

# Innovations for the 2020 Census

## Interim Report

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# Innovations for the 2020 Census

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## Executive Summary.

# Innovations for a 21st Century Census

The 2020 Census has incorporated many innovations to promote greater participation across the nation, streamline data collection procedures, and ensure the security of the data collected. These innovations are prevalent throughout the census cycle and are intended to improve the national address roster, marketing, ease of self-response, field management of nonresponse followup, and completeness of the final data set. The 2020 Census is utilizing Web-based technology to enhance self-response rates, participation among the traditionally undercounted, and manage the vast field operations of nearly 500,000 staff.

**Identifying where to count.** Using the geospatial technology of aerial photography and Geographic Information Systems, the Census Bureau's Master Address File (MAF) is the most complete list of residential locations ever assembled. This tool helps

the U.S. Census Bureau more efficiently reach all households across the nation.

**Motivating people to participate.** The 2020 Census employs state-of-the-art marketing tools to target multicultural audiences throughout the country. Data analytics will be used to carefully monitor self-response rates to identify areas for additional marketing attention, application of mobile response units, and other follow-up activities.

**Facilitating self-response.** The introduction of Internet and telephone alternatives will greatly enhance people's ability to respond to the 2020 Census. Respondents will also continue to have the choice to respond using the traditional paper version of the questionnaire.

**Streamlining nonresponse followup.** The oversight and management of hundreds of thousands of field enumerators that contact households that do not self-respond is a challenging undertaking. The Census Bureau has employed a series of electronic technologies to facilitate an efficient system to hire, train, communicate with, and manage this large workforce. New software capabilities optimize daily route assignments, monitors progress, and ensures rapid quality control of field work.

**Expanding outreach, digitizing communication, and widening partnerships.** The Census Bureau has conducted extensive outreach and communication at the national, state, and local levels to educate and motivate the general public about their civic duty to participate in the census. We have reached

out to the entire higher education community, school districts nationwide, businesses large and small, local civic organizations, faith-based groups, and many others to engage their support for the census. The response has been exhilarating as, to date, more than 265,000 partners have agreed to help.

**Data security.** The introduction of Web-based data collection options requires ongoing cybersecurity vigilance to safeguard household responses from outside interference. The Census Bureau has introduced a wide range of best-practice security innovations to protect the privacy and confidentiality of 2020 Census data.

Table 1.

**INNOVATIONS FOR THE 2020 CENSUS**

<b>I. Census Operations</b>		
<b>Innovation</b>	<b>Specific Activities</b>	<b>Outcome</b>
Knowing where to count: The Master Address File (MAF)	<ul style="list-style-type: none"> <li>• Geographic information systems.</li> <li>• Aerial photography.</li> <li>• Early coordination with the U.S. Postal Service, and state, local, and tribal governments.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater address and location accuracy.</li> <li>• More recent data.</li> <li>• Reduced resource requirements.</li> </ul>
Motivating people to respond	<ul style="list-style-type: none"> <li>• More robust partnerships and communications campaign.</li> <li>• Partnership specialists in the community.</li> </ul>	<ul style="list-style-type: none"> <li>• Marketing messages will reach 99 percent of the population up to 61 times.</li> <li>• Partnership specialists serving as trusted voices to enhance participation.</li> </ul>
Facilitating self-response	<ul style="list-style-type: none"> <li>• Web-based option.</li> <li>• Mobile response capability.</li> <li>• Telephone response option.</li> <li>• Improved language program.</li> </ul>	<ul style="list-style-type: none"> <li>• Ease of participation.</li> <li>• Improved response options for the traditionally hard-to-count.</li> <li>• Reduced nonresponse followup requirement.</li> </ul>
Streamlining nonresponse followup	<ul style="list-style-type: none"> <li>• All electronic recruitment, hiring, management, timecards, payroll, and assignments.</li> </ul>	<ul style="list-style-type: none"> <li>• Management efficiencies.</li> <li>• Improved data quality.</li> </ul>
<b>II. Outreach, Communication, and Partnership</b>		
<b>Innovation</b>	<b>Specific Activities</b>	<b>Outcome</b>
Outreach	<ul style="list-style-type: none"> <li>• Address populations hard to reach.</li> <li>• Engagement of institutions of higher education (letters to over 6,000 presidents).</li> <li>• Improved system for tracking partners called the Customer Relationship Management system.</li> </ul>	<ul style="list-style-type: none"> <li>• Advertising focus on multicultural and hard to count.</li> <li>• Expanded outreach to students.</li> <li>• More precise targeting of communications and partnership assistance to enhance response rates.</li> </ul>
Communication—Partnerships	<ul style="list-style-type: none"> <li>• Partnership recruitment.</li> <li>• Integrated communications campaign.</li> <li>• Utilization of digital advertising.</li> </ul>	<ul style="list-style-type: none"> <li>• Improved utilization of partnership capabilities in hard-to-count areas.</li> <li>• Expanded reach to households.</li> </ul>
<b>III. Protecting the Data</b>		
<b>Innovation</b>	<b>Specific Activities</b>	<b>Outcome</b>
Cybersecurity Fraud Protection Data Privacy	<ul style="list-style-type: none"> <li>• Partnership with industry and government agencies.</li> <li>• NIST framework assessment.</li> <li>• Model based response.</li> <li>• Privacy and confidentiality best practices.</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to protect, detect, respond, and recover firmly identified events.</li> <li>• Protect and preserve the integrity of the data.</li> </ul>





As mandated by the U.S. Constitution, since 1790 our nation gets just one chance each decade to count its population. The 2020 Census will employ up to 500,000 office and field staff nationally, which is the largest nonmilitary mobilization of the American public.

## Chapter 1. History and Process

### THE IMPORTANCE OF THE CENSUS

As mandated by the U.S. Constitution, our nation gets one chance each decade to count its population. The decennial census is designed to count everyone living in the United States. It is mandated by Article I, Section 2 of the Constitution. In 1790, Secretary of State Thomas Jefferson headed the first census conducted by 650 U.S. Marshals. It is now conducted by the Census Bureau, a bureau within the Department of Commerce, located in Suitland, Maryland. For the 2020 Census, the Census Bureau will employ as many as 500,000 census takers and other temporary workers, many with local or direct ties to the neighborhoods they count.

The decennial census has three significant purposes:

- First, the census count determines the apportionment of congressional seats in the House of Representatives. Each state receives at least one representative, the remaining 385 members of the House of Representatives are apportioned among the states based on the count of each states' total population. After each census, the number of representatives from each state may change, as well as the boundaries and population centers of each congressional district.
- Second, the census generates the population counts that help determine how the government will allocate hundreds of billions of dollars in federal funding each year. These funds are used for infrastructure and services including health care, schools, emergency response, and social services, among others. By having a complete and accurate count of the nation's population, services tied to population are more effectively and fairly apportioned.
- Finally, the census creates one of the most statistically sound data sets in the world. People use census data for economic, political, commercial, health, and related uses. Urban and rural planners, as well as researchers, use the data to track population growth and movement. The data also inform business decisions. For example, Census Bureau data help stores decide how to stock their shelves and companies decide where to open a business.

The importance of census data will continue to grow. Our country has evolved through the industrial and agricultural revolutions, which shaped the way our businesses and households operate. We

are in the midst of a technological and data revolution, where businesses and technology companies rely on timely data for cutting-edge decisions and innovations.

## TECHNOLOGICAL INNOVATION AND THE DECENNIAL CENSUS

The 2020 Census builds on the long history of technological innovation that drives the decennial census.

The census requires the largest nonmilitary mobilization of the American people. Each decennial census is a time to create a better, more effective system to count a larger and ever-more complex population. Historical innovations with roots in the Census Bureau include:

- **The Hollerith machine.** A precursor of the modern computer, this machine was created in the late 1800s to read census data cards.



The Hollerith machine, precursor of the modern computer, started in the late 1800s to read census cards, and is part of the long Census Bureau history of technological innovation.

- **Optical character sensing and recognition via a computerized text reader.** The Census Bureau built the Film Optical Sensing Device for Input for Computers (FOSDIC) reader, which converted the census paper questionnaires into



Built by the Census Bureau for the 1960 and 1970 censuses, the Film Optical Sensing Device for Input for Computers (FOSDIC) is another Census Bureau innovation.

an electronic format. The first scantron machine ever built was used in censuses from 1960–1990. In the 2000 census, the Census Bureau relied on the biggest optical character recognition system in existence at that time.

- **A geospatial database of all of the roads in the entire country.** This mapping database was created in 1990 and updated for the 2000 and 2010 censuses. This database became the foundation of all Global Positioning System (GPS) and online mapping programs. At the time, it was the only comprehensive road mapping database of the country available for download and public access. It is referred to as the Topologically Integrated Geographic Encoding and Reference System (TIGER). The TIGER automates the geographic support processes to meet the major geographic needs of the Census Bureau's censuses and surveys.

The Census Bureau also pioneered new ways of conducting surveys and diverse hiring, including:

- **The mailout/mailback survey.** Until 1960, Census Bureau surveys were conducted entirely

by enumerators going door to door. Mail was tested as a vehicle in 1960 and became the norm during the 1970 Census, resulting in significant savings in time and resources.

- **Statistical sampling.** Statisticians at the Census Bureau created the foundation for the statistical sampling field that has become the worldwide standard, dating back to work on the 1940 census.
- **Workplace diversity.** From 1790 to 1870, U.S. Marshals and their temporary assistants acted as census takers. Due to the increase in the scope and complexity of the census, Francis Amasa Walker, then-superintendent of the Census Office, replaced the marshals with

trained enumerators. Walker believed that it was important to hire people who reflected the communities that they counted, which in turn would increase participation. For this reason, he sought to hire a diverse workforce that included widows of Union veterans, freed slaves, and disabled soldiers. This diversity of hiring also included employees in the regional and headquarters offices, where women and minorities generally worked as clerks or in the tabulation divisions. With the advent of the Hollerith tabulating machine in 1890, women and minorities moved into the role of keypunchers. When the Census Bureau became a permanent agency in 1902, half of the permanent employees were women.



Each decennial census hires hundreds of thousands of new workers, the largest nonmilitary mobilization of the American public. The emphasis on hiring directly from local communities has historically provided new inroads to women and minorities who had previously experienced barriers in the workplace.

# Accessing genealogy records

Every 10 years, another set of census data from 72 years prior is released. These records are a major input for genealogy and ancestry programs, allowing people to access information about their family history.

The image shows a detailed 1940 Census population schedule for Autauga County, Alabama. The document is titled 'POPULATION SCHEDULE' and is part of the 'SIXTEENTH CENSUS OF THE UNITED STATES: 1940'. It includes household data, names, relationships, and various statistics for individuals and households. The census was conducted on April 1, 1940, in Prattville, Alabama. The population schedule is numbered 1 and is part of a set of 100 sheets. The name of the enumerator is Lucy V. McCarry.

A sample of the 1940 Census results—Autauga County, Alabama

<[https://1940census.archives.gov/search/?search.result\\_type=image&search.state=AL&search.county=&search.city=#](https://1940census.archives.gov/search/?search.result_type=image&search.state=AL&search.county=&search.city=#)>

# The Evolution of Innovation



Statistical Atlas/Data Visualizations



Permanent Census Bureau



UNIVAC

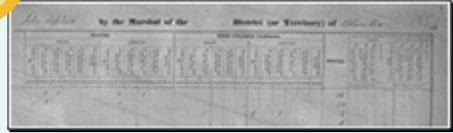


Mail Out/Mail Back

American Community Survey



1830



Uniform Printed Schedules

1870



Hollerith Tabulating Machine

1902

I. SELECTOR AND RESPONSE DATA										II. CHARACTERISTICS OF STRUCTURE									
Block No.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Statistical Sampling/Long Form

