

Update on Cybersecurity

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IT Directorate

2020 Census Cybersecurity

Agenda

- Overview
- Plan
- Challenge
- Design
- Cyberthreat Landscape
- Approach

2020 Census Cybersecurity Overview

U.S. Census Bureau: Leading source of quality data about the nation's people, places, and economy.

Cyberattacks impact our data and could compromise our mission:

- Cybersecurity is our highest IT priority.
- Evolve cybersecurity to meet new threats.
- leveraging best resources and knowledge inside and outside the federal government.

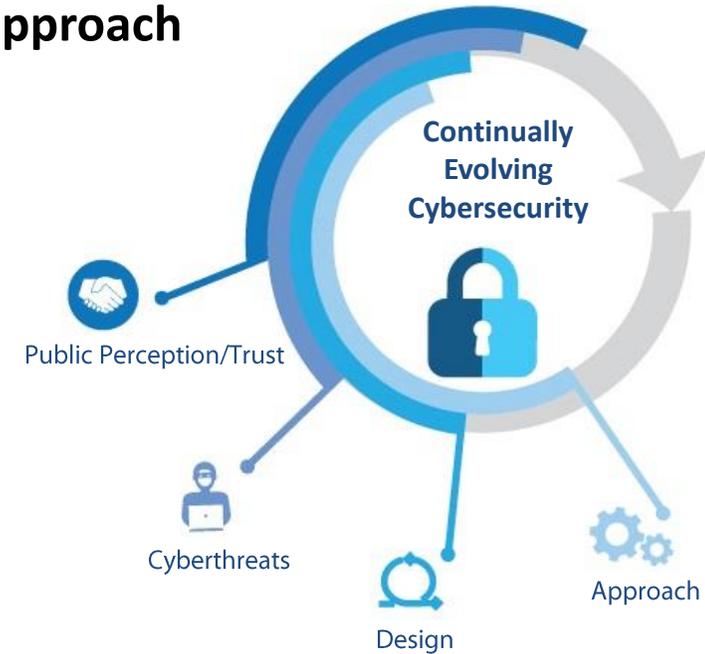


2020 Census Cybersecurity

Our Plan

Cybersecurity program focus areas:

- Improving **public perception and trust**.
- Proactively addressing **cyberthreats** through **design** and **approach**
- Respond immediately to contain threats
- Partnerships to understand and manage threats
 - Federal intelligence community
 - Private sector



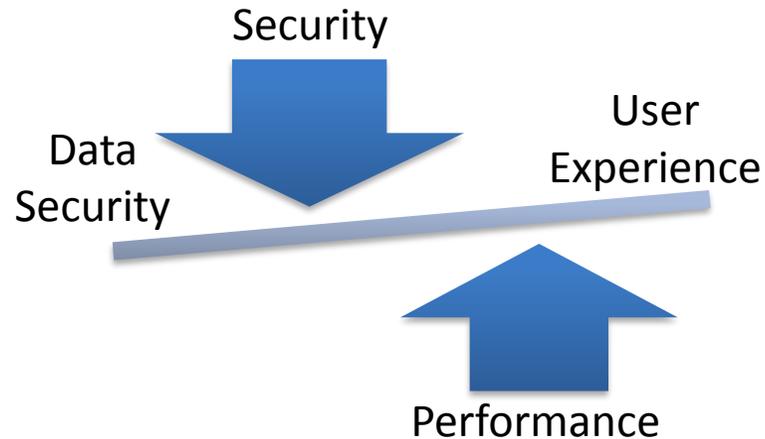
2020 Census Cybersecurity

Challenge: Ensure Public Perception/Trust

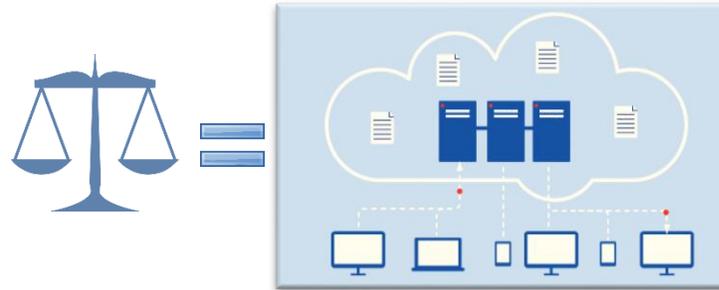
Top Priorities

- **Data Security** – Protecting respondent data
- **User Experience** – Performance that public expects with confidence that their data will be protected

