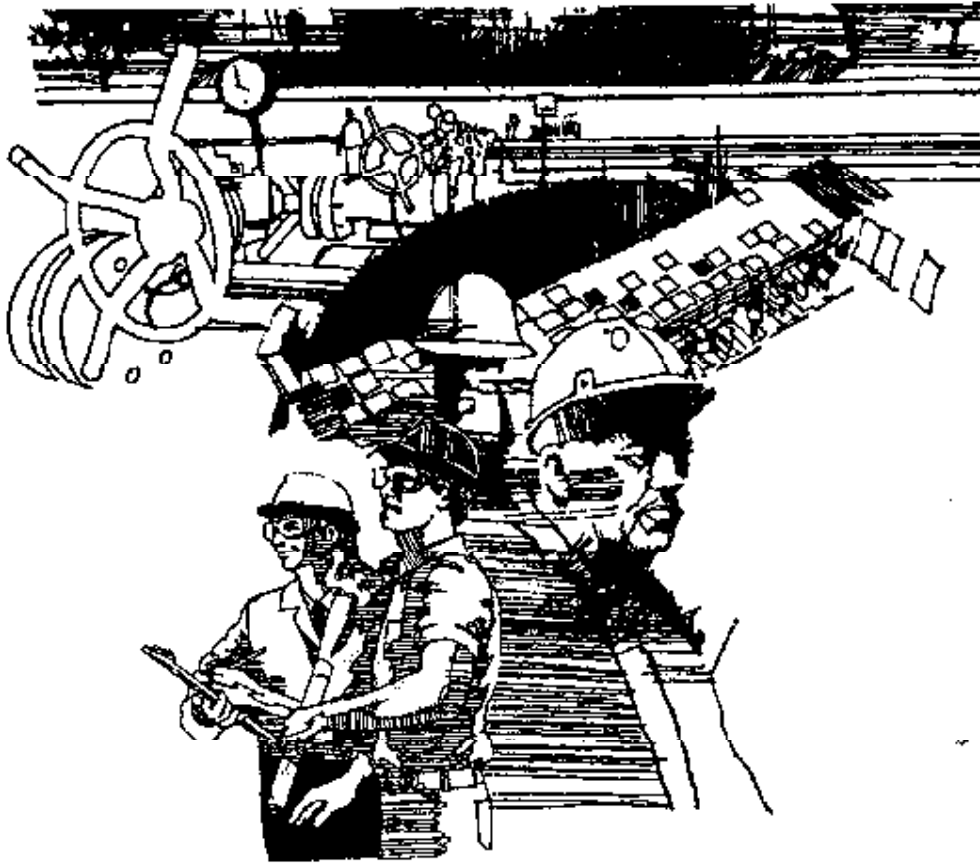


The Georgia Manufacturing Technology Survey 1994



- Please return the survey to us in the enclosed postage-paid envelope within 10 days.
- Survey questions refer to your plant unless otherwise specified.
- We understand you do not always keep exact records of all activities. Please feel free to give us estimates.
- All individual firm and plant information will be kept confidential.
- Please return this survey from to:

Jan Youtie
Economic Development Institute
Georgia Institute of Technology
Atlanta, Georgia 30332 0640
Tel: 404/894-6111 • Fax: 404/894-0069

- To receive a summary report of Georgia industry and statewide benchmarks, please confirm your name and address and check this box.

THANK YOU FOR YOUR HELP.

1. In which of the following areas do you have the most significant problems in your plant?
(Check all boxes that apply.)

- Plant layout, expansion planning
 - Manufacturing process, set-up, scrap
 - Product development/design
 - Material failure, wear patterns, and other material-related issues
 - Computer aided design, engineering, or manufacturing (CAD/CAE/CAM)
 - Automation of assembly, robotics, computer control and integration
 - Electronic data interchange (EDI)/communications/local area networks (LAN)
 - Quality assurance (e.g., SPC, ISO 9000, supplier certification, Malcolm Baldrige)
 - Business systems for planning and scheduling orders and inventory
 - Market development, exporting
 - Access to financing
 - Human resources, training
 - Energy costs, conservation
 - Environmental, health, and safety compliance
- Other (please describe) _____

2. Please list the major product lines or activities at this plant.

- a. _____
- b. _____
- c. _____

3. Which of the following categories best describes this plant? (Check all boxes that apply.)

- We produce parts or products one at a time to customers' orders.
- We produce parts or products in batch runs.
- We produce parts or production long production runs.
- We manufacture or refurbish machines or parts.

