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Unit Harmonization Studies for the Annual Integrated Economic Survey

Unit Harmonization Studies for the Annual Integrated Economic Survey

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The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure avoidance protection of the confidential source data (Disclosure Review Board (DRB) approval number: CBDRB-FY23-ESMD001-012).

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Executive Summary

The Economic Management Division (EMD) and the Data Collection Methodology and Research Branch of the Economic Statistical Methods Division (ESMD) used qualitative methodologies, specifically in-depth interviews and a card sort exercise, to better understand how record keeping practices impact data accessibility and reporting in support of the development of the Annual Integrated Economic Survey (AIES). The goal of this study is to better unit harmonization as the survey is created.

In total, researchers conducted two rounds of interviewing. In Round 1, twenty-eight participants answered questions about their record keeping practices and reporting behaviors. In Round 2, 30 participants first provided background information on the structure of the companies they represent, and then completed a virtual card sort exercise using a four-point color coded scale to indicate accessibility of data for their company for specific topics and units.

Finding #1: North American Industry Classification System (NAICS) codes are not intuitive.

Recommendation: Specify a specific research agenda to troubleshoot solutions to align meaning with NAICS codes. Allow respondents to signal or change NAICS codes for establishments where appropriate.

Finding #2: Operating units impact level of detail of reporting.

Recommendation: Align the reporting to the level that companies are keeping information based on operating units.

Finding #3: Company-level data are the most accessible.

Recommendation: Reflect the existing ways data are stored, including asking for information on the company-level when possible.

Finding #4: Granular data were less accessible to locate, with participants struggling to report at the state and industry levels.

Recommendation: Allow flexibility for respondents to input more granular data. Avoid asking for information at the state-level or have this information sum from establishments for businesses.

Finding #5: Card sorting exercises were a useful method to understanding the practical accessibility of a business's data.

Recommendation: We recommend the use of visualization and innovative methods to operationalize complex topics such as data accessibility.

Overview

The U.S. Census Bureau enlisted the help of an expert panel through the National Academies of Sciences, Engineering, and Medicine (NAS) to review the design, operations, and products of the

Census Bureau's annual economic surveys. The goal of this NAS review was ambitious; the panel was to "recommend short-term and longer-term agendas for systemic change that can improve the relevance and accuracy of the data, reduce respondent burden, incorporate alternative sources of data where appropriate, and streamline and standardize Census Bureau processes and methods across surveys" (NAS 2018:6). During this review, this panel noted that the "lack of integration prevents [the annual economic surveys] from being as useful, cost-effective, and minimally burdensome on businesses as they could be" (9).

For the most part, the Census Bureau has used a sector-driven approach to survey development. While the US Census Bureau fields many annual economic data collection efforts, the integration effort is limited to the following surveys:

- Annual Survey of Manufactures (ASM)
- Annual Retail Trade Survey (ARTS)
- Annual Wholesale Trade Survey (AWTS)
- Service Annual Survey (SAS)
- Manufacturers' Unfilled Orders (M3UFO) Survey
- Annual Capital Expenditures Survey (ACES)
- Report of Organization/Company Organization Survey (COS)

One of the recommendations from the NAS panel is the implementation of an Annual Business Survey System – which has evolved into the AIES, a streamlined, cross-sector, integrated and harmonized survey instrument designed to lower respondent burden while still achieving high quality, timely data in the service of the American economy.

A major concern at the onset of the NAS study was the differing statistical units of operations used across annual surveys. Most, but not all, surveys sampled at the enterprise or company, with some focused on the establishment. The business register does not always reflect one or the other accurately. This issue is highlighted early in the report: "The use of different reporting units for different surveys is one of the challenges associated with harmonizing the annual economic surveys, which is made even more challenging because of the dynamic nature of businesses, which may add, close, or relocate establishments or may change ownership and organizational structure" (13). The authors note the differences in complexity of organizations on the structural level. Thus, an integral part of harmonization is understanding the accessibility of data on many levels within companies.

Driving the development of the annual integrated survey has been a portfolio of research projects to bring together disparate sources of data to one survey instrument. The findings presented in this report represent formative research early in the process of integrating the existing surveys, and are primarily focused on differences in unit of collection across these surveys. The purpose

of this study is to understand the record-keeping practices of businesses, to develop a streamlined instrument for the AIES.

Research Questions

Researchers conducted a record keeping study in the form of semi-structured interviews and a card sort activity to understand data accessibility in support of the development of the AIES. Throughout the research period, we were guided by a few key research concepts and questions. First, we were interested in how businesses defined themselves, both internally and relative to Census Bureau definitions. This included the business' units of operation, industry, and other key identifiers. We were also driven to understand how accessible data were at differing levels within a company – that is, could respondents get the data to the level of granularity we were asking with minimal effort and maximum accuracy? Finally, we asked about the burden – or resource intensiveness – of pulling these data at various levels within the company. The research questions for both rounds of interviewing, then, are:

1. **Definitions:** How do businesses define themselves relative to the Census Bureau definitions?
2. **Accessibility:** How accessible are key data points at varying business units?
3. **Burden:** How resource intensive is gathering data at these varying business units?

Unit Harmonization

The NAS panel's call for increased harmonization across surveys requires careful consideration of the appropriate reporting unit (NAS 2018: 45). The so-called "unit problem" in establishment surveys is not new, but it is growing increasingly complex as firms themselves grow in complexity (Emm and Kale 2006). Not only are the business units within a given company prone to change, the availability of economic data at these units is, for the most part, unknown. The effect, then, is that Census Bureau surveys may ask for data at a business unit level where the information is not tracked or is not easily aggregated.

Surveying Businesses: The Unit Problem

Central to the issue of data accessibility in establishment surveys is the "unit problem" – at which business unit should the data be collected? But, what "unit" is appropriate, what is available, and what is reported all provide different responses, depending on who is providing the answer. To begin with, Sturm (2015: 59) provides a taxonomy of statistical units relevant to establishment research comprised of three parts:

1. **The reporting unit:** This is the "unit providing information to the data collector", and is often the top-level business unit, like firm or company.
2. **The observation unit:** This is the "unit about which information is provided/reported," and can be comprised of a group of segments within a firm, like establishments or lines of business.
3. **The statistical unit:** This is the "unit a statistical output refers to", and in some cases, represents data that have been aggregated or otherwise manipulated before being made available for researchers and others to review.

Within these groups, however, there are further gradations. In a seminal work on the "unit problem," van Delden et al. (2018) draws attention to the mismatches of identifying, characterizing, and delineating statistical units, and call these errors "unit errors" (573). Using a Total Survey Error (TSE) framework, the authors place unit error under errors of representation, but note that because the unit of analysis permeates the entire research project, "it is necessary to approach the unit problem from a more general perspective" (578) and integrate within the other sources of error in the TSE. They delineate between the "administrative unit" – created outside of the statistical system and used for administrative purposes, like tax reporting – and the "statistical unit" – created within the statistical system and used for reporting out statistics, noting that the "intrinsic relationships between statistical units are inferred and articulated in terms of a classification or model of units" (574) like the NAICS or other classification systems. This mismatch between the administrative unit and the statistical unit is, in their estimation, based on a difference in epistemological lens, such that "the survey methodology approach and the economic theory approach result in unit types that do not fully align with each other" (575); while economists may want to know about one particular aspect of a business, operationalizing

that aspect and providing an appropriate sampling scheme to reach those targets can be beyond the abilities of the survey methodologist. Survey methodologists then construct a units model as a means of arranging administrative records into a structure “suitable for surveys” (Smith and Yung 2019).