Top Priorities are Opposing Forces



Balance in Cloud Based Solution



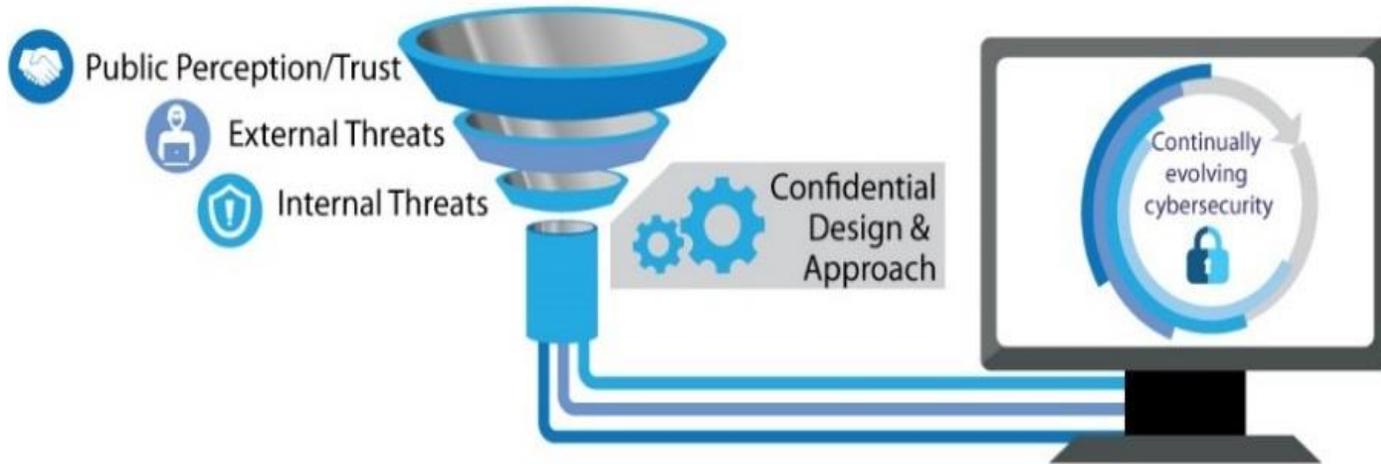
Data Security:

Layer public facing systems in secure segments

User Experience:

Rapid, Repeatable, and Efficient scaling of isolated segments to ensure performance

