess of \$2,000?**

Universe: Primary respondent only, answering for households where at least one person in household answered '<1> Yes' to PQ9 (uses the Internet)  
(Read all responses. Check all that apply.)

- <1> Real estate (Go to JM1)
- <2> Automobile (Go to AU2)
- <3> Household appliance (Go to JM1)
- <4> Household furnishings (Go to JM1)
- <5> Other. Please specify \_\_\_\_\_ (Go on to JM1)

<D>  
<R>

NOTE: Unless '<2> Automobile', skip to JM1

**AU3. Did the household member use the Internet to solicit lowest-price bids for the automobile?**

Universe: Primary respondent and answered '<2> Automobile' to AU2 (large purchase research)

- <1> Yes
- <2> No

<D>  
<R>

**AU4. Did the household member purchase their new automobile over the Internet?**

Universe: Primary respondent and answered ‘<2> Automobile’ to AU2 (large purchase research)

<1> Yes  
<2> No

<D>  
<R>

**AU5. From whom did the household member purchase their automobile over the Internet?**

(check one)

Universe: Primary respondent and answered ‘<2> Automobile’ to AU2 (large purchase research)

<1> Online Buying service  
<2> Manufacturer’s Web site  
<3> Dealer’s Web site

<D>  
<R>