Unit error can be challenging regardless of the scope of the intent of the research, but is particularly detrimental when measuring firm growth or decline. Davidsson et al. (2006) argue that the challenge of measuring the firm when trying to understand firm growth is paramount to the project, arguing that a unit definition must be clear “before any meaningful discussion of growth can take place” (43). They go on to describe a sort of business “Ship of Theseus” thought experiment whereby “over time, ‘the firm’ is likely to change its activities, its assets, its ownership, and its legal form” (42), begging the question of whether the originally sampled firm still exists in a meaningful way. Providing an overview of the hierarchy of standardized business units in place within the European Union, Struijs (2016: 9) notes that while the system is “without a doubt a great achievement,” it cannot be a static system and must be revisited at regular intervals to update with changing business dynamics. Representing Statistics Canada, Jang (2016) echoes the mismatches between administrative units and statistical units noted in van Delden, and describes the rigorous and resource-intensive methods used to harmonize units from disparate sources.

Data Accessibility

Embedded within the decision of unit of collection is the accessibility of the requested data. Discussing sources of measurement errors in establishment surveys, Bavdaz (2010: 35) finds that a firm’s accounting system “typically reflects the organizational structure that supports business activities” which may – or may not – include statistical reporting. In this case, the business establishes the accounting system that most meets its needs, and the statistical reporting must be retrofitted to that system. Van Delden et al. (2018) go one step further, noting that while “ideally, the system of statistical units should mirror, as well as possible, business data availability” (575), in fact, “the target statistical units often need to be ‘created’ [by the respondent], which ultimately raises the issue of potential conceptualization error” (577). Gravem et al. (2011) found that mismatches between survey questions and data availability were a leading cause of perceived response burden among respondents.

Snijkers and Arentsen (2015) developed a four-point color coded scale as a reference for respondents when assessing the accessibility of their data at various increments, in terms of both time and organization. That work centered on combining two surveys collecting similar data from large non-financial firms, and then adjudicating the level of measurement between these two efforts. They hypothesize that “the more steps and the more sources involved in the response process, and the deeper within the business information has to be retrieved, the higher the risks of survey errors like measurement errors and item non-response.” This builds on Bavdaz (2010) work on accessibility as an underlying concept of both burden and measurement error.

Methodological Overview

Participant Overview

Participant Recruitment

For this research, we focused exclusively on recruiting participants representing “medium” sized firms. These firms have historically lower response rates to the quinquennial flagship Economic Census, but they also present a unique space for economic survey research.

Medium sized businesses fall in between the comparatively simplistic record-keeping of smaller businesses and the complicated and highly structured record-keeping of larger businesses. Lavia Lopez and Hiebl (2015: 105) investigated the management accounting systems at small and medium enterprises and found that “as the information needs of the small and medium enterprises increases, usage and implementation of management accounting system increases as well, which is also related to the complexity of the organization,” suggesting that medium sized businesses in particular have various reporting structures and are not monolithic. This is echoed by Snijker and Jones (2013: 375) who find that medium sized businesses have a “structure and accounting system more complex than small businesses and can vary from business to business” which makes the response process for these enterprises more “diverse.” It is imperative, then, that more research is focused on the structure and record keeping practices of medium sized businesses, since they can vary in complexity and are a diverse subset of establishments.

For the first round of interviewing, we focused on companies that had experience with the surveys that were candidates for integration on the AIES. We randomly selected medium-size companies that were currently in sample for at least two in-scope annual surveys. We recruited companies and conducted in-person interviews between August and November 2019.

For Round 2, we again selected a random sample of medium sized businesses currently in sample for two or more annual surveys in-scope for integration. These interviews took place during the COVID-19 global pandemic, in the winter of 2021. As such, we conducted all Round 2 interviews virtually using an approved videoconferencing platform.

Participant Characteristics

From these recruitment efforts, we ultimately conducted 59 interviews across both rounds of interviewing. See Table 1 for an overview of the number of industries and establishments of participating companies by round of interviewing. In all, these companies represented over 70 NAICS six-digit business categories.

Table 1: Number of Industries and Establishments of Participating Companies by Round of Interviewing

	Phase 1	Phase 2
<i>Total Interviews</i>	28	30
<i>Number of Industries*</i>		
Three or fewer	16	25
Four or more	5	5
<i>Number of establishments*</i>		
30 or fewer	9	19
31 or more	12	11
*Numbers may not sum to total interviews because of missing data.		

Interview Procedures

Round 1: Record Keeping Practices

The first round of interviews was focused on the record keeping practices of medium sized businesses. For this interviewing, researchers met participants in their offices, in person. Interviewers asked participants to describe how their business was structured and how they maintained their financial records relative to a generic chart of accounts. A chart of accounts is an index of all the financial accounts in the general ledger of a company. It is an organizational tool that provides a breakdown of all the financial transactions that a company conducted during a specific accounting period, broken down into subcategories.

The interview guide was exploratory, and participants were told that the goal of the study was to explore the link between financial records and company organizational and management practices. First, using the mock chart of accounts presented in Figure 1, researchers asked participants to compare and contrast how their business is structured and maintains its records. Researchers probed participants on their chart of accounts relative to their company's structure, industries in which the company operates, and locations, as well as the types of software used to maintain their chart of accounts.

Figure 1: Generic Chart of Accounts

Sample Chart of Accounts	
Account Category	Account Code
Current Assets	1000
Property, Plant & Equipment	1100
Other Assets	1800
Current Liabilities	2000
Long Term Liabilities	2100
Equity	3000
Revenue	4000
Direct Program Costs	5000
Fringe Benefit Costs	6000
Overhead Costs	7000
General & Administrative (G & A) Costs	8000
Unallowable Costs	9000

Once we had a better understanding of the company chart of accounts and record keeping practices, we could then ask follow-up questions about specifics within their chart of accounts. Here, we were interested in mismatches between our understanding of how records are kept and retrieved, and the questions respondents encountered on Census Bureau surveys. Specifically, we explored companies' reporting of five key variables:

1. Business segments by industry
2. Sales/receipts/revenues
3. Inventory
4. Expenses, focusing on payroll and employment
5. Capital expenditures

In some cases, interviewers showed participants specific questions and questionnaires from the legacy annual surveys they had received and to which they had responded previously. We then asked participants to explain their general response process, how they gathered data from multiple sources, and whether they needed to manipulate the data in order to provide answers to what they thought the questions were asking. Researchers probed apparent discrepancies between participants' reporting practices and the question's intent.

Next, researchers asked participants to describe in their own words what their business does or makes, and then to indicate the NAICS most appropriate for their business. NAICS is a hierarchical taxonomy with nested values. Prompted with a list of high-level industrial sectors, participants selected the one they most identified with and went on to describe their business

activities in detail. They also selected their revenue-producing goods or services from a detailed list used in collection of the 2017 Economic Census. Since sources of revenue are key factors in classification for many industries, researchers were then able to cross-check with the Census Bureau’s “official” industry classification for the business, and detect likely or potential mismatches, some of which were quite notable. See Appendix A for the research protocol for the Round 1 interviews.