2020 Census Cybersecurity Cybersecurity Design



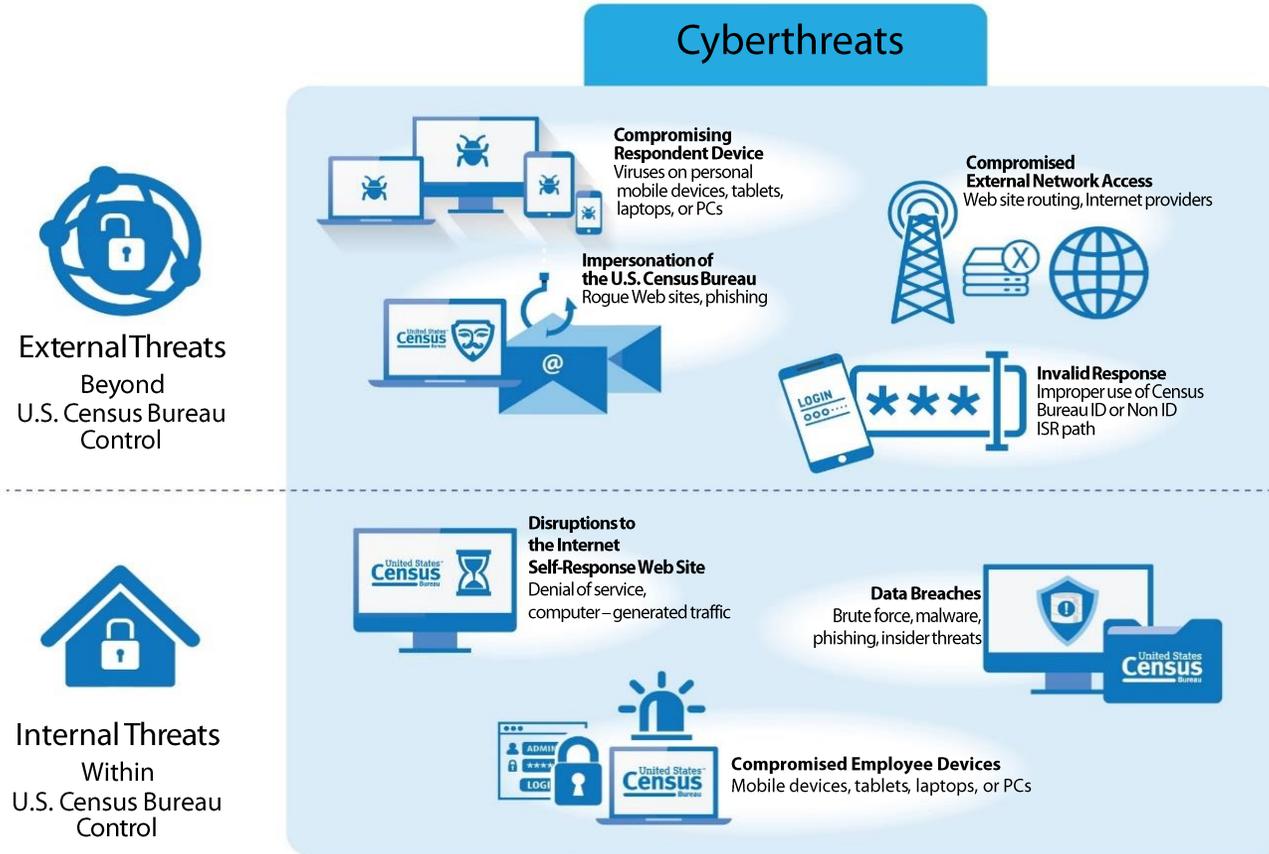
Incorporate many layers and levels of isolation.

- Apply right balance of security and performance
- Does not sacrifice overall security.

Create “funnel effect” to minimize undesired users

- Apply very high levels of security early to our publicly facing system.

2020 Census Cybersecurity Cyberthreat Landscape



A cloud-based system alone does not protect our data from all cyberthreats

- External - Rely on industry and other federal agencies to provide services to resolve threats
- Internal - Monitor and directly respond to internal threats to Census Bureau systems through design and approach