1950

1940

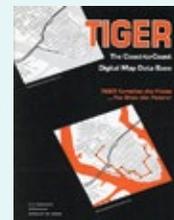


FOSDIC

1970

1960

TIGER



2010

1990

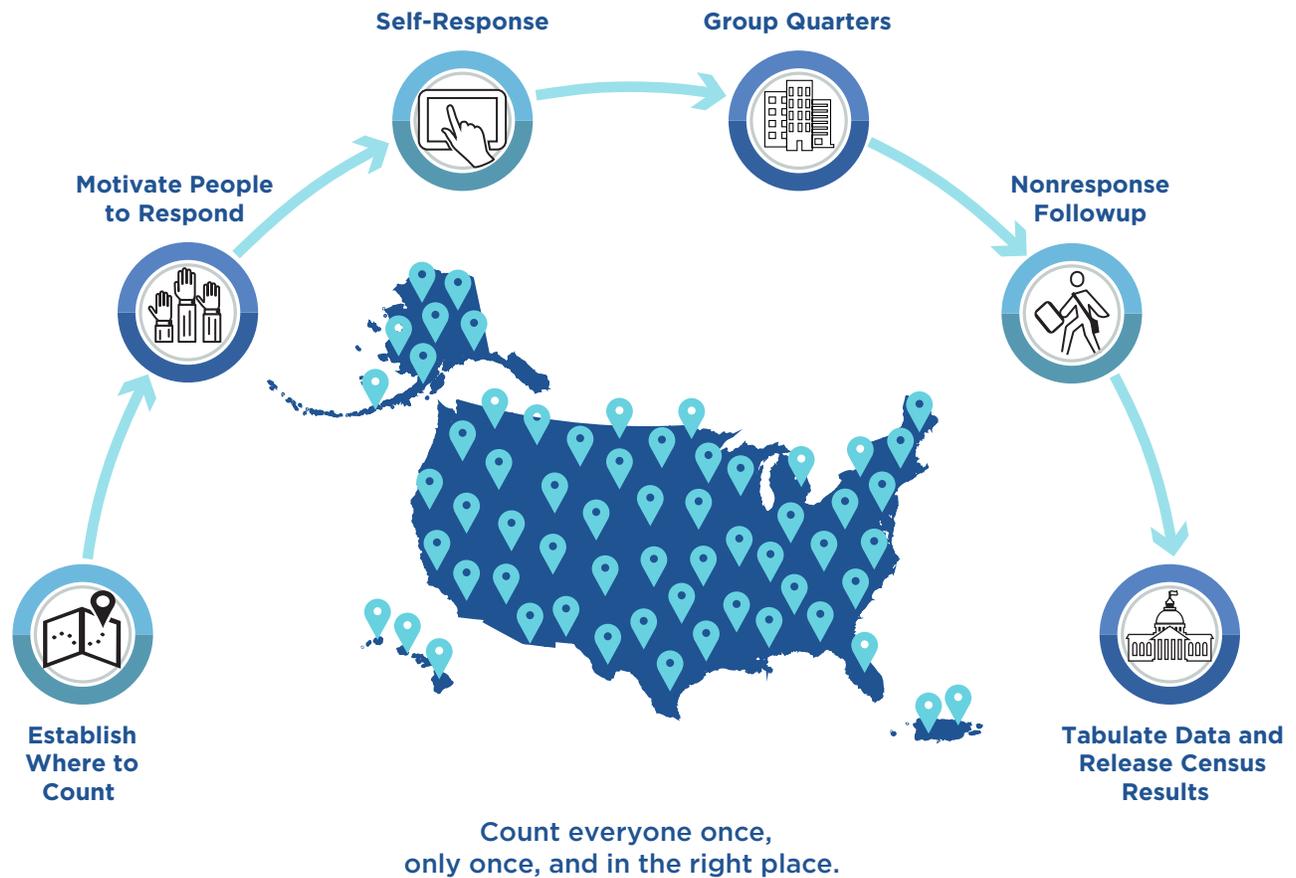
2020

Online Response



# 2020 Census

A complete and accurate count of the population and housing in the United States



## WHAT IT TAKES TO GET IT DONE

Conducting the decennial census is a complex and monumental task. It progresses through a series of key phases as outlined on page 15.

### Establish Where to Count

The decennial census begins with the development of the list of household addresses, which determines where we count the population. The Census Bureau maintains the most complete and accurate address list of the United States in existence, and each decade it must be checked to ensure that new housing has been added, housing that no longer exists is removed, and that all housing units are accurately placed within the correct geographic boundaries. In past decades, this has required well over 100,000 census listers to walk every street in America to check the addresses.

### Motivate People to Respond

Then the Census Bureau must motivate people to respond to the mailings that will initiate the Self-Response operation, when every household is encouraged to provide their responses to the census questionnaire. Self-response data provided by the household are more accurate and cost-effective for the Census Bureau. The 2020 Census employs a nationwide communications campaign to educate and motivate people to participate in the enumeration.

### Self-Response

The Census Bureau then begins the process of gathering data on the people living in the country. Up until 1960, this was done by sending a census taker to interview every housing unit. From 1970 to 2010, a census questionnaire was mailed to every housing unit and people were

encouraged to send it back. In 2020, people will be invited to respond via the Internet, over the telephone, or by returning a paper census questionnaire.

### Account for People Living in Unique Situations

The decennial census must include everyone living in the United States. Special operations are used to enumerate the people living in nontraditional housing units. This includes people in nursing homes, college dormitories, the military, migratory farm workers, people in prisons, and people experiencing homelessness. Special operations are also conducted to account for people living in very rural or remote areas, federal employees, and military personnel stationed overseas. These operations are described in detail on the next page.

### Nonresponse Followup

The Census Bureau must also include all of the people who do not respond to the census after they have been contacted. This is by far the most expensive phase of the decennial census because it involves hiring, training, and deploying hundreds of thousands of census takers who must knock on doors and interview every nonresponding household.

### Process, Tabulate, and Release Census Results

Finally, data collected by the Census Bureau is tabulated, and the apportionment counts are delivered to the President by December 31, 2020. Redistricting data are then delivered to the states by March 31, 2021 followed by detailed statistics on the American population.

**THE 2020 CENSUS ENCOMPASSES NUMEROUS LINES OF BUSINESS NECESSARY FOR A SUCCESSFUL NATIONAL ENUMERATION**

Line of Business	Activity
Real estate	2,856,000 square feet of rentable office space 248 area census offices 6 regional census centers 10 telephone call centers 2 paper data capture centers
Human resources	Up to 500,000 people to hire and train
Printing	1.6 billion printed items
Mailing/postage	\$230-\$240 million in postage 588 million mail pieces
IT security	Secure deployment, mentoring, and protection
Equipment	56,000 Laptops 30,000 Tablets 477,000 Smartphones
Marketing	\$500 million advertising/communication campaign to motivate, remind, and thank participants  94 hours of video content tailored to all segments of the population

**Counting People Living in Unique Situations**

**Enumeration at Transitory Locations.** Counts people at transitory locations who do not have a usual home elsewhere. Transitory locations include recreational vehicle parks, campgrounds, racetracks, circuses, carnivals, marinas, hotels, and motels.

**Federally Affiliated Enumeration Overseas.** Counts by home state the U.S. military and federal civilian employees stationed or deployed overseas and their dependents living with them.

**Group Quarters Enumeration.** Counts people living in group quarters (e.g., college/university student housing, residential treatment centers, nursing/skilled nursing facilities, group homes, correctional facilities, workers' dormitories, and domestic violence shelters).

**Service-Based Enumeration.** Counts people experiencing homelessness or utilizing

transitional shelters, soup kitchens, regularly scheduled mobile food vans, and targeted nonsheltered outdoor locations.

**Update Enumerate.** Counts people in very remote areas where the Census Bureau conducts a direct enumeration, visiting and interviewing each housing unit.

**Update Leave Enumeration.** Counts people in areas where the majority of housing units do not have or receive mail through city-style addresses, receive mail at post office boxes, have been affected by major disasters, or are seasonally vacant housing. The address is updated and the people living there will be offered three different ways to complete the questionnaire including Internet, phone, or by mailing back a completed paper questionnaire.

## Counting Hard-to-Reach Populations in Northern Alaska

In January, the 2020 Census count began in Alaska's Toksook Bay, a rural village on the Bering Sea that can only be reached by snow machine or bush plane when the ground is still frozen.

As the census is committed to counting every person once, only once, and in the right place, special efforts must be made to enumerate people who live in hard-to-reach places such as rural Alaska. In large portions of Alaska that are not connected by roads and have irregular mail service and no access to Internet, census takers must do an in-person count. In the spring, when most of the

country is counted, the tundra is thawing and parts of rural Alaska turn to an impassable swamp. Therefore, the census takers begin in January in Alaska—when the tundra is frozen and the population is easier to reach.

As in previous decennial census counts, the Census Bureau director visited rural Alaska in January 2020 to mark the official beginning of the national count. Traveling in subzero temperatures and working with local residents, Census Bureau staff will make sure that every person in Alaska is counted. The count began on January 21, 2020.



Every decennial census begins with counting villages in remote Alaska on the Bering Sea, which can only be reached by traveling frozen terrain in winter months. In warmer temperatures when the ice thaws, much of the region is impassable.





## Chapter 2.

# Operations

### PLANNING FOR A 21ST CENTURY CENSUS

The decennial census requires the largest nonmilitary mobilization of the American people and infrastructure conducted by the U.S. government. The majority of this work and the associated costs are related to three key areas of the census: determining where to count, providing an opportunity for the public to respond, and following up with those that do not return a census questionnaire. When the Census Bureau began efforts to modernize the census design by leveraging technology and data, we focused on the following four innovation areas:

- Reengineering address canvassing.
- Optimizing self-response.
- Utilizing administrative records and third-party data.
- Reengineering field operations.

These innovation areas represented significant cost-savings opportunities, as they rely heavily on new technology and working smarter. The four innovation areas explored through research, development, and testing for the 2020 Census design mirror the operational progression of the decennial census. Each area leverages data and technology in new ways to increase efficiency and potentially contain costs as the Census Bureau establishes where to count people, motivates and enables households to respond to the census, and follows up with those households that do not submit the census questionnaire.

## ESTABLISHING WHERE TO COUNT

One of the most labor-intensive tasks for any decennial census is compiling an accurate and complete list of all the household addresses in the United States. This list is the basis for delivering the invitations to respond to the census and following up with those households that do not submit a census questionnaire. It is developed throughout the decade using data from the Census Bureau, U.S. Postal Service, and state, tribal, and local governments.

In previous years, Census Bureau listers checked the accuracy and completeness of the address list by walking the 11 million blocks in the country. From major streets and rural roads, to back alleys and unconventional living arrangements, census listers would manually ensure that every housing unit was accounted for in the Master Address File (MAF).

For the 2020 Census, the Census Bureau first utilized aerial and satellite images from the National Geospatial-Intelligence Agency to supplement

continuous updates from the U.S. Postal Service and state, local, and tribal governments.

Housing blocks were classified into three categories:

- **Active blocks** were those images that had changed from their 2009 counterparts and/or the Census Bureau was unable to confirm completeness of the MAF. For these active blocks, a lister walked the route to observe and document the updates in housing units, and included these updates in the new MAF.
- **Passive blocks** were those for which no change was made and blocks in which the in-office address update kept up with changes on the ground. Instead of sending a lister to the field, the address list remained as-is, unchanged from the 2010 Census.
- **On-hold blocks** were those captured in images not clear enough to make a determination: perhaps blurry, or under cloud cover,



New for the 2020 Census, the Census Bureau utilized aerial and satellite images to update the master address list on file.

or a problem with the image that would not allow for a clear delineation. In these cases, we requested new images from the National Geospatial-Intelligence Agency. A determination was then made as to how the blocks should be classified.

The Address Canvassing operation was part of a suite of processes employed by the Census Bureau to update and validate the address list for the 2020 Census. The Census Bureau conducted biannual processing of the U.S. Postal Service’s Delivery Sequence File, and regular processing of address data from tribal, state, and local governments. The Census Bureau has long partnered with such organizations to create a full address list, but this time partnerships began earlier in the decade with more effort devoted to maintaining and building these relationships. The Census Bureau also relied on the use of aerial imagery to identify areas where the address list had been stable and unchanged, where it was keeping up with changes on the ground, and where differences existed between the address list and the number of housing units visible in imagery. These coordinated efforts contributed to a more accurate 2020 address list at a much earlier date than in previous decennial census counts.

### Innovation Outcomes

These innovations reduced boots-on-the-ground operations by 70 percent: a drastic shift from 2010 when virtually 100 percent of the country—600 million miles—was walked by Census Bureau staff.

The 2010 Census address canvassing operations consisted of a nearly 100 percent in-field canvassing of the nation’s blocks in FY 2009. This involved the opening of 151 early local census offices (LCOs). The 2020 Census re-engineered address canvassing operations consisted of 100 percent in-office address canvassing of the nation’s blocks, followed by in-field canvassing of just over a third of the nation’s blocks in FY 2019/2020. This involved the opening of 39 early area census offices (ACOs).

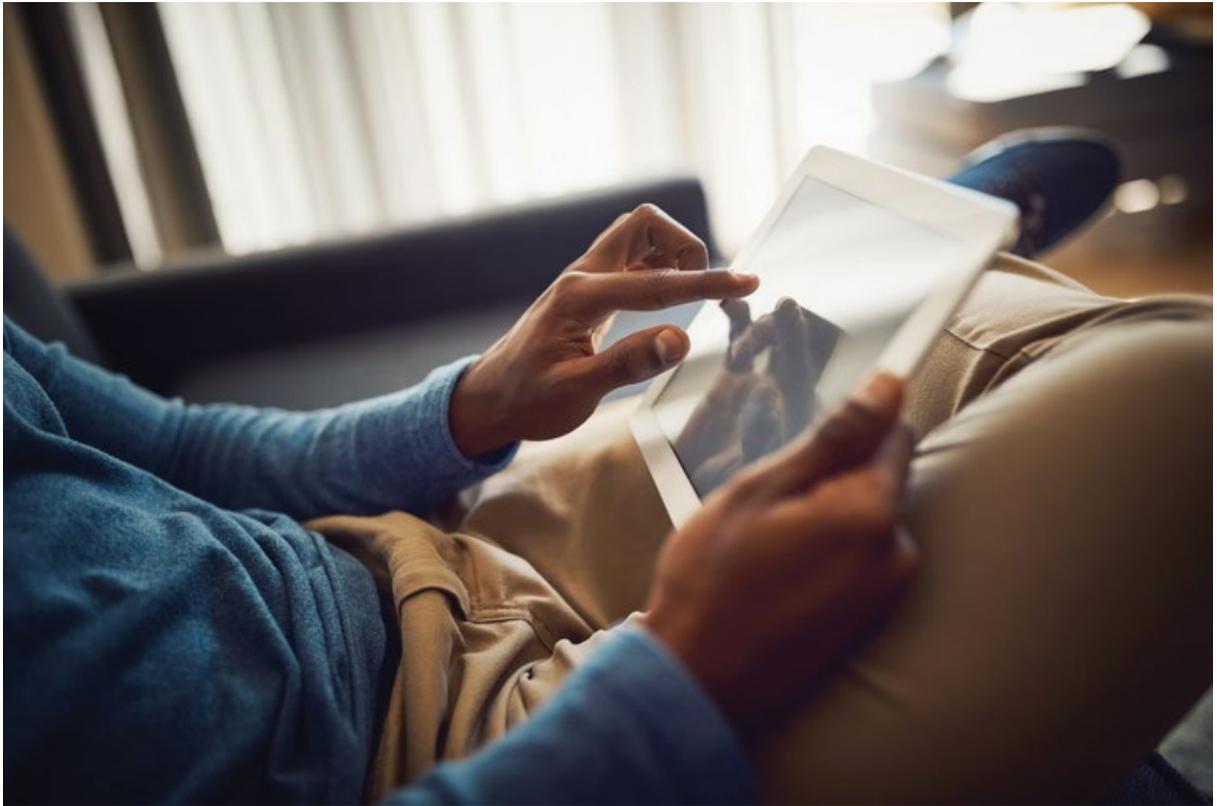
Following preliminary assessment of the field operational costs of the in-field and in-office address canvassing operations as well as the estimated cost of the early ACOs/LCOs, the 2010 Census address canvassing operations cost approximately 2.5 times more than the 2020 Census address canvassing operations in nominal dollars.

