

The 2016 Georgia Manufacturing Survey

Smart Manufacturing



This survey is conducted to develop benchmark information to help Georgia manufacturers be more competitive and improve state business and technology services to industry. We appreciate your cooperation in making the 2016 survey a success.

- In return for completing your survey, we will send a summary and customized report comparing your data with industry statistics.
- All company information will be kept confidential. All individual firm and facility information will be kept in a secured, limited access location. Results will only be presented in an aggregated form. Your firm or facility's identity will not be revealed in any publication or presentation of the results of this survey.
- We understand you do not always keep exact records of all activities – estimates and rounding are fine.
- This is the only copy sent to this facility. If there is another person at your location who can complete the survey, please forward this mailing to him or her.
- Survey questions refer to this facility or plant.
- Web-based survey is available at <http://www.gms-ei2.org>

Please return this survey in the enclosed postage-paid envelope within 10 days to:

Kennesaw State University
Econometric Center
Attn: 2014 Georgia Manufacturing Survey, **Project Number [ID]**
1000 Chastain Road
MD 0403, BB, Bldg. 4, Rm 322
Kennesaw, GA 30144-9732

Questions about the survey?

Contact: Dimitri Dodonova
Telephone: (770) 499-3390 Fax: (770) 423-6144
e-mail: dcamargo@kennesaw.edu <http://www.gms-ei2.org>

Please confirm your name and address and make any changes if necessary.

[JOB TITLE]
[COMPANY]
[ADDRESS 1]
[ADDRESS 2]
[City], [State] [Zip]

THANK YOU FOR YOUR HELP

1. FACILITY - INDUSTRY AND NEEDS

1.1. Is this facility a single-establishment enterprise not affiliated with any other enterprises?

- Yes** (skip to Question 1.2)
- No** – this facility is part of a company or group with two or more separate facilities.
 - ↳ If part of a multi-facility company or group, is the **head office** located in Georgia?
 - Yes**
 - No**, head office is located in _____(U.S. state) or _____ (country outside of the U.S.)

1.2. Is this business:

- Publicly traded (registered securities are available for sale to general public)
- Privately owned
 - ↳ If privately owned, is this a **family-owned** business?
 - Yes
 - No

1.3. In what year did you begin manufacturing at this facility? Year:

1.4. Your facility's **main product** or manufacturing activity is: (Please check one.)

- | | |
|--|--|
| <input type="checkbox"/> Food, beverages, feed | <input type="checkbox"/> Stone, clay, glass, or concrete products |
| <input type="checkbox"/> Textiles | <input type="checkbox"/> Primary metals (iron, steel, nonferrous) |
| <input type="checkbox"/> Apparel, leather | <input type="checkbox"/> Fabricated metal products |
| <input type="checkbox"/> Lumber and wood products, except furniture | <input type="checkbox"/> Machinery (industrial, nonindustrial) |
| <input type="checkbox"/> Furniture (wood or metal) | <input type="checkbox"/> Computer and electronic products, instruments |
| <input type="checkbox"/> Pulp, paper, or paper products | <input type="checkbox"/> Electrical equipment, appliances, or components |
| <input type="checkbox"/> Printing, publishing | <input type="checkbox"/> Transportation equipment |
| <input type="checkbox"/> Chemical, petroleum, coal & allied products | <input type="checkbox"/> Medical or laboratory supplies |
| <input type="checkbox"/> Plastics or rubber | <input type="checkbox"/> Other (please describe) |
- _____

1.5. For the plant's main product(s), please **RANK** the order of importance of the following factors according to how your facility competes in the marketplace for sales. 1=most important, 6=least important.

(Please do not give the same ranking to more than one factor.)

- | | |
|--|---|
| | Low price |
| | High quality |
| | Innovation/new technology |
| | Quick delivery |
| | Adapting existing product to customer needs |
| | Sustainable or green manufacturing |

1.6. Did any of the following significant changes occur to this facility in the last 2 years?

- Facility expanded due to acquisition of or merger with another business or part of it
- Facility downsized due to sale or closure of part of the business
- No major change
- Other major change (please describe): _____

1.7. In which of the following areas does your facility have the most significant problems or needs?

(Please check all that apply.)