2020 Census Cybersecurity

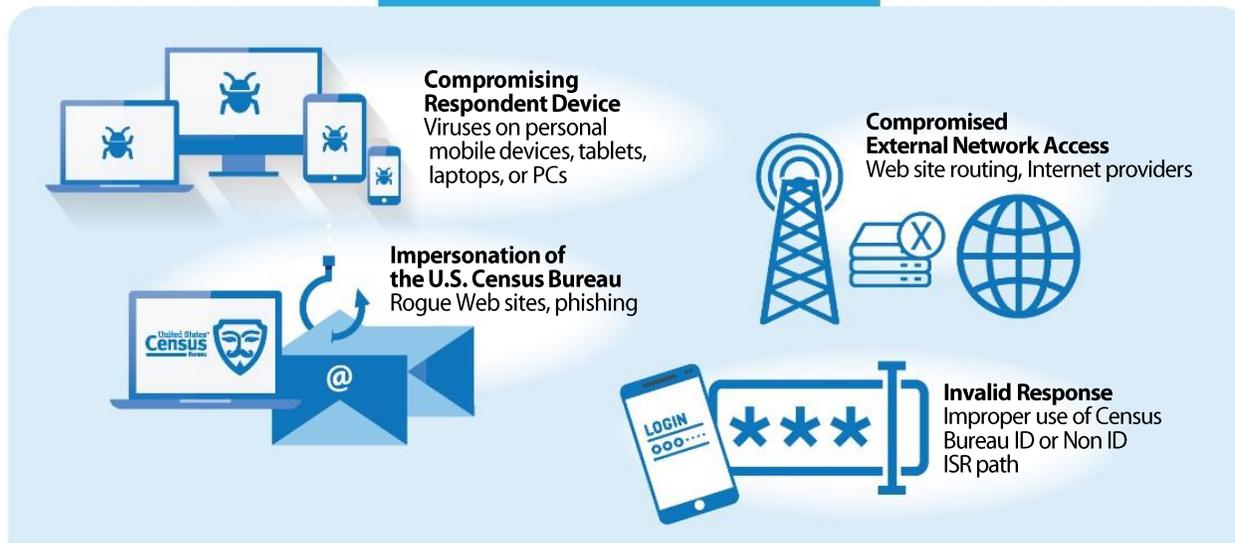
Cyberthreats: External

- Census Bureau does not have direct control over **external cyberthreats**
- We can detect some threats but cannot take direct action to resolve



