

2017 Annual Business Survey (ABS) Instructions

Please respond for the business named in the address label or questionnaire. Report for your company's domestic U.S. operations only, including all majority-owned U.S. subsidiaries, unless instructed otherwise. Carefully prepared estimates are acceptable if book figures are not readily available.

You are able to save and log out of your account at any time. Your responses will be saved and you are able to log back into the survey, and complete more responses. In addition, the survey will navigate you to the next applicable question. You may not receive all the questions included in these instructions. Further, this guide is for select survey questions only.

To report online:

1. **Sign-in** or **Register** at <https://portal.census.gov>
2. **Add** your authentication code found in the letter you received from Census and NSF.
3. **Report** by clicking on "REPORT NOW." You can return to your account over multiple sessions to complete.
4. For assistance completing this survey, please log-in to your Census Bureau account at <https://portal.census.gov> and send us a secure [message](#) or call the customer help line at 1-888-824-9954, Monday through Friday, 8:30 a.m. to 6:00 p.m. Eastern time.
5. Please visit [How Do I Get Started?](https://www.census.gov/programs-surveys/abs/information/get-started.html) <<https://www.census.gov/programs-surveys/abs/information/get-started.html>> for additional information.
6. Please visit [How-To Videos](https://www.census.gov/programs-surveys/economic-census/technical-documentation/how-to-videos.html) <<https://www.census.gov/programs-surveys/economic-census/technical-documentation/how-to-videos.html>> for information on Logging into the Respondent portal.

The ABS collects information from all kinds of businesses, and the questionnaire contains sections that may not apply to your business. The online reporting tool will guide you to the questions for which responses are required. If this is a mid- to large-size business, you may need to collaborate with colleagues in different departments to complete different sections of the survey. For more information, visit the "How Do I Share Survey Access?" section within the respondent portal

Instructions are provided for select questions, identifiable by their screen titles, within the following sections of the survey:

- Section A: Company Information
- Section B: Owner Characteristics

- Section C: Innovation
- Section D: Research and Development
- Section E: Technology and Intellectual Property
- Section F: Financing and Other Business Characteristics
- Section G: Contact Information

Section A. Company Information

CEASED OPERATIONS – Has this business ceased operations?

Completion of the 2017 ABS is required even if this business or its owner(s) ceased business operations due to a court-approved bankruptcy, reorganization, or liquidation plan.

If the business ceased operations *before* 2017, select “Yes,” and respond to the **REASON OPERATIONS CEASED** and the **DATE OPERATIONS CEASED** questions to report that business operations have ceased.

Otherwise, select “No,” and continue with the survey.

If another entity acquired or merged with this business during or after 2017, report for the part of 2017 that this business was in operation prior to its acquisition or merger. If the business’s name has changed, type the new business name and an explanation of what has occurred in the closing “Remarks” screen that appears before you submit the survey.

BUSINESS OWNERSHIP – FOREIGN ENTITY – In 2017, was this business a majority-owned subsidiary of a foreign company?

Special reporting instructions apply if this business was majority-owned by a foreign entity (company or government) not created or organized in the United States.

All direct and indirect ownership interests held by the foreign entity in this business in 2017 should be summed to determine whether the foreign entity’s percentage of ownership was more than fifty percent.

When answering the remaining questions, report for the foreign entity’s U.S.-based operations only, which includes all majority-owned U.S. subsidiaries/divisions located in the United States in 2017, unless explicitly instructed otherwise. For reporting purposes, the foreign parent and/or any other foreign affiliate, which was not owned by the U.S. subsidiary/division, should

be treated the same as any business partner, customer, or supplier that the U.S.-based operations does not own.

If the U.S.-based subsidiary/division pays its foreign parent for R&D services or if the foreign parent pays or reimburses its U.S.-based subsidiary/division for R&D services, those costs should be included when responding to questions in the **Research and Development** section.

Report this business's information by using U.S. generally accepted accounting principles (U.S. GAAP) as recognized by the Financial Accounting Standard Board (FASB). If your company follows International Financial Reporting Standards (IFRS), we request that you estimate any adjustments that would be required to conform to U.S. GAAP.

BUSINESS OWNERSHIP – U.S. ENTITY – In 2017, did another U.S. company or other entity own more than 50 percent of this business?

Responses to this question help to eliminate double counting in cases where both parties in a business acquisition receive this survey, and to identify business that were majority-owned by another business(es), or created or organized legal entity(ies) in 2017.

If you answer Yes, the survey will automatically skip to the **10% OR MORE OWNERSHIP** question.

BUSINESS OWNERSHIP – GOVERNMENT OR TRIBAL ENTITY – In 2017, was this business owned by a government or tribal entity?

Select "Yes" to report on behalf of a government agency, or a federally or state-recognized Indian Nation (variously called a tribe, nation, band, pueblo, community, rancheria, or native village).

Select "No" to respond for a self-employed person, or a nontribal-owned business, regardless of the owner's or owners' American Indian and Alaska Native enrolled or principal tribal affiliations.

10% OR MORE OWNERSHIP – In 2017, did at least one person own 10% or more of this business? (Do not count parent companies, estates, trusts, or other entities.)

For this survey, the word "person" refers to a human owning rights, claims, interests, or stock in this business in 2017; and does not refer to ownership by another business, or a created or organized legal entity.

NUMBER OF OWNERS – In 2017, how many people owned this business?

