



**Written Testimony  
of  
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**Before the U.S. House of Representatives  
Subcommittee on Government Operations  
and the  
Subcommittee on Information Technology  
of the Committee on Government Oversight and Reform**

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Mr. Chairman and Members of the Subcommittees, I am Steve Cooper, Chief Information Officer for the Department of Commerce.

It is my pleasure to appear before the Subcommittees, and I wish to thank the Chairman and Members for providing me the opportunity to update you on our work for the 2020 Census, and the readiness and security of the information technology at the Census Bureau to effectively support the successful operation of the 2020 Census.

The Census Bureau continues to work to ensure the necessary information technology is in place to support a successful 2020 Census operation and that the critical testing has been conducted or is planned each year leading up to the 2020 Census. This testing ensures the necessary information security controls are in place to protect citizen and household data during data collection and processing.

The Census Bureau faces an increasing set of challenges as it begins preparation for the 2020 Census. Declining survey participation rates, funding constraints, cybersecurity threats, and increased survey costs per household all create risk to the Census Bureau's ability to deliver high quality, timely, relevant, and cost-effective information. To address these risks, the Census Bureau has developed a multi-faceted change strategy that will address these challenges, transform the business model, and modernize 2020 Census operations. The modernized 2020 Census requires an information technology architecture and infrastructure that is agile, flexible, scalable, and able to accommodate innovations and advances in technology.

Effective application of technology plays a key role in the Bureau's strategy and enables the rethinking and reengineering of existing business processes. Technology also serves as a change catalyst for developing enterprise capabilities that will create new architectures and modernize data and systems management for the 2020 Census and all Census Bureau censuses and surveys— from data collection and processing to data dissemination.

Since 2009, the Department of Commerce and the Census Bureau have focused on the application of lessons learned and fostering of strategic alignment with Government IT initiatives beginning with the 25 Point Implementation Plan to Reform Federal Information Technology (IT) Management. The Census Bureau continues to align its IT goals with subsequent initiatives, including those found in Memorandum M-11-29, Chief Information Officer Authorities: Memorandum M-12-10, Implementing PortfolioStat: and now the Federal IT Acquisition Reform Act (FITARA) in support of Memorandum M-15-14, Management and Oversight of Federal IT. Common themes in all of these directives, and thereby the Census Bureau's IT strategies, include IT transformation, improving operating efficiencies, leveraging shared services, and increasing Chief Information Officer (CIO) accountability.

More recently, the Census Bureau has made a number of its major design decisions for the 2020 Census. These decisions have been documented in the 2020 Census Operational Plan, which the Census Bureau issued last month – three years earlier than for the 2010 Census, and is grounded in the Census Bureau's Enterprise IT Strategy. The effort included developing the operating plan for the IT Infrastructure Operation and Decennial Service Center Operation, as well as reviewing all of the IT capabilities required by the remaining operations identified in the 2020 Census Operational Plan.

As the focus of the 2020 Census Program shifts from planning to execution, our collective attention must include IT Readiness for the 2020 Census. The Information Technology Directorate, under leadership of the Acting Census Bureau CIO, continues to align the enterprise IT Roadmap with the 2020 Operational Plan to ensure IT readiness for the 2020 Census, as well as all of the testing leading up to the 2020 Census. The IT Directorate has defined and provided enterprise guidelines to evaluate and ensure systems readiness, and has imbedded a Chief Solutions Architect, Chief Program Engineer, Chief Security Architect and other systems engineers within the 2020 Systems Engineering and Integration (SE&I) Team.

The Census Bureau also has made significant progress in process improvements, IT governance, and closing the systems engineering IT skills gap to ensure IT Readiness for the 2020 Census. This progress includes:

- Implementing and improving standard processes and support resources for portfolio management, program management, and project management;
- Establishing and updating the Enterprise Systems Development Lifecycle (ESDLC) to include agile software development in addition to the traditional waterfall method;

- Establishing the Office of Systems Engineering that has defined standard engineering processes, artifacts and reviews aligned to the program-level and project-level phases and governance process;
- Increasing expertise and centralized support resources in the areas of project management, schedule management, requirements development and management, solution design and analysis of alternatives, and testing; and
- Working closely with the Strategic Workforce Planning Initiative to ensure that proper IT skills are available when needed as identified by the various Census Bureau directorates.

