

# Findings and Recommendations from Cognitive Interviews for Current and Proposed Content for the Annual Business Survey (ABS)

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Prepared for:

Gail White, Economic Reimbursable Surveys Division (ERD)

Patrice Hall, Economic Reimbursable Surveys Division (ERD)

Audrey Kindlon, National Science Foundation (NSF)

Prepared by:

Hillary Steinberg, Data Collection and Methodology Research Staff (DCMRB), Economic Statistical Methods Division (ESMD)

Krysten Mesner, DCMRB, ESMD

Economic Programs Directorate

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## Executive Summary

The Data Collection Methodology and Research Branch (DCMRB) of the Economic Survey Methods Division (ESMD) utilized moderated cognitive interviewing and unmoderated cognitive testing to garner feedback on current and proposed questions for the Annual Business Survey (ABS). Representatives of 233 companies, both single- and multi-firm units, took part in this evaluation.

**Finding #1:** There is too much content on the ABS, and especially on longer sections.  
Recommendation: Streamline content. Do not include all proposed content.

**Finding #2:** Participants were often coordinating gathering information for sections, and sometimes did not know who to send the survey to within their company.  
Recommendations: Include delegation mechanisms, especially by topic. Consider instructions on the appropriate respondent (e.g., the general professional title of a best respondent).

**Finding #3:** Participants did not understand the purpose and use of ABS generally.  
Recommendation: Include explanations of the purpose of the survey and topics, especially those related to sexual orientation and gender identity (SOGI).

**Finding #4:** Participants would like to report when topics and questions are not applicable.  
Recommendation: Add “not applicable” response options to items, and only display applicable content.

**Finding #5:** Some topics would benefit from further testing using more open-ended approaches.  
Recommendation: Expand research to target specific populations and consider other methodological approaches.

## Research Questions

This research was guided by four key research questions, including:

- How do respondents comprehend specific questions?
- How do respondents use records and/or estimation strategies for answering specific questions?
- Are respondents able to answer the questions?
- What difficulties might respondents encounter when reporting?

## Research Methodology

### 1.1 Rounds of data collection

Researchers in ESMD engaged in two rounds of data collection to test the Annual Business Survey (ABS). Each round included both moderated and unmoderated cognitive testing. The first round took place late summer, and the second round early fall. Table 1 outlines the components of each round.

Table 1. The components of each round of testing.

Timing	Mode	Content	Number of Responses	Number of applicable responses*
<i>Round 1</i>				
August 1- August 16	Moderated	All Modules	22	N/a
August 7 – September 11	Unmoderated	Labor and Reshoring	56	23
<i>Round 2</i>				
August 22 – September 13	Moderated	All modules	17	n/a
August 30 – September 14	Unmoderated	Demographics	164	n/a
September 15 – September 27	Unmoderated	Collaborative research	82	7
* <b>Applicable responses are those responses answering yes to the relevant screener questions on the topic.</b>				

### 1.2 Recruitment

The ABS survey staff provided to ESMD researchers a sample file containing contact information for 48,000 businesses that had previously reported to the ABS.

#### 1.2.1 Moderated Cognitive Testing Recruitment

We conducted two rounds of cognitive testing. For each moderated recruitment list, we purposively sampled a quarter of respondents from zip codes that were identified as “Gayborhoods” according to Wikipedia and real estate websites. A “Gayborhood” a neighborhood historically home to LGBTQ residents and businesses serving them. Each sample drew purposively on multi-unit companies and those whose respondent names matched that of the business’s owner in the ABS. In round one of recruiting, we purposively sampled for businesses with at least one location classified in a North American Industry Classification (NAICS) of 31 through 33 (manufacturing) to better get a sense of entrepreneurs building tangible products. We sent email invitations to 754 companies to participate in a moderated interview; 704 of those companies received reminder emails urging them to select a day and time to participate in an interview. Most companies participating in this evaluation signed up for

moderated interviews within a few days of receiving the invitation to participate. The research team conducted 39 moderated interviews total.

### **1.2.2 Unmoderated Cognitive Testing Recruitment**

Unmoderated survey participants were contacted separately from moderated participants. In the round 1 unmoderated testing, we selected companies with both Labor flags (those companies flagged as more likely to have organized labor in some capacity at the business) and Reshoring flags (those companies identified as having international activities) for recruitment. This accounted for 409 email invitations to participate in unmoderated testing. Of the 56 participants that completed the unmoderated survey, 21 indicated experience with labor unions, and two were at companies that had engaged in reshoring in the past year.

In round 2, the ABS survey staff built recruitment files based on the same criteria used for the moderated interviews, described above. The focus of the round 2 unmoderated testing was demographic items on the survey. This accounted for 1,492 email invitations to participate in unmoderated testing. Of these, 275 emails resulted in an opened survey, and 164 surveys were counted as “completed” because respondents provided an answer to at least the first item and prompt. Additionally, we sent a short unmoderated survey (4 questions) to those companies with the Technology flag (companies identified as having a specific relationship to technology, like patents) to ask about collaborative research. This accounted for an additional 601 email invitations, resulting in 82 participants completing this unmoderated testing.

### **1.2.3 Participant Overview**

In general, the participants were owners of the business or were non-owner proxy respondents in finance, accounting, or human resources roles. We interviewed a few government reporters at larger companies whose role in the business is exclusively or largely to complete requests for data from the government.

We note that recruitment was complicated by the ABS still being actively fielded concurrent with this pretesting research. Some participants did reference their current ABS answers during interviewing. After the first few recruitment email blasts, we also used more informal language with our reminder emails than typical as a means of distinguishing from the active production collection. While we believe this change was effective, it may have led to more questions about the ABS survey request(s). This should be noted for future ABS content testing evaluations. Respondent research should consider testing at different periods than production, or creating distinctions from production.

## **1.3 Procedure**

This cognitive testing focused on existing and new content within the survey. Survey staff in consultation with the survey sponsors developed this content based on existing questions on the

ABS supplemented with new questions. Survey staff developed one particular set of questions pertaining to sexual orientation and gender identity (SOGI) relying on best practices as outlined by the White House’s memo *Recommendations on the Best Practices For the Collection of Sexual Orientation And Gender Identity Data On Federal Statistical Surveys* (<https://www.whitehouse.gov/wp-content/uploads/2023/01/SOGI-Best-Practices.pdf>), promulgated in January 2023.

In consultation with researchers, survey staff updated some questions when they did not test well or a need occurred. For example, in round 2, interviewers began asking if participants were reporting for themselves, on behalf of an owner, or a combination of the two, as a result of the round 1 testing. Similarly, we had copied language from the Census Bureau’s American Community Survey (ACS) questions on disability status, but the phrasing invoked compliance with the Americans with Disabilities Act (A.D.A.), which was not the purpose of the item. We changed the wording after round 1 because it did not perform as expected in a business setting.

### 1.3.1 Round One

For moderated interviews, companies received emails asking them to participate in a 45 minute interview, and inviting them to schedule their interview session during days and times when researchers were available to conduct the interview. We completed 22 cognitive interviews in the first round of moderated testing. Interviews lasted about 45 minutes, with participants joining a Microsoft Teams meeting, and clicking through a Qualtrics survey instrument (see Appendix B) with the draft questions, and the interviewer taking notes in the interview protocol (found in Appendix A).

Moderated interviews took a modular approach, meaning that different sets of questions were asked of different companies. In round one, this was largely based on flags provided in the ABS recruitment file. All participants in the first round of moderated cognitive interviews answered questions about owner demographics, with the exception of one respondent who only had time for one module. Table 2 includes how many interviews featured which modules for the duration of testing. Please note that some modules were shorter than others, so some interviews featured testing of multiple modules.

Table 2. Frequency of each module throughout moderated testing.

<b>Module</b>	<b>Number of interviews*</b>
Owner Demographics	22
Entrepreneurship	18
Reshoring	14
Labor	11
Research and Development	10
Technology Transfer	10
Sustainability	9

\*Interviews are counted in each module completed, and so the total for this table is greater than the overall total number of interviews (n = 39)

Researchers used the same instrument in the unmoderated interviews. The foundation of the probes was the same but updated slightly to match the needs of an unmoderated administration. Specifically, we added multiple choice options for close-ended questions so that respondents could select the response that best matched their impressions. In round one, we tested the labor and reshoring modules using unmoderated methods. Half of participants received a survey with the labor module first, and the other half received the reshoring module first, using random assignment. The unmoderated instruments can be found in Appendix C. While some participants opened the survey or completed the consent form, we only included responses where any part of the survey was filled out. This accounted for 302 responses.

### 1.3.2 Round Two

Between rounds of research, in collaboration with ABS survey staff, we made changes to the substantive content of questions that did not perform as expected in Round 1. These changes are reflected in [Appendix D]. First, we reordered the questions such that questions about Research and Development were placed first, and we asked all participants if the definition is sufficiently captured in question one. We also began allowing respondents to report if there was no owner who owned 10% or more of the company based on feedback from Round 1. From there, we implemented the remainder of the Round 1 protocol. We completed 17 moderated interviews in this round. Note that for Round 2, we asked only the demographic questions of unmoderated participants. Table 3 represents participants identification as owner or proxy.

*Table 3. Number of Round 2 participants who identified as owners, proxies, or representing companies with no owner.*

<b>Ownership status of participant</b>	<b>Frequency (moderated)</b>	<b>Frequency (unmoderated)</b>
Owner	9	65
Owner/Proxy	8	n/a
Proxy	19	90
No owner	5	9
Total	41	164



## General Findings and Recommendations

Throughout this section, we describe the general findings and recommendations from both modalities of testing (moderated and unmoderated) across both rounds of research. Later in this report, we lay out findings about specific items that we tested with respondents.

### **Finding #1:** There is too much content on the ABS, and especially on longer sections.

During the evaluation, many participants in our testing reported that the ABS is too long. Many commented that the length might be a result of content on the survey not reflecting what their business does. One participant of a holding company said, “One of the frustrating things about this survey is that it’s not very applicable to this business. It’s mostly not applicable.” A participant representing a manufacturing single-unit said, “You get a lot of these surveys and then they’re burdensome because you’re a small business and a lot [of the content] doesn’t apply.”

Of the modules tested in this evaluation, participants reported that the Sustainability and the Technology Transfer modules are particularly long. Indeed, these often took the longest with testing, and participants seemed to get bored or fatigued with repetition. See Finding X from the Specific Findings section below for more information on this feedback.

**Recommendation:** Streamline or cut content to reduce respondent burden and fatigue. Do not include all proposed material.

### **Finding #2:** Participants were often coordinating gathering information for sections of the survey from across their businesses, and sometimes did not know who to send the survey to within their company.

Most participants have access to specific records based on their role and the size of their company. For example, while owners of small businesses may have access to all records, at larger firms, financial reporting staff may not have access to payroll or human resources records. Participants spent time coordinating the collection and aggregation of information from across their businesses for specific sections of the survey. This issue was magnified for the ABS due to the specific nature of certain sections. As such, some participants expressed uncertainty as to the person or persons within their company that would be best suited for answering certain sections of the survey.

Many participants knew what sections of the survey they would have a hard time finding reporters for their business from their experiences with previous ABS iterations, although new sections could pose challenges too. A participant at a small biotech manufacturer said, “Some of the answers for ABS are hard because I’m not typically in a lot of the R&D planning sessions, [and I] had to coordinate answers with them.” Indeed, R&D was not a topic most participants knew about, and from experience, had to find someone within their company to answer questions. One participant said, “The R&D questions mainly around patents was a little hard, just because I don’t know that about it. It’s not something I regularly know about or have access to.”

Another said, “The ones that would be hard are the ones that I would have to bring people from the parent company overseas, which they’re 7 hours ahead. There’s only 2-3 hours we can get to them. The R&D stuff goes through them.” While the data to answer questions about this topic were not accessible to participants, most by now knew where to look within their company to find answers to the questions.

Other questions or sections had less clear pathways to answers. A participant of a multi-unit manufacturing company said that he would kick a question about sustainability “around from the environmental guys to whoever is tracking transportation providers.” He said similarly of emissions tracking, “If I got this as a separate survey, I would talk to facilities guy. Carbon would be purchasing. In my job, I’m reaching out, putting together what I can from the previous years. In a meeting I would ask if it's changed and determine what answers need to be changed.” Labor questions, which were new to this testing, were an example of a topic that might not have a clear reporter. An unmoderated participant said, “I do not interact with shop employees much at all in my role therefore any knowledge I would have would likely be speculative.” In the technology transfer section, one participant was unsure of our definition of design complexity and said she would, “Maybe need to consult with a colleague” in order to provide response. One participant summed up the issue with information gathering in response to the question about the number of patents, saying, “I would not know the answer to this question and would need help and would need to pawn it off on someone else. I'm not even sure who I would read out to as it's a very big company and I don't even know who I would call.” Another participant said, “The patent questions were hard because that is not my area of knowledge.”

One particular area of high data dispersion throughout the company is in the owner demographic questions (more information on this in the Specific Findings). For these demographic questions, proxies struggled to identify who they could go to for answers, especially if they felt their owners themselves were not accessible. Generally, said one, “most hard questions were about the owner because I am a proxy.” Regarding the gender identity questions, a participant from a law firm said, “This would be something that I would probably write don't know on. I don't want to assume and/or talk to our firm manager” about this topic. Though she felt the disability status “would have to be tracked by HR manager or director,” she did think, “I could find this out.” In response to which questions would be the hardest to answer, one participant said, “definitely the demographics. I would be trying to figure as best an answer I could.”

Participants did have specific recommendations on the issue of data dispersion and response coordination throughout the company. One participant at a large, manufacturing multi-unit company said that he would want, “delegation for specific parts. I used the sharing [function] for this month on a survey, that was really straightforward. It was easy to use and really great.” This is feedback we often get on surveys with varied content like the ABS. An unmoderated respondent argued to “include ‘Do Not Know’ in the survey” as a valid response option. They explained, in response to reshoring questions, that “large corporations have many departments

handling the financials and operations. Information always needs to be confirmed by appropriate personnel.”

**Recommendation:** We recommend adding a delegation feature as respondents to the ABS could benefit from the option to delegate specific sections of the web survey to the most appropriate party within their business. Furthermore, providing examples of the types of roles/positions most appropriate to answer certain sections may be helpful for respondents.

**Finding #3: Participants did not understand what ABS is used for in general.**

During this testing, respondents expressed a lack of clarity regarding the purpose of the survey and intent of its questions. One participant from a larger single-unit company said that while she “appreciate[s] knowing that the [Decennial] Census is a head count,” she was unclear on the purpose of the ABS, concluding that materials “need to communicate what this survey actually does.” Another participant representing a very large medical multi-unit company listened patiently to the NSF representative explain what the ABS does at the end of the session, and then retorted:

Love the passion and spirit, in the future feel free to include me. I’m the point person for all the Census and government surveys. Whenever you need feedback, I’d love to have the discussion on how make survey better in the spirit of collaborate. I think you guys challenged me for thinking outside the box, ‘why are they asking me this? Take a step back, what does this info mean for the people receiving this.’ That it will be much more accurate and comprehensive means it’s being used for great things.

In this case, the respondent found the expanded context of the survey coming directly from experts in a conversational setting to be motivating for response, not just on the survey but in future exploratory and confirmatory research, suggesting that if more respondents better understood the purpose of the collection, they may be more inclined to respond.

Sometimes a lack of context or understanding of the purpose of the ABS meant that participants might find questions to be less applicable to their companies, or try to skip pertinent questions altogether. A participant from a small manufacturing single-unit company said of the Research and Development section, “I shouldn't be getting this question because I won't put thought into doing it. I'm not applicable because of the threshold. It's pointless for somebody like me” to try to answer these questions.

Participants seemed especially confused about how the ABS is used when reviewing the new SOGI measures (see the Specific Findings Section below for more information on this set of questions specifically). Sometimes this prompted general distrust of the survey. One participant said, “I still don't understand the point of all of these surveys anyway. I think I should work on

the productivity of my company instead of helping you do your job.” One moderated interview participant flatly stated that “You should not ask these questions. Why do you want to capture it in the survey? Surveys for the business or the U.S. government should be neutral - how does the sex and gender impact your survey? These questions aren't relevant to me.” Some participants outright said they would like an explanation for these questions. One participant said, “I would be wondering why are you asking this and what you are getting at - if you gave notes as to why, then you may get a better” response from companies. Another speculated, “Maybe [the government] want[s] to understand how many businesses are owned by LGBT [identifying people], but I don't understand why they want to know.” Another owner told us, “It's helpful to have a short explanation as to why [this set of questions is] there.” Another participant recommended, “A blurb wouldn't hurt,” again suggesting that more information on the point and purpose of the SOGI questions specifically might lead to higher item response rates.

**Recommendation:** Considering including a short introduction about the purpose of the survey, and at the start of each section of the survey. This is especially critical for SOGI measures, and is in alignment with guidelines promulgated by the White House.