- **Do not combine two or more owners to create one owner.**
- **Count spouses and partners as separate people.**

Report the number of people that directly owned the rights, claims, interests, or stock in this business in 2017. For this survey, we consider sole proprietors, self-employed people, and people who work for others as nonemployees, to be the owners of independent businesses. If you are a sole proprietor, self-employed, or worked for others as a nonemployee, you should report “1 person” (or “2 people” if you owned the business jointly with your spouse in 2017.)

Select “1 person” in situations where different companies, plus one individual person, held the ownership interests in this business in 2017.

Select “11 or more people” when the majority ownership in 2017 was dispersed among large numbers of owners, members, or shareholders, for example, a large publicly traded company, a civic association, a cooperative, a country club, a credit union, or a trade association.

Select “Don’t know,” if no individual person(s) owned the business in 2017; for example, an ownership by a holding company or a nonprofit organization operating a commercial business.

NUMBER OF PAID OWNERS – Of the <response generated from ‘NUMBER OF OWNERS’> reported as owners in the NUMBER OF OWNERS question, how many received a W-2 issued by this business for salary or wages? *If none, report zero.*

Count each owner once and report the number of owners who worked for this business during the pay period including March 12, 2017, and who were subsequently issued a 2017 W-2 form for full- or part-time employment, or other compensation.

NUMBER OF EMPLOYEES – **For the pay period including March 12, 2017, how many people worked for this business including those paid through grants? Include both full-time and part-time workers as well as yourself.**

Note the “Non-Owners” heading above the list of categories. Please report employees from domestic operations only.

For line A, count each “non-owner” once, and report the number of non-owners who worked for this business during the pay period including March 12, 2017, and subsequently was issued a 2017 W-2 form for full- or part-time employment, or other compensation.

For line B, count each “non-owner” once, and report the number of non-owners (such as contractors, subcontractors, independent contractors, outside consultants, and temporary workers), who worked during the pay period including March 12, 2017. These workers may

have been issued a 2017 IRS Form 1099 or were compensated by another third party business such as a consulting firm.

For line C, count each “non-owner” once, and report the number of non-owners who received no compensation for the work they performed during the pay period including March 12, 2017.

TOTAL SALES AND REVENUES – What was the amount of this business’s sales and revenues, including grants, during 2017? Round to the nearest one thousand dollars. If none, report zero.

Report total worldwide sales and revenues from this business. If this business is a subsidiary or division of a foreign parent, report sales to its parent and other affiliates not owned by this business.

Exclude non-operating income such as dividends and interest as well as excise, sales, and other revenue-based taxes.

For sole proprietors, this amount is equal to that reported on line 3 of IRS Form 1040, Schedule C (receipts or sales net of returns and allowances).

SOURCES OF SALES AND REVENUE – Approximately what share of this business’s 2017 sales and revenues, including grants, came from the following?

- a. Selling goods to customers, including other businesses
- b. Selling services to customers, including other businesses
- c. Licensing
- d. Grants
- e. Other

The question asks how this business earned its revenue by: (a) selling physical goods, including software; (b) selling services; (c) licensing intellectual property; (d) receiving grants; or (e) from some other source. The total should equal 100 percent. If you select (e) other please specify that source of revenue or sales in the space provided.

DOMESTIC SALES AND REVENUE – How much of the <response generated from ‘TOTAL SALES AND REVENUES’> in 2017 sales, revenues, and grants, was attributable to or originated from domestic operations? Include sales and operating revenues to foreign customers, including foreign subsidiaries. For example...

If the business has no foreign operations, then the response should be 100%. This question does not refer to customers located in the United States, but sales and revenue generated from operations in the United States. If this business is owned by a foreign parent, then sales to the parent and those affiliates not owned by this business are included.

Include sales and operating revenues to foreign customers, including foreign subsidiaries, when those sales and revenue are generated from U.S. operations.

Licensing revenue, including software licensing, should be assigned to the country where the corresponding intellectual property is owned.

Example: U.S. Manufacturing Corporation sells parts to customers around the world. However, because all of its operations are located inside the United States, it reports 100% of its sales in this question.

PRIMARY BUSINESS ACTIVITY – Describe this business’s primary business activity during 2017.

This question requests a brief description of the type of business activity primarily performed by this business.

Section B. Owner Characteristics

The ABS is one of the only sources of statistics about the demographic characteristics of the owners of approximately 6 million American employer businesses for 2017. This information has been proven useful in helping to understand changes taking place in our dynamic and growing economy. In addition to comparing business owner demographics, the results will help to summarize changes in business performance and highlight conditions of business success and failure, and compare minority-/nonminority-, women-/men-, and veteran-/nonveteran-owned businesses.

The questions in this section are repeated for each of the owners indicated in the Number of Owners question, up to four owners.

The ethnicity and race categories listed on the ABS are consistent with those mandated by the Office of Management and Budget (OMB). Both the Executive and Legislative Branches of the Federal Government developed these standards.

Please answer BOTH the **ETHNICITY** and the **RACE** questions.

ETHNICITY – Is Owner X of Hispanic, Latino, or Spanish origin?

The definition of a person of Hispanic, Latino, or Spanish origin is a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

RACE – What is Owner X's race?

Select all that apply. For this survey, Hispanic origins are not races. Race categories are defined as:

White. A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.

Black or African American. A person having origins in any of the black racial groups of Africa, including those who consider themselves to be "Haitian."

American Indian or Alaska Native. A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.

Asian. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.

Native Hawaiian or Other Pacific Islander. A person having origins in any of the original peoples of Hawaii, Guam, Mariana Islands, Samoa, or other Pacific Islands.