- Expansion planning, facility layout
- Lean manufacturing and workflow improvement
- Quality management system (e.g., ISO 9000, TS16949, Six Sigma)
- Product development/design
- Marketing and sales
- Information systems and hardware
- Business strategy, financial analysis, competitiveness planning
- Basic workforce skills (e.g., reading, writing, math, keyboard skills)
- Technical skills (e.g., machining, electrical work)
- Management and leadership
- Energy cost management
- Environmental, health, safety, and workforce compliance and improvement
- Cybersecurity
- Other (please describe): _____

2. PRODUCT, PROCESS AND ORGANIZATIONAL INNOVATION

A **product innovation** is the introduction of a **new or significantly improved good or service**. *The innovation must be new to your facility, but does not need to be new to your sector or market.* Resale of goods purchased elsewhere or changes to color or look are excluded.

2.1. During the period 2013-2015, did your facility introduce **new or significantly improved**: (Check all that apply.)

- Goods
- Services

If you **do not check any option**, skip to Question 2.4.

If **EITHER** of the boxes above (from 2.1.) are checked, please continue, otherwise skip to Question 2.4.

2.2a. Who developed these product or service innovations? (Check all that apply.)

	Product Innovations	Service Innovations
Your company by itself	<input type="checkbox"/>	<input type="checkbox"/>
Your company together with other companies, universities, research institutes, laboratories	<input type="checkbox"/>	<input type="checkbox"/>
Your company by adapting or modifying goods or services originally developed by other companies, universities, research institutes, laboratories	<input type="checkbox"/>	<input type="checkbox"/>
Other companies, universities, research institutes, laboratories	<input type="checkbox"/>	<input type="checkbox"/>

2.2b. Were any of your goods and service innovations during 2013-2015: (Check all that apply.)

- New to one of your markets (introduced before your competitors)
- New only to your facility (already available from your competitors)

2.3. Using the definitions above, please, indicate what percentage of your total sales in 2015 from goods and services introduced during the period 2013-2015 were:

Sales of new or significantly improved goods and services that were new to one of your markets (introduced earlier than competitors)	%
Sales of new or significantly improved goods and services that were new to your firm , but NOT to your market	%
Sales from existing goods and services	%
Total sales	1 0 0 %

A **process innovation** is the implementation of a **new or significantly improved production process or method of providing services**. *The innovation must be new to your facility, but it does not need to be new to your sector or market.*

2.4. During the period 2013-2015, did your facility introduce **new or significantly improved**: *(Check all that apply.)*

- Processes or manufacturing technologies
- Logistics, delivery, or distribution methods
- Support activities for processes, such as maintenance systems or operations for purchasing, accounting, or computing
- Higher performing materials

An **organizational innovation** involves **new or significant changes in firm structure**, management methods, information systems, or external relations.

2.5. During the period 2013-2015, did your facility introduce **new or significant changes** in: *(Check all that apply.)*

- Corporate strategy, plan
- Management systems to better use or exchange information, knowledge and skills
- Work organization, such as changes in management or departmental structure
- Relations with other firms, such as alliances, partnerships, outsourcing, or subcontracting

A **marketing innovation** covers **new or significant changes in marketing methods** to increase the appeal of your goods or services or enter new markets. Routine or seasonal changes are excluded.

2.6. During the period 2013-2015, did your facility introduce **new or significant changes** in: *(Check all that apply.)*

- Design or packaging of goods or services
- Sales methods or distribution channels, such as Facebook/Twitter/other social media, franchising, direct sales or distribution licenses

2.7. Did your facility engage in any of the following activities to achieve **any of the types of innovation mentioned in Questions 2.1 to 2.6**? *(Please check if yes for all those that apply.)*

- In-house R&D (to increase knowledge or devise innovations, including software research)
- Purchase of R&D from research organizations or other branches of your company
- Purchase of machinery, equipment, computers or software to implement innovations
- Planning, engineering, design, or other development work to implement an innovation
- Purchase or license patents, inventions, know-how, or other types of knowledge to implement an innovation
- Training of staff to develop or introduce innovations
- Market research, advertising, and other marketing activities linked to implementing an innovation

2.8. Please indicate the **facility's expenditures** for the following innovation activities **over the last 12 months**, including personnel and related costs. *(Please insert zero in categories with no expenditures.)*

In-house R&D (including personnel costs & capital expenditures on buildings & equipment)	\$
Acquisition of external R&D	\$
Acquisition of machinery, equipment and software (excluding R&D-related expenditures)	\$
Other development work for innovation and all other innovation-related expenditures	\$
<i>Total (sum of above 4 categories)</i>	\$