External Threats
Beyond
U.S. Census Bureau
Control

Cyberthreats



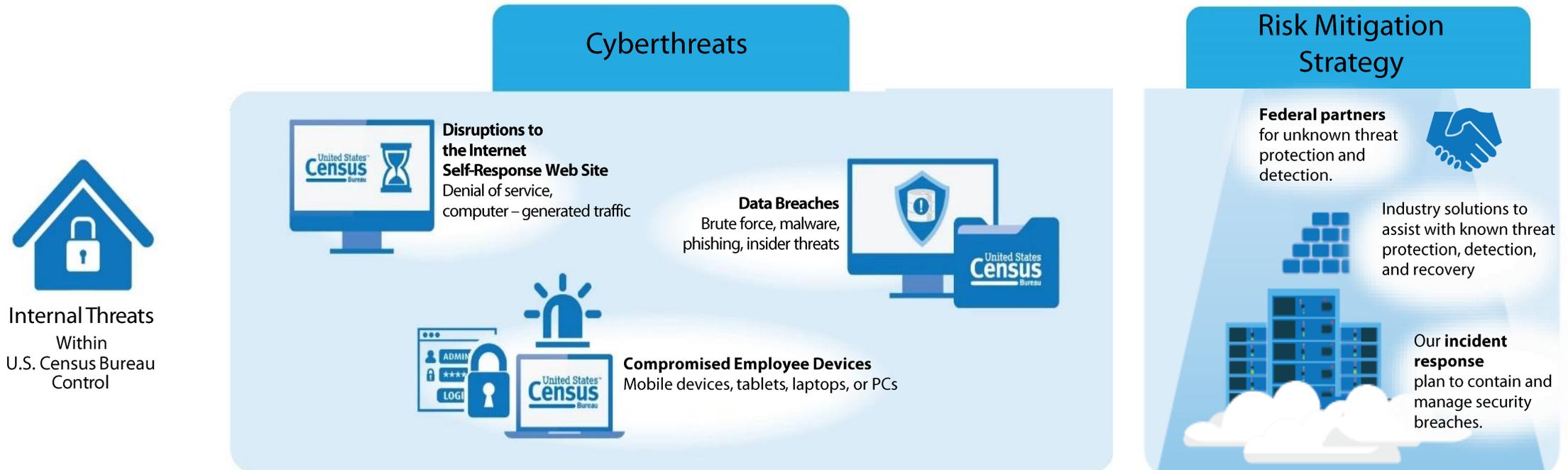
Risk Mitigation Strategy



2020 Census Cybersecurity

Cyberthreats: Internal

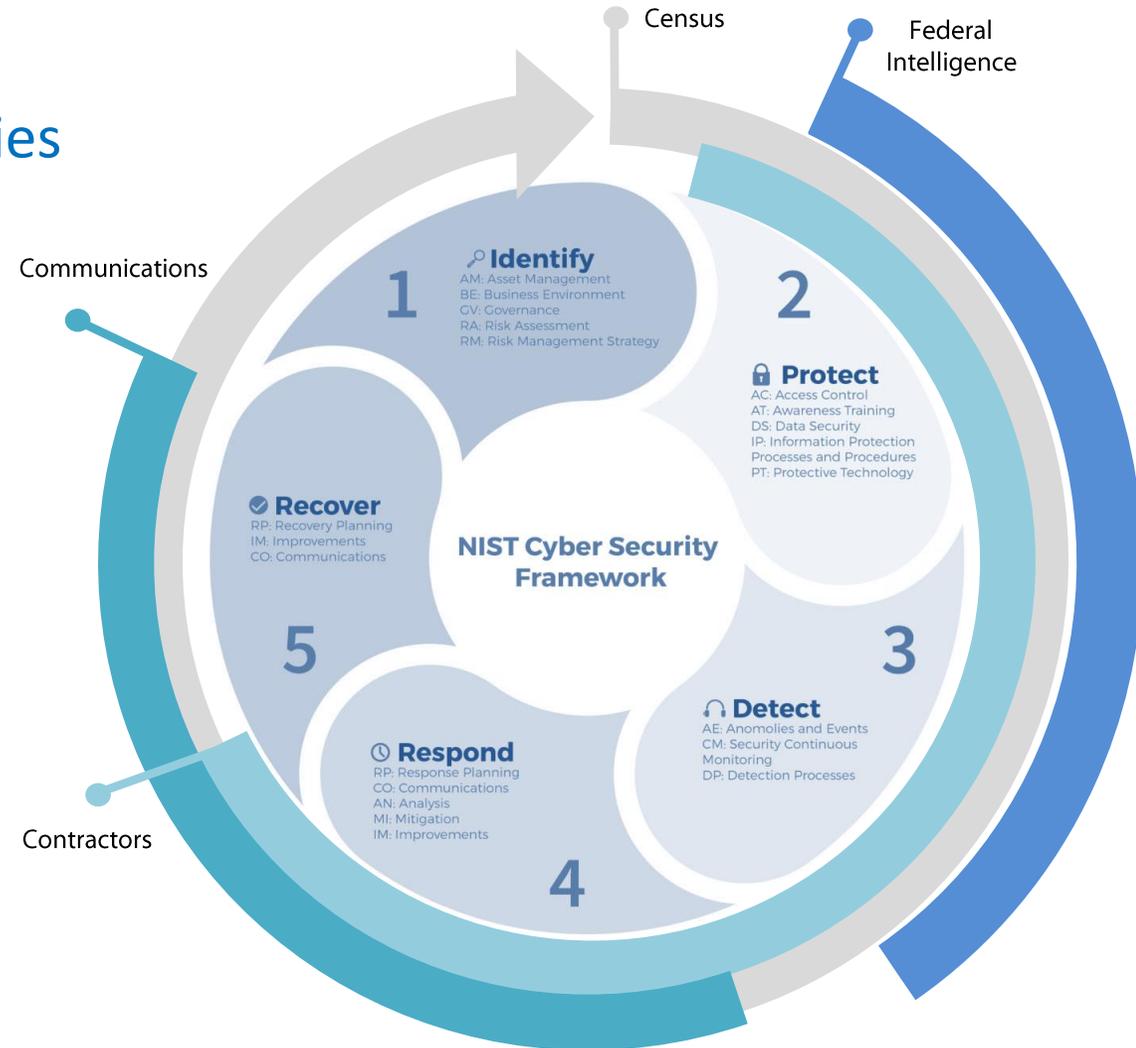
- Census bureau has the ability to take direct action to prevent and resolve **internal threats**
- Our team proactively monitors known threats