#### **Finding #4:** Participants would like to report when topics and questions were not applicable.

Respondents were mixed at identifying if a section or question was applicable their business given a description of the section. Participants that saw the R&D description and said it would be applicable, then read over first question, and affirmed that it was applicable to their business. All participants were correct in their assessment. This was not always the case for all sections. A participant from a manufacturing multi-unit company said, “Sustainability is not our purview.” However, the questions were not outside the purview of any given company, given that sustainability questions were not company-specific. Another large multi-unit company involved in restaurants said, “A lot of not applicable [content] like R&D and robotics doesn't apply.” This was not the case, as later in the interview, many of their described activities around menu development would fall into the R&D category.

Many participants who correctly identified questions that were not applicable to their company endorsed more “not applicable” response options. For example, a participant from a law firm found two of the questions around sustainability did not apply to her company. She said, “My understanding of this is that it presents like it's going to be asked to manufacturing companies and their sustainability efforts, like materials and things of that nature. It's less applicable to us.” With a question about supply chains, she said, “Supply chain feels like a manufacturing thing. It isn't applicable.” Another participant from a manufacturing multi-unit company said of a sustainability question (Q4), “If there was a ‘not applicable’ [option] I totally would have picked that.” Another participant spoke about how a question in the entrepreneurship section (Q2) “was not really applicable, so I would put don't know...but I would want a ‘not applicable’” option. It is important to respondents' trust, and to get better quality data, to expose respondents to applicable content and allow them to communicate when an item is not applicable.

**Recommendation:** Ensure items have “not applicable” response options in addition to “don’t know” response options. Create skip logic or pathways to show applicable sections to respondents, possibly with screener questions.

**Finding #5:** Some topics would benefit from further testing using more open-ended approaches.

Some topics would benefit from a different approach to gathering information to consider how to ask questions, like open-ended interviews, focus groups, usability testing, or respondent debriefing interviews, in order to ensure the research question matches the method. Of the modules and items tested in this evaluation, our findings suggest that reshoring, labor, entrepreneurship, SOGI, and disability are all topics that could benefit from additional testing using a variety of methods previously mentioned. Targeted recruitment to ensure that questions are being tested appropriately with companies for which modules/sections are relevant as well as representation of respondents, is crucial when testing questions on certain topics.

One limitation of our evaluation is that no one identified an owner - by self-report or proxy - as LGBTQ. As a result, for the SOGI questions, we were not able to assess the perceived sensitivity, reaction (whether positive or negative) to the potential addition of these questions on the ABS, impression of the questions and response options, level of willingness to report this data, and other considerations for businesses having owners who identify as LGBTQ.

**Recommendation:** We recommend additional testing to incorporate open-ended interviews, focus groups, usability testing, respondent debriefing interviews, and others for modules/items including reshoring, labor, entrepreneurship, SOGI, and disability. Furthermore, targeted recruitment is imperative for additional testing efforts on these modules/items.

## Findings and Recommendations for Sections

### Research and Development

Despite pointing out that the first question was long and wordy, participants could correctly identify whether the initial definition of R&D on the first screen applied to their company. We tested this module in the second round, moving forward with companies it applied to, and were able to get more responses.

As for the R&D question requesting a dollar amount, participants claimed that these data are least accessible. Furthermore, participants recommended providing an instruction about estimates being acceptable and some indicated a preference for percentages rather than dollar figures.

- “The R&D [was the hardest to answer]. When they talk about how much we spend, we aren't measuring all that info. Of course, at some point we need to check, but usually when we are trying to develop a new product, we spend whatever exists, we don't have a budget for that. We know it's not going to be really expensive the new product, we don't care how much we're going to spend. It's not going to be an extreme amount of money, more a matter of time. The way they invest isn't in those ways.” – biotech SU, owner who runs R&D activities
- “Dollar amount on R&D is hard. I have to look at payroll, costs, and then guess at my best percentages. Takes some time.” – manufacturing medical MU
- “Dollar amount [on R&D was the hardest part]. We have different categories on our records and how we think about R&D.” – MU restaurant franchise

Q1:

**D.1 R&D Activities**

During 2021, 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

**Select one for each row.**

	Yes	No
a. Conducted activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
b. Conducted activities aimed at acquiring new knowledge for solving a specific problem or meeting a specific commercial objective . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
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 . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
d. Developed and tested goods, services, or processes that were derived from scientific research or technical findings . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
e. Developed software that advanced scientific or technological knowledge . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
f. Produced findings that could be published in academic journals or presented at scientific conferences . . . . .	<input type="checkbox"/>	<input type="checkbox"/>
g. Applied scientific or technical knowledge in a way that has never been done before. . . . .	<input type="checkbox"/>	<input type="checkbox"/>
h. Created new scientific or technical solutions that can be generalized to other situations.. . . .	<input type="checkbox"/>	<input type="checkbox"/>
i. Conducted work to discover previously unknown technological facts, structures, or relationships. . . . .	<input type="checkbox"/>	<input type="checkbox"/>
j. Conducted work to extend the understanding of scientific facts, relationships, or principles in ways that could be useful to others. . . . .	<input type="checkbox"/>	<input type="checkbox"/>

If "No" is selected for a. – j., **skip to 'D.17 Federal Tax Credit for Research Activities'** on page 35.

Participants found this question wordy and hard to get through. Some had trouble making sure they were understanding each answer option correctly:

- “3rd [answer option] is too wordy, I wouldn't answer. The more relevant question is does your business do R&D, yes or no? If you're doing it below a dollar threshold, like what I'm doing, is it beneficial?” – manufacturing SU
- “First one unclear. I would have left it blank.” – manufacturing MU



Q2:

**D.5 Types of R&D Costs**

During 2021, how much of the 'D.4 Domestic R&D Costs' in domestic R&D costs was for each of the following types of costs? *Round to the nearest thousand dollars.*

	\$Mil.	Thou.	Dol.
a. Salaries, wages, and fringe benefits .....	<input type="text"/>	<input type="text"/>	0 0 0
b. Expensed machinery and equipment (not capitalized) .....	<input type="text"/>	<input type="text"/>	0 0 0
c. Materials and supplies .....	<input type="text"/>	<input type="text"/>	0 0 0
d. Payments to others for R&D, including purchased R&D services .....	<input type="text"/>	<input type="text"/>	0 0 0
e. Depreciation on R&D property and equipment .....	<input type="text"/>	<input type="text"/>	0 0 0
f. All other costs (e.g., consultants, contractors, travel, rent) .....	<input type="text"/>	<input type="text"/>	0 0 0
<b>Total = 'D.4 Domestic R&amp;D Costs' .....</b>	<input type="text"/>	<input type="text"/>	0 0 0

Most participants, especially owners, were comfortable estimating for this question. Most participants did not remember they could estimate, and wanted that explicitly stated in the question. Some preferred answering as a percentage rather than estimated dollar amount. Most had this information in records or had dedicated personnel for whom they could attribute salary under this category. Others struggled to attribute salary if certain employees worked on multiple projects:

- “I would have to talk to accountant and my wife running R&D. I'm doing part of that job. I would have to decide how much of that time, and it's difficult to put in a number. I have it for tax purposes. I am doing R&D. But it's difficult to disclose that information, it's not a dedicated department or full time. Percentage of time would good [as another way to capture]. Salary and wages, I put one salary, the person that is doing that. Expenses and equipment, no I'm not using anything, I'm not buying anything to do what I'm doing. Materials and supplies it's another product but we're going to invest but it's almost nothing, not significant.” – biotech SU
- “I would have this in records. But I'd leave it blank, if it allowed me to leave it blank. But I would rather have a 'don't know' option.” – restaurant MU
- “I have all this in records. I can pull directly from this system.” - manufacturing MU
- “Salary is a real estimate, I can look at our wages and see who does the most of that type of work. A large amount of time quantifying and I'm doing a percentage. Machinery and equipment, I wouldn't put materials because it's minimal. Salaries, I don't break out by R&D.” – manufacturing medical MU
- “I can estimate anything. I'd rather percentages rather than dollar amounts. You should say estimate your R&D costs. People might worry this is for the IRS.” – manufacturing SU



- “I would have to go to my books and be able to split it up, and we're talking about this survey, the value of this and my time to go to books. Time is valuable as well. You should put that you're okay with estimates in the question.” – manufacturing SU

Q4:

**D.8 R&D Categories**

During 2021, of the 'D.6 Domestic R&D Performance Costs' in domestic R&D performance cost, how much was for the following types of R&D? *Round to the nearest thousand dollars.*

	\$Mil.	Thou.	Dol.
a. <b>Basic research</b> – activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses .....	<input type="text"/>	<input type="text"/>	<input type="text"/> 000
b. <b>Applied research</b> – activities aimed at solving a specific problem or meeting a specific commercial objective. ....	<input type="text"/>	<input type="text"/>	<input type="text"/> 000
c. <b>Development</b> – 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 .....	<input type="text"/>	<input type="text"/>	<input type="text"/> 000
<b>Total = 'D.6 Domestic R&amp;D Performance Costs'</b> .....	<input type="text"/>	<input type="text"/>	<input type="text"/> 000

Most participants were willing to categorize certain activities as research or development, but felt this could be hard to give an exact amount for. Most companies had internal ways of having funds fit these categories. While there wasn't reported issues with interpretation, they were often idiosyncratic, meaning the answers may not be precise or consistent.

- “I would put on applied. Because actually right now I'm trying to solve a problem that we see is coming. I'm troubleshooting an existing problem. We know we're going to see a problem so we're trying to research that problem.” – biotech SU
- “Individualized patient [research] would applied, development would be a bigger portion.” – manufacturing medical MU
- “If I can estimate it's pretty easy. Maybe round to the nearest thousand.” – manufacturing SU

**Recommendation:** Consider testing a definition for R&D that is less wordy. The addition of an instruction for “estimates are acceptable” should be considered for individual questions. Allow some answers by a percentage rather than dollar amount.

## Sustainability

We tested 21 questions on environmental sustainability. Overall, we found that respondents struggled with some of the terminology in the questions, that they were not always sure what to include or exclude from sustainability questions, and that they are not maintaining records on all of the topics within this section.

*General Terminological Issues:* Some respondents struggled with the wording of some of the sustainability questions. This included specific wording choices, but also generally the topic of sustainability. However, most of these issues were remedied in round two, when all questions were narrowed to “environmental sustainability” specifically. Below are representative comments from Round 1:

- “I need better definitions on the question itself. Is the sustainability recruiting or trying to keep customers? Sustainability as keeping the business going or green impact?” – manufacturing MU
- “[I didn’t expect questions] about environmental. Questions don't match what you're asking or what they say you go to.” – SU law firm
- “Sustainability [questions are] difficult, [and] definitely the hardest section of questions that were tested.” – manufacturing SU

*Definition Issues:* Some participants struggled with what to include or to exclude when considering various sustainability efforts:

- “We are going for green policies, things to do around our office. Things we help our vendor implement. We make it more attractive to customers and green movement.” – manufacturing MU
- “The only thing that's applicable, attempting to move from paper based to electronic based, so we're stopping the bills being sent out. Reducing paper usage. We are doing that. Some of the directors might be actively thinking that, but probably mostly pushed that direction because PDF bill book is easier to look at. Like a green office initiative.” – Law firm MU
- “Elimination of waste that was a new one on me. I don't know what circular economy, sounds like it's taking something like packing material to use ship other things out.” – in response to Q14, manufacturing SU
- “We do click on the hyperlinks, more definition are better. Sigh. we say we want to greener. You might want to define what a strategic objective would be: mission statement, driving rationale?” – in response to Q15, manufacturing MU

Two participants were not sure if the questions referred to a specific product or team, rather than the whole company.

- “You’re going to get different answers based on the person taking it. You won't get consistency even within the firm...I have to get approval through partners and more stakeholders” – law firm SU in response to Q14
- “This one is difficult for us, would say no, however we have a practice group that is environment law, so if that specific practice area is not looking at things to help their own law firm. 2 of 20 partners do care a lot. Add a box a manually type in box, definitely is easier for yes/no. Feedback for if there are exceptions.” – law firm MU in response to Q15

*Tracking:* Many participants felt specific questions about utilities and carbon emissions were out of the scope of their knowledge because the company did not track them. This was especially relevant for Q4, discussed below.

- “We do not track emissions. We track things such as we use gas in our production tracked based on a meter, energy use based off bills. We don't track other things. We use basic HVAC and we use transportation like Fedex and UPS.” – Manufacturing MU
- “We rent. We’re tracking because you have to pay for utilities, not part of sustainability initiatives” – Law firm MU

*Sensitivity:* The topic, rather than the questions themselves, could be sensitive. A few participants felt they should be working on environmental sustainability, and that the questions made it seem as though they were not prioritizing this topic. Further, participants were not always privy to discussions or decisions around environmental sustainability.

- “I think there could be a ‘hasn't been discussed.’ We're not developing plans but not against it. Hopefully everybody is working to reduce carbon emissions so it's oof [noise of embarrassment] when you say no.” – in response to Q9, biotech manufacturing SU
- “We don't have strategic objectives about the environment. We have green program in the office, but I don't go out and mention that. It's just an internal [orientation], we're trying to be good stewards of the environment.” – in response to Q15, law firm SU
- “We a small building and I'm not going to have solar or wind or geothermal [energy]; we're tiny.” - In response to Q14, biotech manufacturing SU

### Q3: SUSTAINABILITY OBJECTIVES

Has this business realized any of the following benefits from pursuing its sustainability goals? *Select one for each row.*

	Yes	No
a. Improved efficiency	<input type="checkbox"/>	<input type="checkbox"/>
b. Improved regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>
c. Improved employee recruitment and/or retention	<input type="checkbox"/>	<input type="checkbox"/>
d. Reduced waste	<input type="checkbox"/>	<input type="checkbox"/>
e. Improved brand reputation	<input type="checkbox"/>	<input type="checkbox"/>
f. Decreased costs	<input type="checkbox"/>	<input type="checkbox"/>
g. Improved customer acquisition and/or loyalty	<input type="checkbox"/>	<input type="checkbox"/>
h. Increased revenue	<input type="checkbox"/>	<input type="checkbox"/>
i. Other (Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

Participants did not often struggle with this question, but sometimes they were not sure how to attribute the phenomena described in the options to sustainability practices.

- “Just have the cost gone down, but I’m not sure if it's sustainability parts. We haven't had a brand reputation shift. Might have more revenue and people due to sustainability.” – manufacturing MU

**Q4: ENERGY OR CARBON EMISSIONS TRACKING**

Does this business track energy use or carbon emissions from the following sources?

	No, does not track either	Yes, tracks Energy Expenditures	Yes, tracks Carbon Emissions	Source is not applicable to this business or is inaccessible
a. Heating of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cooling of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Fleet transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Electricity (used for lighting, computing, HVAC, production, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Thermal energy in production (for example, from natural gas, petroleum, coal, biomass, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

This question was particularly challenging for companies that rented offices, especially service companies.

- “Canned expenses that go to rent, we don't track it. It’s tracked by a third party or outside person.” – law firm SU
- “Expenditures is misleading to me. Energy usage (carbon emissions) would be better. Expenditures implies amount of spent.” – law firm MU
- “We keep a track on kilowatt usage... We track expenditures, not fleet. We track it, because we track price and kw hours, we don't [do] much about it, but switched to green [energy] sources. But that wouldn't be captured here in this question.” – manufacturing SU

**Recommendation:** Ensure every question reflects the topic of environmental sustainability. Consider alternative options or questions for those who rent or have utilities through a 3<sup>rd</sup> party.

**Technology Transfer**

Ten companies answered questions in the technology transfer module during moderated interviewing. Overall, most participants understood if the questions applied to them, and did not

have much trouble answering. There were no moderated interviewees that had collaborations, and so we sent an unmoderated survey targeted to companies suspected of engaging in collaborations. We screened out 75 respondents as out of scope. Seven companies had collaborations, although only one participant gave written feedback on this question.

In general, these questions performed as expected. The questions about the number of patents (3 and 4) were more difficult if the participant had patents and needed to reach out to others, although they could estimate. Participants struggled most with question 5. In general, we recommend adding “don’t know” options and some hover over definitions. We will clarify what of that applies to each question below.

Most participants said this section would take about 5-15 minutes to complete, especially once they discerned what of this section was applicable to their business. However, if they were reaching out to others in the company, this section would take much longer:

- “10-15 min. for things I knew but would have had someone else verify other questions, [like the] comptroller, head of R&D, VP of emerging technologies. This could take a few hours to a few days [to get the data].” – biotech manufacturing SU
- “It would take me 2 hours just because I have to reach out to others - I'd do copies of the page and send off to whoever and wait for them to respond.” – food manufacturing MU

#### **Q1: Formal Intellectual Property Protection**

**Does this business use the following methods to protect intellectual property?**

- |   | Yes | No |
|---|-----|----|
| a. Utility patents (patents for inventions, applied for or awarded) |     |    |
| b. Design patents (patents for appearance, applied for or awarded)  |     |    |
| c. Copyright  |     |    |
| d. Trademarks   |     |    |

Respondents indicated that they easily knew if this question was applicable to their company. One person was unsure if a logo would count as a trademark. This was a question someone unfamiliar with these practices would have to reach out to another person at their company for and answer.