Please answer BOTH the **U.S. CITIZENSHIP** and the **PLACE OF BIRTH** questions. Data will be used only for statistical purposes and responses will be summarized to fully protect the confidentiality of individual respondents and their businesses.

MILITARY SERVICE DISABILITY - Is Owner 1 disabled as the result of illness or injury incurred or aggravated during military service?

Mark the "Yes" box if the person has a Department of Veterans Affairs (VA) service-connected disability rating.

EDUCATION PRIOR TO OWNING THE BUSINESS - Prior to establishing, purchasing, or acquiring this business, what was the highest degree or level of school Owner 1 completed?

Less than high school / secondary school graduate
High school / secondary school graduate - Diploma or GED
Technical, trade, or vocational school
Some college, but no degree
Associate Degree

Bachelor's Degree

Master's Degree (for example, MA, MEng, MEd, MSW, MBA)

Doctorate Degree (for example, PhD, EdD)

Professional Degree, beyond a Bachelor's Degree (for example, MD, DDS, DVM, LLB, JD)

Report schooling completed in foreign or ungraded schools as the equivalent level of schooling in the regular American school system. If the person has not completed any college courses for credit, mark the highest level completed below the college level.

For the "Professional degree beyond a bachelor's degree" category, do not include certificates or diplomas for training in specific trades or occupations such as computer and electronics technology, medical assistant, or cosmetology. Do not include post-bachelor's certificates that are related to occupational training in such fields as teaching, accounting, or engineering.

FIELD OF HIGHEST DEGREE PRIOR TO OWNING THE BUSINESS - Prior to establishing, purchasing, or acquiring this business, what was the field of the highest degree completed for Owner 1?

Biological, agricultural and environmental life sciences

Chemistry, except biochemistry

Computer and mathematical sciences and other technology and technical fields

Earth, atmospheric and ocean sciences Economics, political, psychology, sociology and other social sciences

Engineering

Health

Physics and astronomy

Science and mathematics teacher education Other science and engineering related fields, not listed above

Art and humanities fields

Education, except science and math teacher education

Management and administration fields

Sales and marketing fields

Social service and related fields

Other non-science and non-engineering related fields, not listed above

Please indicate the Owner's highest degree only. The degree field chosen here should correspond to the highest degree selected in the previous question.

U.S. CITIZENSHIP – Is Owner X a citizen of the United States?

“A citizen of the United States” refers to a person who is either (1) a citizen born in the United States; (2) a citizen born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas; (3) a citizen born abroad of U.S. citizen parent or parents; or (4) a U.S. citizen by naturalization (the legal act or process by which a noncitizen in a country may acquire citizenship or nationality of that country).

PLACE OF BIRTH – Was Owner X born in the United States?

“United States” refers to the fifty states and the District of Columbia, excluding the U.S. territories and various possessions.

REASONS FOR OWNING THE BUSINESS - How important to Owner X are each of the following reasons for owning this business?

- Wanted to be my own boss
- Flexible hours
- Balance work and family
- Opportunity for greater income
- Best avenue for my ideas/goods/services
- Unable to find employment
- Working for someone else didn't appeal to me
- Always wanted to start my own business
- An entrepreneurial friend or family member was my role model
- Wanted to carry on the family business
- Wanted to help and/or become more involved in my community
- Other

For each please indicate the level of importance you consider the reason for continuing to own the business. If the reason provided is not applicable, please select 'not at all important'. If you select other, please indicate the reason in the space provided.

Section C. Innovation

This section collects information on the business's innovations and innovation activities. An innovation is the introduction of a new or significantly improved product, process, organizational method, or marketing method by this business. An innovation must have characteristics or intended uses that are new or which provide a significant improvement over what was previously used or sold by the business. However, an innovation can fail or take time to prove itself. An innovation need only be new or significantly improved for the business. It could have been originally developed or used by other businesses or organizations.

This section asks about the three previous years including the calendar year 2017 instead of one year as in other sections of this questionnaire.

INNOVATION BUSINESS STRATEGIES – During the three years 2015 to 2017, how important were each of the following strategies to this business?

- a. Focus on improving existing goods or services
- b. Focus on improving new goods or services
- c. Focus on reaching new customer groups
- d. Focus on customer-specific solutions
- e. Focus on low price
- f. Focus on reducing costs
- g. Focus on satisfying key customers
- h. Focus on developing niche or specialized market
- i. Focus on opening up new domestic markets
- j. Focus on opening new export markets
- k. Focus on satisfying key customers
- l. Focus on developing niche or specialize market
- m. Focus on opening up new domestic markets
- n. Focus on opening up new export markets

For each please indicate the level of importance you consider that strategy to be for your business. If the reason provided is not applicable, please select 'not at all important'.

GOODS OR SERVICES OFFERED – During the three years 2015 to 2017, did this business sell any goods or offer any services?

Select "No" if your company was in the process of developing good or services and did not have any sales during the 2015 to 2017 time frame.

Select "No" if this business sold no goods or services in 2015, 2016, and 2017, and the reporting tool will direct you to the ORGANIZATIONAL AND MARKETING INNOVATION question.

Select "Yes" if this business sold goods or services in 2015, 2016, and 2017.

PRODUCT INNOVATION – During the three years 2015 to 2017, did this business introduce new or significantly improved:

- a. Goods. (exclude a simple resale of new goods and changes of a solely aesthetic nature)?
A good is usually a tangible object such as a smartphone, furniture, or packaged software, but downloadable software, music and film are also goods.
- b. Services. A service is usually intangible, such as retailing, insurance, educational courses, air travel, consulting, etc.