#### Address Canvassing Characteristics: 2010 and 2020

	2010 Census	2020 Census
Early field offices	151	39
Total field offices	494	248
Number of staff budgeted for Address Canvassing <sup>1</sup>	130,000	42,000
Address Canvassing productivity (cases/hour) <sup>2</sup>	15.37	21.08

<sup>1</sup> Number of staff are estimated “Deploy to Field” (production and quality control).

<sup>2</sup> 2020 Census Address Canvassing productivity rates are expected, 2010 Census Address Canvassing productivity rates are actual (production).



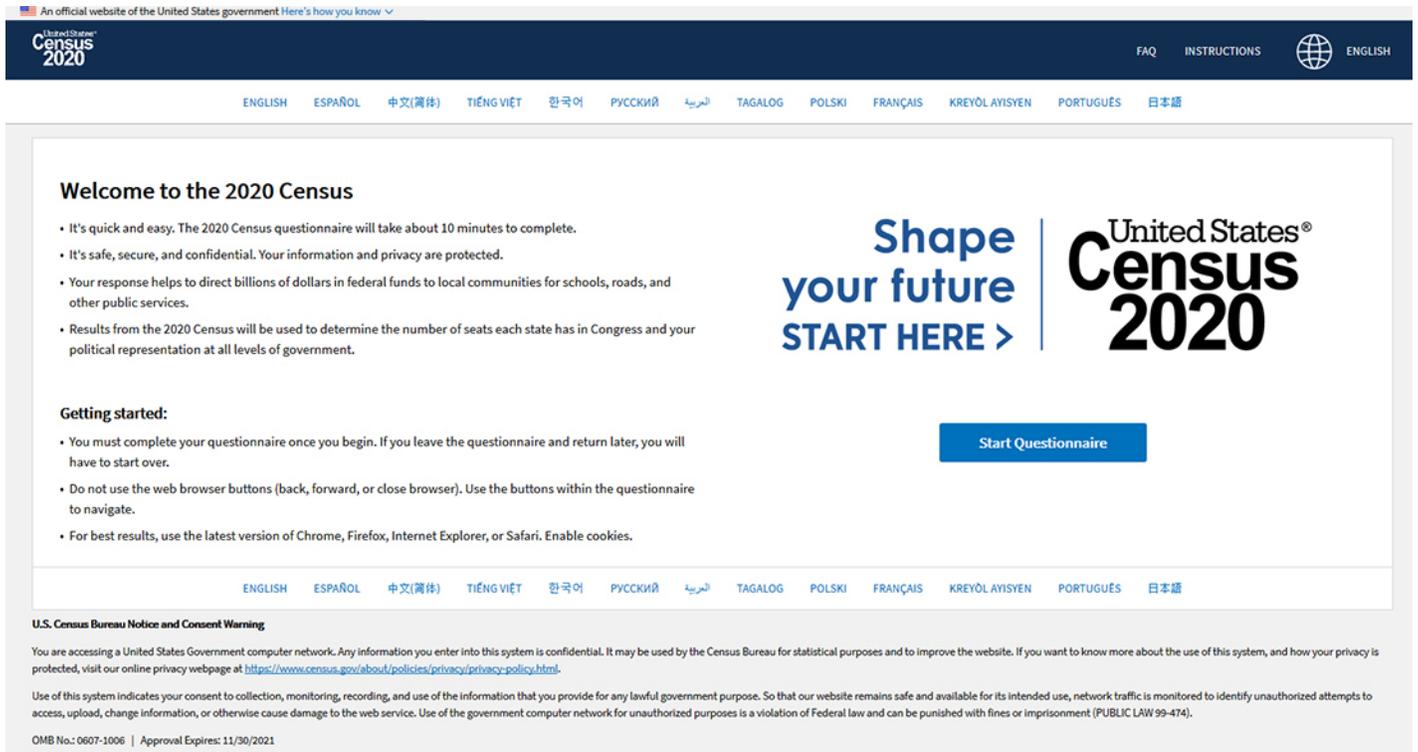
The 2020 Census is now available online. Households will be encouraged to go online and fill it out, though paper questionnaires are still available for families who prefer those.

## RESPONDING TO THE CENSUS

**Internet and telephone make it easier for people to respond to the census.**

The 2020 Census will provide an Internet response option to the general public for the first time. It will also be the first census to promote response over the telephone. Paper questionnaires will also be available giving the public three ways to respond to the census. People will be encouraged to respond via the Internet because research shows that data quality is improved, and costs are reduced as fewer

paper questionnaires need to be scanned and processed. Internet response also makes it easier for people to respond in languages other than English. With three modes of response—Internet, telephone, and paper—the 2020 Census makes it easier than ever before for people to submit their questionnaires.

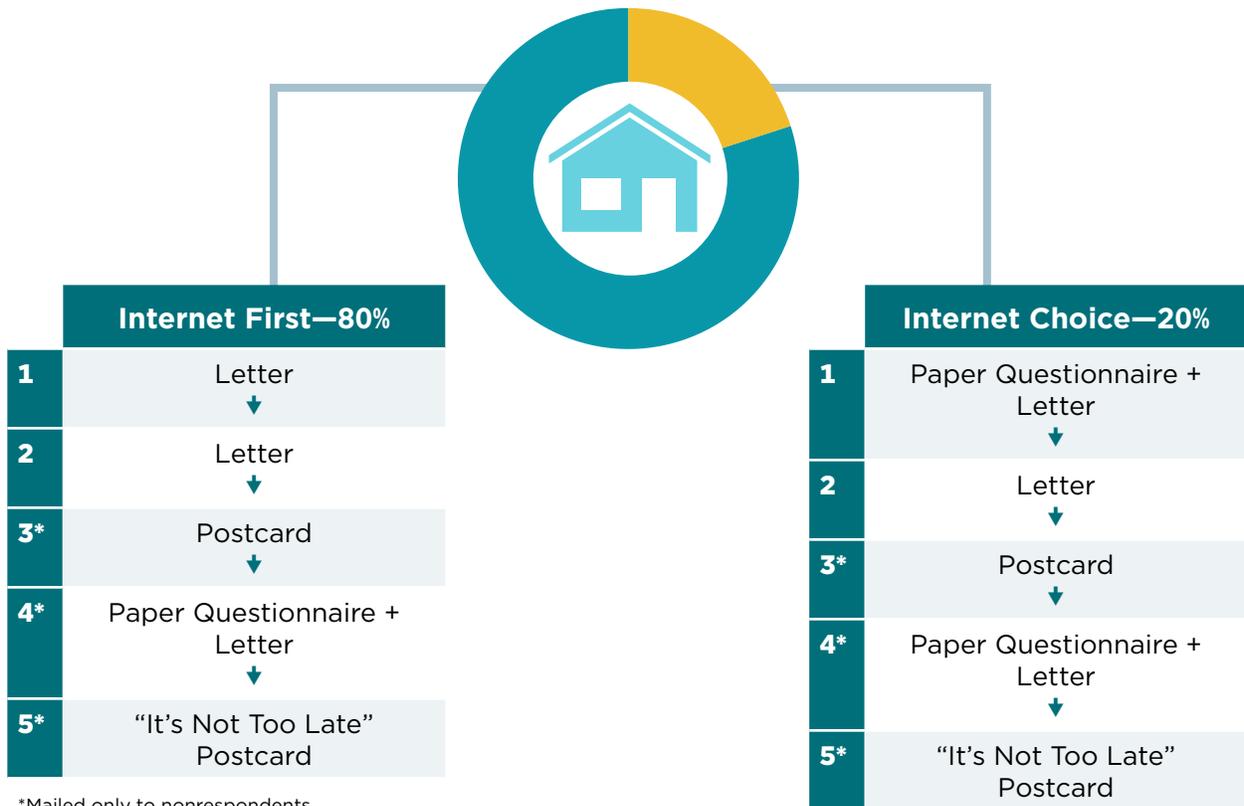


Screenshot of the Web landing page for the 2020 Census questionnaire.

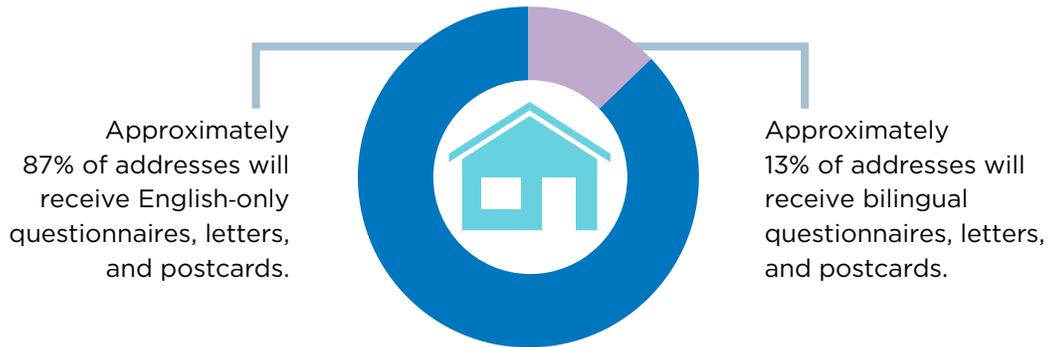
The Census Bureau will send up to *five* paper mailings to every housing unit, urging people to respond to the questionnaire online. This begins with an invitation letter and is followed by reminder letters and post cards. For approximately 20 percent of the country, predominately those living in areas with low Internet connectivity, we include a paper

questionnaire in the first mailing. We call this the “Internet Choice” cohort. The remaining 80 percent are the “Internet First” cohort. We encourage Internet response because our research shows that we get better data and it is more cost effective. By the fourth mailing, every household that has not yet responded will receive the paper questionnaire.

# The 2020 Census: Contact Strategy



\*Mailed only to nonrespondents.



## Real-Time Non-ID Processing

In the 2020 Census, it will be easier than ever for a household to respond without providing a census ID number assigned by the Census Bureau. This ID number has always been required because it enables us to ensure that the address is correctly located on our geographic database. We now have the technology to do this automatically, in real time, without requiring verification by Census Bureau staff in the field. People will enter their address in the Internet response instrument, or provide it to a telephone agent, and Census Bureau systems working behind the scenes will match it to the MAF. This means that people can respond anywhere, anytime, using their smartphones, tablets, or computers. This is a significant innovation that will enable organizations supporting the 2020 Census to respond at conferences, conventions, and faith gatherings.

During previous decennial census operations, partner organizations were encouraged to ask people to go home, find the questionnaire we mailed them, and mail it back. While forms were available for people to fill out in some cases, processing them was inefficient and required field verification. Now, partnership organizations can host an event with mobile devices or computers that people can use to respond to the census questionnaire. They can also just encourage people to take out their smartphones and respond to the census. Partners, like the American Library Association, can also provide access to devices at local libraries. We believe that this will have a significant positive impact on self-response rates.

## Mobile Questionnaire Assistance

The Mobile Questionnaire Assistance (MQA) program is a direct outcome of real-time non-ID processing. This is a field initiative in which Census Bureau staff will work closely with community organizations and local governments to go directly into neighborhoods and visit events, resident gatherings, and high traffic areas with Census Bureau-issued mobile devices. The goal is to boost self-response by providing additional accessibility to make it easier for people to respond to the 2020 Census.

The Census Bureau works with partners across the country to identify key locations in areas with **low self-response rates**. Possible locations include grocery stores and markets, houses of worship before and after services, community festivals, public transit hubs, libraries, community centers, and other locations where people naturally congregate.

MQA staff will help people access the census questionnaire on mobile devices in English, or one of 12 other languages. Respondents will be able to complete the form online or over the phone. MQA staff will also have language guides for the 59 non-English languages the Census Bureau supports. These guides help people by providing translated instructions on how to complete the census questionnaire.

### *Identification of Low Response Areas*

**In late March, initial MQA locations will be based on historical response rates.** The 20 percent of tracts with the lowest historical response rates have been identified as areas for MQA. Partnership specialists will review events and activities planned in these tracts to identify those that are best suited for MQA. Recruiting managers will review the list of MQA events for their area census office (ACO) and will schedule census response representatives (CRRs). When feasible, CRRs will be scheduled to work in MQA locations where they can support a necessary language for that community.

**Beginning in mid-April, the Census Bureau will start identifying on a weekly basis MQA locations based on actual response rates.** The 20 percent of tracts with the lowest actual response rates will be identified. Partnership specialists will again review events and activities planned in these tracts to determine those best suited for MQA. If no events are currently planned then partnership specialists will work with local partners to establish a new event. Recruiting managers will then review the MQA events for their area census office and will schedule the CRRs.

MQA is expected to have a significant positive impact on response rates as well, particularly among traditionally undercounted populations.

## Language Support for the 2020 Census



The 2020 Census is available in 13 languages.

### The Language Program

Language assistance for the 2020 Census goes far beyond anything provided in previous censuses. People can respond via the Internet in the 13 languages in the chart above simply by clicking on that language on the first screen of the response instrument. Telephone agents will be available in each of these languages as well as through dedicated phone lines that will be promoted in communities through advertising and partnership support materials. In addition, language guides will be available in 59 languages. Respondents can use these guides to navigate through the English questionnaire. Online videos in each of the 59 languages will be available as well.