Figure 2: Units and Definitions for Round 2 Interviewing

Round 2: Data Accessibility

Building on the first round of interviewing, the second round of interviewing explored unit harmonization to focus on the accessibility of data at various units within the company.

These interviews first established definitions and equivalencies of response units (for example, what is the company term that means the same as ‘establishment’?). We began the semi-structured interviews by asking about the unit mismatches. Participants were shown three units – company, establishment, and line of business - individually, with corresponding definitions. They were then asked to “map” themselves to these concepts, specific, “what is the word or phrase that the business uses to mean the same thing?” See Figure 2 for an overview of units and their definitions.

Then, we asked participants about the ways that their companies are classified using the NAICS system. First, we asked about their six-digit NAICS classifications, calling it their ‘specific’ industry because that six-digits is the most specific classification in the Business Register.¹ We then asked about the four-digit NAICS classification, which was less detailed. We called this their “general industry.” Interviewers walked participants through each of the six-digit NAICS codes we could find for their company, asked for feedback or impressions, and then did the same for the four-digit NAICS codes.

Finally, researchers extended a framework put forth by Snijkers and Arentsen (2015), who developed a four-point color coded scale as a reference for participants when assessing the accessibility of their data at various increments, in terms of both time and organization. The interviewers introduced participants to the four-point color coded scale ranging from green (very accessible) to red (not at all accessible) to categorize data. This included specific topics (e.g.,

Company: A company or “enterprise” is comprised of all the establishments that operate under the ownership or control of a single organization. A company may be a business, service, or membership organization; consist of one or several establishments; and operate at one or several locations. It includes all subsidiary organizations, all establishments that are majority-owned by the company or any subsidiary, and all the establishments that can be directed or managed by the company or any subsidiary. A company may have one or many establishments.

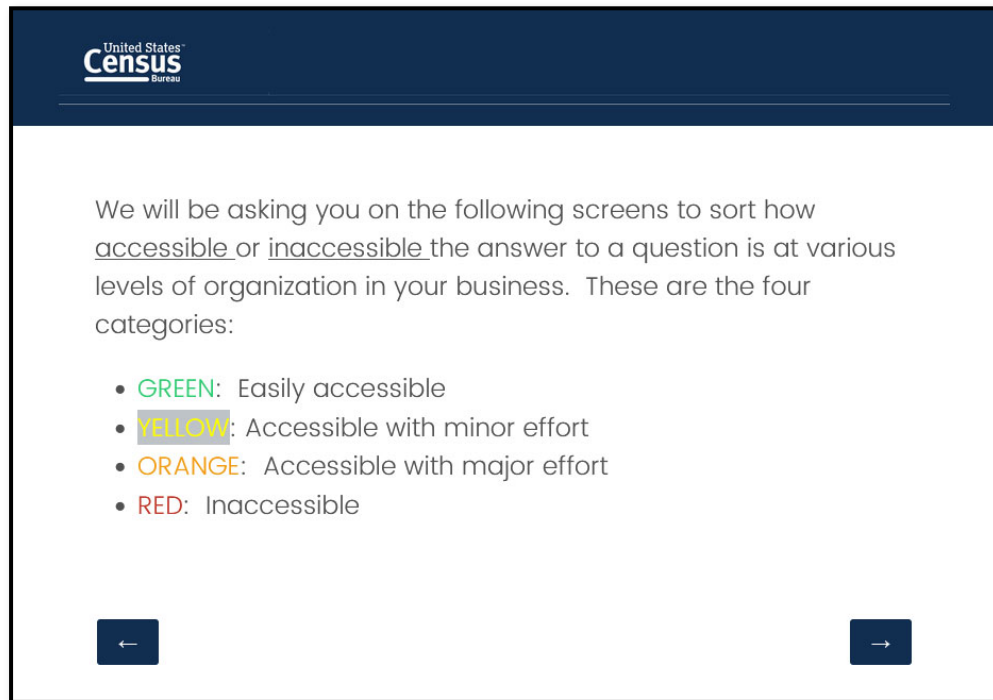
Establishment: An establishment is a single physical location where business is conducted or where services or industrial operations are performed.

Line of Business: A line of business is a general term which refers to a product or service, or a set of related products or services, that serve a particular customer transaction or business needs. Line of business refers to an internal corporate business unit, and is sometimes referred to as a division.

¹ Note: there are instances where seven or eight digits further classify an establishment, but these are often industry specific or otherwise niche to a particular set of businesses. For the purposes of this research, six-digit NAICS classification was granular enough.

revenue, expenses, and payroll) and specific levels (e.g., company-wide, by establishment, or at the general and specific industry levels). This exercise was performed to understand how accessible the company data is at each unit for specific topics. See Figure 3 for a screenshot of the instructions we showed to participants.

Figure 3: Color Coded Accessibility Scale



Once the participant was comfortable with the scale, we then moved on to the card sort activity. Note that the initial scale instructions remained at the top of the screen for each card sort so that participants could reference the colors and their meaning. Figure 4 is an example question, the revenue card sort. The general question was positioned at the top, followed by four color-coded boxes, and six business units nested under the heading “Business Unit.”

Figure 4: Revenue Card Sort Screenshot

Question: What were the TOTAL sales, revenue, and other operating receipts for this [business unit] in 2019?

Business Unit
Your company
Establishment
Line of business
Specific industry
General industry
State

Green - Easily Accessible

Yellow - Accessible with minor effort

Orange - Accessible with major effort

Red: Inaccessible

Participants were instructed to click on each business unit and move it to the box that corresponded with the accessibility of the requested data at that business unit. Researchers prompted participants to “think aloud” as they moved the units to the corresponding box so that we could capture their responses and ask follow-up questions about why they categorized the data the way that they did. See Appendix B for the Round 2 interviewing protocol.

We used the card sort methodology to explore six topics included in the in-scope legacy surveys, including:

- Revenue: What were the TOTAL sales, revenue, and other operating receipts for this [business unit] in 2019?
- Capital Assets: What were the total capital assets for this [business unit] in 2019?
- Inventories: Did this [business unit] own inventories, regardless of where held, at the end of 2019?
- Payroll: What was the annual payroll before deductions for this [business unit] in 2019?
- Expenses: What were the TOTAL operating expenses for this [business unit] in 2019?
- E-Commerce: What were the TOTAL e-commerce sales for this [business unit] in 2019?

These questions represent the first attempts to harmonize content across the surveys. While we did not ask cognitive processing questions to determine comprehension, we did ask about applicability of each topic. We note that many participants – particularly those representing companies classified in the services sector – found inventories to be out-of-scope for their company, and so did not respond to that part of the card sort. Similarly, we found that many participants struggled with the concept of e-commerce, including being unsure of what to include or exclude in this category; after initial interviews, we ultimately dropped further investigation into accessibility of e-Commerce data because of comprehension issues.²

² For the remainder of this report, we will exclude e-commerce from accessibility findings. We strongly urge additional research resources to be dedicated to further research into comprehension, accessibility, and reportability of e-Commerce data.