This question asks whether the business introduced any product innovations during the time frame 2015 to 2017. A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics. Significant improvements to existing products can occur through changes in materials, components and other characteristics that enhance performance.

The minimum requirement for an innovation is that it must be new or significantly improved to the firm.

If this business sold no goods or services in 2015, 2016, and 2017, go back to the GOODS OR SERVICES OFFERED question, and select “No.” The reporting tool will direct you to the ORGANIZATIONAL AND MARKETING INNOVATION question.

BUSINESS PRODUCT INNOVATION

During the three years 2015 to 2017, were any of this business’s product innovations (goods or services):

- a. New to the market? This business introduced a new or significantly improved good or service to your market before your competitors. (It may have been available in other markets).
- b. Only new to this business? This business introduced a new or significantly improved good or service that was already available from your competitors in your market.

A product innovation is the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses. Product innovations (new or improved) must be new to this business, but they do not need to be new to your market. Product innovations could have been originally developed by this business or by other businesses.

The emphasis of this question is on new to the market or new to the business. This question addresses the novelty of a company’s innovations in comparison with the state of the art in the market or industry in which the firm operates.

PERCENT OF SALES FROM PRODUCT INNOVATION – Based on the response to the ‘BUSINESS PRODUCT INNOVATION’ question, give the percent of total sales in 2017 from:

- a. New or significantly improved products (goods or services) introduced during the three years 2015 to 2017 that were **new to the market**
- b. New or significantly improved products (goods or services) introduced during the three years 2015 to 2017 that were **only new to this business**
- c. Products (goods or services) that were unchanged or only marginally modified during the three years 2015 to 2017 (include the resale of new goods or services purchased from other companies)

This question asks how much of the business’s total sales in 2017 are attributable to different types of product innovations. Specifically, it asks what percent of the business’s total sales in 2017 that were from:

PROCESS INNOVATION

During the three years 2015 to 2017, did this business introduce new or significantly improved:

- a. Methods of manufacturing for producing goods and services
- b. Logistics, delivery, or distribution methods for inputs, goods or services.
- c. Supporting activities for processes, such as maintenance systems or operations for purchasing, accounting, or computing

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products.

PRODUCT OR PROCESS INNOVATION ACTIVITIES – Innovation activities include the acquisition of machinery, equipment, buildings, software, and licenses; engineering and development work, feasibility studies, design, training, R&D and marketing when they are specifically undertaken to develop and/or implement a product or process innovation. This includes also all types of research and development activities to create new knowledge or solve scientific or technical problems.

During the three years 2015 to 2017, did this business engage in the following product or process innovation activities?

- a. In-house R&D: Research and development activities undertaken by this business to create new knowledge, solve scientific or technical problems, or devise new applications of available knowledge (include software development that meets this requirement)
- b. External R&D: This business contracted-out R&D to other companies or to public or private research organizations
- c. New machinery, equipment software and buildings that were acquired for the purpose of developing new or significantly improved goods, services, manufacturing or logistics
- d. Acquisition of existing knowledge from other companies or organizations: Acquisition of existing know-how, copyrighted works, patented and non-patented inventions, etc. from other companies or organizations for the development of new or significantly improved products and processes
- e. Training for innovative activities: In-house or contracted out training for your personnel specifically for the development and/or introduction of new or significantly improved products and processes
- f. Market introduction of innovations: In-house or contracted out activities for the market introduction of your new or significantly improved goods or services, including market research, launch advertising, and social media announcements
- g. Brand building: In-house or contracted out activities such as advertising or promotion to build this business's brand identity or brand name
- h. Design: In-house or contracted out activities to alter the shape, appearance or usability of goods or services
- i. Other: Other in-house or contracted out activities to develop or implement new or significantly improved products or processes such as feasibility studies, testing, industrial engineering, etc.

Innovation activities are all developmental, financial and commercial activities, undertaken by a firm, which are intended to or result in an innovation. Business innovation activities have the following features:

- Firms can perform innovation activities in-house or source goods or services for innovation activities from external organizations.
- Innovation activities may be postponed or abandoned due to multiple reasons.
- Innovation activities can create knowledge or information that is not used to introduce an innovation. This includes knowledge from activities that fail to meet their primary innovation goals.
- Firms can use the results of their innovation activities, including innovations, new knowledge, and new information for their own benefit, they can retain the results for their own use until a later date, or they can transfer, sell or license the results to other firms or organizations.

RESULTS OF INNOVATION ACTIVITIES – During the three years 2015 to 2017, did this business have any innovation activities that did not result in a product or process innovation because the activities were:

- a. Abandoned or suspended before completion?
- b. Still ongoing at the end of 2017?

Business innovation activities may be postponed or abandoned during the observation period due to multiple reasons.

PUBLIC FINANCIAL SUPPORT FOR INNOVATION ACTIVITIES – During the three years 2015 to 2017, did this business receive any public financial support for innovation activities from the following levels of U.S. government?

- a. Local or State government
- b. U.S. Federal government

Financial support for innovation activities can come from a variety of sources including local, state, or federal government in the form of grants, tax credits, or loans. If your company received a grant, tax credits, or a loan from a local, state, or federal government please indicate that.

INNOVATION ACTIVITIES BY TYPE AND LOCATION OF COOPERATION PARTNER – During the three years 2015 to 2017, did this business cooperate on any of its innovation activities with other companies or organizations? *Innovation cooperation is active participation with other companies or organizations on innovation activities. Both partners do not need to commercially benefit. Exclude work that is contracted out.*

- a. Other affiliated companies (legal entities under common ownership)
- b. Suppliers of equipment, materials, components, or software
- c. Clients or customers from the private sector
- d. Clients or customers from the public sector
- e. Competitors or other companies in this business's industry sector
- f. Companies not in this business's industry sector
- g. Consultants or commercial labs
- h. Universities or other higher education institutes
- i. Government or public research institutes
- j. Private research institutes

If the partner has multiple locations, please indicate the location this business works with.