This is a dramatic improvement over 2010 when translated forms were only available by requesting the form through telephone questionnaire assistance centers. The 12 non-English languages

providing a translated response option cover over 98 percent of the households with limited English proficiency. This figure increases to over 99 percent when the language guides in 59 languages are taken into account.

### Innovation Outputs

The goal of these innovations is to make it easier for every person to respond to the census by giving them more options and outlets to do so; and by removing obstacles that stand in the way of self-response. Improvements in self-response and Internet self-response have been associated with enhanced data accuracy. By giving three ways to respond, via Internet, paper questionnaire, or telephone, a greater percentage of the population may be motivated to respond. The Internet option makes it much easier for people who do not speak English to respond, due to the instant availability of census materials in 12 non-English languages.

## LEVERAGING ADMINISTRATIVE DATA

Data that people have already provided to the government can increase the efficiency of Nonresponse Followup operations.

The 2020 Census innovations leverages administrative data in many operations. This includes accounting for households that do not respond to the census. Administrative data can also be used to remove vacant houses from the MAF, which is valuable during enumeration and prevents repeatedly sending census takers to addresses where no one lives. Administrative data can improve on details census takers receive from proxy individuals, such as neighbors or apartment managers.

Administrative data is information people provide to the government. The Census Bureau has access to administrative records from the databases of more than 30 government agencies, including the Internal Revenue Service, Social Security Administration, Department of Housing and Urban Development, U.S. Postal Service, Selective Service System, Indian Health Service, and the Centers

for Medicaid and Medicare Services.

The Census Bureau has a long history of using administrative records to provide quality information about the U.S. population and economy. These data are used to produce population estimates and projections. The 2020 Census will utilize administrative and third-party data to gain information about households that do not respond to the census. The Census Bureau will use this data to enumerate about 6 percent of nonresponding households after determining that the data are high quality.

### Vacant and Nonexisting Housing Units

The use of administrative records also aids in determining which housing units are vacant or nonexisting (e.g., condemned or removed). If administrative data indicates such a unit, the Census Bureau will still send a staff member to the address—at least one time—to verify that no

one is living there. During previous censuses, staff members would visit a home up to six times before determining that no one lived there. With the help of administrative data, the Census Bureau can send a staff member once to make the determination and then do follow-up visits if warranted.

### Innovation Outputs

Using administrative data to compile the 2020 Census improves the data quality and reduce costs, but it must be harnessed appropriately and effectively, with proper oversight. The Census Bureau has established a set of guiding principles to determine which administrative sources are appropriate. However, no one-size-fits-all approach exists for accomplishing this, and the Census Bureau continues to research new ways to create a positive customer experience and improve data quality.



## REENGINEERING FIELD OPERATIONS

Leveraging technology to automate the hiring process, the collection of data, the distribution of work to field personnel, and the collection of payroll and travel information.

Nearly every housing unit in the country is mailed or hand-delivered an invitation to respond to the census, and the Census Bureau goes to great lengths to make sure no one is overlooked. Based on prior analyses of censuses and the American Community Survey, the Census Bureau estimates a 60.5 percent response rate, which means that roughly 40 percent of the population will not reply to the questionnaire prior to the start of Nonresponse Followup (NRFU). Even with the technological innovations made to allow for Internet response and removing the requirement for a census ID, the Census Bureau must still conduct a robust NRFU operation to ensure every household is contacted.

The NRFU operation is the most expensive part of the census. It requires the recruiting, onboarding, and deployment of as many as 500,000 census takers nationwide, and it is the largest nonmilitary mobilization of the American people.

NRFU utilizes robust technological innovations, including the use of mobile devices and real-time data. We have also updated the way enumerators (who conduct NRFU) are hired and paid, allowing for greater efficiency and better oversight.

Early testing by the Census Bureau showed that the “notice of visit” left by enumerators on their first visit generated a spike in self-response: simply seeing the reminder encouraged people to complete and submit their questionnaires.

The innovations surrounding the field operation for the 2020 Census can be divided into three areas: hiring and onboarding, payroll and administration, and workload management.

### Recruiting, Hiring, and Onboarding

In previous decennial census field operations, those seeking to become census takers, field managers, or administrative personnel had to fill out an application by hand in an office, and complete an in-person screening. A Census Bureau employee would key in by hand the responses and scores: a time-consuming and error-prone process.

The 2020 Census has automated all aspects of the application and screening process. This streamlines hiring field personnel, reduces the number of errors, and allows for a more efficient process to bring people on board.

Given the strong economy, the Census Bureau is facing significant challenges recruiting the necessary pool of applicants necessary to hire and deploy a workforce of up to 500,000 that will be needed for all field operations. Automating the process has helped, but we also have increased the pay rates, boosted advertising, and conducted tens of thousands of recruiting events all over the country. We are now on track to reach our goal of an applicant pool of 2.6 million, which is necessary to absorb attrition and ensure that we can hire from the communities where our field staff will be working. The Census Bureau has undertaken a robust campaign to recruit part time enumerators from the local communities necessary to conduct NRFU. Using paid advertising, partnerships with colleges and universities, and support from state and local governments,



the Census Bureau has generated more than 2.2 million applicants as of February 10, 2020.

Once hired, the process for collecting and processing required information for background checks, and much of the training, is automated as well.

### Payroll and Administration

The Census Bureau has automated all aspects of the payroll and administration of field personnel, allowing for better oversight, fewer errors, and a more effective process for the 2020 Census.

### Workload Management

Census takers are responsible for contacting people who have not responded to the census and urging them to do so. Every household that has not responded receives a visit. In previous decennial census counts, some households that sent in a questionnaire later in the census cycle were still counted among those who had not responded, and warranted an unnecessary follow-up visit. The duplication of such efforts was largely unavoidable, given the inability to process paper-based questionnaires on a flow basis in order to remove responses from the nonresponse followup workload. The 2020 Census allows for a daily refresh of data, giving field personnel the most up-to-date information. This will lead to fewer annoying duplicative efforts and greater efficiency, by allowing for the near-immediate removal of households for which census responses have been received.

These technological innovations also provide workload optimization for census takers, pointing them toward the most efficient routes for completing their work. The 2020 Census is relying more heavily on route optimizations developed with assistance from key private sector organizations, including Esri, U.S. Postal Service, and United Parcel Service.

### Innovation Outputs

The Census Bureau experienced dramatic increases in productivity for Address Canvassing and Nonresponse Followup. In fact, the 2018 End-to-End Census Test has shown that productivity increased dramatically relative to the 2010 Census.

Online payroll has allowed for better oversight and accountability, and enumerators' progress can be tracked online, in real time, reducing errors—both those deliberate and unintentional.

Leveraging digital technology for all aspects of field operations has dramatically reduced the need for face-to-face interactions between field supervisors and employees, as well as the brick and mortar footprint of field offices. In the 2010 Census all operations were based on paper forms. Supervisors met with their staff daily to provide and receive paper maps, case work, payroll, and administrative forms. These then had to be turned into the local offices where they were processed. Now all of this work is transferred digitally using handheld devices. The result is that we only need 248 instead of the 494 local offices required in the 2010 Census.

### Challenge: Avoid Duplication of Efforts

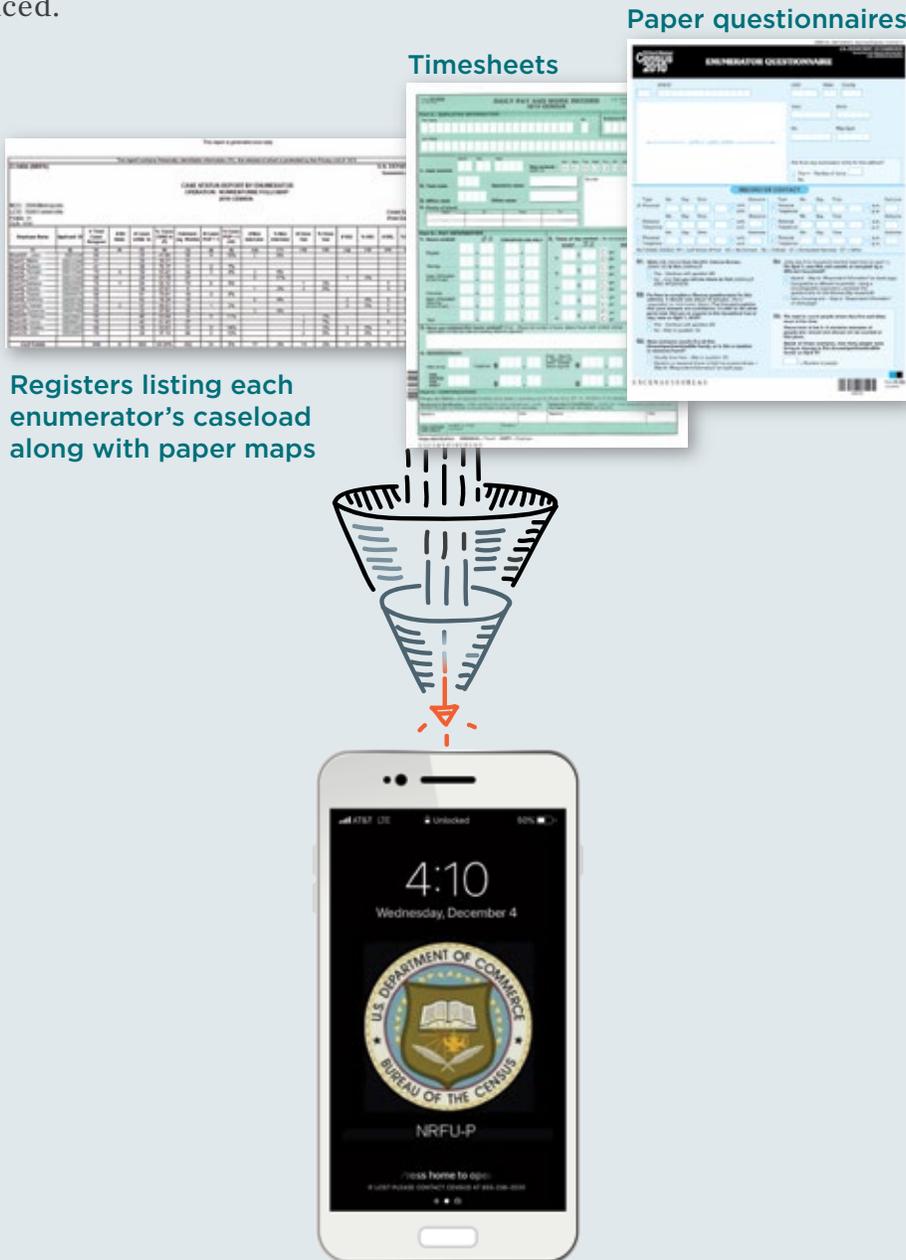
During previous decennial census follow-up efforts, some people were often frustrated because they received visits from census takers if they returned their responses late in the census cycle. Enumerators sent to do follow-up visits were given sets of data that did not always reflect the immediate changes, so it would inevitably lead to duplication of efforts.

The 2020 Census will be the first time that enumerators will rely on real-time data. On a daily basis, responses will be removed and updated from the nonresponse followup workload. After extensive internal testing, the Census Bureau has contracted with the private sector to lease 300,000 mobile wireless devices for 10 weeks to eliminate the technological uncertainties and human errors that come from relying on multiple interfaces.

With both of these innovations, the Census Bureau expects to significantly reduce the duplication of efforts: making better use of the enumerators' time and efficiency by avoiding households that have already responded, and avoiding frustration on the part of people who submit their questionnaires later in the cycle.

# Smartphone Technology Used to Manage Nationwide Enumerator Workforce: 2020

Technology can efficiently and effectively manage the 2020 Census fieldwork. The costly 2010 Census paper-based workforce operations have been replaced.



**Resulting in the potential for significant savings**



## **IMPROVED INFORMATION TECHNOLOGY (IT) SYSTEMS, INCLUDING MOBILE COMPUTING, CLOUD INFRASTRUCTURE, AND ENTERPRISE IT SOLUTIONS**

Among the technological innovations for the 2020 Census are improvements to the Census Bureau's IT systems. Building on existing technology, and in preparation for online responses and a reliance on real-time data refresh, the 2020 Census has invested in IT infrastructure and mobile computing to ensure a smooth operation.

The 2020 Census is moving away from laptops and instead relying on smartphones and tablets for census takers to follow up with people who have not responded to their census questionnaire.

By leasing the mobile devices and tablets, the Census Bureau can avoid purchasing millions of dollars of hardware that it will not need once the decennial field operations conclude.

The 2020 Census will rely on Cloud infrastructure to scale systems, so that every computerized application or infrastructure will be able to handle an increased load. This will allow online systems processing to be more effective and efficient, while maintaining the security and integrity of the data captured. The Census Bureau is also using enterprise IT solutions during the 2020 Census so that other data collection operations will benefit from it.





## Chapter 3.

# Outreach, Communication, and Partnership

## INTRODUCTION

Prior to the 1970 Census, data collection was primarily a door-to-door operation. In 1970, the Census Bureau spearheaded the first mail-out, mail-in version of the census questionnaire.

Recognizing that response rates were declining, the Census Bureau launched the Partnership Program in 1990. This program mobilized census supporters at both the national and local levels, encouraging the partners to help the public better understand the importance of the census. In 2000, the first national paid advertising campaign was launched to raise awareness of and increase response to the census.

Every decade since, the Census Bureau has stepped up efforts. The largest, most sophisticated push to attract partners and boost response rates for any census is currently underway. This chapter outlines our wide-scale effort to reach a mass audience and encourage participation in the decennial census.