- “A company that we work for does [these things], but the problem with the system is - in order to get a patent or copyright, you must publish your program. And anyone can make a few changes and have all of your thought process. So we password protect and are always changing and moving. If someone gets in our firewall, it's already old information.” – manufacturing SU
- “Some of the answers for ABS because I'm not typically in a lot of the R&D planning sessions, had to coordinate answers with them.” – biotech manufacturing SU

- “Our patents are international patents and through [another country] and registered in each country [in which] we do business. We would probably write it in because our situation is unique.” – manufacturing SU
- “All items make sense. Not missing formal IP protections from this list - not concerning us.” – Food manufacturing MU
- “All items here make sense. We don't invent or design anything. We don't copyright or trademark yet. Company does not have any intellectual property - wait, what's intellectual property? Is a recipe intellectual property? We want to keep a recipe a secret and want to keep to the mind of the brewer.” – Food MU

## Q2: Informal Intellectual Property Protection

**Does this business use the following less formal means of protecting intellectual property?**

Yes No

- a. Design complexity
- b. Nondisclosure agreements or non-compete clauses
- c. Branding and product image
- d. Trade secrets

Most participants felt they were able to answer this, although one said they would need to consult with a colleague. Another, which had international patents, said they would write in a response. There was some interest and use for an “other/specify” textbox capture option.

Several participants were unsure what design complexity meant in this context:

- “Design complexity is a little tough because everyone who builds deconstructs what they build so I would say yes to that. All items here make sense. Not missing any informal IP protections from this list.” – manufacturing SU
- “I don't understand what design complexity - does that mean you've made it so complex that it's hard to do?” – manufacturing SU
- “I think this is a little vague. Complex design and trade secrets are vague - what does that mean specifically? What is your meaning of intellectual property?” – manufacturing SU

## Q3: Patents Pending

**How many U.S. patent applications, if any, did this business have pending as of the end of 2022? If none, report zero.**

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This question was clear to respondents in instances where their company held no patents. If a participant did not have access to this information, they indicated that they could guess a response or they could have to reach out to others within the business.

- “I don't know we had any US patents. Answer would be 0 because how our company works.” – manufacturing SU
- “I think we have 3 but I would have to check with our team.” – biotech SU
- “I am not sure. Several passed, 5 or 6 pending from first half of the year. I would need to contact head of R&D.” – manufacturing SU
- “This I'm not going to know, because we have several approved at the end of 22, 5 or 6, 5 or 6 patents. Do we still have some pending or not? I would need to contact our head of R&D.” – biotech manufacturing SU

#### Q4: Patents Owned

**How many U.S. patents did this business own as of the end of 2022? If none, enter zero.**

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This question performed as expected especially if it was not applicable to the business or the participant indicated that they had access to this information.

- “Knew off the top of my head, easy answer for a small business. I'm involved in everything.” – manufacturing SU
- “I know we have patents, not sure how many, I don't review. The controller reviews our patent law or head of R&D. I have access, but I don't review it.” – biotech SU

#### Q5: Intellectual Property Activities

**During the three years 2020 to 2022, did your company exchange intellectual property (IP) rights, including patents, copyrights, and trademarks that give ownership, exclusion rights or rights to use technical knowledge using any of the following mechanisms. Select one for each row.**

- |   | Yes | No |
|---|-----|----|
| a. Licensed or purchased IP from companies that are not affiliated  |     |    |
| b. Licensed or sold intellectual property (IP) to companies that are not affiliated   |     |    |
| c. Transferred intellectual property (IP) to companies that are not affiliated through participation in technical assistance or "know how" agreements |     |    |
| d. Received IP from companies that are not affiliated through participation in technical assistance or "know how" agreements                          |     |    |
| e. Participated in cross-licensing agreements with companies that are not affiliated  |     |    |
| f. Acquired or merged with companies that are not affiliated to acquire their IP  |     |    |
| g. Transferred IP to a spin-off or spin-out of your company   |     |    |
| h. Received IP from a parent company as part of a spin-off or spin-out  |     |    |

- i. Allowed free use of patents or other IP owned by this company (for example, allowing free use of software patents by the open-source community)
- j. Made use of open-source patents or other freely available IP not owned by this company

Generally, participants found this question to be too wordy, with participants taking long pauses before providing an answer. Many said they were not sure about specific options, such as option e. Just three participants said that this response option made sense, and they did not have anything applicable for this response option. One wanted joint venture and commercial license definitions included in the question. Another wanted ‘don’t know’ or ‘not applicable’ response options, especially about the open source option. This question would need to be simplified to be more accessible for respondents.

- “Don’t know #5 so I would rather have option than say no. For open source, not applicable would be a better answer choice. I don't know answer last question.” – manufacturing SU

**Q6: Collaboration with Universities**

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with universities? Select one for each row.**

- |  | Yes | No |
|--|-----|----|
| a. Performed collaborative research between company and university researchers   |     |    |
| b. Funded university research  |     |    |
| c. Funded PhD students and postdoctoral researchers at universities  |     |    |
| d. Licensed or purchased IP from a university  |     |    |
| e. Signed non-disclosure agreements, material transfer agreements, or other agreements with universities governing usage of IP |     |    |
| f. Hired science and engineering graduates   |     |    |
| g. Engaged in formal or informal personnel exchanges with universities   |     |    |

Most participants said this item was clear. One participant mentioned he might have to talk to HR about hiring for the graduate student question.

**Q7, Q8, and Q9: Collaboration with Government Laboratories**

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with federal laboratories including Federally Funded Research and Development Centers? Select one for each row.**

Yes    No



- a. Conducted collaborative research using agreements such as Cooperative Research and Development Agreements, Space Act Agreements, Material Transfer Agreements, Confidential Disclosure Agreements, or other transaction authorities
- b. Conducted research at government user facilities
- c. Funded research at government laboratory
- d. Licensed IP from government laboratory
- e. Engaged in formal or informal personnel exchanges with government laboratories
- f. Attended workshops or seminars located at or sponsored by government laboratories

### **Collaboration with Government Laboratories**

**During the three years 2020 to 2022, did this business engage collaborative activities with federal laboratories in the following departments? Select one for each row.**

1. Department of Agriculture
2. Department of Commerce
3. Department of Defense
4. Department of Energy
5. Department of Health and Human Services
6. Department of Homeland Security
7. Department of Transportation
8. Department of Veteran Affairs
9. National Aeronautics and Space Administration
10. Other federal department

### **Collaboration with Nonprofits**

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with nonprofit organizations? Select one for each row.**

- |   | Yes | No |
|---|-----|----|
| a. Performed collaborative research between company and nonprofit researchers   |     |    |
| b. Funded research at nonprofit organizations   |     |    |
| c. Licensed or purchased IP from a nonprofit organization   |     |    |
| d. Signed non-disclosure agreements, material transfer agreements, or other agreements with nonprofit organizations governing usage of IP |     |    |
| e. Engaged in formal or informal personnel exchanges with nonprofit research organizations  |     |    |

These questions performed as expected, although they could be grouped together or screened to reduce response burden. One unmoderated respondent who wrote in said that the “survey was well-written, simple, and short. If/when you implement the survey, share the results with the Federal Lab Consortium.” Note that no participants from the unmoderated testing indicated that their company was doing IP.

**Recommendation:** Shorten section. Add “don’t know” options and hover over definitions where appropriate.

## Reshoring

The reshoring questions were mostly not applicable to companies in this testing – two unmoderated participants answered “yes” to the company reshoring in the past year, and no one said they had plans to engage in reshoring in the future. During the moderated testing, two respondents contemplated whether these questions applied to them but ultimately selected no. For one of these participants, she thought reshoring might apply to her company, but responded ‘no’ because the company was opening a factory rather than moving it. For the other participant, the part of the question specifying international trade felt unclear to him, so he selected ‘no.’ Of note, the reshoring questions had the most participants break-off from the survey altogether during the unmoderated testing, suggesting that this item may lead to survey break-offs in production.

While most individuals seemed to understand the intent of the questions, there was some confusion about what activities should be included, especially those to do with foreign manufacturing. There was not consensus on if using foreign suppliers would count as reshoring.

- “It's actually more cost effective to build it here, than to build it in China and ship it.” – manufacturing SU
- “I am trying to think of the best way to answer. We follow our customers, and some moved in 2023 because of new laws like inflation reduction. We're reopening a US location...If I read this and answer it exactly as it's asking, we're not shutting down a facility in Mexico to move to the US... I'm comfortable reporting to you. It's not something that happens too often. It's pretty infrequent for us, with the changes here with the laws.” – manufacturing MU
- “I do not know onshoring and reshoring definition but would need to find out. Based on my knowledge, I'm not aware of new productions and services that occurred in 2022 without confirming with various internal departments.” – unmoderated, answered “do not know” to Q1
- “Would not include for 3rd party suppliers, only if switched from intercompany supplier to in house. Hard to track all the suppliers and the physical location of the production at my position.” – unmoderated, answered “no” to if they would include foreign supplier
- “I wouldn't typically consider onshoring or offshoring from a supply chain perspective.” – unmoderated, answered “no” to if they would include foreign supplier
- “I consider internal sources only - not where supplies are sourced from” – unmoderated, answered “no” to if they would include foreign supplier

This topic might be considered sensitive from our interviews: the previous round of testing on reshoring questions on behalf of the Business Trends and Outlook Survey (BTOS) in 2023 resulted in high sensitivity from respondents. We also note the number of “don’t know” answers to the question if a company will reshore on the unmoderated testing (25% of answers), suggesting that if this information is known, respondents may be unwilling to share it with us.

- “I would say no [to being told in advance of reshoring] because I am retired. In my prior position, I would be involved. At some point, usually senior management, and then I would get involved so that I would a new plant and setting up the accounting. 6 months after the decision had been made I would know.” – MU with some overseas manufacturing
- “How far in advance [would I be told]? Maybe a year, maybe longer. Major facility overhaul. Strategic thing to tell us and hold it close to chest.” - manufacturing MU

**Recommendation:** Additional testing with targeted recruitment is recommended for reshoring questions, though we note that given the apparent low incidence of this activity and the possibility of sensitivity of response, a survey may not be the most appropriate method for collecting information about firms’ intent to engage in reshoring activities.

## Labor

We tested a series of questions on organized labor. The labor questions were mostly not applicable to companies in our testing. Although no moderated participants represented companies with collective bargaining agreements, about 28% of the unmoderated participants did represent companies with collective bargaining agreements in place. Participants felt it was clear that these questions did not apply to their businesses. They were confident they would know if there was unionizing activity in their companies through a variety of mechanisms.

- “During the past 3 years, no. There were two attempts, and the employees voted 2/3 not to unionize.” – MU manufacturing, unionized outside of US
- “I would definitely know if they were unionizing” – MU restaurants and hotels
- “We are a non-union shop” – unmoderated, no union
- “I am not aware of any labor union. Labor Unions do not come in discussions about our labor cost.” – unmoderated, no union

Most with collective bargaining agreements found the first question very easy, with some saying it was neither easy nor difficult, and a few saying it was difficult. One person wanted a “do not know” response option. Another said they liked being able to report approximate percentages under the collective bargaining agreement. Three participants did say they would need to reach out to HR or payroll to answer this question.

- “I am new on this position and do not have the details already with me. For this survey I just guessed based on what was discussed in the past.” – unmoderated
- “We have some disclosures in our annual report in regards to collective bargaining.” - unmoderated

- “I participate in routine business updates for all divisions, which include discussion regarding employee-related matters (headcount, hiring challenges, turnover, etc.) in which matters like this would be discussed.” - unmoderated

**Recommendation:** Additional testing with targeted recruitment is recommended for labor questions.

## Entrepreneurship

We found varying amounts of accessibility around the information of the origins of a business. Owners and those who inherited family businesses were the most ready to answer, with built narratives of their company. However, some participants were not sure if their company would fit the response options, even if they knew the reasoning behind the founding.

- “From what I've read about the family history and from the memory of what my dad used to say. He was in a family business and didn't agree with how it was run so he left and started the [restaurant].” – Family business SU
- “My grandfather started the business because he lost his leg in WWII, and then bought an existing [medical] business. It's kind of hard to answer, it wasn't exactly, all products are customized. I'd probably say yes.” – manufacturing medical MU
- “It would be that my history and passion for making it safer for [workers].” – manufacturing SU
- “I saw a need in the marketplace, and was frustrated over that need. It took a while to come up with the solution, but we did. Ever been in a [hardware] store? [Customer service invention]. We invented it in the late 80s. They're in a lot of stores now, and chains. That was the first product. My personal idea.”- SU

Based on feedback from Round, we revised the question. Participants responded positively to the edits in Round Two, and liked answering question three open-ended, but their answers did not fit neatly into the options. There is a diversity of reasons to start a business, and these were hard to capture, especially if the company provided services rather than a specific product. These answers often were beholden to emotional narratives, like those of the American dream and independence.

- “You see the opportunity, you have right idea at the right moment. We realized we did something great, now I understand what it takes. The opportunity, the thing happened because the market, the product that existed was only overseas, there was no product in the US. From another country, it was developed in other countries, but we don't have it in my country. We developed a new product, but only for my country. It was very expensive to buy the product, so we make domestic/local, we saw in the US there was no product like that. We started selling that product in US. In US we created another company, all the rights, start making the product.” – biotech SU
- “In the early 80s. I've heard stories on why the founder founded it, but it was 40 years ago. There's a little history in the FCC filings.” – service MU

One participant found Q2 wordy and hard to answer. Participants did seem to struggle most to answer this question, given the options.

- “Again, wordy. I'm trying so hard to imagine what any bureaucrat, what are you getting at?” – manufacturing SU

**Recommendation:** We recommend that this question series focus on owners rather than asking proxies. Consider changes to wording and more cognitive testing to further refine the question wording. There may be benefit from asking for open-ended answers and back-coding them into set categories, but this practice is time and resource intensive and should be used with caution.

## Demographics

Collecting demographic information on business owners poses a unique challenge on an economic survey. There are two major issues we address here: first, many respondents are filling out the questionnaire for owners (the proxy issue); second, new content may be sensitive, especially for proxies (new content issue, specifically SOGI and disability). We divide our report and recommendations by these two issues, which are related.

### Reporting by Proxies

Most participants did not have trouble with identifying if they had owners, and who those owners were. The instruction “someone owning 10% or more of the company” was helpful to orienting participants.

There were a few participants who struggled to answer this question. Holding companies, for example, were unsure who counted as owners. Similarly, law firms were not sure if equity partners counted, and did not always know what percent ownership each had, especially if they were unsure of the number of equity partners. Publicly traded companies had unique challenges with the concept of ‘owner’ – for example, a participant representing a larger MU knew there was an owner of over 15% of the company because it was publicly traded, but did not know anything about this person or how to access them. This participant went on to describe:

“My recollection is I struggled with answer the question because it was looking for a person, partnership. An equity finance company had purchased the company. I would suspect there are people considered owners, but I'm really confused because they have different titles for folks that represent the private equity company, and I don't have details about their personal lives. It would have been helpful for something in the survey to communicate that. I only know a couple of individuals names who meet with our senior individuals to review each month, but I'm not in those meetings, and those people can change.” – participant at SU, moderated

Even if participants could identify owners, proxies did not always know owners well enough to answer demographic questions about them. Few of the demographic data asked on ABS are available in records, and many respondents do not have access to HR information even if they were held in records. This was especially true at large MUs, where respondents have not interacted with the owners.

- “You might not have access to owners. I can answer about 80% of this section.” – proxy at SU
- “It would be more appropriate for someone there to have answer these.” – a proxy who does not know the owner
- “Definitely need a don't know [response option]. This is one of the ones that I struggled with.” – proxy at a MU
- “For age, I would look in HR records or age they finished law school.” – proxy at a law firm
- “There is an owner, but the ownership is an LLC, so there's one LLC that owns 51% and it's made up of an individual and his family. I know the owner. I would be able to answer.” – manufacturing SU

#### Q1: BUSINESS OWNERSHIP

Not including this business, what is the status of the previous business Owner 1 started most recently?

This is the owner's first business

Business is still operating, and Owner 1 still owns it

Business is no longer in operation

Business was purchased by another company

Business was purchased by another individual

Other, specify: [textbox]

#### Q9: REASONS FOR OWNING A BUSINESS

How important to Owner 1 is each of the following reasons for owning this business?

*Select one for each row.*

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

Wanted to carry on the family business

Wanted to help an/or become more involved in my community

Other, specify: [textbox]

As such, Q1 and Q9 were the most difficult for proxy respondents. They were more subjective, and had to do with the opinion of owners. Participants found Q1 wordy, and one wanted a “select all that applied” response option.