2.9. During the period 2013-2015, check if your facility:

- Ever worked with customers to create or design a product, process or other innovation
- Ever worked with suppliers to create or design a product, process or other innovation
- Applied for a patent or registered an industrial design
- Registered a trademark or assumed a copyright
- Signed a confidentiality agreement
- Published one or more papers or technical articles (in journals or conference proceedings)

2.10. During the period 2013-2015, did your facility **receive financial support** from any of these public or private sources for any of the innovation activities indicated in this section? *(Please check if yes.)*

- Public support through the U.S. Small Business Innovation Research program (SBIR or STTR)
- Other public support (loans or grants from the national, state, or local government, not the SBIR program)
- Venture capital, angel funding, or other private equity investment
- Bank loan or other private debt instrument
- Personal savings, friends, family

3. MANUFACTURING PRODUCTION AND PERFORMANCE

3.1. Please, answer for the fiscal years 2013 and 2015 using rounded approximate numbers or estimates **for this facility**.

	2015	2013
What were your total annual sales or gross value of shipments?	\$	\$
What was the total <u>purchase of materials, parts, and services (i.e., cost of goods)</u> ?	\$	\$
What were your energy expenditures (e.g., heat, electricity)?	\$	\$
What was the total new capital investment , including facility, equipment, machinery, and information systems?	\$	\$
	2015	2013
What was the percentage of sales exported outside the U.S. (by value)?	%	%
What was the percentage of <u>purchases of materials, parts, and services imported</u> or acquired from outside the U.S. (by value)?	%	%
What was the percentage of <u>finished goods imported</u> or acquired from outside the U.S. (by value)?	%	%

3.2. What was the average annual return on sales (pre-tax) for this facility **over the last 3 years**? [(Gross Sales-Cost of Goods)/Gross Sales] *(Please circle the closest number.)*

← Negative return					Positive return →					
-25%	-15%	-9%	-6%	-3%	0%	+3%	+6%	+9%	+15%	+25%
or more						or more				

3.3. Has any work that was formerly performed at this facility been **moved outside of Georgia** within the last 2 years? Yes No

<i>If YES, this work was transferred outside of Georgia to:</i>	<input type="checkbox"/> Elsewhere in USA	<input type="checkbox"/> Mexico, other Central or South America	<input type="checkbox"/> Asia (including China, India)	<input type="checkbox"/> Europe	<input type="checkbox"/> Elsewhere in world
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3.4. Has any work been **transferred back to this facility in Georgia** from outside the state within the last 2 years? Yes No

<i>If YES, this work was transferred back to Georgia from:</i>	<input type="checkbox"/> Elsewhere in USA	<input type="checkbox"/> Mexico, other Central or South America	<input type="checkbox"/> Asia (including China, India)	<input type="checkbox"/> Europe	<input type="checkbox"/> Elsewhere in world
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3.5. Which of the following state or federal government benefits does your company use? *(Check all that apply.)*

- R&D tax credit
- Investment tax credit
- Job credit
- Retraining tax credit
- Import/export credit
- Energy tax credit

3.6. Which of the following **information technologies** are currently used (or planned to be used) at your facility? (Check one option for each item.)

	Practiced Now	Plan to practice in next 2 years	No plan to practice	Not applicable
Bar code readers for data collection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer aided design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Software for scheduling, inventory control, or purchasing (e.g., ERP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RFID for inventory and warehouse tracking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supply chain management system	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cloud-based design and manufacturing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.7. Which of the following **quality management and continuous improvement techniques** are currently used (or planned to be used) at your facility? (Check one option for each item.)

	Practiced Now	Plan to practice in next 2 years	No plan to practice	Not applicable
ISO 9000, TS16949 certification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ISO 14000 environmental management certification	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ISO 50001, Energy Management System	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carbon footprint, greenhouse gas emissions estimate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Quality systems (e.g., Six Sigma)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lean manufacturing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preventive/predictive machine maintenance program	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life cycle analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.8. Which of the following **manufacturing production technologies** are currently used (or planned to be used) at your facility? (Check one option for each item.)

	Practiced Now	Plan to practice in next 2 years	No plan to practice	Not applicable
Computer-integrated manufacturing (CIM)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensors, vision, other real-time monitoring technology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rapid prototyping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-D, additive, printed manufacturing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Robots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced materials (e.g., nano-materials, bio-materials, composites)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.9. Do you electronically collect and analyze data for manufacturing performance improvement

- No (skip to Question 5.1)
 Yes ↷

If YES, please indicate the current (or planned) collection and analysis of data in each of the following areas) at your facility? (Check one option for each item.)