ORGANIZATIONAL AND MARKETING INNOVATION – During the three years 2015 to 2017, did this business introduce new:

- a. Business practices for organizing procedures (for example, first time use of supply chain management, business, re-engineering, knowledge management, lean production, quality management, etc.)
- b. Methods of organizing work responsibilities and decisions making (for example, first time use of a new system of employee responsibilities, teamwork, decentralization, integration or de-integration of departments, education/training system, etc.)
- c. Methods of organizing external relations with other companies or public organizations (for example, first time use of alliances, partnerships, outsourcing, or sub-contracting, etc.)
- d. Aesthetic design or packaging of a good or service (exclude changes that alter the product's functional or user characteristics – these are product innovations)
- e. Media or techniques for production promotion (for example, first time use of a new advertising media, a new brand image, introduction of loyalty cards, etc.)
- f. Methods for product placement or sales channels (for example, first time use of franchising or distribution licenses, direct selling, exclusive retailing, new concepts for product presentation, etc.)
- g. Methods of pricing good or services (for example, first time use of variable pricing by demand, discount systems, etc.)

An organizational innovation is the implementation of a new organizational method in the firm's business practices, workplace organization or external relations. A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing.

For each example please indicate whether or not your company introduced this for the time period 2015 to 2017.

FACTORS INTERFERING WITH BUSINESS INNOVATION – During the three years 2015 to 2017, how important were the following factors in interfering with this business's ability to innovate?

- a. Lack of internal finance
- b. Lack of credit or private equity
- c. Innovation costs too high
- d. Lack of skilled employees within the business
- e. Lack of collaboration partners
- f. Difficulties in obtaining government grants or subsidies
- g. Uncertain market demand for your ideas
- h. Too much competition in your market

This question asks how important are these internal and external factors in inhibiting this business from innovating. If a factor is not applicable, please mark the 'not at all important' box.

REGULATIONS AND INNOVATION – Assess the effect of the following types of legislation or regulation on this business’s activities during the three years, 2015 to 2017. Select all that apply.

- a. Product safety / consumer protection
- b. Operational and worker safety
- c. Environmental
- d. Intellectual property
- e. Tax
- f. Employment or social affairs
- g. Other

This question asks about the impact each of these legislations or regulations had on the business’s ability to innovate.

BUSINESS REASONS FOR NOT INNOVATING – Which of the following best describes why this business had no innovation activities during 2015 to 2017?

- a. No compelling reason to innovate
- b. Considered innovating, but too many issues prevented it

This business indicated that it did not engage in any innovations activities during 2015 to 2017, and this question asks why.

If “No compelling reason to innovate” is selected, the reporting tool will direct you to the REASONS FOR NOT INNOVATING question.

FACTORS PREVENTING INNOVATION – During the three years 2015 to 2017, how important were the following factors preventing this business’s ability to innovate?

- a. Lack of internal finance
- b. Lack of credit or private equity
- c. Innovation costs too high
- d. Lack of skilled employees within the business
- e. Lack of collaboration partners
- f. Difficulties in obtaining government grants or subsidies
- g. Uncertain market demand for your ideas
- h. Too much competition in your market
- i. Legislation/regulation that generated excessive burden

- j. Legislation/regulation that created uncertainty
- k. Legislation/regulation that lacked consistency across the United States

This question asks how important these internal and external factors are with respect to a business's inability to innovate. If a factor is not applicable, please mark the 'not at all important' box.

REASONS FOR NOT INNOVATING – How important were the following reasons for this business not to conduct innovation activities during the three years, 2015 to 2017?

- a. Low demand for innovations in your market
- b. No need to innovate due to previous innovations
- c. No need to innovate due to very little competition in the business's market
- d. Lack of good ideas for innovations

This question list additional internal and external factors that can play a role in this business's inability to innovate. If a factor is not applicable, please mark the 'not at all important' box.

Section D. Research and Development (R&D)

Reporting for "domestic operations" - In this survey, "domestic operations" refers to this business's operations located in the fifty United States and the District of Columbia. When reporting for domestic operations, include transactions with foreign subsidiaries. Include all your majority-owned subsidiaries and divisions located in the domestic U.S.

Reporting instructions for Foreign Owned Companies:

If this business is owned by a foreign parent, the reporting unit for this survey is your U.S.-located company. For reporting purposes, this business's foreign parent and any other foreign affiliates this business does not own should be treated the same as any business partner, customer, or supplier you do not own.

If you pay this business's foreign parent for R&D services or if this business's foreign parent pays or reimburses this business for R&D services, those costs should be included in the response to the questions in this section.

What is Research and Development (R&D)?

Research and development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge and to devise new applications of available knowledge. This includes:

- a) Activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses (basic research);

- b) Activities aimed at solving a specific problem or meeting a specific commercial objective (applied research); and
- c) Systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes (development).

R&D includes both direct costs such as salaries of researchers as well as administrative and overhead costs clearly associated with the company's R&D.

The term R&D does NOT include expenditures for:

- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Market research
- Efficiency surveys or management studies
- Literary, artistic, or historical projects, such as films, music, or books and other publications
- Prospecting or exploration for natural resources

Does R&D include development of software and Internet applications?