- “I would have to ask. It’s very subjective. I would be pretty annoyed if you gave this to me. This is not something that the equity partners find a great deal of value from. It’s not a billable experience.” – proxy at a law firm in response to Q9, which she rated as the most difficult question to complete
- “This would be a challenging one to get, to be honest with you. Even who I would think of on the executive, getting them to answer these questions. Only they could answer and [they are] not super accessible. [It would result in an] email sitting in an inbox for a long time.” – proxy at a manufacturing MU
- “When we receive these survey requests, it's not like [the] owner is coming into here and filling out report. It’s a point person in corporate accounting. Would I know why the owner wanted to start the business? It’s probably a portion of all these different reasons, more personalized for an individual specifically. More likely than not it would be delegated on the staff.” – proxy at MU
- “I can answer because I've had discussion, but if you're not in a small organization you wouldn't know.” – proxy at a SU

Q9 was received the most negative response in the demographic section from both owners and proxies. While participants liked the “don’t know” and “not applicable” response options, proxies felt they could not answer the question, and owners did not always feel the options captured their experiences. One participant pointed out that there was a difference between desire and reality the options did not capture. For example, options on work/life balance and hours did not always have intent and practicality aligned.

- “‘Not applicable’ is different than ‘don't know,’ like for family business.” – proxy at MU who identified Q9 as most difficult question to answer
- “Most of it doesn't apply. I would put other, specify: very important is the passion, is helping others. For community, I'm involved being on boards. That's the community where I live. Helping others in my industry.” – Owner of manufacturing SU

As a result of the Round 1 testing, we added the following question to the unmoderated survey on demographics, and it had improved performance in the field.

*Figure 1. Updated question on ownership that allows for the identification of proxy reporting.*

Are you an owner of the company:

*An owner here is defined as someone who owns 10 or more percent of the business.*

Yes

No

No one owns 10% or more of this company

**Recommendation:** We used the question in Figure 1 for the unmoderated demographic section. We asked during moderated testing if a participant was responding for both themselves and other owners, and it performed appropriately during testing. As such, we suggest adding that response option here. It is vital to analyze the difference in answers between proxies and owners, and what kinds of companies have owners answer rather than proxies. Consider rewording Q1 and Q9, only showing them to proxies, eliminating, or adding “don’t know” and “not applicable” options.

## Sensitive Topics

Several of the measure of demographics may be considered sensitive: gender identity, sexual orientation, and disability. LGBTQ and disabled individuals are stigmatized, and often face challenges to disclose these identities safely in the workplace. Additionally, sexual orientation is rarely collected in employee records, meaning that there is no universal official source of owner sexual orientation that a survey respondent can use to provide response to the survey questions. This stigma, and the mechanism of proxy reporting, adds complexity to reporting these demographics. These questions were asked in a battery of existing demographic questions to gauge the participants’ responses to being asked about demographics in general.

We want to emphasize that, despite our efforts to recruit LGBTQ individuals to answer about SOGI questions, participants only answers “male” or “female” for the gender identity question. Two participants gave any response other than “straight” for the sexual orientation question, and both were given by proxy. There were a few owner-participants who thought they may be disabled, including a Deaf participant who did not identify as disabled but answered yes to the question, and another who spoke about his brother’s experiences being disabled.

We first found that owners were much more comfortable than proxies reporting demographic answers. This was true of all three of the sensitive questions, and also true of the question on owner age. Owners in general had less negative reactions to being asked these questions as a pattern, although some owners did feel explicitly negatively about answering these topics. Both groups endorsed the ‘don’t know’ option on all of these questions, and many endorsed adding it to the age question.



- “Was transgender on the question before? I’m trying to be inclusive.” – Owner for holding company on the GI question
- “Looks like it aligns with what I’m thinking, much more inclusive.” – Owner on GI question
- “Pretty straightforward, being of the older generation, it was either male or female [for all the owners].” – Owner with family business on GI
- “It would be weird for an employee to answer on behalf of the owner and there are probably instances where employees don’t feel comfortable asking the owner - so it’s good you have a ‘don’t know’.” – owner on SO
- “I know for other owners. The ‘don’t know’ is good if you don’t want to be asking other owners that. But all my family, my parents and my brother is buying the business from them.” – Owner about SOGI in general
- “I don’t know, I guess I think that most people would know how they identify. It’s different to say ‘I don’t know’ than ‘I’m choosing not to in this survey’.” – Owner for SOGI
- “I would feel comfortable answering for the two other owners because they are my sons” – Owner who felt negatively about SOGI
- “I recognize that there are minority issues for people - it’s the same as asking racial questions. For example, a woman owned business is given some more opportunities than a male owned business because of history, and the same thing is true for sexual orientation.” – owner after SO
- “For me, I’m not owner, I shouldn’t answer this question. I have an idea, what people do on their personal time, I have no idea. I might be guessing on these.” – proxy

Proxies were concerned about revealing information about owners, being unsure how to collect such information, or being able to find it in records. Two proxy participants did think it was illegal to disclose this information, or ask about it.

- “Company does not have records on the gender identity of its owners, in fact, it’s prohibited in [our state].” - proxy

Many participants did not understand how the ABS worked in general. They mentioned, especially in unmoderated testing, that this made them wary of answering the SOGI and disability measures. They were not sure how the information would be used, did not understand the relevance, and had some privacy concerns. There were a few that asked for a blurb or more information on the survey to help them determine the appropriateness of responding. One unmoderated participant said that the questions “seem invasive, would prefer to understand why it is relevant to business ownership/Census matters.”

In this case, the issue with the sensitive questions is not comprehension of the question but rather reluctance to disclose a response. Participants did not have an issue with the options presented, and most understood what the questions were asking. In moderated interviews, 12 participants positive responded about SOGI questions, 16 neutrally, 10 negatively.

- “We do have LGBTQ [owners]. These questions would capture that.” – proxy from law firm after SO
- “We now, all public companies on the stock market, proxy put a table in for diversity of gender. We chart it, including nonbinary [gender identity]. We have tracking for public companies. I would know, I can answer. Certain people I know are gay. We have some board members. We have a matrix for proxy filing, and we email with a questionnaire. We say this is required and they might say I'm not answering. We have two board members, where one is gay and one is a lesbian.” – proxy from publicly traded MU after SO
- “I don't feel like the order is discriminatory but someone else may so maybe it's easier to put in alphabetical order to be politically correct or maybe separate instead of having a list - like two on right and two on left - so someone wouldn't see any discrimination or anything.” – owner of restaurant MU after GI
- After the sex question: “This is a loaded question these days. The world has gone crazy over sex and gender these days. I never see sex on questionnaires these days. I don't care this much about it - but I don't feel comfortable with sex as opposed to using gender. It shows indifference and insensitivity to the way things are today - you will have a negative consequence if you leave the question like this.” After the gender identity question: “I'm offended by the sex question. The gender identity question is better.” – owner of telecom SU

Individuals who responded negatively to the SOGI questions often held negatively preconceived notions about LGBTQ people and used language from political talking points. This is reflective of the charged nature of this topic, and may lead to data quality issues in collection.

- “I understand that human beings have changed a lot, but these kinds of question are too much. I don't have problem with lesbian and bisexual but they push it's normal. It's not normal. To push information for the children is not normal.”
- “I know where this shit is going. I know it's the world we live in. I'm not saying it like a Trumper. I get it, I know it, we have to deal with it. It's just so meaningless. To somebody who is grumpy old dude like me, why are we spending time [asking this]?” – owner of SU
- “I would say female but then get pissed off about it. I don't see how this matters. You are who you are. I'm familiar with the answer categories. Our company does not have records on gender identity of the owners. I'll do it if I have to. I'm an old lady and I think it's a private thing. I think it shouldn't matter with business. Who cares? I'm libertarian in this regard.”
- “Transgender people want a lot of attention and this gives them a lot of attention”
- After the gender identity question: “This makes me crazy. I'm a Republican. Ask me if I'm male or female and go on. I would answer this for my husband and myself.” After the sexual orientation question: “You are overstepping your boundaries...My husband and I would be really hating the government to see this – this is a waste of time. I understand

the leanings of our country is more inclusive but sexual orientation does not matter for business ownership and doesn't matter what you do in your own time." – owner.

- After the SO question "Oh my goodness – now this – now I do have a problem. ... I don't know why you would need to ask this. This has absolutely nothing to do with being a business owner. This would irritate me because this would be someone searching for money to give for special preference, or a way to ... In my economy, people need to be responsible for their actions. Personally I don't look at someone different – come to work, let's get it done. I don't understand why the Census Bureau would be asking this. When I come across stuff like this, I would say 'don't know' or 'do not apply' – as it's not the Census Bureau's business."

The responses from the unmoderated survey were notably more negative, and these negative responses were more charged, political, and potent. This is in line with methodological literature that suggests that self-administered collection reduces social desirability bias – respondents are more forthcoming because they feel less social pressure to give answers that are socially acceptable. Note, though, that there were also positive and mixed or neutral responses to the unmoderated testing for these questions, too.

- "I think it is great that you are asking and I think all companies should be required to do a self-identification survey that will remain anonymous if the employee chooses, but will help create transparency around the diversity of the organization and roles."
- "I am the sole owner and well aware of my status in all regards, but I do find the questions to be intrusive. I can see that it is an important issue in general but I don't see that these are things that a business should have to know about their employees."
- "Personally, I do not believe it is relevant as a lot of these questions are not known by anyone other than the owners. In most scenarios, there are multiple owners of a business and it would be difficult to know how to answer this clearly. I understand the Census Bureau is attempting to compile/categorize business ownership demographics by age, sex, gender identity, and sexuality, but I think most owners may not feel comfortable sharing this information. That's my opinion. Thanks!"

We also received negative responses in our emails to the survey. It is important to note the types of negative responses, and how they can be organized. Below are the categories the free responses can be assigned to, with at least one example quote. There were 97 open responses in cognitive testing, and a quote could be categorized multiple times:

- 37 comments were about the question being irrelevant to business
  - "What does any of this have to do with owning or running a business?"
- 15 comments were about not being government's purview
  - "It is intrusive and has no bearing on the economic health of the business and no bearing on the US economy as a whole."
- 12 comments expressed that no one cares/it does not matter
  - "I think it shouldn't matter what gender someone is or what their sexual orientation is. The only thing that should matter is if the business has honesty and integrity and provides the services or products that you are interested in."

- “TOTAL WASTE OF TIME - WHO CARES?”
- 19 comments noted that the questions are none of your business/prying/personal/intrusive
  - “A little too prying.”
  - “It is information that we would not retain in a corporate record, but I have personal knowledge. I also really felt my skin crawl answering those highly personal questions.”
- 12 comments gave strongly negative
  - “NEGATIVE, INTRUSIVE, DISCRIMINATORY, HATEFUL, NOT APPROPRIATE OR IMPORTANT INFORMATION, SHAMEFUL!!!!!”
  - “Stupid government shit”
  - “NONE OF YOUR GOD DAMN BUSINESS”
- 5 comments noted privacy concerns
  - “How would this information be used? Would the data be anonymous? Who would have access to the details if these questions were included?”
- 7 comments were overtly political/homophobic
  - “I think there is too much concern lately about sex, gender identity, and sexual orientation. There are ONLY two sexes/genders. Male & Female. And NO, men cannot have babies - at least not real men. Why sex, gender identity, and sexual orientation is relevant to your surveys, is a mystery to me. Who cares? What's the difference? Gender is determined at birth. As I said, there are only two genders. Gender identity is something that goes hand in hand with wokeness, and trust me the majority of the population is tired of hearing about it. We need to stop the brainwashing of our children. As for sexual orientation, that's something that is a personal choice and a personal issue. I, and most people I know, don't care who anyone sleeps with; that's their private business. Why do we have to keep publicizing it? And why do we have to keep hearing about who isn't heterosexual? Heterosexuals don't require or demand special treatment, special recognition, or special days or months - why do others with different sexual orientations? Sexual orientation, like skin color, is irrelevant. We're all people. Sexual orientation and skin color don't define us. It's time to stop this nonsense of labeling people.”
  - “Please understand that not everyone wants to know that information about you, and it bothers some people. As a business owner I believe there needs to be separation between what goes on at work and in your personal life.”
  - “Sex, gender, and sexual orientation are totally irrelevant. These are not relevant in determining who is qualified to running this, or any business. Identity politics are creating more problems by moving away from decision making based on merit.”
  - “This gender identity issue is a bunch of BS. This is a complete waste of time and brings no value or understanding of our population at large and business in general. Only in a country as affluent as ours can a person look at their genitalia and believe it to represent the opposite sex. Any hiring requirements predicated on sex, sexual identity, race, ethnicity or any other consideration except their

ability to contribute to the company's profitability is misplaced and frankly, tyranny. Any more questions?"

- "I think that stuff is a bunch of crap. Not into that woke stuff. They are brainwashing people."

More participants were willing to answer the gender identity question than the sexual orientation question. This is most firmly demonstrated in item nonresponse and drop off rates in the unmoderated survey, as shown in table 5.

Table 4 charts item nonresponse and drop off for these measures. Nonresponse means that a participant skipped answering that question but continued with the testing. Drop off means the participant did not answer this question, and did not answer any subsequent questions in the testing.

*Table 4. Item nonresponse and survey drop off for sensitive demographic questions in the unmoderated survey (n = 149). Any answers with less than 5 companies are labeled n/a.*

	Sex	Gender Identity	Sexual Orientation
Item nonresponse	18	28	60
Drop off	11	n/a	12

This pattern held true for moderated testing as well. In moderated testing, 10 participants would not answer the sexual orientation, while three would not answer both gender identity and sexual orientation. Some participants had a stronger reaction to the sexual orientation question than the gender identity question. Others were less comfortable reporting sexual orientation than gender identity.

- "I understand asking about someone's sex but gender identity and/or orientation is not relevant." - unmoderated
- After the GI question: "We have [diversity equity inclusion] surveys. We track that information internally, and some of it I know. I don't go around and ask someone how they identify." After the SO question "A bigger firm has an official tracking. I think you need a track for single or group. To me it's clear based on my firm. If I don't know [if a person is] gay or lesbian and [I will] fall back to heterosexual. I won't make the assumption on what I know and has been shared." – Law firm SU
- After the GI question: "Here are the options I would have expected on the previous question." After the SO question: "I understand why all of this is here but it doesn't mean much to me personally...I'm fine with answering this for the owners." – retail medical SU
- After the SO question "I would never imagine that this would be in a Census. I would feel like I don't want to answer because I don't know and I don't want to ask the owners. I would say 'Don't Know'." – restaurant MU
- After the SO question "Comfortable answering and providing a response to this, but I don't see the relevance. My sexual preferences have nothing to do with how I run a

business. It's which of these things does not belong - I don't have a problem answering, but it does belong with the others." – manufacturing SU

- After the GI Question: "It's awesome that it's inclusive, it might be challenging to get an accurate answer." After the SO question: "In the spirit of inclusivity, I don't know how much value it adds." – medical service MU
- After the SO question: "If I didn't know the client personally, I would say 'Don't Know' because I'm not going to call to ask them." – service SU
- After the GI question: "I don't mind question for, it seems appropriate." After the SO question: "I wouldn't ask the owner." – service SU

No participants said they preferred to have two questions to measure gender identity. However, some preferred to have just one question, and had a preference for the gender identity question over the sex question if just one gender identity question was presented.

- "I don't know why they need to know the gender identity question. Fill out both the same." – restaurant MU
- "Just be one. I thought I just clicked. I didn't even read that seemed redundant. Didn't like clicking back. Don't mind answering both, but it's confusing. I clicked back immediately." – biotech manufacturing MU
- "Seems like we should honor gender identity. If we go back to three, sex, seems like you could just have question 4." – manufacturing SU
- "Questions 3 and 4 seem to be the same." – service SU
- "Just go with question four, going to go to question four anyway, just go there." –SU

We note the particular demographics of reports for the ABS and how this may play into answers. Many mentioned their ages as a factor as to why they might be uncomfortable with SOGI measures. These individuals who select into their professions may also be more risk adverse or conservative. Company culture also seemed to dictate levels of comfort. Companies that were more open about personal lives knew more personal information about each other. Other companies, where it was expected to come to work and leave without engaging around personal lives, were more uncomfortable with what they considered "personal" questions. This also may mean the owners at their companies may not disclose LGBTQ status. This, combined geographic variation in acceptance of LGBTQ populations, could impact responses. Many such participants spoke about how they did not care about LGBTQ identities and how they should not matter, echoing a colorblind narrative.