### **Challenge: How Do We Communicate With People About the Census?**

The census is complex, and each decade it becomes more difficult to complete. Distrust in government is greater than ever, and the public seems increasingly reluctant to cooperate with censuses and surveys. People are concerned about sharing their personal information and may not recognize the value of statistical information produced by the government. In addition, households are more complex, diverse, and dynamic. For example:

- Blended families may include children who have two primary residences.
- Households may include more than one family or multiple generations.
- Families facing economic difficulties, or other crises, often pair up or stay with family or friends.
- Young people such as college students and others may stay in multiple places.
- More households speak languages other than English.

It's a challenge to include all these people in census counts. The United States continues to be a highly mobile nation; about 15 percent of the population moves in a given year. Also an increasing number of households speak languages other than English.

In the United States, in past censuses, the census experienced a persistent undercount of minority populations and an overcount of the white population. This is referred to as the differential undercount, and it has a disproportionate effect in high-density urban areas.

The differential undercount has existed in previous censuses because certain population groups had a greater number of the characteristics that were observed in undercounted households. These include low income, single-parent families, and many other factors contributing to the increasing diversity and complexity of the population. To conduct a complete and accurate census that includes everyone living in the United States, the Census Bureau's motivation, outreach, and promotional efforts are specifically designed to address households with historically lower participation rates. Since the 2000 Census, the Census Bureau has relied on a massive paid advertising campaign aimed at reaching everyone—especially traditionally undercounted populations. In addition, the campaign is part of building a strong partnership program that can mobilize trusted voices to help

## 2020 Census Technology and Innovations— Outreach, Communication, and Partnership

### *Highlights*

- Expanded social media communications and monitoring.
- Established higher education outreach programs with universities.
- Improved advertising and messaging.
- Leveraged data to optimize the communications and partnership campaign.
- Created more complete partnerships with a stronger foundation.
- Cultivated an ubiquitous digital presence across all audiences.
- Achieved wider outreach in schools and communities.

spread the message that responding to the census is important and safe.

Many of our innovations surrounding the 2020 Census are designed to tackle the challenge of how to reach people to encourage them to respond and participate in the census, as discussed in detail in this section.

## THE 2020 CENSUS ADVERTISING AND COMMUNICATIONS PROGRAM

Each decade since the 2000 Census, the Census Bureau has mounted an increasingly robust and sophisticated communications campaign. It includes advertising in all major media outlets: paid print, television, out of home (e.g. any advertising that reaches consumers outside of their home), radio, and social media ads targeted at English-speaking audiences as well as specific population groups, including: Black/African American, Hispanic/Latino, Asian, American Indian and Alaska Native, and Native Hawaiian and Other Pacific Islanders. Advertising is extensive, and it includes mass media. Paid ads will air in English and the other 12 languages supported by the 2020 Census Internet and telephone self-response systems.

The Census Bureau will also continue to mount a traditional earned-media campaign that will inform

stories in news media across the country in print, social, and digital media. This campaign will include a national events strategy that is more robust than what we saw in previous censuses. This began with the census kickoff on April 1, 2019, and included events on Constitution Day in September and a recruiting event in October. See table below for upcoming events.

Additional components of the outreach, communications, and partnership effort include a strong research foundation, paid advertising, the Partnership Program, social and digital media, the Statistics in Schools Program, and stakeholder engagement—each of which build on the experience of prior censuses.

## 2020 CENSUS PLANNED NATIONAL EVENTS

### Calendar as of January 1, 2020

Planned Event	Date	Location
Integrated Communications Campaign (ICC) Launch	January 14, 2020	Washington, DC
2020 Census Interfaith Summit	February 18, 2020	Washington, DC
Counting Young Children in the 2020 Census	February 22, 2020	Cleveland, OH
Invitation-Focused Media Blitz	March 16, 2020	Atlanta, GA
<b>Census Day 2020</b>	<b>April 1, 2020</b>	<b>New York, NY</b>
It's Time to Respond to the Census—Community Benefits	April 14, 2020	Oakland, CA
Major League Baseball Event—Get a Full Count	April 28, 2020	Milwaukee, WI
2020 Census Neighborhood Celebration	May 13, 2020	San Antonio, TX

# 2020 Census Integrated Partnership and Communications Operation



## Building the Research Foundation

Prior to the 2020 Census, the Census Bureau built the strongest research foundation ever put in place to drive messaging and media placement for a census communications campaign. This process began with the analysis of the public’s response to censuses and surveys throughout the decade, as well as other sources, including third-party data. This data is used to build predictive models that provided estimates for the likelihood that people in all population groups, and at all levels of geography, will respond to the census. These models were then translated into “low response scores” that helped the Census Bureau, and the advertising firms they collaborated with, understand

respondent behavior so that messaging, media, and other communications activities can be deployed in a manner that maximizes impact. These low response scores are then combined with additional information including media usage data to allocate groups into larger segments of the population, which will drive the purchase and placement of advertising in the campaign. These segments are described in the following chart.

Audience segmentation was based on the Census Barriers, Attitudes, and Motivators Study (CBAMS). CBAMS was far more robust than a similar study conducted in 2010, where it was only used to inform messaging. In 2020, it is driving the entire campaign. First, a quantitative survey was fielded

# Introduction to Tract-Level Segments

## Responsive Suburbia

**71%** predicted self-response  **24%** of the U.S. population

- High predicted rate of response, with a high proportion via Internet response.
- Suburban neighborhoods of single family homes.
- High percentage college educated, high percentage married, and high median household incomes.

## Main Street Middle

**67%** predicted self-response  **21%** of the U.S. population

- High predicted rate of response, with above-average Internet response.
- Small towns and less densely populated areas surrounding urban centers.
- Low diversity and a higher percentage aged 65 and over than the national average.

## Country Roads

**60%** predicted self-response  **16%** of the U.S. population

- Slightly below-average predicted rate of response, with below-average Internet response.
- Rural areas predominantly in the Eastern United States, surrounding small towns and outside the suburbs of major cities.
- High percentage owner-occupied housing units, low percentage college educated, and below-average median household incomes.

## Downtown Dynamic

**59%** predicted self-response  **9%** of the U.S. population

- Slightly below-average predicted rate of response, with a high proportion via Internet response.
- Densely-populated metro centers.
- High percentage college educated, above-average percentage foreign-born, high percentage aged 25-44 compared to the nation, and high median household incomes.

## Student and Military Communities

**56%** predicted self-response  **2%** of the U.S. population

- Below-average predicted rate of response, with a high proportion via Internet response.
- Communities around college campuses or military bases.
- A majority aged 18-24, high percentage college educated, and high percentage renter-occupied housing units.

## Sparse Spaces

**49%** predicted self-response  **5%** of the U.S. population

- Below-average predicted rate of response, with below-average Internet response.
- Rural areas predominantly in the Western United States, Appalachia, Northern Maine, and Michigan's Upper Peninsula.
- High percentage owner-occupied housing units and below-average levels of Internet access.

## Multicultural Mosaic

**45%** predicted self-response  **14%** of the U.S. population

- Low predicted rate of response, with below-average Internet response.
- California's Central Valley and parts of New Mexico, Texas, Florida, as well as concentrations in urban areas.
- High percentage foreign-born, low percentage college educated, and a majority Hispanic.

## Rural Delta and Urban Enclaves

**43%** predicted self-response  **7%** of the U.S. population

- Low predicted rate of response, with the lowest rates of Internet response.
- Rural parts of southeastern United States, as well as concentrations in urban areas.
- Low percentage college educated, low median household incomes, below-average levels of Internet access, and a majority Non-Hispanic African American.

Note: U.S. population percentages do not add to 100 percent due to tracts with no segment assigned.

with a random sample of 50,000 households that achieved a response rate of over 39 percent. Results from the survey were supplemented with 42 focus groups conducted throughout the country—consisting of the major population groups which are the focus of the communications program. The goal of CBAMS was to understand the perceptions and knowledge gaps that inform the likelihood of people responding to the census, so that messaging and communications activities can be better focused

to motivate self-response. For example, CBAMS revealed a lack of knowledge about the questions being asked in the 2020 Census and the uses of census data. CBAMS also indicated that a significant portion of the public is concerned that census data can be used against them—for example, in the enforcement of immigration laws, which is not true. All of these factors were addressed in the final creative treatments developed for the communications campaign.

Taken together, CBAMS and the segmentation analysis provided the foundation for the creative development of the advertising treatments, which were then tested through 122 focus groups conducted nationwide, as well as an online survey and interviews with cultural representatives of specific population groups. The result is the most well-researched advertising campaign ever put in place for a decennial census.

### The 2020 Census Paid Media Campaign

Since the 2000 Census, the Census Bureau has hired a major advertising firm to build the advertising campaign and provide support for the key components of the communications program. The contract for the 2020 Census paid media campaign was awarded to VMLY&R, a major legacy advertising firm with over 80 years of experience. They are managing a contract worth over \$500 million that will inform every component of the Integrated Partnership and Communications program and include an advertising buy that will likely exceed the 2010 campaign when adjusted for inflation.

Known as Team Y&R, or TYR by the Census Bureau, the contracting team includes 13 subcontractors, which require extensive project coordination and cooperation. This includes firms with expertise in the major audiences that will receive direct advertising including the Black/African-American, Hispanic/Latino, Asian, American Indian and Alaska Native, and Native Hawaiian and Other Pacific Islander populations. By relying on firms with these individual skill sets, the Census Bureau was able to better tailor the media and messaging toward individual groups and gauge the response before going live with the advertising. It also allowed for more creative risk-taking and ensured all ads spoke directly to their target audience and were culturally relevant and culturally sensitive.

The contractors worked with the Census Bureau to produce a thoroughly tested platform. Starting earlier has led to a more integrated campaign of the census program. As compared to 2010, the

2020 Census relied much more on feedback and focus group testing of the 2020 Census campaign messages and taglines. The result of the research testing and creative development produced the “Shape Your Future” campaign platform and over 1,000 creative treatments across all of the key population groups. See <https://2020census.gov/en/partners/outreach-materials.html> for latest updates.



2020 Census logo and tagline.

The campaign launched with recruitment advertising in October 2019 and will continue with four key phases in 2020:

- Awareness: January–March.** Focusing on educating the public about the 2020 Census.
- Motivation: March–May.** Issuing a call to action to respond to the 2020 Census.
- Reminder: May–June.** Letting the public know that census takers will be visiting their homes and that it’s not too late to respond.
- Thank You: September.** Thanking the public, through a small campaign, for supporting and participating in the 2020 Census.

## INNOVATIONS FOR THE 2020 CENSUS SURROUNDING DIGITAL COMMUNICATIONS

**Resources for digital ads on the Web site and in social media.** In 2010, less than 10 percent of the Census Bureau’s advertising campaign was focused on digital properties. That has more than tripled for 2020.

**Changing the look and feel of digital ads.** The Census Bureau is both increasing the number of digital advertisements, and dedicating more time to improving the messaging, look, and feel of the digital advertising to fit the audience and the many different platforms most used by our target audiences. Gone are the days when the print ad was simply reformatted for the online banner ad.

**Improving messaging and microtargeting.** Digital advertising allows the Census Bureau to tailor its messaging to specific populations and media outlets—changing languages, themes, and visuals that would best resonate with the group exposed to the advertisement. Digital advertising allows the Census Bureau to be nimble when adjusting the advertising strategy to encourage self-response or connect with hard-to-reach groups. In previous decennial census advertising campaigns, when advertising required a shift, it would often take weeks.

With digital ads, the change can be done almost immediately. If a segment of the population or part of the country is responding less than expected, or if information comes in that needs correcting or clarifying quickly, it is the digital mediums that will be the first to make the shift and address the need for clarification.

**Putting more resources into connecting with a mobile audience.** Digital advertising has the advantage of being able to reach a mobile audience. As more people consume media online and traditional reliance on print and television decrease, a mobile advertising campaign is paramount to reach a wide audience.

**Better use of data metrics and A/B testing.** Digital advertising produces detailed data metrics, with an ability to target a zip code, age range, or audience type. Through digital advertising, the Census Bureau can course-correct in real time. A/B testing, the concept of putting out two similar advertisements and seeing which receives a better response, can be deployed at the outset, allowing the Census Bureau to have a more effective campaign from the beginning.

**Creating a consumer-focused Web site.** While all government agencies now use Web sites to communicate with citizens, the 2020 Census took the extra step to create a consumer-focused Web site for the decennial census. The Census Bureau was cognizant of personalizing the experience for people who would be coming online in search of specific answers, and worked with the integrated communications contractor to create a savvier Web design, including an improved search function, a better interface, and the ability to tailor the Web site to the user.

### Innovation Outputs

The robust advertising campaign of 2020 allows the Census Bureau to reach more households than ever before. In 2010, the Census Bureau reached 95 percent of the population, with a frequency of up to 18 times, through paid advertising. By contrast, in 2020, the Census Bureau anticipates reaching 99.9 percent of the population up to 26 times during the motivation phase. By diversifying our advertising options, including more digital platforms and starting earlier in the cycle, census messaging can reach far more people, many more times, increasing the likelihood of resonance, and ultimately better rates of response.