R&D activity in software and Internet applications refers only to activities with an element of uncertainty and that are intended to close knowledge gaps and meet scientific and technological needs. Report in this survey all software R&D as defined here regardless of the eventual user (internal or external).

R&D activity in software INCLUDES:

- a) Software development or improvement activities that expand scientific or technological knowledge; and
- b) Construction of new theories and algorithms in the field of computer science

R&D activity in software EXCLUDES:

- Software development that does not depend on a scientific or technological advance, such as
 - supporting or adapting existing systems
 - adding functionality to existing application programs, and
 - routine debugging of existing systems and software
- Creation of new software based on known methods and applications
- Conversion or translation of existing software and software languages
- Adaptation of a product to a specific client, unless knowledge that significantly improved the base program was added in that process

R&D ACTIVITIES – During 2017, did this business do any of the following R&D activities?

Include activities that:

- *This business performed*
- *Others paid this business to do*
- *This business paid others to do*
 - a. Conducted activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses
 - b. Conducted activities aimed at acquiring new knowledge for solving a specific problem or meeting a specific commercial objective
 - c. Conducted systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes
 - d. Developed and tested goods, services, or processes that were derived from scientific research or technical findings
 - e. Developed software that advanced scientific or technological knowledge
 - f. Produced findings that could be published in academic journals or presented at scientific conferences
 - g. Applied scientific or technical knowledge in a way that has never been done before
 - h. Created new scientific or technical solutions that can be generalized to other situations
 - i. Conducted work to discover previously unknown technological facts, structures, or relationships
 - j. Conducted work to extend the understanding of scientific facts, relationships, or principles in ways that could be useful to others

This question asks the business to indicate whether it had any of a variety of activities considered to be research and development (R&D). Report for this business's domestic operations if it had operations or subsidiaries located in other countries. Report only for the year 2017.

R&D COSTS – What was the total cost (both direct and indirect) in 2017 for all the R&D activities reported as "Yes" in the 'R&D ACTIVITIES' question? Your best estimate is fine.

Include the following costs:

- Salaries, wages, fringe benefits
- Plant, machinery, and equipment, except that which was capitalized because it had an alternative future use
- Materials, supplies, software
- Rent, utilities

- Consultants, contractors
- Depreciation expense from plant, machinery, and equipment that was capitalized because it had an alternative future use

Do not include:

- Costs for routine product testing, quality control, and technical services unless they are an integral part of an R&D project
- Market research
- Efficiency surveys or management studies
- Literary, artistic, or historical projects, such as films, music, or books and other publications
- Prospecting or exploration for natural resources

This question requests the total costs for this business's R&D activities in 2017. Total R&D costs include both direct costs such as salaries of researchers as well as administrative and overhead costs clearly associated with this business's R&D.

Include costs for R&D paid for by this business as well as costs for R&D paid for by others, such as customers or business partners. Also include payments made by this business for R&D services performed by (i) unrelated third parties, (ii) affiliates for which this business has less than a 50% ownership stake and/or (iii) this business's foreign parent if the business is foreign-owned.

Do NOT include capital expenditures, regardless of their relation to R&D, in your response to this question.

TYPES OF R&D COSTS – Of the <response generated from 'R&D Costs'> total R&D amount reported in the 'R&D COSTS' question, what percent was for each of the following types of costs?

- a. Salaries, wages, and fringe benefits
- b. Expensed machinery and equipment (not capitalized)
- c. Materials and supplies
- d. Payments to business partners for collaborative R&D
- e. Purchased R&D services
- f. Depreciation on R&D property and equipment
- g. All other costs (for example, consultants, contractors, travel, rent)

This question requests the total costs for the business's R&D activities in 2017. Total R&D costs include both direct costs such as salaries of researchers as well as administrative and overhead costs clearly associated with the business's R&D.

Include costs for R&D paid for by this business as well as costs for R&D paid for by others such as customers or business partners. Also include payments made by this business for R&D services performed by (i) unrelated third parties, (ii) affiliates for which this business has less than a 50% ownership stake and/or (iii) this business's foreign parent if this business is foreign-owned.

Do NOT include capital expenditures, regardless of their relation to R&D, in your response to this question.

FUNDING SOURCES FOR R&D ACTIVITIES – Of the <response generated from 'R&D Costs'> total R&D amount reported in the 'R&D COSTS' question, how much was paid for by the following sources?

- a. This U.S. business
- b. Your foreign owner (if the business is foreign owned)
- c. Another U.S. business
- d. Other businesses located outside the U.S.
- e. U.S. university or college
- f. U.S. non-profit organization

This question asks the business to report how much of its R&D was paid for by different types of organizations. In the case of sub-contracting agreements, report the original source of funding.

Example: Company Sub Inc. performs custom software development for a large defense company as a subcontractor on a U.S. Department of Defense (DOD) contract. Even though Sub Inc. is working directly for the defense company, it should report the cost of this development in line F because the DOD was the original source of funds.

R&D PAID FOR BY THIS BUSINESS – Of the <response generated from 'R&D Costs'> total R&D amount reported in the 'R&D COSTS' question, how much did this business pay others to perform?

This question asks the business to report the amount of domestic R&D costs paid for by the business but performed by others. This amount includes R&D performed by others not owned by this business, such as contract research organizations and universities.

PERCENT PAID FOR R&D CONDUCTED BY OTHERS – Of the <response generated from 'R&D PAID FOR BY THIS BUSINESS'> R&D amount your company paid others to perform, what percentage went to another U.S. business, a U.S. university or college, or another source?