- "I think it's a big joke, all the fuss over people's gender... Well, I think it's intrusive asking about sexual orientation and you would not know. I'm showing my age, and I don't think it matters either way, so who cares? Like I said, it would be my educated guess based on a photo and that's all I can tell you. I don't usually discuss people's anything like this with someone I work with." – participant from a MU who was older. He also confused sexual orientation and gender identity.
- "Don't know, don't understand why that's important. What does the sexual orientation of the business owner have to do with the business? That's my personal opinion. Not

something I would know, because I would feel like they would feel that to themselves. Not something we ask or keep on file. This is something that I don't talk to people about at work, that isn't something that is important to me. They are a person, so I don't feel like that's my business what they do outside of my job. Some people are fine sharing it, that's not something that's important to me. they're a person. I don't ask unless they specifically told me.” – SU, conservative area, older

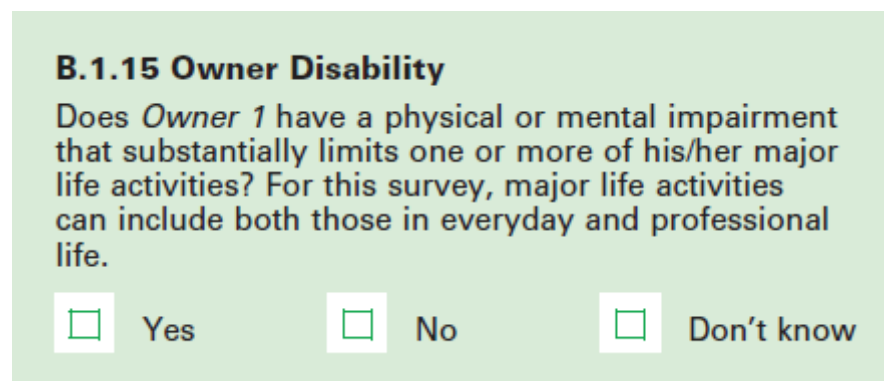
- “I am older so I am not as familiar with the terminology but it's not something in my line of work I deal with.” – manufacturing SU
- “I don't talk to people at work about this and not my business. If I knew I would be comfortable reporting it, but I don't know and we do not ask.” – manufacturer SU
- “This is something that I don't talk to people about at work. That isn't something that is important to me. They are a person, so I don't feel like that's my business what they do outside of my job. Some people are fine sharing it, that's not something that's important to me. they're a person. I don't ask unless they specifically told me.” – biotech SU
- “I'm showing my age, and I don't think it matters either way, so who cares?” – law firm MU
- “Not important to me. You just have to be a decent human being. I don't care about your private life. I'm not paid to hang out.”- participant described the geographic location as “not too much anti-woke in the area” – manufacturing SU
- “Our company is pretty open, and people I think feel pretty comfortable.” – participant at MU in liberal area
- “We do have people, so I understand the answer to the question and what all the other things mean.” – Proxy at SU

We note that during testing, several moderated interviewing participants noted they were more comfortable answering SOGI questions on the aggregate level, where the question might ask if any owners, instead of a specific owner, identifies as LGBT:

- “People get huffy with individual level. Group more okay with it.” – manufacturer SU
- After the GI question: “If you want to give trans nonbinary, then you should establish grants. You can say “we have 57% trans owners than the year prior.” If somebody is trans or nonbinary then they can try to get grant money, but this is survey business.” After the SO question: “I can answer it about myself, even the question, this is a classic rubber hits the road. If you have to know answer, then I would just say, do you have anyone under the definition of LGBTQ? Okay there are 4 business owners, so somebody did. More than 25% then you extrapolate.” – manufacturing SU
- “For age, I'd rather aggregate across the 5 owners for age. Same with disability, yes/no.” – owner/proxy SU
- After the sex question: “I could do percentage.” After the gender identity question; “Percentage of is better. This would be something that I would probably write don't know on, I don't want to assume and/or talk to our firm manager.” – law firm SU

Like members of the LGBTQIA+ community, the disabled business owner population is a stigmatized population that is not well defined and can be challenging to survey. Disability status had the added complexity of no set definition of disability, and the American with Disabilities Act (ADA) dictates legal accommodations in the work place, so businesses have a legal obligation to accommodate disability status. As such, the first version of this question was adapted from language in the ACS, as shown in Figure 2. This was the question used in Round One of testing:

Figure 2. Round 1 Disability Status Question, adapted from the American Community Survey



**B.1.15 Owner Disability**  
Does *Owner 1* have a physical or mental impairment that substantially limits one or more of his/her major life activities? For this survey, major life activities can include both those in everyday and professional life.

Yes       No       Don't know

Most participants thought this was asking if disabled owners could complete their jobs, or about the business' efforts to be ADA compliant. This was not the intention of the question (to collect information on owner disability status):

- “We have not reached the threshold to have this information. I would know because of payroll, may see. It might be confidential.” – biotech SU
- “I’m kidney dialysis patient, but it doesn't interfere with performing my duties. I consider myself to have a chronic health condition, but it has not caused any disability for me.”
- “When I hear physical impairment, I think of difficulty getting to the office. Mental is like Alzheimer’s. This could use descriptive [instructions].”
- “Disability wouldn’t be in my records, not even accommodations.” – Law firm SU
- “I could only guess. I wouldn't be certain. A psychological mental impairment, if someone has depression, I don't know if that fits into that category, nor should they have to. If someone is physical disabled, it's a little bit easier. It's confusing. Are you talking about the correct angle of a wheelchair ramp? Are we facilitating space or do people who are invisibly self identify and then let management know? If the US Census Bureau asked us to track that and a requirement we have to keep confidential. Probably for a lot of it, if people are getting their work done perfectly fine, unless they tell me they identify, I'm not going to presume that they do.” - Law firm MU
- “So what are you asking me on this question again? It’s not clear what this question is asking. It's clear what it's asking, what is the why? Owners, they have little impact on what is produced...Major impairment isn't the right. Impairment makes me feel like



Coolidge had a stroke theoretically and is the one running the country. Impairment as capacity for business stuff.” – manufacturing SU

In response to the feedback we received in Round 1 of testing, we altered the question wording for Round 2.

## 7. DISABILITY

Does Owner 1 have a chronic physical or mental condition that they manage in daily life?

The Round 2 version of the question was better received. This measure was not interpreted as asking about ADA accommodations, or the ability to perform job tasks. However, there was still little consensus on what counts as a disability or condition. This may be another example where proxy reporters might have a poor understanding of who would identify as disabled if they are not familiar with disability, or may not know this about coworkers, as these data are not present in company records.

- “For me disability is that you cannot walk, do not have arms, but you can what you're doing. If your mental condition isn't good, you're not doing the survey. For me, it's like mobility things.” – biotech manufacturing SU
- “I would think it's any handicap where, anything you would need the sticker for your car. You have to be active in a restaurant. I wouldn't think it's asking about ADA or can't do their job.” – restaurant MU
- “I don't know have anything like this. HR did this have this, they would be willing to give out that information. Probably share the survey and have HR do it, not sure if they record it.” – food manufacturing MU
- “I'm surprised to see it on a Census [survey]. I don't know why I'm providing health information to the government. It's harder to answer when you're not the person. Disabled carries a lot more of a negative health connotation. Disability and condition don't mean the same things at all. Diabetic, I wouldn't look at that as a disability, for example.” – biotech manufacturing SU
- “Personal information would not have line of sight to...I feel like this is important, to be a voice for my brother right now. I think it's very very important, but the way is question is reading it comes off as a negative thing. I don't know how to word, more interested in what they are, rather than limitation.” – service MU
- “It doesn't smell like ADA.” – manufacturing SU
- “If you go into it, I manage pain in my hip on a daily basis, but it wasn't, by the question, I wasn't thinking that. Maybe some examples what you're looking for there [would help]. Daily pain, headaches. We all manage all kinds of things in daily life.” – owner
- “Unless they share that with me, I wouldn't know...It's a personal and confusing question. A proxy wouldn't know that.” – SU proxy
- “Chronic, to me, almost a permeant thing, not temporary. I have pretty serious lung cancer, which is a physical condition limits me, but it's hopefully not chronic. It's only

for two months and three or four would be passed that. Guess most people would read it that way...I like that mental is on there.” - Owner

The second version of the question performed more consistently in testing. However, it is still a sensitive question. It may be easier for owners than proxies to give accurate response. Further, we cannot offer a concrete definition of disability to respondents because of the lack of concrete definition in mainstream understandings of disability, and how marginalized and stigmatized the population is.

**Recommendations:** We strongly recommend the inclusion of an owner/proxy reporting question, like that of the one tested here. It is important to know the differences in answers, data quality, and characteristics of companies with proxy reporters. This has bearing on sensitive questions too. We suspect there will be differences in how owners and proxies report these questions. It is also possible some demographic questions are not appropriate to ask proxy reporters.

Sensitive questions would benefit from other types of testing outside of cognitive interviews. This is particularly true because participants did not have a problem with the measures themselves, but with the topics. Methods like focus groups, targeted in depth interviews, usability testing, and respondent debriefing interviews might better get at motivations and behavior. This would shape approaches to asking about these topics.

Similarly, we are concerned by the lack of participants identified as LGBTQ and disabled in testing sensitive questions. We propose identifying pools of participants, especially owners, from this population for additional testing. Community based methods, such as focus groups organized by LGBTQ Chambers of Commerce or snowball sampling, would better address if these questions are appropriate for counting these populations.

We recommend exploring other means of measuring sensitive demographic information (including age). Some questions might only be shown to owners, and not proxies. Some could be given as yes/no (such as “Do any owners identify as part of the LGBTQIA+ community?”) rather than a list of identities. Delegation functionality could be used to send sensitive questions directly to owners.

We recommend testing a 1-2 sentence explanation about why we are asking a question, what the information will be used for, and that it is confidential before each sensitive question. For SOGI questions, this is in line with White House recommendations.

For this round of the ABS, we recommend eliminating the sex question and including the gender identity question. The use of one question, rather than two, is in line with White House guidelines for business surveys. If the sex question is included, we do not recommend asking about the sex “assigned at birth,” “on a birth certificate,” or “biological sex,” given that a proxy reporter would not know this information. We recommend more testing, especially with LGBTQ participants, to include the sexual orientation question on the production survey.

Similarly, we recommend more testing with disabled participants for the disability question. However, version two is more in line with the intent of the question as it relates to business surveys. In the future, we suggest testing a list of applicable conditions as examples. This may be especially helpful for populations where there is a debate if they culturally consider themselves disabled, like the Deaf, diabetic, and autistic communities.

## **About the Data Collection Methodology and Research Branch (DCMRB)**

The Data Collection Methodology and Research Branch (DCMRB) in the Economic Statistical Methods Division (ESMD) assists economic survey program areas and other governmental agencies with research associated with the behavioral aspects of survey response and data collection. The mission of DCMRB is to improve data quality in surveys while reducing survey nonresponse and respondent burden. This mission is achieved by:

- Conducting expert reviews, cognitive pretesting, site visits and usability testing, along with post-collection evaluation methods, to assess the effectiveness and efficiency of the data collection instruments and associated materials;
- Conducting early-stage scoping interviews to assist with the development of survey content (concepts, specifications, question wording and instructions, etc.) by getting early feedback from respondents;
- Assisting program areas with the development and use of nonresponse reduction methods and contact strategies;
- And conducting empirical research to help better understand behavioral aspects of survey response, with the aim of identifying areas for further improvement as well as evaluating the effectiveness of qualitative research.

For more information on how DCMRB can assist your economic survey program area or agency, please visit the [DCMRB net site](#) or contact the branch chief, [Amy Anderson Riemer](#).

## Appendix A –Moderated Protocol (Round 1)

### 2024 ABS Content Testing Protocol Draft – 07/2023

#### General Research Questions:

- Do respondents understand what information they were asked to provide with this question?
- Do respondents understand the terminology used in the question?
- Are respondents able to answer the question that is being asked?
- Is the question layout clear and understandable?
- Is the requested information available in respondent’s records?
- Are the lists/categories organized effectively?
- Are the instructions helpful to respondents?

**Informed Consent:** Respondents will be asked to complete a consent form electronically before the time of the interview.

#### Materials Needed:

- Electronically signed consent form
- Copy of questionnaire

#### Introduction

- Introduce everyone on the call
- Thank respondent for completing the survey
- Brief overview of why survey exists and role of NSF and Census
  - The Annual Business Survey (ABS) is conducted jointly by the U.S. Census Bureau and the National Center for Science and Engineering Statistics within the National Science Foundation. ABS provides information on selected economic and demographic characteristics for businesses and business owners. Additionally, the survey measures research and development, innovation and technology, as well as other business characteristics
- Tell respondent why we asked to speak with them
  - Suggestions for improvement
  - Refine questions and make them easier to answer

#### Recording the interview

- As mentioned in the consent form that you signed, we would like to record this interview so that we have an accurate record of your feedback. We plan to use your feedback to improve the design and layout of the form for future data collections. Only staff involved in this data collection will have access to the recording. Would that be ok? If respondent says no, move on.

#### About the Respondent

- Can you tell us a little bit about your business -- what types of goods or services does this business provide?
- What is your role in the company? What kind of responsibilities do you have?

**General probes that may be used for any question or module throughout the interview:**

- In your own words, what is this question asking?
- Reflect back on respondent's answer: "you said..."
- How did you arrive at this number/answer this question?
- What records (if any) would you look at?
- Specifically, what would you include in this answer? What would you exclude?
- Would you consult other people to obtain this answer?
- How easy or difficult is it to answer this question?

**Additional Probes Specific to Modules and Questions**

**Sustainability Management Module**

*Throughout this module, remain neutral on climate change, but note if the R has strong opinions or objections to these questions.*

Intro:

- Please take a minute to read the introduction above the first question.
- What sort of questions are you expecting to see in this module?
- What does sustainability mean to you?
  - In relation to your company? Can you give me some examples?

Questions:

1. How would you define 'business priority' in the context of this question?
  - a. Do all of the items make sense, are there any you are unfamiliar with?
  - b. Would you put anything under other?
  - c. When thinking about how you would answer this question, were you thinking about the time frame from 2020 to 2022?
2. *Note how respondents react to item C, as it is similar to item A.*
  - a. How would you determine importance?
  - b. Do you have any thoughts about the answer categories/column headers?
  - c. Do all of the items make sense, are there any you are unfamiliar with?
  - d. Would you put anything under other?
3. What does 'realized' mean to you in the context of this question?
  - a. *If 'realized' is confusing:* is there another term or phrase that would make more sense here?
  - b. Do you think anything is missing with the response categories?
  - c. Do all of the items make sense, are any there any you are unfamiliar with?
  - d. Would you put anything under other?
4. *Note how respondents react to column headers and if there is any confusion. Note that item E is mainly relevant to manufacturing.*
  - a. *If R answers yes to any items:* Can you give me examples of what you track and how you track it?

- b. Do you have any outside or consulting companies track these for you?
- c. Do you have any thoughts about the answer categories/column headers?
- d. Do all of the items make sense, are there any you are unfamiliar with?
  - i. Is the possible double counting of 4a. and 4b. with 4d. (HVAC) confusing?
- 5. *If R answers yes:* Can you give me examples or the name of the software you use?
- 6. *If R answers yes:* Can you give some examples of what your company tracks?
  - a. *If R answers limited tracking and estimates:* Can you tell me more about that?
    - i. Can you give me examples of the types of tracking or evaluation your company is doing?
  - b. Do you find the text in parentheses and what is in italics helpful or unhelpful?
- 7. How do you define ‘value chains’?
  - a. What does this term mean to you in the context of this question?
  - b. Do all of the items make sense, are there any you are unfamiliar with?
  - c. Are there any other challenges that are missing from our list?
- 8. *If R answers yes:* can you tell me more about that? Can you give me any examples?
  - a. How do you define “develop a plan”?
- 9. *If R answers yes:* can you tell me more about that? Can you give me any examples?
- 10. Do all of the items make sense, are there any you are unfamiliar with?
  - a. Particularly, can you tell me what item D is asking in your own words?
  - b. Are there any other strategies that are missing from our list?
  - c. When answering this question, what time frame were you thinking about?
- 11. *Note if R has difficulty in choosing an answer category. Note if R asks if the target date pertains to only Scope 1 & 2 or to Scope 1, 2 & 3.*
  - a. Do these answer categories make sense to you, or are they confusing?
- 12. *Note if R mentions negative carbon emissions (highly unlikely). Note if R asks if the target goal pertains to only Scope 1 & 2 or to Scope 1, 2 & 3.*
  - a. Do these answer categories make sense to you, or are they confusing?
- 13. Do all of the items make sense, are there any you are unfamiliar with?
  - a. Are there any other effects that are missing from our list?
- 14. *If R answers yes to any items, ask for examples.*
  - a. Do all of the items make sense, are there any you are unfamiliar with?
    - i. In your own words, what is the difference between items E and F?
    - ii. We’re particularly interested in Item G, can you tell me what Item G means to you in your own words? *Note if R includes recycling.*
  - b. Are there any other activities that are missing from our list?
- 15. *Starting from question 15, the questions may be redundant, note if R mentions it.*
  - a. What do ‘strategic objectives’ mean to you in context of this question?
  - b. *If R answers yes:* Can you give me any examples?
- 16. General probes
- 17. *If R answers yes to any items, ask for examples.*
- 18. *If R answers yes:* can you give me any examples?
  - a. When answering this question, what time period were you thinking of?
- 19. Were the includes helpful or unhelpful?
  - a. *If R answers yes:* can you give me any examples?
  - b. When answering this question, what time period were you thinking of?
- 20. *If R answers yes:* can you give me any examples?
  - a. When answering this question, what time period were you thinking of?

21. *After general probes, and if it was not obvious:* When answering this question, what time period were you thinking of?