Findings and Recommendations

Finding #1: NAICS codes are not intuitive.

A major finding through both rounds of interviewing was the mismatch between how the Census Bureau typically classifies a company and how the participant classified their company. Industry classification was challenging and unnatural for participants, and companies can struggle to fit within the NAICS classification system. It was also not salient to how businesses keep their records and feels artificial for participants; that is, because NAICS is a standardized classification system, and businesses often needed more or different details in their chart of accounts, mapping records to the corresponding NAICS is challenging for some and impossible for others.

As a standardized classification system, the NAICS taxonomy is imposed upon companies from an external agency. Participants felt they were expected to align their companies accordingly in order to report data for statistical purposes. At least seven companies in Round 1 interviewing may have been misclassified or may not have understood Census Bureau distinctions among classifications, particularly across levels of detail within the same sector. Participants also indicated that Census surveys do not match internal reporting, and that they are uncomfortable making decisions on how to manipulate their data to match our requests.

This finding held true for both rounds of interviewing. In Round 2, participants still struggled with their NAICS classification, noting that the categories could be too broad or, conversely, not encompassing enough to accurately describe the company as a whole. This part of the interview was time consuming and difficult; participants had trouble understanding their NAICS classification, and then struggled to think of how their business units might be related to their NAICS classification. It seemed that the industry classification either worked or did not, with few falling in between.

Some participants positively reacted to their general and specific industry codes. In these cases, the NAICS we had on file made sense to the participant and fit how the participant saw their company relative to the NAICS categorization scheme. Said one, “These [NAICS codes] are a good fit. Most of what we do would fall under the first one [listed].” Another affirmed classification, saying “[I] agree with the [given] NAICS.” A third echoed this sentiment, saying “Specific industry: that’s a perfect fit. General industry: that works as well, too.”

However, there were instances of mismatches, too. One participant familiar with NAICS codes stated “I hate them. They have me in warehousing and say ‘You operate the warehouse’ but we do not. [That’s] not what we do.” Another participant, who self-described as “somewhat familiar” with NAICS codes, pointed out that each location is classified with one code, which did not capture the breadth of economic activity; this participant noted that “one NAICS wouldn’t apply to one location” and that there is a “mix [of activities] within locations.” Another

said the NAICS codes were not reflective of current operations, pointing out that the Census Bureau’s assigned classifications are out of date. This participant noted that “all other codes are coming from a long time ago, when [this company] was non-profit,” and that the business is “focused entirely on [one industry] now.” Classifying a business is a critical component to collecting data on that firm, both in terms of directing respondents to the appropriate survey forms based on their classification and in terms of sampling, weighting, imputation, reporting and other important data handling techniques.

Recommendations: The difference between how companies classify themselves and the classifications that are assigned by the Census Bureau warrants additional investigation into the NAICS taxonomy. While this investigation is outside of the scope of the current program, it does inform recommendations for unit harmonization, mainly, that an integrated instrument allow for respondents to verify and, if appropriate, update an establishment’s assigned classification. At the very least, respondents to the AIES must be given a way to signal that the assigned NAICS may be out of date or otherwise inappropriate.

Finding #2: Operating units impact level of detail of reporting.

Businesses varied in their operating units, and this impacted the level and detail at which they kept their records, which could negatively or positively impact response. For example, when asked what he would report for his company, one participant explained, “We have different reporting where we have to report by country or by the entire company.” Specifically, companies tracked data according to operating units that make sense to the company. Further, companies use disparate terminology to describe their various operating units. One participant explained they would need to report data either on the company-level or “we would need to give you data by store...I don't know why set up that way. The company used to be direct business only. As it expanded into retail, we kept costs segregated.” Another participant told us, “I don't really think we have divisions, so to speak.” Another participant said, “The way we do our reporting is by country or by asset team, or a region. Not necessarily a physical location.” More like an operational area.” Participants did not always know why data was stored in specific ways in their records.

When asked about “establishments,” participants indicated that their company used a different term – such as region, office, department, line of business, and business segment – or did not track data by individual locations at all. One participant told us, “Things get a little tricky. Accounting department is in this building, but also IT. Accounting is not just in this location, but in multiple locations. Each manufacturing site is only one kind of manufacturing but may have offices collated.” Another said of reporting by establishments, “But we don't really work this way.”

We introduced this unit as a line of business early in testing. However, participants had trouble with both this conceptualization and definition. When asked about what the company’s line of business is, nearly every company gave a different answer, including “capability” “divisions” “services” or “business unit.” More specific examples like “healthcare” or “operating segments”

or “business streams” did not prove useful. Some participants said they know of no other term or chose to skip the question. This shows that line of business was not a useful way to think about company structure.

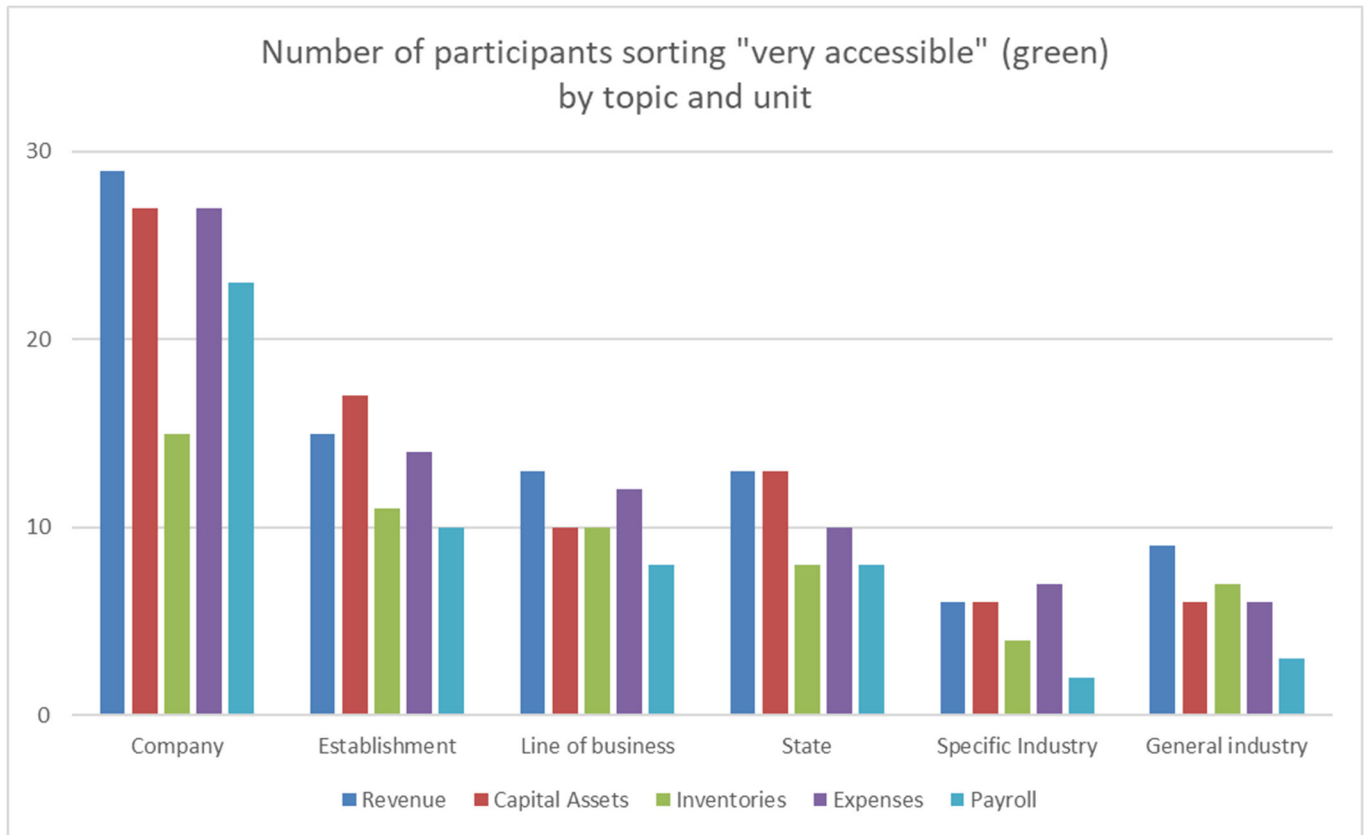
Recommendation: Minimize burden by allowing companies to report at the operating units that make sense to them, especially at “rolled up” levels such as the industry or company totals.