- a. Another U.S. business

- b. U.S. university or college
- c. Other

This question asks the business to report how much of the domestic R&D paid for by this business in 2017 that was performed by different types of organizations.

R&D CATEGORIES – Of the <response generated from ‘R&D Costs’> total R&D amount reported in the ‘R&D COSTS’ question, how much was for the following categories?

- a. Basic research – activities aimed at requiring new knowledge or understanding without specific immediate commercial applications or uses
- b. Applied research – activities aimed at solving a specific problem or meeting a specific commercial objective
- c. Development – systematic work, drawing on research and practical experience and resulting in additional knowledge, which is directed to producing new products or processes or to improving existing products or processes

Research is defined as experimental or theoretical work undertaken primarily to acquire new knowledge or understanding of phenomena and observable facts. Research may be either “basic”, where the goal is primarily to acquire new knowledge or understanding of a given topic without a specific commercial application in mind, or “applied”, where the goal is to solve a specific problem or meet a specific commercial objective.

Development is defined as the systematic use of research and practical experience to produce new or improved goods, services, or processes. In simple terms, the intended output of research is ideas and the intended output of development is products.

For example, a project that aims to investigate the influence of different materials on fuel cell efficiency would be classified as basic research. A project that aims to improve fuel cell efficiency using new materials would be classified as applied research.

The total must equal 100%.

R&D EMPLOYEES – For the pay period including March 12, 2017, how many employees from this business’s foreign and domestic operations were R&D employees and how many were all other employees?

R&D employees include all employees who work on R&D or who provide direct support to R&D, such as researchers, R&D managers, technicians, clerical staff, and others assigned to R&D groups. Exclude employees who provide only indirect support to R&D, such as corporate personnel, security guards, and cafeteria workers.

This question asks the business to report its total R&D employees based on their sex and location.

R&D EMPLOYEE OCCUPATIONS – For the pay period including March 12, 2017, how many of the <response generated from ‘Total R&D Employees (a.3)’> total R&D employees reported in the ‘R&D EMPLOYEES’ question worked in the occupations listed below?

The distinction between the different occupation categories is defined primarily by the nature of the employee’s work, not the employee’s level of education. Researchers are professionals engaged in the conception or creation of new knowledge, products, processes, methods and systems and also in the management of the projects concerned. Include R&D managers in the “Researchers” category.

R&D technicians and equivalent staff are persons whose main tasks require technical knowledge and experience in one or more fields of science or engineering, but who contribute to R&D by performing technical tasks under the supervision of researchers. Biostatisticians supporting clinical trials should be reported in this category even though they may hold PhDs in their field.

The main distinction between researchers and technicians is that researchers contribute more to the creative aspects of R&D whereas technicians provide technical support. For example, a researcher (scientist or engineer) would design an experiment and a technician would run the experiment and assist in analyzing results.

R&D support staff is not directly involved with the conduct of a research project, but support the researchers and technicians. These employees might include clerical staff, report writers, regulatory experts, quality assurance, safety trainers, and other related employees.

Many contract research organizations provide largely technicians, regulatory, and administrative support to their customers for clinical trials. Most of these business’s R&D employees should be reported as R&D technicians or R&D support staff.

DOMESTIC R&D EMPLOYEES FULL-TIME EQUIVALENT – Of the <response generated from ‘Domestic – R&D Employees Question’ (a.1)> domestic R&D employees reported previously, what was the number of full-time equivalents (FTEs) for R&D activity? For full-time R&D employees use the number of employees for the FTEs. For other full-time employees not working solely on R&D or part-time employees working on R&D use the share of full-time workweek they worked on R&D.

The headcount of full-time equivalent R&D employees should be adjusted to account for employees who work part-time as well as those employees who split their time between R&D and other activities. The purpose of this question is to accurately measure the amount of effort employees are devoting to R&D in the business sector.

DOMESTIC RESEARCHERS FULL-TIME EQUIVALENT – Of the <response generated from ‘Domestic Researchers – R&D Occupations Questions’ (a.1)> domestic researchers reported previously, what was the number of full-time equivalents (FTEs) for R&D activity?

The headcount of researchers should be adjusted to account for employees who work part-time as well as those employees who split their time between R&D and other activities. The purpose of this question is to accurately measure the amount of effort researchers are devoting to R&D in the business sector.

TAX CREDIT FOR RESEARCH ACTIVITIES – Did this business file for the tax credit for increasing research activities (IRS form 6765) in tax year 2017?

Note: Qualifying research expenditures as defined for this tax credit are not directly comparable to R&D expenditures collected elsewhere in this survey.

Section E. Technology and Intellectual Property

PATENTS PENDING – How many U.S. patent applications, if any, does this business have pending as of the end of 2017? In none, enter zero.

The intent of this question is to gather information about the output of companies' research and development and other innovative activities. It is recognized that companies do not attempt to patent every invention, and that not every patent application results from an organized R&D activity. Please include all patent applications in your response to this question, regardless of each patent's relation to R&D.

Exclude the following continuing patent applications that do not add subject matter claimed in the parent patent application: continuation applications, requests for continued examination, divisional patent applications, and reissue applications. These types of patent applications are excluded to avoid double counting applications for the same subject matter. Continuation-in-part applications should be included because they add subject matter not claimed in the parent patent application.

Exclude provisional patent applications. Provisional patent applications are used to establish an early filing date, but they cannot result in an issued patent unless the applicant files a complete non-provisional patent application within one year of filing the provisional patent application.

Include applications for utility patents (also known as patents for invention), design patents, and plant patents.