To support these efforts, the Census Bureau engaged General Service Administration's 18F experts about the use of Schedule A hires for 2-year term appointments that fill critical gaps in technical areas, including cloud computing, and security.

In order to streamline the acquisition of needed contract resources, the Census Bureau successfully completed contract awards for the Systems Engineering & Integration Enterprise Solutions Framework (ESF) for use by all directorates acquiring SE&I services and solutions. This allows for a standard and streamlined process for acquiring SE&I services with up to a \$2.5B IT Investment Authority through 2022. Other Department of Commerce (DOC) Bureaus can leverage the SE&I ESF and several bureaus have already expressed interest in doing so. The Census Bureau has already awarded Initial Work Orders.

One of the major enterprise initiatives providing support to the 2020 Census is the Census Enterprise Data Collection and Processing (CEDCaP) initiative. The CEDCaP initiative aims to create an integrated and standardized system of systems that will offer shared data collection and processing across all Census Bureau operations. CEDCaP will yield the following benefits:

- Creation of an enterprise-wide data collection shared service that provides the functional capabilities to meet requirements across the Census Bureau, including the Decennial Census, under a single, integrated and centrally managed program;
- Ability to reengineer current business processes, such as the implementation of an adaptive design methodology, across all surveys and censuses to increase efficiencies in data collection and processing;
- Realization of cost savings through the prevention of the initiation of single-use survey specific systems and retirement of unique, survey-specific systems and redundant capabilities;
- Reduction of risks for the 2020 Census by providing an integrated, proven solution well in advance of the Decennial Census; and the
- Realization of the Census Bureau's Information Technology Guiding Principles to simplify, innovate, and engage by looking to the cloud first and emphasizing standard-based, commercial off-the-shelf (COTS) solutions over custom development.

In terms of governance, the CEDCaP program achieved the DOC Milestone 2 Review Approval from the Deputy Secretary of Commerce in July 2015. The CEDCaP Program follows the Program LifeCycle (PgLC) Framework, based on DOC's Acquisition Framework, and Enterprise Systems Development LifeCycle to manage program requirements, development, and execution. Program phase gate reviews are approved by the Program LifeCycle Investment Review Board (PLIRB) governance process to include phase gate reviews. The Census IT Directorate Project Review (CIPR) board approves project phase gate reviews.

To ensure that the agency strikes the right balance between COTS and custom-developed solutions, the Census Bureau is comparing in-house custom solutions with COTS solutions specifically focusing on internet and mobile data collection, dynamic case management, and dash boarding to finalize build/buy decisions for the enterprise and 2020 Census, scheduled for October 2016.

Carnegie Mellon's Software Engineering Institute is independently evaluating the CEDCaP program's process for analyzing and assessing build versus buy decisions and performing an independent assessment of the custom and COTS products, also scheduled for October 2016.

In terms of mobile solutions, the Census Bureau is exploring the technology it will employ to enable data collection in the field and will be using a mix of Device as a Service (DaaS) and Bring Your Own Device (BYOD) for the major 2016 in-field test. The Census Bureau will award a DaaS contract to provide hardware, wireless service, and accessories. The vendor will be responsible for ensuring adequacy of the wireless service coverage employed in a given location. Although the Census Bureau has not made a final determination on specific make/model/form factor of data collection devices for the 2020 Census, the Census Bureau is developing field data collection applications to work on multiple form factors (tablet/smartphone) and multiple operating systems (Android/iOS) to be flexible and allow for BYOD use. The results of the 2016 Census Test will inform subsequent decisions on which mobile devices are leveraged in support of the 2020 Census.

In both scenarios, census data will be protected "at rest" and "in motion." The Census Bureau will use FIPS 140-2 encryption algorithms for the data "at rest" and a combination of the Mobile Device Management (MDM), Mobile Application Management (MAM), and virtual private network (VPN) protections for "in motion." In addition, the Census Bureau further protects the application with a username and password, required each time a Census Bureau field staff accesses the applications. The Census Bureau is working on secure implementation of derived credentials, which would provide for multi-factor identification based on PIV.