	Currently practice	Plan to practice in next 2 years	No plan to practice	Not applicable
Customer order monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Supplier ordering and monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process improvement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design specifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Energy management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cybersecurity issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. WORKFORCE AND TRAINING

5.1. Please, answer for the years 2013 and 2015 about your workforce using exact numbers or estimates, **for this facility.**

	2015	2013
On average, how many employees worked at this location? (Include temporary workers and convert part-time and contract labor to full-time equivalents.)	Full-Time Equivalent Employees	Full-Time Equivalent Employees
Of your full-time equivalent employees listed above, how many are temporary workers?	Temporary Employees	Temporary Employees
What was your total payroll? (Please include direct payroll plus indirect fringe benefit payroll expenses. Include payments to agencies for temporary workers.)	Payroll \$	Payroll \$

5.2. Does the facility provide bonuses or other incentives to employees based on the following? (Check if yes.)

- New skills or education acquired
- Productivity increases
- New ideas suggested or implemented

5.3. On average in 2015, what percentage of your production workers used the following at least once a day, as part of their job:

A computer or programmable controller?

%

A mobile device to monitor and control industrial equipment

%

The Internet

%

5.4. In 2015, how many employees at this facility had at least the following training or educational qualifications:

a. High school graduate or GED?

b. Two or more years of industrial-related training, through technical college, vocational school, or apprenticeship?

c. Four-year college degrees (e.g., B.A., B.S.) with majors in science, engineering or information technology?

d. Four-year college degrees (e.g., B.A., B.S.) with majors in other subjects (not science, engineering, or information technology)?

e. Master's, Ph.D., or other graduate degrees with majors in science, engineering or information technology?

Number of Employees

5.5. How much did your company spend on all training activities in fiscal year 2015?

\$

Of this, approximately what percentage was related to new activities and tasks (i.e., not routine training)?

%

5.6. What percentage of employees in production work are in teams (e.g., quality team, work cell)? (If none, enter zero.)

%

6. BUSINESS ASSISTANCE RESOURCES

6.1. In the past 2 years, has your facility **received business assistance** from: *(Check all that apply.)*

- Georgia Tech (main campus or regional office)
- Kennesaw State University
- Other university (not Georgia Tech or Kennesaw State University)
- Small Business Development Centers (SBDC, provided by University of Georgia)
- Technical college (Technical College System of Georgia, Quick Start)
- Georgia Department of Labor's recruitment, labor market information, or welfare-to-work services
- Federal laboratory, NASA, or other federal technology program
- Other public or nonprofit business assistant source
- A private-sector business assistance source, such as a private consultant or vendor
- Another source not included in the above
- Facility has not received outside business assistance**

6.2. Would **you or your managers** be interested in receiving training or technical assistance in any of the following areas? *(Check all that apply.)*

- Product design and development
- Technology implementation
- Marketing and sales growth
- Lean manufacturing and process improvement
- Supply chain development
- Quality systems, ISO 9000, TS 16949
- ISO 14000 environmental management certification
- Finance and taxes
- Safety and health, ergonomics
- Energy efficiency and management
- Materials and waste minimization
- Additive manufacturing
- Robotics
- Cybersecurity
- Other topics *(please describe)*

6.3. What new training programs would you like to have available to **non-managerial employees** at this facility? *(Check box if your company would benefit from training in a category even if is not currently available or provided.)*

- | | |
|---|---|
| <input type="checkbox"/> English speaking skills | <input type="checkbox"/> Quality, lean manufacturing |
| <input type="checkbox"/> Reading, writing skills | <input type="checkbox"/> Basic computer skills (e.g., keyboarding, word processing, e-mail) |
| <input type="checkbox"/> Basic math skills | <input type="checkbox"/> Advanced computer skills (e.g., database, Web design) |
| <input type="checkbox"/> Technical skills (e.g., machinist) | <input type="checkbox"/> Other topics <i>(please describe)</i> |
| <input type="checkbox"/> Product design and development | |
| <input type="checkbox"/> Marketing skills | |
| <input type="checkbox"/> Team and problem solving skills | |
| <input type="checkbox"/> Check here if facility does not need/would not use non-managerial training | |

Please check any of the following boxes if you would like to receive information about:

- Georgia Tech's industrial services, seminars, and workshops
- Kennesaw State University's services, seminars, and workshops
- Georgia Department of Labor's services, information, training
- Federal and state manufacturing tax incentives and credits
- Reducing indirect costs in the manufacturing and distribution process

(No individual information besides contact information for the company will be transmitted.)