Include patent applications filed for jointly with entities external to your company such as other companies or individuals.

Foreign-owned companies that apply for U.S. patents on behalf of their foreign parents should only report the patent applications originating from its own operations. Patents filed on behalf of others not owned by the company (such as a foreign parent) should be excluded.

PATENTS OWNED – How many U.S. patent applications did this business own as of the end of 2017?

If none, enter zero.

Include utility patents (also known as patents for invention), design patents, and plant patents.

Please include all patents that your company holds, regardless of each individual patent's relation to R&D.

Include joint patents obtained by your company in collaboration with external entities, such as other companies or individuals.

INTELLECTUAL PROPERTY ACTIVITIES – Indicate whether this business did any of the following during 2017:

- a. Transferred intellectual property (IP) to others not owned by this business through participation in technical assistance or “know how” agreements
- b. Received IP from others not owned by this business through participation in technical assistance or “know how” agreements
- c. Participated in cross-licensing agreements in which two or more parties grant a license to each other for the use of the subject matter claimed in one or more of the patents owned by each party
- d. Allowed free use of patents or other IP owned by this business (for example, allowing free use of software patents by the open source community)
- e. Made use of open source patents or other freely available IP not owned by this business

This question asks this business to indicate whether or not it performed any of a specific list of technology transfer activities in 2017.

IMPORTANCE OF INTELLECTUAL PROPERTY – During 2017, how important to this business were the following types of intellectual property protections?

- a. Utility patents (patents for inventions)
- b. Design patents (patents for appearance)
- c. Trademarks
- d. Copyrights
- e. Trade secrets
- f. Nondisclosure agreements

This question asks this business to indicate the importance of different methods of intellectual property protection to its business. If an option is not applicable, please select ‘not at all important’.

DIGITAL SHARE OF BUSINESS ACTIVITY – In 2017, how much of each type of information was kept in digital format at this business?

- a. Personnel
- b. Financial
- c. Customer Feedback
- d. Marketing
- e. Supply Chain
- f. Production
- g. Other

This question asks how a business maintains their records.

Digital format refers to any electronic form such as on a computer, tablet, or any kind of software.

If this business keeps these records but not in electronic form, please select “None”. If this business does not keep any of these records, please select “This type of information not collected by this business”.

CLOUD SERVICE PURCHASES – Considering the amount spent on each of these IT functions, how much was spent on cloud services? (*Cloud services are services provided by a third party that this business accesses on-demand via the internet.*)

- a. All IT functions
- b. Security or firewall

- c. Servers
- d. Data storage and management (Examples: Amazon Web Services, IBM Bluemix, Microsoft Azure)
- e. Collaboration and file synchronization (Examples: Dropbox, OneDrive, Google Drive)
- f. Data Analysis
- g. Billing and account management
- h. Customer relationship management
- i. Other

This question asks how companies use the cloud.

If this business collects this type of information, but it is not kept on the cloud, select “None”. If this business does not collect this type of information, select “Don’t use this IT function”.

BUSINESS TECHNOLOGIES – In 2017, to what extent did this business use the following technologies in producing goods or services?

- a. Augmented reality
- b. Automated guided vehicles (AGV) or AGV systems
- c. Automated storage and retrieval systems
- d. Machine learning
- e. Machine vision software
- f. Natural language processing
- g. Radio-frequency identification (RFID) inventory system
- h. Robotics
- i. Touchscreens/kiosks for customer interface (Examples: self-checkout, self-check-in, touchscreen ordering)
- j. Voice recognition software

Here is a table defining each type of technology:

Type of technology	Definition
Augmented reality	Technology that provides a view of a real-world environment with computer-generated overlays.
Automated guided vehicles (AGV) or AGV systems	A computer-controlled transport vehicle that operates without a human driver. AGVs navigate facilities through the use of software and sensors.
Automated storage and retrieval systems	Technology that locates, retrieves, and replaces items from predetermined storage locations.

Machine learning	Computer algorithms that use data to improve their predictive performance without being reprogrammed.
Machine vision	Technology used to provide image-based automatic inspection, recognition or analysis.
Natural language processing	Technology that allows a computer to process human speech or text.
Radio-frequency identification (RFID) system	A system of tags and readers used for identification and tracking. Tags store information and transmit those using radio waves. Readers maybe be mobile or fixed in place.
Robotics	Reprogrammable machines capable of automatically carrying out a complex set of actions.
Touchscreens/kiosks for customer interface (<i>Examples: self-checkout, self-check-in, touchscreen ordering</i>)	A computer with a touchscreen that allows a customer to receive information or perform tasks related to the business such as registering for a service or purchasing items.
Voice recognition software	Software that converts speech to text or executes simple commands based on a limited vocabulary or executes more complex commands when combined with natural language processing.

This question asks how a business produces its goods or services.

If this business is not using any of these technologies, select “No use”. If this business is testing these technologies to assist in the production of its goods or services, select “Testing, but not using in production service”.

The production process that is composed of various individual tasks, each of which can be performed by either labor or some form of automation (machines). This question asks for each of the business technologies how much does such automation contribute to your business’ production or service.

Section F. Financing and Other Business Characteristics

Capital Funding – For the owner(s) reported, what was the source(s) of capital used to start or initially acquire this business?

“Capital” refers to the ways that a business has financed its ownership, which is usually

through some combination of loans and/or owner investment.

Section G. Contact Information

Provide the Census Bureau with a single point of contact at each business so that we can contact you about survey responses. The point of contact for this survey may differ from that provided for other Census Bureau surveys.