Other (please describe) _____

Information, quality, management, and production methods used in your plant.

4. For each of the manufacturing information technologies listed below, please indicate the answer that best reflects this plant's use of that technology. (Check the appropriate boxes.)

	Currently Use	Plan to Use	Do Not Plan to Use	Not Applicable
a. Personal computers or terminals- non-manufacturing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Personal computers or terminals on the manufacturing shop floor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Data collection devices (e.g., bar code readers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Local area networks (LAN)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Software to use in scheduling, inventory control, or purchasing (e.g., MRP)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Doing business electronically (sending or receiving invoices, electronic mail, or payments via electronic funds transfer)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. For each of the quality and management approaches listed below, please indicate the answer that best reflects this plant's use of that approach. (Check the appropriate boxes.)

	Currently Use	Plan to Use	Do Not Plan to Use	Not Applicable
a. Documented quality policy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Statistical process or quality control (SPC/SQC)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. ISO 9000 certified	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Employee problem solving/improvement teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Just-in-time deliveries to customers	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Just-in-time deliveries from suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Preventive/predictive machine maintenance program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. In the last two years, did you significantly change the layout of machines or activities in the plant to improve process flow and/or throughput? (check box)

- Yes
 No
 Don't know

Continued >

7. Do you have a business or strategic plan? (check box)
- Yes
 No
 Don't know
8. Do you have an energy management plan? (check box)
- Yes
 No
 Don't know

9. For each of the manufacturing production technologies listed below, please indicate the answer that best reflects this plant's use of that technology. (check box)

	Currently Use	Plan to Use	Do Not Plan to Use	Not Applicable
a. Numerical control/computer numerical control (NC/CNC) machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Other programmable controllers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Computer-aided design (CAD) or computer-aided engineering (CAE) software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. CAD data to generate machine instructions (CAD/CAM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Laser technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Robotics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Computer-integrated manufacturing (CIM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Automated in-process inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Automated material handling systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

An important part of the project is to assess key operating characteristics of Georgia manufacturers. If you don't know the number for the following operating characteristics, just give an estimate.

10. Approximately *how many* keyboards and keypads are used in manufacturing and design (include PCs, terminals, workstations, programmable controllers, and other hand-held data entry devices; do not include equipment used for office or payroll).

11. Approximately what percentage of employees at this location used a computer or programmable machine control on a weekly basis as part of their jobs in 1993? In 1991?	1993 %	1991 %
12. For a typical order, what was your manufacturing or production lead time – the number of calendar days between production start and end – in 1993? In 1991?	days	days
13. What was your scrap (or yield loss) rate in 1993? In 1991?	%	%
14. Approximately what percentage of your product shipments did your customers reject for defects or not-to-spec conditions in 1993? In 1991?	%	%

Next we would like to ask about your research, development, and engineering activities.

10. Which of the following research, development, and engineering activities are conducted at your plant? (check box)

	Conducted at this plant	Not conducted at this plant	Don't know
a. Manufacturing engineering and process improvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Customized design of existing products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. New product development or prototyping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Research to commercialize new technologies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

An important part of understanding manufacturing practices has to do with the relationship between companies and their customers. We would like to ask you some questions about these relationships.

16. Please describe how you compete. (check box)

	Rarely	Sometimes	Often
a. Low price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. High quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Uniqueness of product design, technology or function	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Short delivery time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How many customers does it take to account for 75 percent of your sales? _____

18. How would you describe your relationships with major customers? (check box) IF YOU HAVE MANY DIVERSE CUSTOMERS, NO MAJOR ONES, SKIP TO Q. 19.

	Rarely	Sometimes	Often
a. Major customers usually give short-term contracts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Major customers have established quality performance requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. We have two or more customers, each of whom has <i>different</i> quality requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Major customers directly assist us to improve our quality or solve technical problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Do you usually subcontract or outsource any part of your manufacturing work? (check box)

No

Yes . . . What percentage of your production, by value, is subcontracted or outsourced?

In Georgia _____ % Elsewhere in the U.S. _____ % Outside the U.S. _____ %

Continued >

20. Are any of the products manufactured at this plant shipped to the following? (check boxes)

- Federal defense agencies
- Prime contractors to federal defense agencies
- Subcontractors to federal defense agencies
- U.S. Department of Energy (DoE) facilities or contractors of the U.S. Department of Energy

IF ANY BOX ABOVE IS CHECKED, approximately what percentage of your total annual sales or value of shipments or production was shipped to defense agencies, prime contractors, subcontractors or DoE in 1993?