2020 Census Cybersecurity

Federal Cybersecurity Framework Responsibilities

- The **Cybersecurity Framework** is the continual life cycle used to coordinate interactions of people, process, and technology to have a complete approach to Cybersecurity
- **Census** responsible for all areas across Census systems
 - Coherency, Coordination, Consistency
- **Contractors** work within Census to protect, detect, and respond for the systems they maintain.
- **Federal Intelligence Community** can assist in protecting against and detecting cyber threats
- **Communications** coordination necessary ensure public trust and confidence during potential response and recovery



2020 Census Cybersecurity

Key Areas and Partners

- **Secure Federal Network Connectivity for 2020 Respondents**

Working with Industry and Federal Government to ensure scalable and secure federal network connection

- **Strengthen Incident Response capabilities**

Advance ability to continually Identify, Protect, Detect, Respond, and Recover from possible cyberthreats

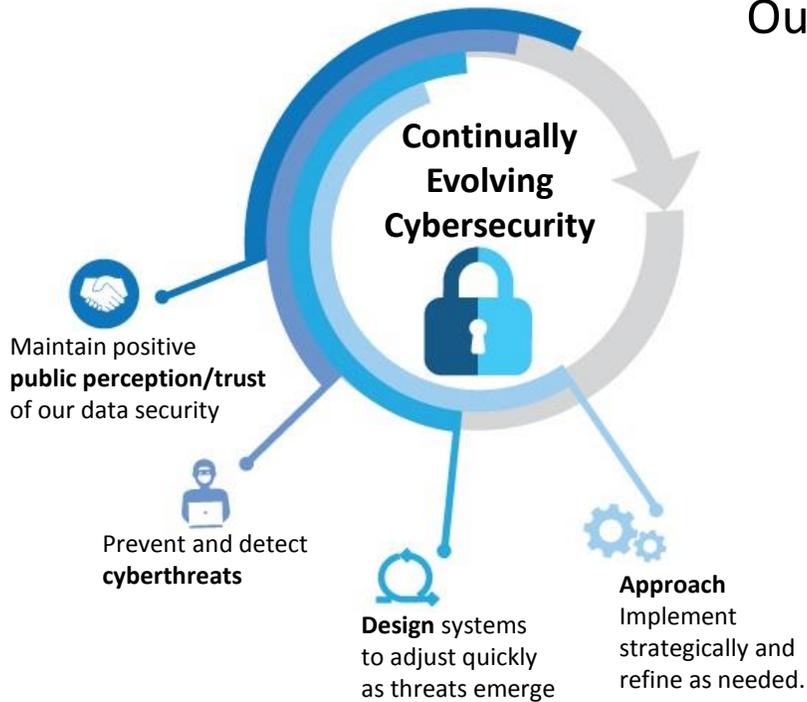
- Improving visibility of cybersecurity issues by implementing tools from private industry and federal government
- Engaging Federal Intelligence Community for a coordinated Federal response.

- **Improve Cybersecurity Posture**

Improve knowledge, processes, procedures, and/or technology.