- Having gone through this entire section, about how long do you think it would take you to complete?
- Would you be able fill out this section, or would you need help from someone else in your company fill it out?

### **Technology Transfer Module:**

1. Are the includes helpful or unhelpful?
    - a. Do all of the items make sense, are there any you are unfamiliar with?
    - b. Are there other R&D activities that we are missing from this list?
  2. General probes
    - a. How easy or difficult would it be to provide this dollar amount?
  3. Does your company have any intellectual property? Can you give me any examples?
    - a. Do all of the items make sense, are there any you are unfamiliar with?
    - b. Are there other formal IP protections that we are missing from this list?
  4. Do all of the items make sense, are there any you are unfamiliar with?
    - a. Are there other informal IP protections that we are missing from this list?
  5. General probes
  6. General probes
  7. Do all of the items make sense, are there any you are unfamiliar with?
    - a. What does a ‘companies that are not affiliated’ mean to you?
    - b. Are there other mechanisms of transfer that we are missing from this list?
  8. Do all of the items make sense, are there any you are unfamiliar with?
    - a. Are there other collaborative activities or agreements that we are missing from this list?
  9. Do all of the items make sense, are there any you are unfamiliar with?
    - a. Are there other collaborative activities or agreements that we are missing from this list?
    - b. Is it always clear if the organizations you work with are federal government laboratories?
  10. Note that this question has the same title, and this may confuse R (this will be changed).
    - a. If you work with federal government laboratories, is it obvious which parent agency the lab operates under? How would you go about answering this question if it was not obvious?
  11. *If R answers yes to any item, ask for examples. Note if R includes charitable donations in any item.*
    - a. Do all of the items make sense, are there any you are unfamiliar with?
    - b. Are there other collaborative activities or agreements that we are missing from this list?
    - c. Is it always clear if the organizations you work nonprofits?
- Having gone through this entire section, about how long do you think it would take you to complete?
  - Would you fill out this section, or would someone else in your company fill it out?



## Labor Related Questions

*These questions will also be tested online via Qualtrics.*

### 1: General Probes

- How would you determine your answer to this question?
- Are supervisory and non-supervisory workers distinct categories to you?

### 2: General Probes

### 3: General Probes

- What does ‘certified’ mean to you in the context of this question?

## Reshoring Questions

*These questions will also be tested online via Qualtrics.*

### 1: General Probes

- In your own words, what would you say this question is asking?
- How did you come up with your answer to this question? Would you need refer to records or reach out to anyone else in your business to answer this question? If yes, Who/what?
- How helpful or unhelpful was the clarification after the question – very helpful, somewhat helpful, neither helpful nor unhelpful, somewhat unhelpful or very unhelpful?
  - Very helpful
  - Somewhat helpful
  - Neither helpful nor unhelpful
  - Somewhat unhelpful (Do you have any suggestions for improving this clarification?)
  - Very unhelpful (Do you have any suggestions for improving this clarification?)
- Are there other terms you would use to describe this activity (other than ‘onshoring’ or ‘reshoring’)?
- If you switched from a foreign supplier to a domestic supplier, would you include that here?
- How did you determine which parts of your business to answer for? Was there anything tricky about answering for “this business”?
  
- What time period were you thinking about? Was there anything tricky about answering for “During 2022”?
- How easy or difficult was it to answer this question – very easy, somewhat easy, neither easy nor difficult, somewhat difficult or very difficult?
  - Very easy
  - Somewhat easy
  - Neither easy nor difficult
  - Somewhat difficult (Can you tell me more about that?)
  - Very difficult (Can you tell me more about that?)
- Do you have any suggestions on how to improve this question?

### 2: General Probes

- In your own words, what would you say this question is asking?

- How did you come up with your answer to this question? Would you need refer to records or reach out to anyone else in your business to answer this question? If yes, Who/what?
- What do each of the answer choices mean to you?
- **If R selects an answer choice:** You selected “xx” -- can you give me any examples of what you were thinking about?
- Do the answer choices make sense to you?
  - Yes
  - No (Which did not?)
  - Don't know
- Are there any answer choices potentially missing from this list?
- How easy or difficult was it to answer this question – very easy, somewhat easy, neither easy nor difficult, somewhat difficult or very difficult?
  - Very easy
  - Somewhat easy
  - Neither easy nor difficult
  - Somewhat difficult (Can you tell me more about that?)
  - Very difficult (Can you tell me more about that?)
- Do you have any suggestions on how to improve this question?

### 3: General Probes

- In your own words, what would you say this question is asking?
- How did you come up with your answer to this question? Would you need refer to records or reach out to anyone else in your business to answer this question? If yes, Who/what?
- What time period were you answering for? Was there anything tricky about answering for “During 2023”? [Probe about how confident they are about the remaining part of 2023.] Would your answer have been the same or different if they question asked “In the next 12 months...”? Do you have a preference for “During 2023” v. “In the next 12 months”?
- How confident were you in answering this question for 2023?
  - Very confident
  - Somewhat confident
  - Not very confident
  - Not at all confident
- If your company was planning to move production to the United States, how far in advance do you think you would be aware of this?
- How easy or difficult was it to answer this question – very easy, somewhat easy, neither easy nor difficult, somewhat difficult or very difficult?
  - Very easy
  - Somewhat easy
  - Neither easy nor difficult
  - Somewhat difficult (Can you tell me more about that?)
  - Very difficult (Can you tell me more about that?)
- Do you have any suggestions on how to improve this question?

### 4: General Probes

- In your own words, what would you say this question is asking?

- How did you come up with your answer to this question? Would you need refer to records or reach out to anyone else in your business to answer this question? If yes, Who/what?
- **If R selects an answer choice:** You selected “xx” -- can you give me any examples of what you were thinking about?
- How easy or difficult was it to answer this question – very easy, somewhat easy, neither easy nor difficult, somewhat difficult or very difficult?
  - Very easy
  - Somewhat easy
  - Neither easy nor difficult
  - Somewhat difficult (Can you tell me more about that?)
  - Very difficult (Can you tell me more about that?)
- Do you have any suggestions on how to improve this question?

Now that we have looked at these draft questions, what is your overall impression of these questions?

How comfortable were you in answering these questions for your company – very comfortable, somewhat comfortable, not very comfortable or not at all comfortable?

- Very comfortable
- Somewhat comfortable
- Not very comfortable (Can you say more about this?)
- Not at all comfortable (Can you say more about this?)

How confident are you in your answers to these questions – very confident, somewhat confident, not very confident or not at all confident?

- Very confident
- Somewhat confident
- Not very confident (Can you say more about this?)
- Not at all confident (Can you say more about this?)

If you had been answering these questions without being on the phone with me, would you likely have consulted records or others within your company?

- Yes, records (What records would you consult?)
- Yes, others within company (Who would you consult with?)
- No

About how long do you think it would have taken you to complete this survey (if we hadn't been on the phone)?

\_\_\_\_\_ minutes

Thinking back through all the questions you answered for your overall company, do you feel you were the best person to answer these questions or would someone else at the company have been a better fit?

- Yes, I was the best person

- No, someone else would have been a better fit (What is that person’s job title?)

Overall, how easy or difficult was it to answer these questions– very easy, somewhat easy, neither easy nor difficult, somewhat difficult or very difficult?

- Very easy
- Somewhat easy
- Neither easy nor difficult
- Somewhat difficult (Can you say more about what was difficult?)
- Very difficult (Can you say more about what was difficult?)

## **Research and Development Questions**

### D1. General Probes

### D5. General Probes

- Are you able to break down the R&D costs for each of the different types of costs this question asks about?

### D7. General Probes

- Are you able to break down the funding sources for R&D activities?
- In your own words, how would you define venture capital?
- Has your business used venture capital as a funding source for R&D activities? If yes, could you please tell us more about that?
- In your own words, what is angel financing?
- Has your business used angel financing as a funding source for R&D activities? If yes, could you please tell us more about that?

### D8. General Probes

## **Entrepreneurship Questions**

### 1. General Probes

### 2. General Probes

- a. What do you think this question is asking?
- b. In your own words, what do you think is meant by “originally founded” in the context of this question?
- c. If the word “originally” was removed from the wording of this question, would it change your interpretation or understanding of the question?
- d. How do you interpret “new or customized product or service” in the context of this question?

### 3. General Probes

## **Owner Characteristics: Sexual Orientation and Gender Identity Questions**

*These questions will also be tested online via Qualtrics.*

*Throughout this module, remain neutral, but note if the R has strong opinions or objections to any these questions.*

Note whether respondent is an owner of this business, an owner/proxy respondent, or a proxy respondent.

#### B.1.9. Prior Business Ownership:

- General Probes
- In your own words, what is this question asking? (Interviewer note: Does the respondent notice the instruction for ‘Not including this business’ when responding to this question?)

#### B.1.12. Age

- General Probes

#### B.1.1 Sex

- General Probes
- In your own words, what is this question asking?
- How do you define Sex in the context of this question?
- Do you think there are any answer categories missing from this question? If yes, please describe.
- Does your company have records on the Sex of the owner(s)? If yes, what are the categories in your records or systems for Sex of the owner(s)? And would you need to consult the records in order to be able to answer this question?
- How comfortable are you in answering this question for the owner(s) of this business?
- Do you have any other thoughts on this question that we have not already discussed?

#### Gender Identity

- General Probes
- In your own words, what is this question asking?
- How would you go about answering this question if it appeared on a future Annual Business Survey?
- How do you define Gender in the context of this question?
- In your own words, what is the difference between Sex and Gender Identity?
- Are you familiar with the answer categories in this question? If not, would definitions be helpful?
- Do you think there are any answer categories missing from this question? If yes, please describe.
- What, if any, are your thoughts on the order in which the categories are arranged in this question?
- Does your company have records on the Gender of the owner(s)? If yes, what are the categories in your records or systems for Gender of the owner(s)? And would you need to consult the records in order to be able to answer this question?
- How comfortable are you in answering this question for the owner(s) of this business?
- Do you have any thoughts on a two question approach to asking about Sex and Gender Identity?
- Do you have any other thoughts on this question that we have not already discussed?

## Sexual Orientation

- General Probes
- In your own words, what is this question asking?
- How would you go about answering this question if it appeared on a future Annual Business Survey?
- How do you define Sexual Orientation?
- Are you familiar with the answer categories in this question? If not, would definitions be helpful?
- Do you think there are any answer categories missing from this question? If yes, please describe.
- What, if any, are your thoughts on the order in which the categories are arranged in this question?
- Does your company have records on the Sexual Orientation of the owner(s)? If yes, what are the categories in your records or systems for the Sexual Orientation of the owner(s)? And would you need to consult the records in order to be able to answer this question?
- How comfortable are you in answering this question for the owner(s) of this business?
- Do you have any other thoughts on this question that we have not already discussed?

### B.1.14 U.S. Citizenship

- General probes

### B.1.15 Owner Disability

- General probes
- In your own words, what is this question asking?
- What do you consider to be a physical impairment? Would it be helpful to list examples of physical impairments with this question?
- How would you define a mental impairment? Would it be helpful to list examples of mental impairments with this question?
- In your own words, how do you interpret “substantially limits” in the context of this question?
- What does “major life activities” mean to you in the context of this question?
- Does your company have records on the Disability status of the owner(s)? If yes, would you need to consult the records in order to be able to answer this question?
- How comfortable are you in answering this question for the owner(s) of this business?
- Do you have any other thoughts on this question that we have not already discussed?

### B.1.5 Military Service Disability

- General probes

### B.1.16 Reasons for Owning the Business

- General probes
- How would you go about answering this question for the owner(s) of the business?
- Are there any reasons not listed here that might be an important reason for owning the business?
- Do you have any other thoughts on this question that we have not already discussed?

## Wrap up

- Overall, which questions did you feel like were the most time consuming or difficult to complete?
- Do you have any other comments or additional feedback?

**Thank you for your time!**

# Appendix B – Moderated Instrument (Round 1)

Draft of Sustainability Management Module (07/2023)  
 2024 Annual Business Survey

Sustainability management addresses how the operation of your business is affected by demands from consumers, other businesses, and the government to meet the needs of present and future generations and the environment. These questions collect information on what your business is doing in response to or in anticipation of these demands. All responses are anonymized and will only be used for statistical purposes.

## BUSINESS PRIORITY

Over the past 3 years, from 2020 through 2022, have any of the following been this business’s priority?  
*Select one for each row.*

	Yes	No
a. Improving profitability	<input type="checkbox"/>	<input type="checkbox"/>
b. Increasing revenue	<input type="checkbox"/>	<input type="checkbox"/>
c. Accelerating digital transformation activities/improving cybersecurity	<input type="checkbox"/>	<input type="checkbox"/>
d. Implementing or maturing sustainability initiatives	<input type="checkbox"/>	<input type="checkbox"/>
e. Improving the customer experience	<input type="checkbox"/>	<input type="checkbox"/>
f. Improving resilience to competitive pressures	<input type="checkbox"/>	<input type="checkbox"/>
g. Other (Specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

If you reported ‘Yes’ for item d. ‘**Implementing or maturing sustainability initiatives**’, continue to ‘**2. Sustainability Prioritization**’.

All others skip to ‘**4. Energy or Carbon Emissions Tracking**’.

## 2. SUSTAINABILITY PRIORITIZATION

How important to this business were each of the following factors for prioritizing sustainability?



	Very Important	Somewhat Important	Not Important
a. Attracting customers who make purchasing decisions based on sustainable products or sustainable business values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Integrating sustainable value proposition into the company's brand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Addressing stakeholder demand for climate risk disclosures and better sustainability management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Employee recruitment/retention tied to sustainable business values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Green procurement requiring life-cycle assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Some other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

\_\_\_\_\_

### 3. SUSTAINABILITY OBJECTIVES

Has this business realized any of the following benefits from pursuing its sustainability goals? **Select one for each row.**

	Yes	No
j. Improved efficiency	<input type="checkbox"/>	<input type="checkbox"/>
k. Improved regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>
l. Improved employee recruitment and/or retention	<input type="checkbox"/>	<input type="checkbox"/>
m. Reduced waste	<input type="checkbox"/>	<input type="checkbox"/>
n. Improved brand reputation	<input type="checkbox"/>	<input type="checkbox"/>
o. Decreased costs	<input type="checkbox"/>	<input type="checkbox"/>
p. Improved customer acquisition and/or loyalty	<input type="checkbox"/>	<input type="checkbox"/>
q. Increased revenue	<input type="checkbox"/>	<input type="checkbox"/>
r. Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>

\_\_\_\_\_

### 4. ENERGY OR CARBON EMISSIONS TRACKING

Does this business track energy use or carbon emissions from the following sources?

	No, does not track either	Yes, tracks Energy Expenditures	Yes, tracks Carbon Emissions	Source is not applicable to this business or is inaccessible
f. Heating of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Cooling of buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Fleet transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Electricity (used for lighting, computing, HVAC, production, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Thermal energy in production (for example, from natural gas, petroleum, coal, biomass, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 5. CARBON EMISSIONS SOFTWARE USE

Does this business use any carbon emissions reporting software?

- Yes
- No
- Don't Know

## 6. INDIRECT CARBON EMISSIONS TRACKING

Does this business track indirect carbon emissions that are a consequence of the activities of the business but from assets not owned or controlled by the business? *For example, emissions from employee commuting, transportation and distribution, use of sold products, etc. Also known as 'value chain' or 'Scope 3.'*

- No, does not track - **Skip to '8. Carbon Emissions Reduction Plan'**
- Not yet, but some evaluation of major carbon hotspots
- Yes, major carbon hotspots tracked

## 7. INDIRECT CARBON EMISSIONS POTENTIAL CHALLENGES

Does this business expect to face any of the following challenges to measuring indirect carbon emission in its value chain (Scope 3)? **Select one for each row.**

	Yes	No
a. The company is not aligned internally on what to track and how.	<input type="checkbox"/>	<input type="checkbox"/>
b. The company lacks data from suppliers or end users.	<input type="checkbox"/>	<input type="checkbox"/>
c. The company lacks in-house expertise.	<input type="checkbox"/>	<input type="checkbox"/>
d. The company lacks financial resources.	<input type="checkbox"/>	<input type="checkbox"/>

## 8. CARBON EMISSIONS REDUCTION PLAN

Has this business developed plans for reducing carbon emissions?

- Yes - **Skip to '10. Carbon Emissions Strategies'**
- No

## 9. FUTURE PLANS FOR CARBON EMISSIONS

Is this business considering developing plans in the future for reducing carbon emissions?

- Yes
- No - **Skip to '13. Sustainability Alternatives'**

## 10. CARBON EMISSIONS STRATEGIES

Will this business implement any of the following strategies to reduce carbon emissions? *Select one for each row.*

	Yes	No
a. Eliminating products or activities reliant on fossil fuel use by changing the company's product or service mix	<input type="checkbox"/>	<input type="checkbox"/>
b. Replacing fossil fuel using activities with zero or low emissions alternatives (for example, adding electric vehicles to the company's fleet)	<input type="checkbox"/>	<input type="checkbox"/>
c. Reducing carbon emissions by increasing the efficiency of activities using fossil fuels	<input type="checkbox"/>	<input type="checkbox"/>
d. Offsetting carbon emissions that cannot be abated by supporting projects that reduce carbon emissions elsewhere (e.g., providing funds for reforestation or capping abandoned oil wells)	<input type="checkbox"/>	<input type="checkbox"/>

## 11. CARBON EMISSIONS REDUCTION GOAL DATE

What is the target date for achieving this business's carbon emissions reduction goals?