Finding #3: Company-level data are the most accessible.

Throughout the interviewing, participants noted that consolidated financial records were a mainstay for businesses and acted as an ‘anchor’ for most detailed information. These charts of accounts varied in detail. However, we found that top-level consolidated financial reports were nearly universal, and essential for how participants kept records. Consolidated totals were readily accessible and accurate, and when a survey asked for disaggregated data, participants mentioned checking those figures to the company-level total to ensure accuracy. Participants could manipulate the data and break it down into a number of different categories for reporting, but it was critical that they always rolled back up.

During the card sort exercise, we note that of all five of the topics that we tested – revenue, capital assets, inventories, expenses, and payroll – participants were most likely to sort company-level data as “accessible with no effort” (green). According to participants’ descriptions, reporting company-level data involved the least amount of consultation with records and others in the company, thereby representing the least burdensome data to report. One participant who sorted company data as green said, “We have all of our sales/expenses for the entirety of our company.” He clarified, “details are not readily available” on the level of locations. Another participant explained that company data was easiest to pull because it is “part of our internal reports.” One participant said, “It’s just more of an effort” when questions asked for data on anything more specific than the company-level. “It’s not at our fingertips, because we report by consolidated company.” See Figure 5 for an overview of the number of participants sorting as “easily accessible” (green) by topic and unit.

Figure 5: Number of participants sorting "easily accessible" (green) by topic and unit



Recommendation: Allow for survey questions to reflect existing financial records, but especially consolidated financial records, when asking companies to report financial information. Due to the accessibility of the data, we suggest that any question that can be asked at a company-level be collected at that level, and that only those questions that warrant additional granularity be asked at more specific units within the company. We also suggest that where data are asked at both a company-level and at a disaggregated level, that participants have a way of reconciling the total of the parts to the overall company-level total.

Finding #4: Granular data were less accessible, with participants struggling to report at the state and industry levels.

There were varying levels of difficulty for accessing more granular data, but generally, participants were more likely to say that data across topics were “easily accessible” (green) or “accessible with minor effort” (yellow) at the establishment level than at the specific or general industry levels. While 13 participants said that revenue data are “somewhat” or “very” accessible at the establishment level, that number drops to 9 for the specific industry (six digit NAICS) and the general industry (4 digit NAICS). This trend is repeated across each of the topics – establishment is sorted as “accessible with minor effort” (yellow) or “easily accessible” (green)

at higher rates than specific or general industry. One participant told us, “For office, there’s no revenue generated by an office. We wouldn’t report that.” See Table 2 for an overview of the number of participants sorting each topic as “accessible with minor effort” (yellow) or “easily accessible” (green) by establishment, specific industry, and general industry. Of industry, a participant told us, “We don’t track it that way in our general ledger. I am not even sure I could get it. It would be a guess.” One company told us about how it was difficult to report at lower than the company-level if the question asked for data in a different way than how they stored it: “Some of these are more difficult because we don’t bring that much information into consolidation system. From a transactional basis, the general ledger system, we don’t pull it all into the consolidation system. That’s what makes it hard to see. We have an old ERP, and it’s not very friendly. We don’t have consolidation structures to bring in transactional data. We bring in month end balances. It would take extra steps.”

Table 2: Number of participants sorting as “accessible with minor effort” (yellow) or “easily accessible” (green) by topic and unit

	Establishment	Specific Industry	General Industry	State
Revenue	13	9	9	9
Capital Assets	10	5	7	9
Inventories	8	4	6	7
Payroll	8	5	4	8
Expenses	8	6	4	6
Note: Total interviews is 30; not all participants sorted all topics and all units.				

Similarly, when we asked participants about data accessibility at the state-level, we noted that while they may say that the data are “accessible with minor effort” (yellow) or “easily accessible” (green), often this designation was given after explaining that state would be the sum of data stored by location (establishment). There were exceptions: one participant said state-level data would be easy only because all of their offices and headquarters were in one state. Some were confused about how to consolidate the data on the state-level, such as a participant who rated state reporting at orange and had to consider shipping destinations or sales by office. In this way, while state can *become* accessible, it is not a typical unit at which businesses store their records. One participant said, “My management reports are not by state. It would be more effort.” Another explained that in general “our offices do not generate revenue; estimates could be done, but it would not be definitively known.” Because of this, “For state, we could get our data scientists to pull this but it would be a huge effort for the company. It requires significant resources.”

Recommendation: Allowing for flexibility at the level (establishment or business) a company reports can keep a holistic scope intact for the information collected. Do not ask respondents to provide information on the state-level. If this is necessary, ensure there is a feature to sum this data automatically.

Finding #5. Card sorting exercises were a useful method to understanding the practical accessibility of a business’s data.

Although not typically used in establishment research, participants were engaged in the card sort interview. Interviewers noted that the card sort acted as a way of operationalizing the four-point scale measuring accessibility, a complex construct, across units, another complex construct. The interactive nature of the exercise (participants clicked-and-dragged the unit to match the level of accessibility) kept participants engaged in the activity and provided a novel means of collecting this exploratory information.

In early interviews in Round 2, we noted that some participants might be using different tolerances for gauging “accessibility” of data. We modified the interviewing protocol slightly to ask participants to describe their understanding of the four categories of accessibility. That way, when we examined the interview data during analysis, we could note the level of effort that each participant noted was “accessible” compared to “not accessible”. See Table 3 for examples of participants’ descriptions of the four-point color coded accessibility scale.