## 2020 CENSUS INNOVATION: A BIGGER DIGITAL PRESENCE

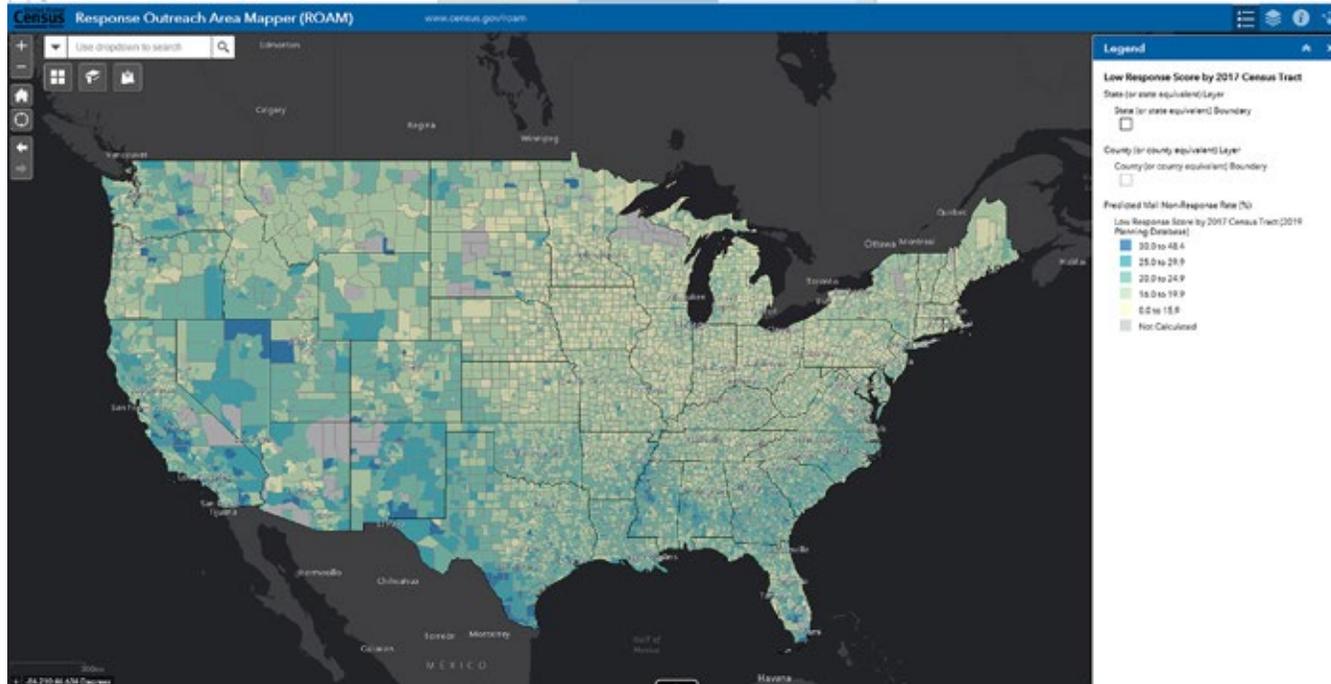
The 2020 Census is the first time the Census Bureau is putting a significant investment in digital advertising, and spending time and resources targeting online sites including Facebook, Instagram, paid search engines, display ads, and programmatic advertising. The push to have a greater digital presence will allow the Census Bureau to reach a mobile audience, tailor messages, microtarget, and shift campaign ads and messages, as needed.

The country is moving online and one way to reach people is to expand how we connect with them. Online mediums, particularly search engines and social networking sites, make up a significant portion of digital connections.

Should a specific area of the country generate lower than expected responses, the Census Bureau can increase advertising outreach to that area. Microtargeting to regions allows the Census Bureau

to tailor the messaging, including creating appropriate language for hard-to-reach communities and those who distrust government, both of which have been traditionally undercounted. Also, if the Census Bureau's call center detects a sizable number of calls or comments surrounding a specific concern, digital advertising will allow us to respond more directly.

The 2020 Census also makes use of the innovative Response Outreach Area Mapper (ROAM). The ROAM application was developed to make it easier to identify hard-to-count areas and to provide a socioeconomic and demographic characteristic profile of these areas using American Community Survey estimates available in the Planning Database. Learning about each hard-to-count area allows the Census Bureau to create a tailored communication and partnership campaign, and to plan for field resources including hiring staff with language skills. These and other efforts can improve response rates.



The Response Outreach Area Mapper (ROAM), a digital tracking innovation, will make it easier to identify and target hard-to-count areas.

## Innovation Outputs

The increased agility that comes with digital advertising will allow the Census Bureau to spend advertising dollars more carefully and in a more targeted way. It also will increase the likelihood of reaching hard-to-count populations, by making it easier to advertise and communicate with people in languages other than English.

The more people who self-respond to the census, the fewer Nonresponse Followup operation interviews must be conducted, saving time and money and allowing the Census Bureau to better allocate resources to other parts of the operation, such as hard-to-count populations.

**Count everyone in your home to shape...**

Your response to the 2020 Census will help inform more than \$275 billion in federal funding each year to state, local, and tribal governments for education, health care, and other services. Responding is important for you and your family, so count everyone in your home on your census questionnaire.

For more information, visit: [2020CENSUS.GOV](https://2020CENSUS.GOV)

**I count, you count, we all count in the 2020 Census.**

Every 10 years, the census counts every person living in the United States. Our responses to the census shape how we live, work, and play. In public schools, in public parks, in public housing, in public libraries, in public transit, in public safety, in public health care, education, and other programs, by the way. Responding is important for you and your family, so count everyone in your home on your census questionnaire.

**Pacific Islanders...**

... have the right to be counted in the 2020 Census. The census is a population count that happens every 10 years and counts everyone in your home. Shape our future together. Responding is important for you and your family, so count everyone in your home on your census questionnaire.

**They count on you to help shape their future.**

The education of our children is the key to a better future. Responses to the 2020 Census help inform how much federal funding goes to schools, after-school activities, and other education programs like Head Start. Make sure to do your part. Count everyone living or staying in your home on your census form and help shape the future of our children.

For more information, visit: [2020CENSUS.GOV](https://2020CENSUS.GOV)

**Queremos construir un futuro donde todo Puerto Rico cuente.**

Ahora más que nunca, necesitamos saber cuántos somos en la isla. Ser contados ayudará a determinar cómo fondos federales son asignados a Puerto Rico. Si todos respondemos, contribuimos a un mejor futuro. Ya sea en línea, por teléfono o por correo, solo toma unos minutos.

Para más información, visite: [2020CENSUS.GOV](https://2020CENSUS.GOV)

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United States Census 2020

Censo 2020



## A BIGGER, BETTER, AND MORE TARGETED PARTNERSHIP PROGRAM

Since 1990, the Census Bureau has invested heavily in building a robust partnership program, as history has taught us how critical having strong partner relationships is for a healthy census. In fact, the partnership program may be the most important factor in reaching traditionally undercounted populations. Census partners are national organizations like the NAACP, the Mexican American Legal Defense Fund, and the U.S. Chambers of Commerce. Major corporations also become census partners. At the local level, partners can be churches, synagogues and mosques, legal aid clinics, grocery stores, universities, colleges, and schools. Partners are the trusted voices in their communities; they have a profound impact on those who listen when they say the census is important and safe. Our partners seal the deal with communities that may be fearful or distrustful of the government. Even with all of the Census Bureau's innovation and improvements to the

self-response system, we have learned—and research confirms—that when communities and leaders recognize the importance of participating in the census, this message gets across to households. No matter how much advertising and how targeted our messaging, the best, most trusted information comes from a person of trust.

There are two prongs to the Partnership Program:

- The National Partnership Program (NPP) works from Census Bureau headquarters mobilizing national organizations.
- The Community Partnership and Engagement Program (CPEP) works at the local level to reach organizations that directly touch communities.

NPP and CPEP are more integrated than ever before, and with their goal of 300,000 partners,

they will exceed the totals reached in prior censuses.

The Census Bureau has doubled its professional partnership staff. For the 2010 Census, there were 800 professional partnership staff across the country. For 2020, there are over 1,600 professional partnership staff working in the regions or on direct outreach to community organizations.

Even though there are record-breaking numbers of partners and staff signed on and expected to join as 2020 begins, the partnership program has prioritized the quality of the partnerships over quantity. The goals of the partnership program are to educate, encourage, and engage their respective communities—educate people about the census and foster cooperation with enumerators, encourage community partners to motivate people to self-respond, and engage grassroots organizations to create inroads with hard-to-count groups and those not motivated to respond.

### **Starting Earlier and Building Complete Count Committees**

The Census Bureau in the 2010 Census learned that committees uniting government and community leaders could play a pivotal role in establishing, organizing, and integrating census partners at the state, local, and tribal levels. We call these Complete Count Committees (CCC). In January 2017, 40 seasoned Census Bureau employees set out across the country to encourage communities to come together from every level to form CCCs, and as of this writing, there are over 10,000 of them working diligently to educate the public about the census. In March, they will echo the advertising campaign and call on their states and communities to respond to the census. The Census Bureau does not control or pay for CCCs, but all have access to census materials that can help with promotion and education.

### **Leveraging Digital Technology**

In the 2010 Census, relationships with census partners were tracked unevenly in a database that was difficult to access and use effectively. In 2020, we deployed a Customer Relationship Management

(CRM) system used to track partnerships. Partner organizations are able to go online and indicate their willingness to partner with the Census Bureau. The Census Bureau captures that electronic information and sends it to either a regional or national partnership team. Once the information is entered into the CRM by Census Bureau staff, we are able to track what happens with the partnership, including internal metrics and staffing decisions, which keeps both the partner and the Census Bureau more accountable to one another. The CRM is enhancing communications efforts between the Census Bureau and our partners, and it will enable us to mobilize and direct partnership activities toward where they are most needed to the areas where they are most needed.

The 2020 Census has a much larger digital presence, with the capability to communicate electronically with partners in real time. The Census Bureau distributes support materials via the Internet, and partners have access to over 120 posters, pamphlets, and handouts covering every issue and topic most important to understanding and responding to the census.

The 2020 Census also gives partner organizations and the general public access to the ROAM, our database that provides information on communities and their tendency to respond to the census. It builds on the Planning Database used in prior censuses, and it is far more user-friendly and now available to the public. The ROAM utilizes data from the American Community Survey and other data sources to apply low response scores to areas, enabling Census Bureau staff and partners to focus their efforts on traditionally undercounted populations.

By starting earlier and leveraging technology, the Census Bureau has built the strongest partnership program ever, and it will be critical in mounting support for and response to the 2020 Census.

## Census Worship Weekend

The Census Bureau relies on leaders in the faith community to help encourage people to respond to their census questionnaires. One way in which the faith community participates in the 2020 Census is through activities surrounding the Census Worship Weekend, the final weekend in March, before April 1, 2020: Census Day.

What started as “Census Sunday” has evolved to be a more inclusive weekend to reach people of all faiths and

houses of worship. In preparation for this weekend, the Census Bureau provides a faith-based toolkit, where faith leaders can pull information to present to their congregation, either during the course of a regular service or sermon, or through special events, digital channels like social media, or regular correspondence within the community.

Such promotion and amplification among community members is key for having a high self-response participation

rate in a decennial census. For the 2020 Census, the Census Worship Weekend will allow people to respond to the census right away. By no longer requiring a unique census ID for each person, having the dual support of the faith-based community and the MQA will give more people the opportunity to respond to the census in a timely manner, saving resources on the NRFU operation.

### Why Your Faith Community Should Become a 2020 Census Official Partner

The 2020 Census is fast approaching, and faith leaders play a key role in this important effort. The U.S. Constitution requires a complete count of the nation's population every 10 years. Census data impact decisions at the national, state, tribal, and local levels—from congressional representation to the annual allocation of more than \$675 billion. These resources are essential to the well-being of all of our neighbors, supporting schools, hospitals, fire departments, and more.

The U.S. Census Bureau partners with the faith community to get the word out about the importance of the count. Faith leaders are trusted voices in their communities. You know how to reach your congregation and members; hard-to-count families, individuals and children; other national and local leaders; and key stakeholders. By being a 2020 Census partner, you can inspire your community to support a complete and accurate count.



#### What is a 2020 Census partner?

Your community of faith or faith-based organization would join a network of nonprofit, corporate, public sector, and community organizations working to educate the public about the 2020 Census and encourage households to fill out their census form. Together, we can develop solutions to reach everyone. Faith community partners—including religious denominations, faith communities, and national and regional faith-based organizations and institutions, governing bodies and councils, and local congregations and members—are important 2020 Census voices.

#### What does a partner do?

You can make a difference in the places we live, work, and worship. We ask you to join us in ensuring we count everyone living in the United States once, only once, and in the right place, including helping us reach hard-to-count members of the community. The Census Bureau will provide resources that make it easy to help, including social media posts; handouts and posters; and e-mail, bulletin, and newsletter content.

**CONTACT US TODAY!**  
CENSUS.PARTNERS@CENSUS.GOV  
2020CENSUS.GOV/PARTNERS

#### Here are some of the ways you can help:

**Communicate to your members:** Highlight the 2020 Census in e-mails, bulletins, newsletters, and mailings to increase awareness of why the census is important. Hang posters in common areas, like the cafeteria. Link to <2020Census.gov> on your Web site and include 2020 Census messages on social media and in faith-based media.

**Add your voice:** Write a blog, op-ed, or letter to the editor on why participating in the 2020 Census is important to those you serve. Mention the 2020 Census in speeches. Tape a public service announcement or testimonial and post it to your Web site or share it with faith-based media. Serve on or support a Complete Count Committee, or start one of your own. (Visit <2020census.gov/partners> and click on Complete Count Committees to learn more.)

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United States  
Census  
2020

<<https://2020census.gov/content/dam/2020census/materials/partners/2019-08/faith-community-flyer.pdf>>

## 2020 CENSUS INNOVATION: WIDER OUTREACH IN SCHOOLS AND COMMUNITIES

The Census Bureau has directed more resources to schools and communities. Through group events throughout the country, the Census Bureau has brought together groups to harness the collective creative power of a wider range of partners, such as artists, communicators, and technological innovators.

### Outreach Innovations for the 2020 Census

**Facilitating the Census Open Innovation Labs (COIL).** The COIL encourage collaboration with a wide range of partners—through Solutions Workshops, Create-a-Thons, and The Opportunity Project.