_____ %

21. Please indicate whether your plant participates with other firms in any of the following inter-firm activities. (check box)

- | | | Interested in participating | Not interested in participating |
|---|--------------------------|-----------------------------|---------------------------------|
| a. Identification of shared industry problems and needs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Cooperative design or new product development | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Cooperative manufacturing with other firms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Cooperative training with other firms | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Quality assurance/ISO 9000 user groups | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Cooperative marketing, sharing of exhibition space | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Other kinds of inter-firm activities (please describe) _____ | | | |

Now, we would like to ask you a few questions about your workforce.

	1993	1991
22. On average, how many employees worked at this location in 1993? In 1991?		
23. What was your payroll in 1993? In 1991?	\$	\$
24. How much was spent on training for all your employees at this location in the year 1993? In 1991?	\$	\$

25. Are workers at this plant unionized? (check box)
- Yes
 - Partially
 - No

Your use of information and assistance resources.

26. a. In the last two years, has your plant received assistance from a *public* or *non-profit* program, e.g., sponsored by federal, state, or local government, university or technical institute? (check box)
- Yes Don't know No (SKIP TO Q. 27)
- b. If your plant has received assistance, which of the following organizations provided it? (Check all boxes that apply.)
- Georgia Tech (main campus in Atlanta)
 - Georgia Tech regional office
 - Small Business Development Center
 - Technical Institute (Georgia Department of Technical and Adult Education, Quick Start)
 - Georgia Power Company
 - Federal Laboratory, NASA Technology Transfer Center, or other federal technology program
 - Other (please list) _____

27. In the past two years, has your plant received assistance from a *private* consultant, vendor, or other private organization? (check box)
- Yes Don't know No

28. a. If you were assisted in the last two years by a *public* or *non-profit* program or by a *private* consultant or organization, please indicate the types of assistance received. (Check all boxes that apply.)

	Assistance provided by:	
	Public/Non-profit Organization	Private Consultant or Organization
Management assistance, business planning	<input type="checkbox"/>	<input type="checkbox"/>
Financing, loan assistance	<input type="checkbox"/>	<input type="checkbox"/>
Production or technology assistance, manufacturing improvement	<input type="checkbox"/>	<input type="checkbox"/>
New product development, commercialization of new technology	<input type="checkbox"/>	<input type="checkbox"/>
Training of workforce	<input type="checkbox"/>	<input type="checkbox"/>
Marketing, export assistance, government procurement	<input type="checkbox"/>	<input type="checkbox"/>
Environment, hazardous materials, worker health and safety	<input type="checkbox"/>	<input type="checkbox"/>
Energy audits, energy conservation	<input type="checkbox"/>	<input type="checkbox"/>
Other (please describe) _____	<input type="checkbox"/>	<input type="checkbox"/>

- b. In total, please estimate approximately how many days of assistance you have received from public, non-profit, and private sources in the past two years. (check box)

	Public/Non-profit Organization	Private Consultant or Organization
Less than 1 day	<input type="checkbox"/>	<input type="checkbox"/>
1-5 days	<input type="checkbox"/>	<input type="checkbox"/>
More than 5 days	<input type="checkbox"/>	<input type="checkbox"/>

Continued >

A vital element in measuring Georgia's manufacturing productivity is value-added. It is obtained from sales revenue and the total cost of purchased materials and services. Please give estimates if you don't know the exact numbers.

	1993	1991
29. What were your total annual sales (or value of shipments or production) at this plant in 1993? In 1991?	\$	\$
30. Approximately what percentage of your total annual sales (or value of shipments or production) was to customers outside the U.S. in 1993? In 1991?	%	%
31. Approximately how much did you spend at this location on purchased materials, parts, and services in 1993? In 1991?	\$	\$
32. On a typical day, how much total inventory did you have on hand at this location in 1993? In 1991?	\$	\$

Finally, we would like to ask a few questions about the plant to help interpret the results.

33 Is this the only plant in the company? (check box)

Yes

No . . . Where does your company operate other plants? (Check all boxes that apply.)

Georgia Elsewhere in the United States Outside the United States

Are decisions about investment in this plant made here or at another location?

Here Elsewhere in Georgia Outside Georgia

Across all plants and offices in the company, total employment is:

1-99 100-499 500 or more

Is there anything else you would like to tell us about problems in manufacturing processes, difficulties using technology, or ways additional technical assistance could help you? Please use the space below.

Your assistance is greatly appreciated.