Table 3: Participant descriptions of color-coded accessibility scale

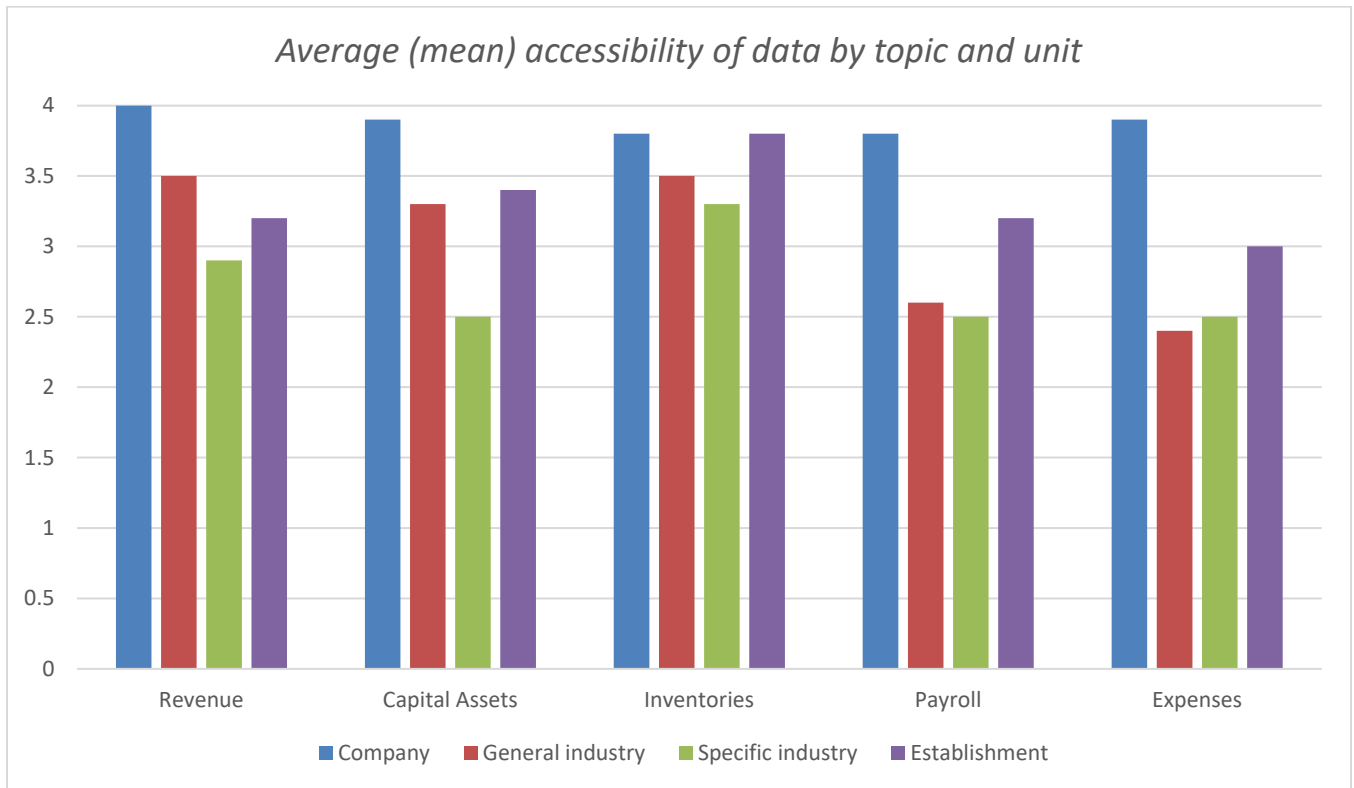
Green Easily Accessible	Yellow Accessible with minor effort	Orange Accessible with major effort	Red Inaccessible
<p>“Green means go. Green means info is available.”</p> <p>“Can run a report and get information.”</p> <p>“Green is anything I pull directly off of a financial statement that I’m already producing.”</p>	<p>“I’d probably have to reach out for help.”</p> <p>“I would run a new report for, but not have to do a lot of analysis and digging to find [the data], or I can modify an existing report.”</p>	<p>“No one has any idea what we are looking for so they need to dig. If we don't know who to ask for it or know where to get it but are pretty sure the data exist.”</p> <p>“Orange would take more effort - involving other people or creating additional reporting that we don't normally run.”</p>	<p>“Red is inaccessible; there's no way for me to get that information, and it not tracked or maintained.”</p> <p>“Red is we just can't pull it.”</p>

At the same time, the card sort also allowed for compelling visualizations of the interview data because of the standardized scale. Figure 6 displays the average (mean) accessibility score by topic and unit as assigned by participants. In this case, we took each accessibility designation and assigned a number value to indicate the accessibility, such that:

- Accessible with no effort (green) = 4
- Accessible with minor effort (yellow) = 3
- Accessible with major effort (orange) = 2
- Inaccessible (red) = 1

Because these datapoints are representative of qualitative interpretation, we cannot run significance testing to test the distribution of responses. But, we can see illustrative evidence of difference in accessibility by unit and topic such that company-level data have the highest average accessibility score across all topics compared to other units. From there, generally, establishment outperforms both general and specific industry in mean accessibility across topics generally, and specifically for inventories, payroll, and expenses. This is a quick and easy way to communicate the complicated interplay of three concepts: accessibility, unit, and topic.

Figure 6: Average (mean) accessibility of data by topic and unit



Recommendation: We encourage the use of innovative methods that are often not applied to data collection in establishment settings. Card sorts can be a useful tool in establishment surveys. Visualization of qualitative data can have a powerful impact with stakeholders.

Methodological Limitations

While this testing provided insight into respondent record keeping and how data accessibility impacts the scope of information provided, there are important limitations to this method that we must consider.

The first methodological limitation is that we asked about broad categories in both rounds of interviews, with the example chart of accounts and card sort exercises. We do not know the burden of data accessibility for more specific questions at the level they will be asked on the AIES.

Additionally, the testing involved some hypothetical thinking – we did not ask participants about their specific behavior on a specific survey, but rather to describe for us how they generally approach surveys, how accessible they believe data to be, and how they might go about reporting requested data. Participants may be poor predictors of actual behavior based on hypothetical parameters.

Recommendations for Next Steps

The testing in this report reflects the first step in the AIES unit harmonization by assessing data accessibility and how record keeping impacts the way respondents provide response to survey questions. Generally, we found that respondents keep most data at the company-level, but that specific types of data are kept at various units depending on the business needs. We therefore recommend that any instrument design be as flexible as possible to allow for variations in record keeping to keep response burden as low as possible.

As a next step, the AIES team should consider independent response from the field in the form of a pilot survey. This pilot survey could bring together the units and topics proposed for inclusion in the AIES and could include additional research modalities like interviewing to further understand the response processes that hinder or support economic survey response. A pilot survey would bridge the gap between asking respondents about their response theoretically and actually inducing realistic survey response. It could be a first step toward a unit harmonized and content integrated survey.

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About the Data Collection Methodology and Research (DCMR) Branch

The Data Collection Methodology and Research (DCMR) Branch in the EMD 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 DCMR 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 on it 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 DCMR can assist your economic survey program area or agency, please visit the [DCMR intranet site](#) or contact the branch chief, [Amy Anderson Riemer](#).

Appendix A

General Research Questions

- **DEFINITION:** How do companies define data items based upon their charts of accounts and financial reporting requirements? Can we determine a harmonized definition that aligns with company records?

