



**Detailed Tabulations of  
Manufacturing E-business  
Process Use in 2000**

This *E-Stats* analytic report presents tabulations of responses by more than 38,000 manufacturing plants to 39 detailed questions about e-business process use at their plant. The responses were collected on the Computer Network Use Supplement (CNUS) to the 1999 Annual Survey of Manufactures (ASM). These tabulations are follow-ups to earlier tabulations based on the supplement. In March 2001, the Census Bureau announced that the CNUS (when combined with data from the regular 1999 ASM) showed that e-commerce shipments accounted for 12 percent of the value of all manufacturing shipments in 1999. Then in June 2001, the Bureau provided an analytic report showing that online purchases accounted for 11 percent of all costs of materials at manufacturing plants in the same year. Both of the earlier reports are available online at [www.census.gov/estats](http://www.census.gov/estats). They provided important first-use information, but together they did not cover all of the information collected in the CNUS.

This report completes the presentation by providing basic tabulations of the responses to all CNUS questions on e-business process use. The 39 questions are listed at the end of this text. They begin with whether a computer network is in use. They continue with the degree of Internet access among employees, the primary type of network for making online purchases, the use of email at the plant, and many more inquiries. They end with whether or not requests for repairs and maintenance are made online. All questions are concerned with e-business process use at the plant. They are not questions about e-business process use by the company at other locations. These tabulations are a rich and diverse dataset that can serve as a source

for analytic insights, but should be used with care.

The CNUS was mailed in June 2000 so responses portray e-business process use in mid 2000. CNUS responses were linked to 1999 Annual Survey of Manufactures responses to obtain respondent employment data because CNUS did not collect employment data. All tabulations in this report are based solely on the observed data from CNUS respondents. The sample results have not been adjusted for nonresponse nor weighted to calculate population estimates. The appendix to this report contains a comparison of the survey respondents to the population of all manufacturing plants in 1999.

Three tables are presented for each question on e-business process use. The first table shows counts of responses by manufacturing sub sector. The second shows the employment in 1999 of establishments providing the various responses -- again by manufacturing sub-sector. The third shows counts of responses by employment size class. As noted above, all employment data are drawn from responses to the 1999 ASM. There are 117 tables presenting information for 39 questions.

These tabulations are meant to serve as a resource for data users interested in e-business process use in the U.S. manufacturing sector in 2000. An example of the kinds of information presented can be seen in Tables 1A-1C. All three tables are based on responses to the question, "*Which of the following computer networks does this plant use? Mark all that apply.*" This is followed by eight checkboxes. One each for (1) Internet, (2) Intranet, (3) Local area network, (4) EDI network, (5) Extranet, (6) Other, (7) None, and (8) Don't know.

Table 1A shows the number of respondents in each subsector reporting that each type of computer network is present in the plant. 75 percent of respondents (28,777 out of 38,593) report that the Internet is present. 20 percent (8,729) report an Electronic Data Interchange (EDI) network present. Many respondents report more than one type of network present. Therefore, adding the numbers reporting different types of networks results in counting the same respondents more than once.

Table 1B shows the employment of respondents to the same question – again by subsector. The 28,777 respondents reporting the Internet present report total employment of 6,939,339 in the 1999 ASM. The respondents reporting an EDI network present have employment of 3,241,797. Comparing these employment values to employment of all respondents to the question (7,983,661) shows that 87 percent of employees at a respondent plant work in a plant with the Internet present and 41 percent at a plant with an EDI network. Again, adding employment or percentages across reporters of different networks will result in multiple counting of the same respondents.



Completing our example, Table 1C shows numbers of respondents grouped by employment size class. As in Table 1A, 28,777 respondents report the Internet present and 8,729 report an EDI network. Again, respondents report more than one network present so adding across types of network will count respondents multiple times – 81 percent of responding plants with 100-249 employees report the Internet is present, and 27 percent of plants in this size class report an EDI network present.

As these examples make clear, the tabulations presented here are extensive and detailed. They can be related to other information sources – earlier *E-Stats* reports, ASM publications, County Business Patterns tabulations, and more. While caution is required in their interpretation, they provide a host of opportunities for

researchers interested in manufacturer's use of e-business processes.

The Manufacturing and Construction Division of the U.S. Census Bureau mailed a Computer Network Use Supplement questionnaire in June 2000 to all plants in the 1999 Annual Survey of Manufactures (ASM) sample. Responses were received throughout the remainder of year and the final response rate was approximately 82 percent. The results presented here are based on data provided from the more than 38,000 manufacturing plants that responded by mail, via the Internet, or from telephone follow-up.