**Hosting Solutions Workshops.** The Census Bureau is prototyping new ways to engage with partners and communities around the country by hosting Solutions Workshops. These idea-generating workshops, which last only a day, bring diverse people and organizations together to solve challenges, such as reaching hard-to-count populations, through a series of creative problem solving exercises. Participants generate new ideas with an approach that emphasizes empathy and is customized to the needs of the real people they are engaging. The Solution Workshop toolkits are available online and open to any group, location, and audience at <https://www2.census.gov/about/partners/general/workshop-toolkit.pdf>.

**Engaging Artists and Creative Thinkers in Create-a-Thons.** As part of an effort to engage more designers, writers, storytellers, technologists, comedians, influencers, and Internet aficionados, the Census Bureau hosts Create-a-Thons across the country.

These events encourage wide-ranged thinking and limitless ideas, several of which are carried over into the Census Bureau's work in reaching hard-to-count populations. The Create-a-Thons also allow the Census Bureau to more deeply engage with communities that otherwise would be separate from government day-to-day affairs. People from creative, technological, artistic, and a myriad of other backgrounds come together to participate, and the result is more creative and less constrained ideas—so more people are motivated to respond to the census.

The Census Bureau hosts Create-a-Thons, attracting participants and generating content designed to reach a wide-range audience.

**New Digital Tools Through the Opportunity Project.** Since launching in 2016, The Opportunity Project has yielded dozens of new digital tools that help solve problems using government data, like connecting veterans and their families with jobs, connecting people experiencing homelessness with services and shelter, and rebuilding rural



economies. Though the program is housed in the Census Bureau, it works across agencies pulling talent together to collaboratively make government data more accessible and useful to the general public.

Through the Opportunity Project, the Census Bureau connects tech developers, local leaders, and nonprofit organizations with problem statements on issues like jobs, transportation, and housing, and facilitates user-centered tech development to create new digital solutions. These groups participate in 12 to 14 week sprints to create data-driven tools for public use.

For the 2020 Census, the Opportunity Project had a census sprint tackling four areas: addressing digital literacy to improve online self-response, addressing the digital divide, reaching

hard-to-count populations, and promoting 2020 Census jobs. While the final products are still in their demonstration stage, the teams have already produced a mapping tool to help with hard-to-count populations, an online job tool to help people learn about census taker jobs, and a storytelling tool to assist partner organizations in putting together meaningful content for their audiences.

In December 2019, the Opportunity Project awarded five \$20,000 prizes to the most promising data-driven digital solutions produced by the 25 sprints conducted by tech companies and universities they sponsored. One of these, called DATA2GO.NYC, uses federal, state, and city data sets to provide reliable, up-to-date information on New York City neighborhood assets and challenges for all who work to improve the quality of life for New Yorkers in need.



Educate your students about the value and everyday use of statistics. The Statistics in Schools program provides resources for teaching and learning with real life data. Explore the site for standards-aligned, classroom-ready activities.

The Census Bureau's Statistics in Schools program has lesson plans updated throughout the decade in subject areas including math, English, social studies, geography, and sociology.

**Expanding the Statistics in Schools Program.** The Census Bureau has long had a presence in schools. Beginning with the 1950 census, a “Census in Schools” program was created to teach students about the census, to explain why it is important, and to show how the data could be used. During the past decade, rather than waiting every 10 years to teach students about the nation’s statistical agency, “Census in Schools” became “Statistics in Schools,” with lesson plans updated throughout the decade.

Statistics in Schools expanded to include the following subject areas: math, English, social studies, geography, and sociology. The teaching materials currently include:

- A collection of 67 classroom activities.
- Updated classroom maps with census statistics.

- Three videos for students in kindergarten through the 12th grade.
- A sing-along song.
- A new activity book for children aged 2 to 5.

With these materials, teachers can incorporate Census Bureau statistics into subjects such as English language arts, math, and social studies. The materials are free and developed by educators and subject experts from across the country. It is another way the Statistics in Schools program can help the nation’s youngest people develop an appreciation of the census and better understand the many uses for its data.

## THE HIGHER EDUCATION INITIATIVE

Higher education plays a critical role in promoting the national census and encouraging students to participate in their civic duty. The Census Bureau director has sent engagement letters to the presidents of 6,100 colleges and universities informing them of the importance of being included in the 2020 Census, as well as the opportunity for student involvement in the census workforce.

Currently over 5,000 colleges and universities are census partners. These partners are holding census-related activities and issuing expanded messaging about the census. Universities are also encouraged to create a toolkit for their student organizations based on the generic toolkit created by the COIL. The University of Southern California is creating a toolkit for student organizations and administrators. Southern New Hampshire Online University is holding webinars to promote census jobs and James Madison University President Jonathan Alger came to Census Bureau headquarters to participate in a widely viewed social media event.

The Census Bureau is also encouraging student-led organizations, such as Students Learn Students Vote and their coalition partners, to take an active role in promoting awareness and cooperation with

the census. These student-led groups have formed a census working group that meets monthly to collaborate and disseminate information about how each campus organizations can help ensure an accurate count. Students from the group Campus Compact were invited to the Census Bureau in January 2020 to receive an overview of census demographic and economic data, continued messaging on 2020 jobs, and summer internships.

The Census Bureau has established strong partnerships with these six major higher education partner organizations:

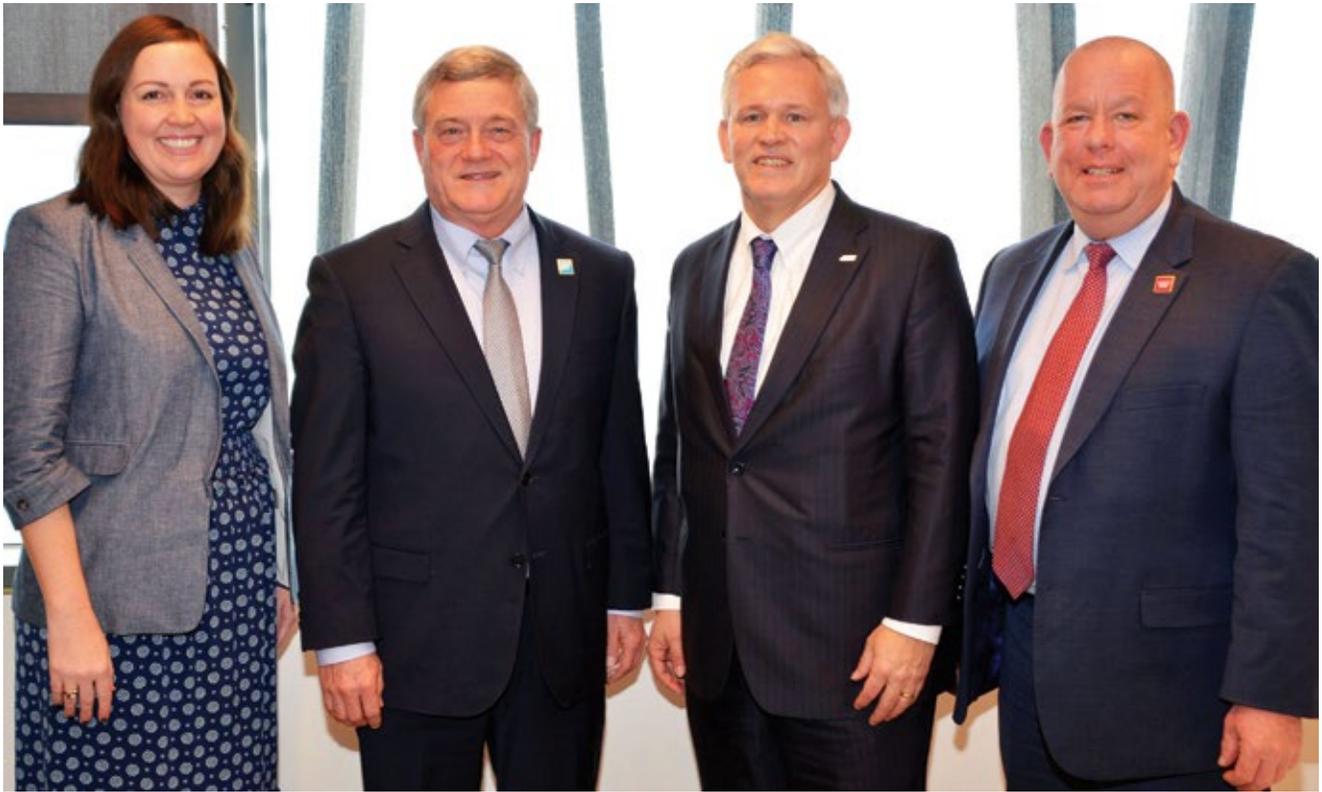
- American Council on Education.
- Association of American Universities.
- National Organization of State Universities and Land Grant Colleges.
- National Association of Independent Colleges and Universities.
- American Association of State Colleges.
- American Association of Community Colleges.

These organizations reach over 95 percent of students attending universities and colleges.

### Census Bureau Outreach With Higher Education

The Census Bureau is engaging university officials and higher education organizations to promote awareness and encourage participation in the census. These groups and universities are emphasizing the importance of responding to the census as a civic responsibility through various mediums, including:

- Executive conference presentations.
- Social media.
- Newsletters.
- Census exhibits in university libraries.
- Webinars.
- Recruiting events and messaging in campus recruiting offices.
- Incorporating Statistics in Schools curriculum into adult literacy and English as a Second Language programs.



*(l to r) Megan Kindelan, Steven Dillingham, Jonathan Alger, Tim Olson.*

Census Bureau Director Steven Dillingham and Associate Director for Field Operations Tim Olson joined James Madison University President Jonathan Alger for a webcast on the role of colleges and universities in the 2020 Census. Megan Kindelan moderated the webcast.



The Census Bureau has taken several steps in 2020 to improve the undercount of young children, about 4 percent of which have been missed in a traditional census count.

## COMPLEX HOUSEHOLDS AND THE UNDERCOUNT OF YOUNG CHILDREN

As part of a larger effort to eliminate undercounting people in the census, the Census Bureau has concentrated more efforts around counting complex households where more than one family live together or families that live in nontraditional arrangements. Previous census counts and subsequent differential undercount analysis have shown that people sometimes do not include everyone living in their homes. To address this, the Census Bureau has undertaken significant promotional and partnership work designed to encourage households to include

every single person living in their home for the 2020 Census, and to ensure that no one is left off, either intentionally or inadvertently.

Young children have been the fastest-growing segment of the undercounted population in recent censuses. About 1 million young children, under the age of 5, were missed in the 2010 Census, and the net undercount of young children has still increased since the 1970 Census. The undercount has been even higher for children born during the census year, and highest for

those born near Census Day. This occurred across all demographics and all parts of the country, though it is slightly more common in rural and urban areas than in suburban ones.

Census Bureau research has determined that the undercount of young children happens in two distinct ways:

- Families with young children miss the census questionnaire entirely. This can happen because these families are mobile, their lives are changing, or this may be the

## WHO IS AT RISK OF BEING UNDERCOUNTED?

Household or Child Characteristics	Traditionally Undercounted Households
<ul style="list-style-type: none"> <li>• Young children living in:               <ul style="list-style-type: none"> <li>◦ Complex households (see column on right).</li> <li>◦ Rental units.</li> <li>◦ A household that was not enumerated by self-response.</li> <li>◦ A low-income household.</li> <li>◦ A household with limited English-speaking ability.</li> <li>◦ Very small households (2 people) or in very large households (6 or more people).</li> </ul> </li> <li>• Young children living with:               <ul style="list-style-type: none"> <li>◦ A young householder (under age 30).</li> <li>◦ A grandparent.</li> </ul> </li> <li>• Young children who moved in the past year.</li> <li>• Children born in the 3 months before Census Day (January 1 to April 1).</li> </ul>	<p>A complex household is a household that is not a nuclear family or single-parent family. Complex households include:</p> <ul style="list-style-type: none"> <li>• Households with unrelated persons.</li> <li>• Multigenerational households.</li> <li>• Households with relatives other than parents and children.</li> <li>• Blended families.</li> </ul> <p>In the 2010 Census, 50 percent or more of children in the categories below were in complex households:</p> <ul style="list-style-type: none"> <li>• Black/African American.</li> <li>• American Indian/Alaska Native.</li> <li>• Native Hawaiian/Pacific Islander.</li> <li>• Hispanic.</li> </ul>

first census they have filled out so they may not entirely understand how it works.

- Young children are undercounted when a household fills out a census questionnaire and accounts for the adults living at home, but a child is left off.

There are myriad reasons young children are undercounted in complex family households. For people in larger families using paper questionnaires, they may simply have run out of room on the paper form. For people in complex households who expect the arrangement to be temporary, they often think the child may be counted in another location. Research from the Census Bureau found that some people think that young children do not actually count—they do not hold jobs or pay taxes, so they would not belong on a census form.

The 2020 Census has dedicated significant resources through our advertising campaign to inform people that everyone in a household—including very young children—should be counted on Census Day. These innovations include:

- Communications and partnerships—where we can likely make the biggest impact on reducing the undercount. Many of these efforts are aimed toward complex households and hard-to-count populations.
- Production operations—improving operations of the 2020 Census in ways that are specifically targeted toward young children, including revised questionnaire language and logistics.
- Evaluation of what we were able to do in the 2020 Census and preparing for continuations and improvements moving forward.

## Communications and Partnerships

The initiative to improve the undercount of young children has also extended to all census materials and messaging surrounding 2020. For the first time, there has been a concerted effort to include more images of young children in the internal and external communications and advertisements. There have been additional materials given specifically to young children, including a guide to counting young children, fact sheets, and frequently asked questions.

For the first time, the Census Bureau has partnered with the U.S. Postal Service in targeting areas that have hard-to-count populations. The Census Bureau created a targeted “Every Door Direct Mailer” that will be sent to approximately 14.3 million households. While this language and effort is designed to increase census participation for a wider audience, it is also expected to help hard-to-count populations include young children on their census questionnaires, with the repeated message that everyone counts in a household, no matter the age.