Another key technology the Census Bureau is exploring is Cloud Computing. The Census Bureau has approval through its Data Stewardship Executive Policy Committee to host confidential census data in FedRAMP certified clouds that meet legal and security requirements and is exploring the process and of storing other titled data (e.g. Title 26) in the cloud. Various tests are underway to process and store data both in FedRAMP certified commercially-provided private clouds, a virtualized Census Bureau private cloud, and potential use of hybrid cloud infrastructures. In the 2016 Census Test, the intent is to deploy the internet data collection instrument in a FedRAMP-certified commercially provided private cloud.

The Census Bureau adheres to all NIST requirements and guidance as required under the Federal Information Security Management Act (FISMA). For security for the Census Bureau's cloud initiative the Census Bureau relies on the GSA FedRAMP process, as well as mapping the security information provided by the cloud vendors to the Census Bureau's internal Risk Management Framework security profile so that the CIO can have a consistent understanding of the security posture of all IT systems supporting the Census Bureau mission. Testing and experimentation in cloud deployments began in Summer 2015 using Amazon Web Services to include taking advantage of auto-scaling to the provision of computing resources to match the demand required to meet specified performance at minimum cost. The 2016 Census Test will take advantage of FedRAMP Certified Commercial Cloud services and will provide cost basis estimates as well as allow the Census Bureau to acquire hands-on learning in migration, integration, operation, monitoring, and maintenance of services within a cloud model.

Census will determine how best to employ features like auto-scaling to meet performance demands of the 2020 Census, particularly for systems such as the internet self-response capability that must scale to meet the short-term anticipated demand of millions of users, while containing costs. The Census will acquire on-demand infrastructure, to the greatest extent possible, through the FedRAMP cloud. The goal of the Census Bureau is to satisfy the scale and resources required by the Census Bureau while minimizing the impact on its own internal footprint. In continuing support of this work, the Census Bureau has awarded a Cloud Enterprise Solution Framework for Cloud Computing Services contract, established as the initial move into cloud computing. This contract allows the Census Bureau to begin migration of services into FedRAMP-certified commercial clouds and gain essential skills and knowledge.

Obviously, security of confidential data is a major concern for the 2020 Census, as well for all of the Census Bureau's other censuses and surveys. The Census Bureau uses an enterprise layered defense strategy to protect its data and systems. They are protected by the DHS managed Einstein program. In addition to this, the Census Bureau uses a cloud service provider to provide protection from Distributed Denial of Service (DDoS) attacks. The Census Bureau also has security at the perimeter of the network through routers and firewalls and further has its own Intrusion Detection Systems and Intrusion Prevention Systems (IDS/IPS) in place. They have a segmented network to isolate the internal network from systems that are Internet accessible.

Further, they have implemented a Risk Management Framework (RMF), based on NIST Special Publication 800-37 rev.1. The Census Bureau worked with NIST in the development of the RMF, and the resulting framework has been recognized by NIST as being very solid and meeting all the intentions of Publication 800-37 rev1. All of the Census' systems are fully assessed and have current Authorizations to Operate. Each of them undergoes continuous monitoring to maintain the authorization. This monitoring consists of both automated and manual assessments. Finally, the Census Bureau, in alignment with the DOC, has implemented the Department of Homeland Security (DHS) Continuous Diagnostics and Mitigation (CDM) tools under Phase 1 and is currently working with the Department and DHS to implement additional tools under Phase 2c of the CDM program. The Census Bureau has also reviewed all available information concerning the OPM hack and is making changes to our program, as needed, based on what we have learned. The Census Bureau has also worked closely with DOC on the on-going cyber sprint effort and strengthening our entire IT Security Program, which includes support for the 2020 Census.

The Census Bureau continues to work with the Government Accountability Office (GAO) to close all the findings of the 2013 audit report. As of October 19, 2015, GAO has closed 65 of the 115 recommendations and referred 19 back to the Census Bureau for additional information. Thirty-one of our original responses are still pending review at GAO. The Census Bureau communicates with GAO on a bi-weekly basis to provide the additional information as the Census gathers it and to check on the status of additional GAO findings.