- No target date set
- No later than 2030
- No later than 2040
- No later than 2050
- After 2050

## 12. CARBON EMISSIONS REDUCTION GOAL OBJECTIVE

How much of a reduction carbon emissions is this business planning?

- No reduction goal set
- Less than 25% reduction
- 25-50% reduction
- More than 50%, but less than 100% reduction
- 100% reduction

## 13. SUSTAINABILITY ALTERNATIVES

If this business is not successful at improving sustainability, does the business foresee any of the following effects? **Select one for each row.**

	Yes	No
a. Fines for lack of compliance with regulations	<input type="checkbox"/>	<input type="checkbox"/>
b. Inability to raise capital or secure credit	<input type="checkbox"/>	<input type="checkbox"/>
c. A loss of customer trust	<input type="checkbox"/>	<input type="checkbox"/>
d. A loss of brand reputation	<input type="checkbox"/>	<input type="checkbox"/>
e. Hiring difficulties or lower employee retention	<input type="checkbox"/>	<input type="checkbox"/>
f. Financial risks associated with future policy changes such as a carbon tax	<input type="checkbox"/>	<input type="checkbox"/>
g. Lost sales due to inability to provide emissions or other environmental information to potential customers	<input type="checkbox"/>	<input type="checkbox"/>

#### 14. SUSTAINABILITY INVESTMENTS

Is this business making any of the following investments to improve sustainability? **Select one for each row.**

	Yes	No	Not applicable
a. Purchase power agreements for renewable energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Renewable energy generation on-site (e.g., solar, wind, geothermal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Battery storage or other means of saving renewable energy generation for later use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Improved energy efficiency and management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Engineering innovation to improve sustainability of our materials (e.g., innovating to produce goods with lower CO2 content)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Redesigning processes to make similar products with less environmental impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Elimination of waste through circular economy or design for re-use strategies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Recycling initiatives going beyond municipal mandates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 15. STRATEGIC OBJECTIVES AND THE ENVIRONMENT

Does this business have strategic objectives that mention environmental or climate change issues?

- Yes
- No

- Don't Know

## 16. ENVIRONMENTAL MANAGER

Does this business have a manager responsible for environmental and climate change issues?

- Yes  
 No  
 Don't Know

## 17. ENVIRONMENTAL CERTIFICATIONS

Do any of this business's customers require environmental certifications or adherence to certain environmental standards as a condition to do business with them?

- Yes  
 No  
 Don't Know

## 18. CO2 EMISSIONS MONITORING

Over the last 3 years, from 2020 through 2022, has this business monitored CO2 emissions along its supply chain?

- Yes  
 No  
 Don't Know

## 19. EXTREME WEATHER EVENTS AND IMPACT

Over the last 3 years, from 2020 through 2022, has this business experienced monetary losses due to extreme weather events? *For example, hurricanes, floods, droughts, or heat waves.*

*Include:*

- *Incurred costs*
- *Losses of sales or assets.*

- Yes  
 No  
 Don't Know

## 20. INVESTMENTS TO MITIGATE RISK

Over the last 3 years, from 2020 through 2022, has this business undertaken investments to reduce the risk of damages caused by extreme weather events? *For example, hurricanes, floods, droughts, wildfires, or heat waves.*

- Yes  
 No  
 Don't Know

## 21. FUTURE IMPACTS DUE TO EXTREME WEATHER

Over the next decade, how likely is this business to experience negative impacts from extreme weather events?

*For example, hurricanes, floods, droughts, wildfires, or heat waves.*

- Not at all likely
- A little likely
- Somewhat likely
- Very likely
- Extremely likely

## **Technology Transfer**

### **Formal Intellectual Property Protection**

**Does this business use the following methods to protect intellectual property?**

- |   | Yes | No |
|---|-----|----|
| a. Utility patents (patents for inventions, applied for or awarded) |     |    |
| b. Design patents (patents for appearance, applied for or awarded)  |     |    |
| c. Copyright  |     |    |
| d. Trademarks   |     |    |

### **Informal Intellectual Property Protection**

**Does this business use the following less formal means of protecting intellectual property?**

- |  | Yes | No |
|--|-----|----|
| a. Design complexity                               |     |    |
| b. Nondisclosure agreements or non-compete clauses |     |    |
| c. Branding and product image                      |     |    |
| d. Trade secrets                                   |     |    |

### **Patents Pending**

**How many U.S. patent applications, if any, did this business have pending as of the end of 2022? If none, report zero.**

\_\_\_\_\_

### **Patents Owned**

**How many U.S. patents did this business own as of the end of 2022? If none, enter zero.**

\_\_\_\_\_

## Intellectual Property Activities

**During the three years 2020 to 2022, did your company exchange intellectual property (IP) rights, including patents, copyrights, and trademarks that give ownership, exclusion rights or rights to use technical knowledge using any of the following mechanisms. Select one for each row.**

- |   | Yes | No |
|---|-----|----|
| a. Licensed or purchased IP from companies that are not affiliated  |     |    |
| b. Licensed or sold intellectual property (IP) to companies that are not affiliated   |     |    |
| c. Transferred intellectual property (IP) to companies that are not affiliated through participation in technical assistance or "know how" agreements |     |    |
| d. Received IP from companies that are not affiliated through participation in technical assistance or "know how" agreements                          |     |    |
| e. Participated in cross-licensing agreements with companies that are not affiliated  |     |    |
| f. Acquired or merged with companies that are not affiliated to acquire their IP  |     |    |
| g. Transferred IP to a spin-off or spin-out of your company   |     |    |
| h. Received IP from a parent company as part of a spin-off or spin-out  |     |    |
| i. Allowed free use of patents or other IP owned by this company (for example, allowing free use of software patents by the open-source community)    |     |    |
| j. Made use of open-source patents or other freely available IP not owned by this company   |     |    |

## Collaboration with Universities

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with universities? Select one for each row.**

- |  | Yes | No |
|--|-----|----|
| a. Performed collaborative research between company and university researchers   |     |    |
| b. Funded university research  |     |    |
| c. Funded PhD students and postdoctoral researchers at universities  |     |    |
| d. Licensed or purchased IP from a university  |     |    |
| e. Signed non-disclosure agreements, material transfer agreements, or other agreements with universities governing usage of IP |     |    |
| f. Hired science and engineering graduates   |     |    |
| g. Engaged in formal or informal personnel exchanges with universities   |     |    |

### **Collaboration with Government Laboratories**

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with federal laboratories including Federally Funded Research and Development Centers? Select one for each row.**

- |  | Yes | No |
|--|-----|----|
| a. Conducted collaborative research using agreements such as Cooperative Research and Development Agreements, Space Act Agreements, Material Transfer Agreements, Confidential Disclosure Agreements, or other transaction authorities |     |    |
| b. Conducted research at government user facilities  |     |    |
| c. Funded research at government laboratory  |     |    |
| d. Licensed IP from government laboratory  |     |    |
| e. Engaged in formal or informal personnel exchanges with government laboratories  |     |    |
| f. Attended workshops or seminars located at or sponsored by government laboratories   |     |    |

### **Collaboration with Government Laboratories**

**During the three years 2020 to 2022, did this business engage collaborative activities with federal laboratories in the following departments? Select one for each row.**

11. Department of Agriculture
12. Department of Commerce
13. Department of Defense
14. Department of Energy
15. Department of Health and Human Services
16. Department of Homeland Security
17. Department of Transportation
18. Department of Veteran Affairs
19. National Aeronautics and Space Administration
20. Other federal department

### **Collaboration with Nonprofits**

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with nonprofit organizations? Select one for each row.**

- |   | Yes | No |
|---|-----|----|
| a. Performed collaborative research between company and nonprofit researchers |     |    |



- b. Funded research at nonprofit organizations
- c. Licensed or purchased IP from a nonprofit organization
- d. Signed non-disclosure agreements, material transfer agreements, or other agreements with nonprofit organizations governing usage of IP
- e. Engaged in formal or informal personnel exchanges with nonprofit research organizations

### **Labor**

1. As far as you know, what percentage of non-supervisory employees at your business are covered by a collective bargaining with a labor union? *(Select one.)*
  - No collective bargaining agreements present at your business
  - Collective bargaining agreement present, covers less than 25% of non-supervisory employees at your business
  - Collective bargaining agreement present, covers between 25% to 49% of non-supervisory employees at your business
  - Collective bargaining agreement present, covers between 50% to 74% of non-supervisory employees at your business
  - Collective bargaining agreement present, covers 75% or more of non-supervisory employees at your business

### Recent union organizing

2. As far as you know, did any non-supervisory employees at your business attempt to organize a union over the past three years?
  - Yes
  - No

### Recent union certification (if recent union organizing drive)

3. Was the union sought by your non-supervisory employees certified?
  - Yes
  - No

### **Reshoring**

#### **MOVING OPERATIONS TO U.S. IN 2022**

1. During 2022, did this business move any of its operations from another country to the United States?
  - Yes
  - No (skip to 3)
  - Not applicable, this business does not have operations outside of the United States (skip to end)

- Do not know (skip to 3)

### **REASONS FOR MOVING OPERATIONS TO U.S. IN 2022**

2. For what reasons did this business move any of its operations from another country to the United States in 2022? *Select all that apply.*
  - Costs (for transportation, labor, materials, etc.)
  - Quality concerns
  - Supply chain issues
  - Global current events
  - Government incentives
  - Access to American workforce
  - More control over operations
  - Other (describe) -- \_\_\_\_\_
  - Do not know

### **MOVING OPERATIONS TO U.S. IN 2023**

3. During 2023, does this business plan to move any of its operations from another country to the United States?
  - Yes
  - No (skip to end)
  - Do not know (skip to end)

### **REASONS FOR MOVING OPERATIONS TO U.S. IN 2023**

4. For what reasons does this business plan to move any of its operations from another country to the United States in 2023? *Select all that apply.*
  - Costs (for transportation, labor, materials, etc.)
  - Quality concerns
  - Supply chain issues
  - Global current events
  - Government incentives
  - Access to American workforce
  - More control over operations
  - Other (describe) -- \_\_\_\_\_
  - Do not know

### **Research and Development**

[Note: Skip Questions 1 and 2 for businesses with W-2 employment between 1 and 9.]

### **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.

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

**R&D activity in software INCLUDES:**

- Software development or improvement activities that expand scientific or technological knowledge
- 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

**Reporting unit**

The reporting unit is this business, including all subsidiaries and divisions. Include subsidiary companies where there is more than 50 percent ownership.

**Reporting period**

Report data for the calendar year 2022, if possible, or for this business's fiscal year ending between April 2022 and March 2023.

**Estimates are acceptable.**

Report all items to the best of your ability.

**D.1 R&D Activities**

During 2021, 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

**Select one for each row.**

	Yes	No
a. Conducted activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses.....	<input type="checkbox"/>	<input type="checkbox"/>
b. Conducted activities aimed at acquiring new knowledge for solving a specific problem or meeting a specific commercial objective .....	<input type="checkbox"/>	<input type="checkbox"/>
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 .....	<input type="checkbox"/>	<input type="checkbox"/>
d. Developed and tested goods, services, or processes that were derived from scientific research or technical findings .....	<input type="checkbox"/>	<input type="checkbox"/>
e. Developed software that advanced scientific or technological knowledge .....	<input type="checkbox"/>	<input type="checkbox"/>
f. Produced findings that could be published in academic journals or presented at scientific conferences .....	<input type="checkbox"/>	<input type="checkbox"/>
g. Applied scientific or technical knowledge in a way that has never been done before. . . .	<input type="checkbox"/>	<input type="checkbox"/>
h. Created new scientific or technical solutions that can be generalized to other situations..	<input type="checkbox"/>	<input type="checkbox"/>
i. Conducted work to discover previously unknown technological facts, structures, or relationships. ....	<input type="checkbox"/>	<input type="checkbox"/>
j. Conducted work to extend the understanding of scientific facts, relationships, or principles in ways that could be useful to others. ....	<input type="checkbox"/>	<input type="checkbox"/>

If "No" is selected for a. – j., **skip to 'D.17 Federal Tax Credit for Research Activities'** on page 35.

**D.5 Types of R&D Costs**

During 2021, how much of the 'D.4 Domestic R&D Costs' in domestic R&D costs was for each of the following types of costs? *Round to the nearest thousand dollars.*

	\$Mil.	Thou.	Dol.
a. Salaries, wages, and fringe benefits .....	<input type="text"/>	<input type="text"/>	0 0 0
b. Expensed machinery and equipment (not capitalized).....	<input type="text"/>	<input type="text"/>	0 0 0
c. Materials and supplies .....	<input type="text"/>	<input type="text"/>	0 0 0
d. Payments to others for R&D, including purchased R&D services .....	<input type="text"/>	<input type="text"/>	0 0 0
e. Depreciation on R&D property and equipment .....	<input type="text"/>	<input type="text"/>	0 0 0
f. All other costs (e.g., consultants, contractors, travel, rent).....	<input type="text"/>	<input type="text"/>	0 0 0
<b>Total = 'D.4 Domestic R&amp;D Costs' .....</b>	<input type="text"/>	<input type="text"/>	0 0 0

C

**D.7 Funding Sources for R&D Activities**

During 2021, of the 'D.6 Domestic R&D Performance Costs' in total domestic R&D performance cost, how much was paid for by the following sources? *Round to the nearest thousand dollars.*

	\$Mil.	Thou.	Dol.
a. This U.S. business . . . . .	000	000	000
b. Your foreign owner (if this business is foreign-owned) . . . . .	000	000	000
c. Venture capital and angel financing . . . . .	000	000	000
d. Other businesses located within the United States . . . . .	000	000	000
e. Other businesses located outside the United States . . . . .	000	000	000
f. Universities or colleges located within the United States. . . . .	000	000	000
g. Nonprofit organizations located within the United States. . . . .	000	000	000
h. U.S. federal government (including R&D grants) . . . . .	000	000	000

Which agency provided the largest share? *Select one from the list below.*

- Department of Defense
- National Science Foundation
- Department of Health and Human Services, including the National Institutes of Health
- Department of Energy
- NASA
- Other agencies

i. U.S., state, or local government (not including state universities) . . . . .	000	000	000
j. All other organizations outside the United States. . . . .	000	000	000
<b>Total = 'D.6 Domestic R&amp;D Performance Costs'</b> . . . . .	000	000	000

**D.8 R&D Categories**

During 2021, of the 'D.6 Domestic R&D Performance Costs' in domestic R&D performance cost, how much was for the following types of R&D? *Round to the nearest thousand dollars.*

	\$Mil.	Thou.	Dol.
a. <b>Basic research</b> – activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses . . . . .	000	000	000
b. <b>Applied research</b> – activities aimed at solving a specific problem or meeting a specific commercial objective. . . . .	000	000	000
c. <b>Development</b> – 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 . . . . .	000	000	000
<b>Total = 'D.6 Domestic R&amp;D Performance Costs'</b> . . . . .	000	000	000

## Entrepreneurship

1. Do you have a good understanding of the decisions that led to the founding of this business?  
Yes  
  
No – (End)
  
2. If yes, was the business originally founded around a new or customized product or service that was created by one of the founders of the business?  
Yes  
  
No (End)  
  
Don't Know (End)
  
3. If yes, thinking about this new or customized product or service, why was it originally developed?
  - a. One of the founders created it for personal use
  - b. One of the founders created it for use at a previous job or business
  - c. One of the founders identified a business opportunity

## Demographics

### B.1.9 Prior Business Ownership

Not including this business, what is the status of the previous business *Owner 1* started most recently?

- This is the owner's first business
- Business is still operating, and *Owner 1* still owns it
- Business is no longer in operation
- Business was purchased by another company
- Business was purchased by another individual
- Other (specify) ↴

### B.1.12 Age

What was the age of *Owner 1* as of December 31, 2021?

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| <input type="checkbox"/> Under 25 | <input type="checkbox"/> 45 - 54    |
| <input type="checkbox"/> 25 - 34  | <input type="checkbox"/> 55 - 64    |
| <input type="checkbox"/> 35 - 44  | <input type="checkbox"/> 65 or over |

### B.1.1 Sex

What is the sex of *Owner 1*?

- Male       Female

### OWNER GENDER IDENTITY

What is Owner X's gender? *Select all that apply.*

- Woman
- Man
- Transgender
- Nonbinary
- They use a different term: (specify) \_\_\_\_\_
- Don't Know

### OWNER SEXUAL ORIENTATION

Which of the following does Owner X consider themselves to be? *Select all that apply.*

- Straight or heterosexual
- Gay
- Lesbian
- Bisexual
- They use a different term: (specify) \_\_\_\_\_
- Don't Know



### **B.1.14 U.S. Citizenship**

Is *Owner 1* a citizen of the United States?