For each topic/data item, compare the answers the companies provide to our current questions when discussing:

- How our data items/topics are defined and the components of those items (e.g. includes/excludes)
- The structure of the company
- **UNIT:** What data are available at what level? (e.g. establishment, company, industry, state)
- **TIMING:** When are the data available? Are different data items available at different times? If so, what and when?
- **BURDEN:** How readily available is the information we are asking? Are some items easier? Harder? Why?

Review based on:

- How much manipulation of data in business records is involved in order to provide data that meets Census Bureau requirements
- How many people or data sources are involved
- How much time it takes to gather the information
- In the ideal world, what would our survey look like according to our respondents?

Expected Length of Interview: 1 - 1½ hours

Materials Needed:

- Consent forms.
- Digital recorder.
- Draft Survey Items (copies of relevant surveys and specific questions)
- Bring list of industries (i.e. KAUs)
- Information on Respondent's answers to selected questions from in-scope surveys (these can be screen shots or some other form of record of the participants' responses). These will be transported and secured by the researcher using the double envelope method, per Census Bureau security requirements.

Introduction:

- Explain purpose of meeting:
 - Feedback on how company records are kept to help inform content definition, design of instrument, unit(s) of collection, and collection strategy for our surveys
 - Assess the gap of availability of data between company record keeping, our surveys, and the needs of our data users

- **Can you give us a brief description of how your company is organized?**
- **What is your fiscal year?**

Next, we would like to get some background information on how your chart of accounts is designed. Here is a generic example of a chart of accounts. For each of these categories, I would like you to discuss how your company's chart of accounts is set up.

- **How are ASSETS setup in your chart of accounts based on:**
 - your company's organizational structure
 - the industry(ies) that your company operates in
 - level of detail for inventory within chart of accounts i.e. by location
- **How is INCOME setup in your chart of accounts based on:**
 - your company's organizational structure
 - the industry(ies) that your company operates in
 - level of detail for trades operating in (i.e. wholesale/manufacturing)
- **How are EXPENSES setup in your chart of accounts based on:**
 - your company's organizational structure
 - the industry(ies) that your company operates in
- **Is information for these categories (assets, income, expenses, etc.) typically kept for each physical location in your records?**
 - Yes No
- **If yes:**
 - **Can you tell us more about why the company has decided to do this?**
- **What types of reports do you create (i.e. payroll, sales, expenses, external reporting)? How often (i.e. weekly, monthly)?**
- **Can your system run reports by physical location?**
 - **If so, what types of reports do you run?**
 - **If not, what is the most detailed level can you run?**
 - **Run reports at state-level? Geography?**
- **What type of software is used to create/maintain your records?**

- **How is the data captured to create your records for each data item? *Each sales transaction? Different department's with-in company? Accountants/HR at individual physical locations?***
- **Where does the data captured to complete external reports reside?**

Thank you for that background information, it is very helpful. Now I would like to present you some questions asked in surveys you may have previously received (if necessary, utilize information from respondents' prior responses)

Sales/receipts/revenues

Show questions on forms. With your records in mind, I would like you to walk me through how you would/did obtain information to answer this question.

How easy or difficult is it for you to answer this survey questions?

If difficult, why? Is it due to definitional differences? Definitions of the content/topic or something else? E.g., industry, reporting unit? Timing? Access to data? Data sources?

If mismatch occurs, probe ease/difficulty of resolving based on respondent's records. This includes discussing the instructions and includes/excludes. Do they map industry to content or map content to industry? How detailed is this information kept?

Inventory

Show questions on forms. With your records in mind, I would like you to walk me through how you would/did obtain information to answer this question.

How easy or difficult is it for you to answer this survey questions? *If retailer, would removing the word "merchandise" change the way you answer the question.*

If difficult, why? Is it due to definitional differences? Definitions of the content/topic or something else? E.g., industry, reporting unit? Timing? Access to data? Data sources?

If mismatch occurs, probe ease/difficulty of resolving based on respondent's records. This includes discussing the instructions and includes/excludes. Do they map industry to content or map content to industry? How detailed is this information kept?

Expenses, including payroll and employment

Show questions on forms. With your records in mind, I would like you to walk me through how you would/did obtain information to answer this question.

How easy or difficult is it for you to answer this survey questions?

If difficult, why? Is it due to definitional differences? Definitions of the content/topic or something else? E.g., industry, reporting unit? Timing? Access to data? Data sources?

If mismatch occurs, probe ease/difficulty of resolving based on respondent's records. This includes discussing the instructions and includes/excludes. Do they map industry to content or map content to industry? How detailed is this information kept?

Capital Expenditures

Show questions on forms. With your records in mind, I would like you to walk me through how you would/did obtain information to answer this question.

How easy or difficult is it for you to answer this survey questions?

If difficult, why? Is it due to definitional differences? Definitions of the content/topic or something else? E.g., industry, reporting unit? Timing? Access to data? Data sources?

If mismatch occurs, probe ease/difficulty of resolving based on respondent's records. This includes discussing the instructions and includes/excludes. Do they map industry to content or map content to industry? How detailed is this information kept?

Business segments by industry (kind of business)

Show questions on forms. With your records in mind, I would like you to walk me through how you would/did obtain information to answer this question.

How easy or difficult is it for you to answer this survey questions?

If difficult, why? Is it due to definitional differences? Definitions of the content/topic or something else? E.g., industry, reporting unit? Timing? Access to data? Data sources?

If mismatch occurs, probe ease/difficulty of resolving based on respondent's records. This includes discussing the instructions and includes/excludes. Do they map industry to content or map content to industry? How detailed is this information kept?

- **Lastly, we would like to hear if you have any suggestions on the way we structure, organize, design, and/or deliver our surveys?** *(e.g., topics, industries, company structure (e.g., departments), timing)? If topic based modules, all at one time or staggered*
- **In the ideal world, what would our survey look like?**
(e.g., topics, industries, company structure (e.g., departments), timing)? If topic based modules, all at one time or staggered
- **If you received an overall survey for your company, and it asked for each of the categories we talked about at the start (assets, incomes, expenses...) for the overall company and then for each industry you operate in, would that change the way you are currently reporting and why?**
- **Do you have any questions or concerns based upon what we have discussed today?**

Thank you for your time.

Appendix B

Cognitive Interviewing for the Content Harmonization and Collection Unit Determination Instrument – Revised 11/18/20

Protocol

Hello; may I speak to [PIPED TEXT FOR CONTACT NAME]?

This is [Name]. I am a researcher with the Census Bureau's Economic Statistical Methods Division.

Thank you for your time today. We are looking to obtain feedback on how company records are kept to help inform content definition, survey instrument design, units of collection, and collection strategy for our surveys, as well as assess the gap of availability of data between company record keeping, our surveys, and the needs of our data users.

I see that you have completed your consent form; thank you for that! Just to reiterate, this study is being conducted under the authority of Title 13 of the United States Code. We plan to use your feedback to inform changes to our surveys.

[If applicable:]

We have a few additional researchers listening in on our conversation today, though they will not be participating. This staff is assigned to this project and are under the same requirements as I am with regard to keeping your information and the information about your business confidential.

To make sure I'm capturing all of the important information, the consent form included information about recording our session. I'm going to turn on the recorder now, and I will again ask for your consent to proceed, just so that I have it on the tape. <turn on recording> Do you give your consent to participate in this research and be recorded?