### Explanatory Notes

The tables in this release display tabulations of unweighted responses to the CNUS. They do not represent the population of all manufacturing plants in the U.S. The ASM uses a probability-proportionate-to-size sample design which results in a sample primarily comprised of larger manufacturing plants. While a number of small plants are included in the ASM, the number is disproportionately small in comparison to the entire manufacturing population. Consequently, tabulations of "plant count totals" and "associated employment totals" are likely to be more representative of the larger plants in manufacturing than of the entire manufacturing population. A comparison of estimates for the manufacturing population and the corresponding tabulated respondent data is shown in the appendix.

Since population estimates have not been constructed, there are no sampling errors associated with these tabulations. There may be nonsampling error associated with the tabulations. The presence of errors would cause the tabulated results to differ from a statement of the true conditions at responding plants in mid 2000.

Sources of nonsampling error include response errors, definition difficulties, differences in the interpretation of questions, and mistakes in recording or coding the data obtained. Although no direct measures of these sources of nonsampling error have

been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to reduce their influence.

Tables 1A and 2A can be used to demonstrate nonsampling error. Table 1A shows that when asked what types of network were present at the plant, 28,777 respondents reported the Internet was present. Table 2A shows that when respondents were asked what percent of employees at this plant had access of any kind to the Internet, 32,810 respondents gave a percentage greater than zero of employees with access. Clearly, some respondents who did not indicate Internet access present in the first question did indicate it was present in the second. Similar inconsistencies can be found in answers to some other questions.

**For Additional Information  
Regarding this Survey, Contact:**

Judy M. Dodds  
[Judy.M.Dodds@census.gov](mailto:Judy.M.Dodds@census.gov)  
(301) 457-4587

For general information about the Census Bureau's e-business measurement program, contact:

Thomas L. Mesenbourg  
[tmesenbo@census.gov](mailto:tmesenbo@census.gov)  
(301) 457-2932

or visit:  
[www.census.gov/estats](http://www.census.gov/estats).



---

Table Contents by Table Number

## Table

<u>Number</u>	<u>Contents*</u>
1.A-C	Computer Network Use
2.A-C	Internet Access and Degree of Access
3.A-C	Fully Integrated Enterprise Resource Planning Software Use
4.A-C	Most Frequently Used Network to Place Online Orders for Materials and Supplies
5.A-C	Most Frequently Used Network to Accept Online Orders for Manufactured Products
6.A-C	Manufacturing Plants that Provide Design Specifications Online
7.A-C	Manufacturing Plants that Provide Product Descriptions or Catalogs Online
8.A-C	Manufacturing Plants that Provide Demand Projections Online
9.A-C	Manufacturing Plants that Provide Order Status Online
10.A-C	Manufacturing Plants that Provide Production Schedules Online
11.A-C	Manufacturing Plants that Provide Inventory Data Online
12.A-C	Manufacturing Plants that Provide Logistics or Transportation Information Online
13.A-C	Use of Online Access to Vendors' Products or Catalogs
14.A-C	Use of Online Ordering from Vendors
15.A-C	Use of Online Payment to Vendors
16.A-C	Plants Using Vendor Inventory Management Online
17.A-C	Use of Online Bidding
18.A-C	Use of Electronic Marketplaces Linking Specialized Business Buyers and Sellers
19.A-C	Use of Online Access to Plants' Products or Catalogs
20.A-C	Use of Online Ordering by Customers
21.A-C	Use of Online Payment by Customers
22.A-C	Use of Online Management of Customers' Inventory
23.A-C	Use of Online Customer Support
24.A-C	Use of Integrated CAD/CAE (Computer Aided Design/Computer Aided Engineering)
25.A-C	Use of Computer Networks in the Design of the Production Process
26.A-C	Use of Computer Networks in Production Scheduling
27.A-C	Use of Computer Networks in Production Monitoring
28.A-C	Use of Computer Networks in the Test and Acceptance of Product
29.A-C	Use of Computer Networks in the Outsourcing of Research and Development
30.A-C	Use of Computer Networks for Order Fulfillment
31.A-C	Use of Computer Networks for Order Tracking
32.A-C	Use of Computer Networks for Transportation and Shipping Logistics
33.A-C	Use of Automated Warehouses
34.A-C	Use of E-mail within the Plant
35.A-C	Use of E-mail with Vendors or Customers
36.A-C	Use of Online Employee Training
37.A-C	Use of Online Employee Recruiting
38.A-C	Use of Online Employee Management of Own Benefits
39.A-C	Use of Online Requests for Maintenance or Repairs

---

\* The "A" tables always shows number of plants by subsector. The "B" tables shows employment by subsector, and the "C" tables shows number of plants by size class.