The Census Bureau has expanded 2020 Census partnerships and communication efforts, including collaborating with organizations that work with families and young children. Strategic partnerships have been created with organizations that have both direct access and direct impact on families with young children, including the Federation of Pediatric Organizations (FOPO) and the National Diaper Bank.

The Census Bureau is also creating an initiative with health care centers in hard-to-count census tracts to pass out census hats to babies born between January and March 2020, which are traditionally the most undercounted group during a decennial census. There will be cards at newborn intensive

care units, so that babies born before Census Day, who have not yet left the hospital, will still be counted in their primary home residence.



Census hats will be given to newborn babies born in January–March 2020. Babies born in those months are traditionally the most undercounted in the decennial census.

The Census Bureau is hopeful that the advertising efforts communicating to families about the importance of counting young children will also communicate that all people living in a household—no matter their relation, or how temporary—should be counted on a census questionnaire. To assuage fears and dissuade families from intentionally leaving children off census forms, the 2020 Census advertising campaign has included myriad messages about how census data is not shared with anyone: not housing authorities, landlords, or immigration officials.

## Production Operations

For the 2020 Census, the language on the census questionnaire was clarified and improved. In self-reported responses, the language was changed to ask for information about “All people, including babies, who live and sleep here most of the time” instead of simply: “everyone living or staying at this address.”

The Census Bureau updated text on the Internet self-response option to include “babies and children of all ages (even newborns and infants).” There is also a follow-up question to include “any additional people” with another reference to possible “grandchildren, unrelated children, newborn babies, or foster children.” And for the first time in 2020, the help text on the Internet self-response includes additional guidance about counting children.

Example:

Using those guidelines, be sure to **INCLUDE** the following types of people if they will be living or staying at <ADDRESS> most of the time around <REFDATE>:

Babies and children of all ages (even newborns and infants), including biological, step, and adopted children, as well as grandchildren, foster children, and children in joint custody arrangements.

Any other close or extended family members living there, even partners, grandparents, cousins, in-laws, etc.

For 2020, the Census Bureau will provide updated training for Nonresponse Followup enumerators, Census Questionnaire Assistance (telephone) enumerators, and Coverage Improvement interviewers, which include specific mentions of counting children and a knowledge check for online training.

## Evaluation and Further Improvements

Though the Census Bureau has made strides in closing the undercount differential of other demographics, there is still work to be done on the undercount of young children. With the dedicated communications and partnership work, the extra question specifically citing young children, and the additional resources put into the advertising campaign surrounding the issue, the Census Bureau is hopeful that fewer young children will be left off the 2020 Census. It is our goal that the undercount of young children begins to decrease.





## Chapter 4.

# Protecting the Census: IT Systems, Business Processes, and Data Confidentiality

As the technology surrounding the census increases, and as society becomes increasingly mobile relying more on technology for sensitive communication, the need for online protections and safeguards is paramount. The 2020 Census is the most technologically focused census in our nation's history, and as a result, it required updates and innovation for IT systems, business processes, and data confidentiality.

There are four major components to protecting the Census, with respect to the online systems, data confidentiality, and data integrity:

1. Cybersecurity.
2. Combating fraud with a Quality Assurance operation.
3. Protecting confidentiality.
4. Creating a Trust and Safety Team.

### CYBERSECURITY

As the cybersecurity landscape evolves, the Census Bureau works diligently to comply with maturing federal laws, policies, and directives as well as to implement leading cybersecurity practices that protect our networks and systems and ensure they remain resilient in the face of cyber threats. Across our network and systems, we have implemented a defense-in-depth approach that compartmentalizes our systems and provides multiple layers of protection for our data, applications, devices, network, and overall technology perimeter.

For our first line of defense against external threats, the Census Bureau leverages the U.S. Department of Homeland Security's (DHS) Einstein capabilities, industry-leading solutions to filter incoming network traffic, as well as firewalls, internal filters, and geofencing.

Secondly, all of our information technology infrastructure systems are further protected using

the most current federal government standards published by the National Institute of Standards and Technology and the Department of Defense for securely configuring computer systems.

Finally, our applications that manage respondent interaction and data processing are designed with integrated secure coding and maintained in line with federal security specifications. To identify any real-time threat actors potentially targeting our enterprise, our dedicated security experts, industry, and federal partners perform vulnerability scanning, conduct penetration testing, and search for malicious traffic to ensure sufficient protection and monitoring is operating as designed.

### **Collaboration and Partnerships Across Agencies**

To complement the cybersecurity technology and expertise we have within the Census Bureau, we are actively collaborating with industry, federal partners, and the intelligence community to combat cyber threats. The DHS Cybersecurity and Infrastructure Security Agency (CISA) and Intelligence and Analysis (I&A) teams have been particularly effective partners. CISA has conducted system security reviews, supported implementation of Trusted Internet Connection and Continuous Diagnostics and Mitigation programs, facilitated crisis management and incident response reviews, as well as proactive cyber hunt activities. I&A has served as the Census Bureau's primary conduit to defense, intelligence, and law enforcement partners. With I&A, we have established intelligence collections requirements, held threat intelligence briefings, issued a threat intelligence report, and are working to build the U.S. Department of Commerce and Census Bureau cyber threat intelligence monitoring and analysis capabilities.

### **COMBATING FRAUD**

Across government agencies, the threat of people attacking government data or online infrastructure is readily known and requires sophisticated, proactive steps to safeguard IT systems. In anticipation of attacks on census data, either by direct malevolence or by those seeking to alter the results, the Census Bureau created a Self-Response Quality Assurance operation (SRQA) designed to combat fraud and online attacks.

The purpose of the Self-Response Quality Assurance operation is the identification of suspicious and potentially fraudulent self-responses submitted during the 2020 Census. SRQA is new for the 2020 Census, but in many ways it's basically an extension of what we've always done to resolve duplicate responses. The methodology and operational details are administratively restricted and are only provided to those with a business need to know.

SRQA has both automated and human interventions when suspicious individual or group responses are identified. The automated operations use statistical methodologies and interactive analysis to review self-responses. The human component relies on in-office analysts and Census Bureau employees in the field. Any findings will be shared with relevant and senior staff.

### **PROTECTING PRIVACY IN THE DIGITAL AGE**

The law protecting census responses is straightforward and strong: The Census Bureau cannot disclose information about specific individuals, households, and businesses. This includes both "direct" disclosure—leaking or sharing actual responses, and "indirect" disclosure—leaving identities in the statistics we publish vulnerable to exposure by not adequately protecting them.

For most of our history, census privacy protections focused on closing gaps on the direct disclosure side, such as passing laws that made it illegal for census staff to reveal respondent information, and strengthening those laws with strong penalties. The realization that indirect disclosure was as serious a threat didn't emerge until the early 20th century, when a 1910 law required protections against indirect disclosure of business data. Those protections weren't extended to data about individuals until 1940.

Ever since, the Census Bureau has worked to identify and stay ahead of these emerging indirect threats to personal privacy using protection methods we call "disclosure avoidance."

For example, during the 1970 Census, it became clear that publishing detailed statistics for smaller

areas would expose the identities of people who lived there. We chose to suppress (not publish) those data tables deemed at-risk, but it was a blunt and imperfect method.

In the decades that followed, we developed more sophisticated disclosure avoidance methods, designed to strike a better balance between publishing useful data while “disguising” the data we published using “statistical noise.” These so-called “traditional” methods focused only on data points deemed most vulnerable, and included swapping households between different areas, “top-coding” (setting values above a prespecified maximum to that value), injecting small amounts of noise, and collapsing data categories.

### **21st Century Threats Require 21st Century Solutions**

Today, in this new era of big data and powerful computers, protecting respondent data using traditional methods would be like trying to win a lightning-speed game of whack-a-mole. A data point no longer needs to be a statistical outlier to be at risk. Smarter technology means all data are at risk, even when disguised using traditional methods.

Census Bureau researchers verified this during planning for the 2020 Census by simulating a “reidentification” attack on 2010 Census statistics. Using today’s technology, we were able to reconstruct the combination of data variables for each individual in the 2010 Census. We then took that reconstructed data and attempted to match it with 2010-era commercially available data sources that had individuals’ names, ages, sex, and addresses.

We found that a sophisticated attacker could accurately re-identify an unacceptably high rate of respondents and households (about 17 percent). The attacker wouldn’t know their ultimate success rate, as that information can only be known by the Census Bureau or by launching a comparable field effort. However, they could learn information such as a person’s race that was provided to the Census Bureau, or the ages, sex, and races of children that live on a block—information that is not typically available from private sources in the United States.

Because of this research, the Census Bureau determined that the traditional disclosure avoidance methods we’d been tweaking at the margins for the past 50 years were no longer viable. The amount of noise required to protect census data using the old methods today would render too much of the data unusable. A new approach was required.

### **Differential Privacy**

The new 2020 Census Disclosure Avoidance System (2020 DAS) is based on the privacy concept known in scientific circles as “differential privacy.”

The new method allows us to precisely control the amount of uncertainty that we add according to privacy requirements. We describe differential privacy as being a kind of “formal privacy,” meaning that there is a mathematically formal definition of the confidentiality protection that the algorithm provides.

A differentially private system works by allocating a “privacy-loss budget” to all values in a data set. This budget can be set anywhere on a spectrum from “no accuracy but high protection” to “high accuracy but no protection.” Mathematically, that chosen point on the spectrum is represented by the Greek letter “epsilon.” Choosing the value of epsilon is a policy decision based on a desired balance between accuracy and confidentiality. The lower the epsilon value, the higher the protection and the less precise the published data points.

Unlike the traditional methods, the 2020 DAS documents the properties of this uncertainty, giving data users the information needed to judge whether the published estimates are sufficiently accurate for their needs.

### **Innovation Outputs**

Ultimately, emerging threats require decisions about whether the level of detail provided in the past is sustainable. Even with the new safeguards, protecting privacy requires us to restructure many of the statistical tables that we publish. We are working with data users to help us identify the levels of precision and geography that are critical to providing data that meet their data needs to the greatest extent possible.

But the new safeguards also allow us to publish data that, without the new methods, would have been suppressed. The Opportunity Atlas, available at <https://opportunityinsights.org/data/>, is an example of a database using the new methods. It publishes “tract-level” data on intergenerational mobility by race and gender. The detail in these data would be impossible without formal privacy.

The Census Bureau was the first organization anywhere to implement an early version of differential privacy in the “OnTheMap” application in 2008 that shows where workers live and work. More recently, Google, Apple, Microsoft, and other technology companies have adopted variations of differential privacy as the standard for protecting the confidentiality of some user data inside their companies.

The 2020 Census will be the world’s first large-scale application of the new advanced protections. Applying the new system to the decennial census, which releases more than 150 billion statistics, is a complex engineering challenge. But in this digital era it is the best and indeed the only way to meet the Census Bureau’s legal obligation to protect respondent confidentiality while still producing required, useful data.

Many more people rely on social media, mobile phones, and digital platforms for their news and updates than they did during the 2010 Census. These tools, while useful, can also be used in misinformation and disinformation campaigns and negatively impact the public’s response to and participation in the 2020 Census.

## TRUST AND SAFETY TEAM TO COMBAT MISINFORMATION

The Census Bureau, along with many other government agencies, faces threats to its data, and extra precautions must be taken to protect the online information. There is also a nascent yet perennial “boycott the Census” movement, which our partner organizations help us combat.

The Census Bureau launched a Trust and Safety Team to combat misinformation and disinformation about the Census Bureau and the 2020 Census. The Census Bureau’s Trust and Safety Team is a cross-functional network of internal and external stakeholders that works together to protect the Census Bureau’s reputation and the public from efforts to undermine the count through misinformation and disinformation.

The Trust and Safety Team functions include:

- Threat analysis, mitigation, and containment.
- Technology partnership development.
- Support of public outreach and awareness campaigns.
- Social and traditional media monitoring.

Partnerships with big technology companies like Google, Microsoft, Apple, and Amazon expand our ability to fight against misinformation and disinformation found across their products and ensure accurate 2020 Census information is searchable and readily available to the public. Civil society partnerships serve as an authentic source of 2020 Census information and help the Census Bureau identify methods to mitigate the impact of misinformation and disinformation on hard-to-count populations.

# Conclusion

The 2020 Census is the most tech-savvy, forward-thinking census in our nation's history, and the path of innovation that led us here is likely to continue as our country becomes increasingly more reliant on mobile communication. Through effort and innovation, the 2020 Census has improved and streamlined how the census is run, the way we communicate with households, and how households respond to the questionnaire.

In chronicling the innovations associated with the 2020 Census, we have come to several conclusions:

1. Technology is worth the time and effort. There is a cost upfront to invest in the infrastructure and data security safeguards, but in doing so, the Census Bureau expects to streamline operations and make it easier than ever to self respond.
2. Technology continues to outpace workplace evolution. Even as technology has rapidly increased over the years to become commonplace in workspaces, many institutions are still playing catch up. We believe the 2020 Census is using the most up-to-date technology possible, but we acknowledge that there will be technical advances with the 2030 Census that have not yet been considered or made known.
3. Innovation is an integral part of census history, and will be an integral part of its future. As chronicled here, innovation has been a major factor in how the census is conducted, and we anticipate the next census to rely on our findings and improve upon them.

4. There are still obstacles, in any census. Even as the Census Bureau works to improve our messaging, strengthen our partnerships, and correct in real time the way we communicate externally, there will remain people who are hard-to-count or decline to respond, for myriad reasons. As the Census Bureau focuses on innovation for future census counts, we must take into consideration the problems and hurdles that may not be present at this current time, or may evolve in their rationales.

It is worth reiterating that this is an interim report, and the innovations documented here with their anticipated findings are preliminary. This innovations report will be updated as we execute the census, which has already begun enumeration (January 2020). We anticipate a final report later this calendar year.

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