Great - let's get started with some background information about your business.

Respondent Background:

What is your job title?

What is your role in the business?

What kind of responsibilities do you have?

What is your role relative to the company's financial reporting needs?

Do you have a role in any external company reporting?

Yes (1)

No (2)

Display This Question: If Q = Yes

Describe your role in external company reporting.

What is your role in completing government surveys?

Do you work with anyone else in your company to get the data for government surveys?

Do you ask people in other parts of the company for data requested on government surveys?

Yes (1)

No (2)

Display This Question: If question = No

Can/do you query databases yourself to answer government surveys?

Do you need multiple databases or are your systems integrated, or something in between? In what way?

Display This Question: If question = Yes

How are those other people involved?

How do you contact others who provide data to you for government surveys? Phone, email, some

other way, some combination?
How many people are involved?

Here we will show the reporting history for this company, including:

Response status for 2017 Economic Census

Response status for Annual surveys

Response status for Quarterly surveys

Probes:

Do you remember completing the following surveys? What do you remember about them?

What are the major factors that encourage you to respond to Census Bureau surveys?

Could you tell me a little bit about your business?

What types of goods or services does this business provide?

Which industry(ies) does your company operate in?

Interviewer: Searchable NAICS documentation available here: [Click here for NAICS codes](#)

Currently, the Census Bureau has the following NAICS codes associated with this business:
<<INSERT PIPED NAICS CODES HERE>>

Q13 Briefly, can you describe how your company is organized?

What is your fiscal year?

What is the first month and day and the last month and day?

First month: _____

First day: _____

Last month: _____

Last day: _____

Chart of Accounts

Next, I'd like to get some background information on how your chart of accounts is designed. I'm going to ask you about categories commonly found on charts of accounts. I would like for you to discuss how your company's chart of accounts is set up relative to these categories.

Let's start with Expenses:

How are expenses set up in your chart of accounts based on:

- your company's organizational structure?
- the industry(ies) that your company operates within?
- the level of detail for inventory within chart of accounts with regard to:
 - Product lines?
 - Location (establishment)?
 - Kind of activity (KAU), e.g., manufacturing plants, retail stores, etc.?

Next, let's look at REVENUE:

How is income set up in your chart of accounts based on:

- your company's organizational structure?
- the industry(ies) that your company operates within?
- the level of detail for inventory within chart of accounts with regard to:
 - Product lines?
 - Location (establishment)?
 - Kind of activity (KAU), e.g., manufacturing plants, retail stores, etc.?

Finally, let's look at ASSETS:

How are assets set up in your chart of accounts based on:

- your company's organizational structure?
- the industry(ies) that your company operates within?
- the level of detail for inventory within chart of accounts with regard to:
 - Product lines?
 - Location (establishment)?
 - Kind of activity (KAU), e.g., manufacturing plants, retail stores, etc.?

Ok, now I'm going to have you do an activity we call "card sorting." Card sorting is a method of categorizing information based on similar attributes or uses. This may be the first time you've done an exercise like this, so I thought we could start with a practice.

[Instruct respondent to click on the URL you emailed to them]

Here, you'll see four categories - very far, far, close, very close - followed by five American cities. Please categorize each of the cities based on your location right now. And, while you are working through this, please think aloud - that is, let me know what you're doing and, more importantly, what you're doing.

Items	Very far	Far
Pittsburgh, Pennsylvania		
Miami, Florida		
Chicago, Illinois		
Seattle, Washington		
Denver, Colorado	Close	Very close

Alright! Thank you!

Advance to the next screen, and let's try the first card sort using a Census Bureau question.

For this, first, you'll see a question based on a Census Bureau survey. Then, I'd like you to 'sort' how accessible or inaccessible the answer to that question at various levels of organization at your business into four categories:

- **GREEN:** Easily accessible: The information is easily and readily available
- **YELLOW:** Accessible with minor effort: The information is available at a central location, but not in the group accounts, which requires more effort.
- **ORANGE:** Accessible with major effort: The information is available but decentralized (general ledger level), which requires considerable effort to acquire.
- **RED:** Inaccessible: The information is not available.

Question: What were the TOTAL sales, revenue, and other operating receipts for this business unit in 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Ok, on to the next question. Remember to think aloud as you organize the different levels of your business.

Question: What were the TOTAL e-Commerce sales for this business unit in 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Let's turn our attention to expenses now.

Question: What were the TOTAL operating expenses for this business unit in 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Q31

And next, payroll.

Question: What was the annual payroll before deductions for this business unit in 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Question: What were the employer's 2019 annual costs for each of the following at each business unit:

- **Health Insurance?** - Insurance premiums for hospitals, medical plans, and single service plans such as dental, vision, and prescription drug plans.
- **Defined benefit pension plans?** - Costs for both qualified and nonqualified defined benefit pension plans. Plans that specify the benefit to be paid to employees upon retirement, generally either a specific amount or a percentage of compensation. Employer contributions are based on actuarial computations that include an employee's compensation and years of service and are not allocated to specific accounts maintained for employees.
- **Defined contribution plans?** - Costs for defined contribution plans. Pension plans that define the employer contributions to a separate account provided for each employee. The employee "benefit" at retirement depends on the amount contributed and the results of the account's activity.
- **Payroll taxes, employer-paid insurance premiums, and other employer-paid benefits?**

In the boxes below, enter G, Y, O, or R depending on the accessibility of the information at each business unit.

	Health insurance	Defined benefit pension plan	Defined contribution plans	Payroll taxes, employer-paid insurance premiums, and other employer-paid benefits
By overall company	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
By each company location (establishment)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
By industry (NAICS)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
By product line (NAPCS)	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

And next, inventory.

Question: Did this [business unit] own inventories, regardless of where held, at the end of 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Q37

And now finally, capital assets.

Question: What were the total capital assets for this [business unit] in 2019?

Items		
By overall company	Green - Easily Accessible	Yellow - Accessible with minor effort
By each company location (establishment)		
By industry (NAICS)	Orange - Accessible with major effort	Red: Inaccessible
By product line (NAPCS)		

Probes:

[If report Red: inaccessible for any item] You reported that this data is inaccessible (Red) by [xxx level of organization], can you tell me what you would do in the case where this data was requested at that level?

How easy or difficult was it for you to think through the accessibility of this information?

If difficult, why? Some anticipated examples might be: definitional differences, timing, access to data, data sources, industry, and reporting unit.

If difficult, how easy or difficult would it be to resolve these issues? What definitions, instructions, or other language do you think you might need on a survey to accurately report your data?

Lastly, I would like to hear any suggestions you have on the way we structure, organize, design, and/or deliver our surveys? Examples include: topics, industries, company structure (e.g., departments), timing.

In the ideal world, what would our survey look like? Examples include: topics, industries, company structure (e.g., departments), timing.

If you received an overall survey for your company, and it asked for each of the topics we have talked about today - assets, incomes, and expenses - for the overall company and then for each industry you operate in, would that change the way you are currently reporting your company data? How and why?

Any other questions, comments, or suggestions? [Capture here].

Thank you so much for your time and attention!