Yes       No

### **B.1.15 Owner Disability**

Does *Owner 1* have a physical or mental impairment that substantially limits one or more of his/her major life activities? For this survey, major life activities can include both those in everyday and professional life.

Yes       No       Don't know

### **B.1.5 Military Service Disability**

Is *Owner 1* disabled as the result of illness or injury incurred or aggravated during military service?

Yes       No

### B.1.16 Reasons for Owning the Business

How important to *Owner 1* is each of the following reasons for owning this business?

**Select one for each row.**

	Very Important	Somewhat Important	Not Important
Wanted to be my own boss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flexible hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balance work and family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opportunity for greater income	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Best avenue for my ideas / goods / services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unable to find employment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working for someone else didn't appeal to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Always wanted to start my own business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An entrepreneurial friend or family member was a role model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wanted to carry on the family business	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wanted to help and/or become more involved in my community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify) ↴	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix C –Unmoderated Instruments

### Labor and Reshoring

Hello. Thank you for your time today. We are looking to obtain feedback on some potential new questions for a Census Bureau survey.

We plan to use your feedback to improve the survey questions and make sure they make sense to respondents like you.

We are not testing you– we only want to evaluate the questions.

Today, we will have you answer these questions, then you will be asked some questions to get your feedback.

As far as you know, what percentage of non-supervisory employees at your business are covered by a collective bargaining with a labor union? (*Select one.*)

- No collective bargaining agreements present at your business
- Collective bargaining agreement present, covers less than 25% of non-supervisory employees at your business
- Collective bargaining agreement present, covers between 25% to 49% of non-supervisory employees at your business
- Collective bargaining agreement present, covers between 50% to 74% of non-supervisory employees at your business
- Collective bargaining agreement present, covers 75% or more of non-supervisory employees at your business

On a scale of 1 to 5 with 1 being very easy and 5 being very difficult, how easy or difficult was it to answer the question above?

- 1 very easy
- 2 somewhat easy
- 3 neither easy nor difficult
- 4 somewhat difficult
- 5 very difficult

How did you come up with your response to the question?

Would you have to consult any records or person to answer the question? If yes, describe who or what you would consult?

Yes, describe [textbox]

No

### Recent union organizing

As far as you know, did any non-supervisory employees at your business attempt to organize a union over the past three years?

- Yes
- No

On a scale of 1 to 5 with 1 being very easy and 5 being very difficult, how easy or difficult was it to answer the question above?

- 1 very easy
- 2 somewhat easy
- 3 neither easy nor difficult
- 4 somewhat difficult
- 5 very difficult

How did you come up with your response to the question?

Would you have to consult any records or person to answer the question? If yes, describe who or what you would consult?

Yes, describe [textbox]

No

Recent union certification (if recent union organizing drive)

Was the union sought by your non-supervisory employees certified?

- Yes
- No

On a scale of 1 to 5 with 1 being very easy and 5 being very difficult, how easy or difficult was it to answer the question above?

- 1 very easy
- 2 somewhat easy
- 3 neither easy nor difficult
- 4 somewhat difficult
- 5 very difficult

How did you come up with your response to the question?

Would you have to consult any records or person to answer the question? If yes, describe who or what you would consult?

Yes, describe [textbox]

No

**MOVING OPERATIONS TO U.S. IN 2022**

5. During 2022, did this business move any of its operations from another country to the United States?

- Yes
- No (skip to 3)
- Not applicable, this business does not have operations outside of the United States (skip to end)
- Do not know (skip to 3)

What activities would you count as onshoring or reshoring?

If you switched from a foreign supplier to a domestic supplier, would you include that here?

Yes (can you say more?) [textbox]

No

### **REASONS FOR MOVING OPERATIONS TO U.S. IN 2022**

For what reasons did this business move any of its operations from another country to the United States in 2022? *Select all that apply.*

- Costs (for transportation, labor, materials, etc.)
- Quality concerns
- Supply chain issues
- Global current events
- Government incentives
- Access to American workforce
- More control over operations
- Other (describe) -- \_\_\_\_\_
- Do not know

Do the answer choices make sense?

Yes

No (which do not?) [textbox]

Don't know

### **MOVING OPERATIONS TO U.S. IN 2023**

During 2023, does this business plan to move any of its operations from another country to the United States?

- Yes
- No (skip to end)
- Do not know (skip to end)

If your company was planning to move production to the United States, how far in advance do you think you would be aware of this?

### **REASONS FOR MOVING OPERATIONS TO U.S. IN 2023**

For what reasons does this business plan to move any of its operations from another country to the United States in 2023? *Select all that apply.*

- Costs (for transportation, labor, materials, etc.)
- Quality concerns
- Supply chain issues
- Global current events

- Government incentives
- Access to American workforce
- More control over operations
- Other (describe) -- \_\_\_\_\_
- Do not know

Are there any answer choices potentially missing from this list?

Yes (which answer choices are missing?) [textbox]

No

Would you consult records or others within your company to answer these questions about reshoring/onshoring?

Yes, records [textbox]

Yes, others [textbox]

No

Thinking back through all the questions you answered for your overall company, do you feel you were the best person to answer these questions or would someone else at the company have been a better fit?

Yes, I would have been the best person

No, someone else would have been a better fit [what is this person's job title?] [textbox]

Do you have any comments or suggestions about either topic or any question asked on this survey?

Finally, please tell us a bit about you and your business. What types of goods or services does this business provide?

What is your role in this business?

Thank you very much for your time today. We really appreciate your help.

## Demographics

Hello. Thank you for your time today. We are looking to obtain feedback on some potential new questions for a Census Bureau survey.

We plan to use your feedback to improve the survey questions and make sure they make sense to respondents like you.

We are not testing you– we only want to evaluate the questions.

Today, we will have you answer these questions, then you will be asked some questions to get your feedback.

Are you an owner of the company:

*An owner here is defined as someone who owns 10 or more percent of the business.*

Yes

No

No one owns 10% or more of this company

If the last option is selected:

Note: Although your business does not have someone who would qualify as an owner here, please review the following questions and provide any feedback.

### **1. AGE**

What is the age of Owner 1 as of December 31, 2022?

*If you are an owner, please respond for yourself.*

Under 25

25-34

35-44

45-54

55-64

65 and over

### **2. 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

High school/secondary school graduate – diploma or GED

Technical, trade, or vocational school

Some college but no degree

Associates degree (for example, AA, AS)

Bachelor's degree (for example, BA, BS)

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)

### **3. SEX**

What is the sex of Owner 1?

Male

Female

### **4. GENDER IDENTITY**

What is Owner 1's gender?

*Select all that apply.*

Male  
Female  
Transgender  
Nonbinary  
They use a different term, specify [textbox]  
Don't know

Is this information something you would have in a record for this business?  
Yes  
No  
Don't know

Is this information something you would know about an owner?  
Yes  
No  
Don't know

#### **5. SEXUAL ORIENTATION**

Which of the following does Owner 1 consider themselves to be?  
*Select all that apply.*  
Straight or heterosexual  
Gay  
Lesbian  
Bisexual  
They use a different term, specify [textbox]  
Don't know

Is this information something you would have in a record for this business?  
Yes  
No  
Don't know

Is this information something you would know about an owner?  
Yes  
No  
Don't know

What are your thoughts about answering questions 3, 4, and 5 (sex, gender identity, and sexual orientation)?

#### **6. Disability**

Does Owner 1 have a chronic physical or mental condition that they manage in daily life?  
Yes  
No  
Don't know

What kinds of conditions might fall under this category?



Are there more owners in this business?

Yes

No

Don't know

If yes: Would it be easier or more difficult to answer about the owner(s)?

A lot more difficult

A little more difficult

Neither easier nor more difficult

A little easier

A lot easier

If yes: How would your approach be different or the same for other owner(s)?

Overall, which questions did you feel like were the most time consuming or difficult to complete?

Do you have any other comments or suggestions?

Finally, please tell us a bit about you and your business. What types of goods or services does this business provide?

What is your role in this business?

Thank you very much for your time today. We really appreciate your help.

## **Collaborative Research**

Hello. Thank you for your time today. We are looking to obtain feedback on some potential new questions for a Census Bureau survey.

We plan to use your feedback to improve the survey questions and make sure they make sense to respondents like you.

We are not testing you– we only want to evaluate the questions.

Today, we will have you answer these questions, then you will be asked some questions to get your feedback.

### **1. Research Collaboration**

Did this business do any collaborative research with any of the following – universities, government labs, or nonprofit organizations?

Yes

No

Don't know

Not applicable

(Participants were skipped to the end of the survey if yes was not selected)

## 8. Collaboration with Universities

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with universities? Select one for each row.**

- |  | Yes | No |
|--|-----|----|
| a. Performed collaborative research between company and university researchers   |     |    |
| b. Funded university research  |     |    |
| c. Funded PhD students and postdoctoral researchers at universities  |     |    |
| d. Licensed or purchased IP from a university  |     |    |
| e. Signed non-disclosure agreements, material transfer agreements, or other agreements with universities governing usage of IP |     |    |
| f. Hired science and engineering graduates   |     |    |
| g. Engaged in formal or informal personnel exchanges with universities   |     |    |

## 9. Collaboration with Government Laboratories

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with federal laboratories including Federally Funded Research and Development Centers? Select one for each row.**

- |  | Yes | No |
|--|-----|----|
| a. Conducted collaborative research using agreements such as Cooperative Research and Development Agreements, Space Act Agreements, Material Transfer Agreements, Confidential Disclosure Agreements, or other transaction authorities |     |    |
| b. Conducted research at government user facilities  |     |    |
| c. Funded research at government laboratory  |     |    |
| d. Licensed IP from government laboratory  |     |    |
| e. Engaged in formal or informal personnel exchanges with government laboratories  |     |    |

- f. Attended workshops or seminars located at or sponsored by government laboratories

### 10. Collaboration with Government Laboratories

**During the three years 2020 to 2022, did this business engage collaborative activities with federal laboratories in the following departments? Select one for each row.**

1. Department of Agriculture
2. Department of Commerce
3. Department of Defense
4. Department of Energy
5. Department of Health and Human Services
6. Department of Homeland Security
7. Department of Transportation
8. Department of Veteran Affairs
9. National Aeronautics and Space Administration
10. Other federal department

### 11. Collaboration with Nonprofits

**During the three years 2020 to 2022, did this business engage in any of the following collaborative activities with nonprofit organizations? Select one for each row.**

- |   | Yes | No |
|---|-----|----|
| a. Performed collaborative research between company and nonprofit researchers   |     |    |
| b. Funded research at nonprofit organizations   |     |    |
| c. Licensed or purchased IP from a nonprofit organization   |     |    |
| d. Signed non-disclosure agreements, material transfer agreements, or other agreements with nonprofit organizations governing usage of IP |     |    |
| e. Engaged in formal or informal personnel exchanges with nonprofit research organizations  |     |    |

Was it clear what questions, if any, applied to your business?

Yes

No

Other [textbox]

Do you have any feedback about the questions?

## Appendix D – Changes to the Round 2 Moderated Protocol

### Research and Development

Asked of everyone first in round 2

#### 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.

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

#### R&D activity in software INCLUDES:

- Software development or improvement activities that expand scientific or technological knowledge
- 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

#### Reporting unit

The reporting unit is this business, including all subsidiaries and divisions. Include subsidiary companies where there is more than 50 percent ownership.

#### Reporting period

Report data for the calendar year 2022, if possible, or for this business's fiscal year ending between April 2022 and March 2023.

#### Estimates are acceptable.

Report all items to the best of your ability.

Does your company do R&D?

**D.1 R&D Activities**

During 2021, 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

Select one for each row.

	Yes	No
a. Conducted activities aimed at acquiring new knowledge or understanding without specific immediate commercial applications or uses.....	<input type="checkbox"/>	<input type="checkbox"/>
b. Conducted activities aimed at acquiring new knowledge for solving a specific problem or meeting a specific commercial objective .....	<input type="checkbox"/>	<input type="checkbox"/>
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 .....	<input type="checkbox"/>	<input type="checkbox"/>
d. Developed and tested goods, services, or processes that were derived from scientific research or technical findings .....	<input type="checkbox"/>	<input type="checkbox"/>
e. Developed software that advanced scientific or technological knowledge .....	<input type="checkbox"/>	<input type="checkbox"/>
f. Produced findings that could be published in academic journals or presented at scientific conferences .....	<input type="checkbox"/>	<input type="checkbox"/>
g. Applied scientific or technical knowledge in a way that has never been done before. . . .	<input type="checkbox"/>	<input type="checkbox"/>
h. Created new scientific or technical solutions that can be generalized to other situations..	<input type="checkbox"/>	<input type="checkbox"/>
i. Conducted work to discover previously unknown technological facts, structures, or relationships. ....	<input type="checkbox"/>	<input type="checkbox"/>
j. Conducted work to extend the understanding of scientific facts, relationships, or principles in ways that could be useful to others. ....	<input type="checkbox"/>	<input type="checkbox"/>

If "No" is selected for a. – j., skip to 'D.17 Federal Tax Credit for Research Activities' on page 35.

1. Are the includes helpful or unhelpful?

a. Do all of the items make sense, are there any you are unfamiliar with?

b. Are there other R&D activities that we are missing from this list?

If answers to the definition and question one do not match, please explain why.

If yes is not selected on question 1, skip to end of block

**Sustainability Management**

2. SUSTAINABILITY PRIORITIZATION

How important to this business were each of the following factors for prioritizing environmental sustainability?

	Very Important	Somewhat Important	Not Important
Attracting customers who make purchasing decisions based on sustainable products or sustainable business values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Integrating sustainable value proposition into the company's brand	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Addressing stakeholder demand for climate risk disclosures and better sustainability management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employee recruitment/retention tied to sustainable business values	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green procurement requiring life-cycle assessment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 3. SUSTAINABILITY OBJECTIVES

Has this business realized any of the following benefits from pursuing its **environmental** sustainability goals? *Select one for each row.*

	Yes	No
s. Improved efficiency	<input type="checkbox"/>	<input type="checkbox"/>
t. Improved regulatory compliance	<input type="checkbox"/>	<input type="checkbox"/>
u. Improved employee recruitment and/or retention	<input type="checkbox"/>	<input type="checkbox"/>
v. Reduced waste	<input type="checkbox"/>	<input type="checkbox"/>
w. Improved brand reputation	<input type="checkbox"/>	<input type="checkbox"/>
x. Decreased costs	<input type="checkbox"/>	<input type="checkbox"/>
y. Improved customer acquisition and/or loyalty	<input type="checkbox"/>	<input type="checkbox"/>
z. Increased revenue	<input type="checkbox"/>	<input type="checkbox"/>
aa. Other (Specify)	<input type="checkbox"/>	<input type="checkbox"/>

### 13. SUSTAINABILITY ALTERNATIVES

If this business is not successful at improving **environmental** sustainability, does the business foresee any of the following effects? *Select one for each row.*

Yes No

Fines for lack of compliance with regulations	<input type="checkbox"/>	<input type="checkbox"/>
Inability to raise capital or secure credit	<input type="checkbox"/>	<input type="checkbox"/>
A loss of customer trust	<input type="checkbox"/>	<input type="checkbox"/>
A loss of brand reputation	<input type="checkbox"/>	<input type="checkbox"/>
Hiring difficulties or lower employee retention	<input type="checkbox"/>	<input type="checkbox"/>
Financial risks associated with future policy changes such as a carbon tax	<input type="checkbox"/>	<input type="checkbox"/>
Lost sales due to inability to provide emissions or other environmental information to potential customers	<input type="checkbox"/>	<input type="checkbox"/>

#### 14. SUSTAINABILITY INVESTMENTS

Is this business making any of the following investments to improve **environmental** sustainability? *Select one for each row.*

	Yes	No	Not applicable
Purchase power agreements for renewable energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Renewable energy generation on-site (e.g., solar, wind, geothermal)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Battery storage or other means of saving renewable energy generation for later use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improved energy efficiency and management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineering innovation to improve sustainability of our materials (e.g., innovating to produce goods with lower CO2 content)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Redesigning processes to make similar products with less environmental impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elimination of waste through circular economy or design for re-use strategies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recycling initiatives going beyond municipal mandates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### 15. STRATEGIC OBJECTIVES AND THE ENVIRONMENT

Does this business have strategic objectives that mention environmental **sustainability** or climate change issues?

- Yes
- No
- Don't Know

## 16. ENVIRONMENTAL MANAGER

Does this business have a manager responsible for environmental sustainability and climate change issues?

- Yes
- No
- Don't Know

### Entrepreneurship

3. What was the motivation for developing that product?

### Demographics

Who is the respondent?

*An owner here is defined as someone who owns 10 or more percent of the business.*

Owner

Owner/proxy respondents

Proxy respondent

There are no owners

## 7. DISABILITY

Does Owner 1 have a chronic physical or mental condition that they manage in daily life?