Finally, during this period of IT leadership transition, the Census Bureau has continued to effectively and securely deliver the solutions needed across all directorates, achieving and even exceeding its IT goals, including:

- Effective support for the Decennial 2015 National Content Test and preparing for the Field IT Infrastructure in support of the 2016 Census Test;
- Timely delivery of Census Enterprise Data Collection and Processing (CEDCaP) Product Sub-Releases and Releases and associated system components within budget to support the production needs of the Demographic, Economic, and Decennial directorates;
- Successful contract awards for initial Cloud Services Enterprise Solutions Framework (ESF) to five (5) Service Disabled, Veteran-Owned Businesses (SDVOB);
- Alignment with the Federal Information Technology Acquisition Reform Act (FITARA); and
- Establishment of, and update to, the Enterprise Systems Development Lifecycle (ESDLC) to support agile software development methodologies.

Based on my observations, the Census Bureau is well positioned as compared with prior decades to take advantage of early planning, testing, and operational designs. The 2020 Census program is also well positioned to leverage enterprise initiatives to realize significant efficiencies. Innovations in cloud computing and mobile technologies show great promise for enhancing IT-based solutions in support of the 2020 Census. To adequately implement these strategies and meet the challenges listed above will require the best efforts of the Census Bureau and continued Congressional support.

I am deeply grateful for this opportunity to testify before this committee and share these observations, and I am pleased to answer any questions you may have.

**Steve Cooper**  
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**U.S. Department of Commerce**

Steven I. Cooper was appointed Chief Information Officer (CIO) at the U.S. Department of Commerce by Secretary Penny Pritzker on June 16, 2014. As CIO, Cooper serves as the principal adviser to Commerce's 12 agencies' CIOs and the Deputy Secretary. He also leads development and implementation of the Department's enterprise-wide information technology (IT) strategy and operations, oversees the building and operation of a robust enterprise IT security risk program, and serves as an adviser on mission and business IT systems and services.



Prior to joining Commerce, Cooper served as the Federal Aviation Administration's (FAA) Acting Assistant Administrator for Information Services and CIO. Previously, Cooper was the Deputy CIO, as well as IT Director and CIO of the FAA's Air Traffic Organization, where he oversaw a team of 400 professionals working to ensure the operational excellence of mission support and business systems and the underlying technology infrastructure. In February 2003, Cooper was appointed by President George W. Bush to serve as the first CIO of the Department of Homeland Security (DHS) where, among other accomplishments, he developed the Department's first IT Strategic Plan.

Prior to joining DHS, Cooper was appointed Special Assistant to the President for Homeland Security and served as Senior Director for Information Integration in the White House Office of Homeland Security. In this role, he launched the development of the National Enterprise Architecture for Homeland Security to address information integration within the federal government and the sharing of information with state, local, and relevant private-sector entities.

Cooper also has more than 20 years of private sector experience, including working as Senior Vice President and CIO of the American Red Cross, where, most notably, he helped start the first-ever National Call Center to provide emergency financial assistance during Hurricane Katrina. Cooper was also a founding partner of Strativest, a firm focused on identifying emerging technologies applicable to homeland security, emergency response and preparedness, served as President of Fortified Holdings, and worked as CIO for Corporate Staffs at Corning, Inc. Previously, he also served in senior management roles with Eli Lilly Inc., Computer Sciences Corporation, MAXIMA, Inc., and CACI, Inc.

In 2007, Cooper was named one of the Top 100 CIO's in America by CIO Insight. He was also named Government Civilian Executive of the Year by Government Computer News in 2003; a Titan of Technology by the Northern Virginia Technology Council; was a recipient of the Fed 100 Award recognizing the 100 Most Influential People in Federal Government Technology; and was named by the Washington Post as one of the Five to Watch while serving in the White House. Cooper has served as a board member and officer of several nonprofits and humanitarian organizations working to more effectively help people and emergency responders prepare for and respond to natural disasters.

Cooper received a BA from Ohio Wesleyan University, and was honorably discharged as a Naval Air Reserve petty officer following service during the Vietnam War.