- Improving Knowledge, Processes, and Procedures
 - ✓ Regular Cybersecurity briefings with Federal Intelligence Community
 - ✓ Test response procedures to cybersecurity incidents through simulations with Federal Partners
- Testing Technology
 - ✓ Security Tested Internet Self Response system by Industry and Federal Government
 - ✓ Engaging Industry and Federal Government to simulate cybersecurity attacks

2020 Census Cybersecurity Approach

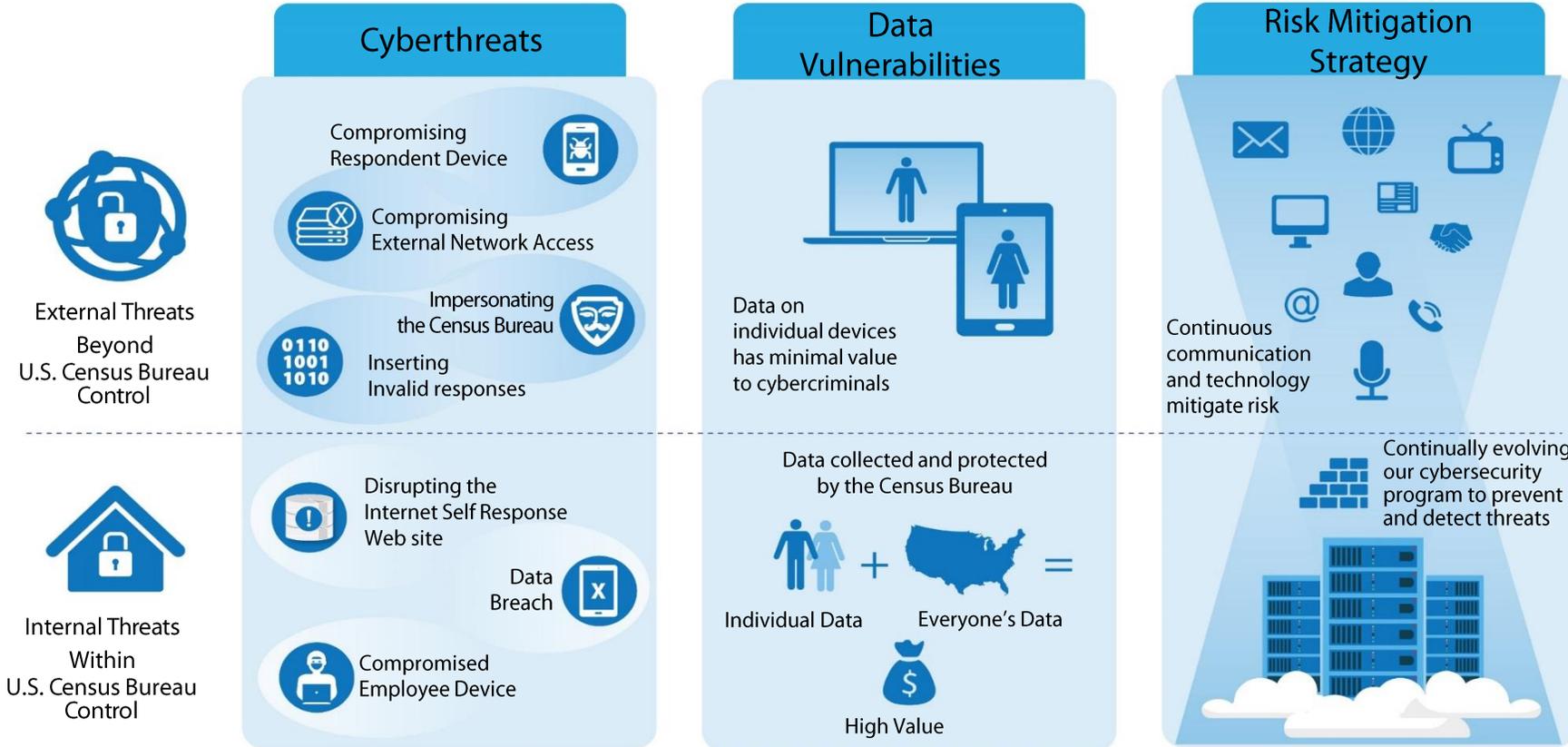


Our approach will **continually be refined** as threats emerge and evolve.

We will:

- Maintain the public's trust and confidence by protecting their data and keeping them informed
- Protect, detect, and respond to cyberthreats through technology and partnerships
- Adjust solutions accordingly within our flexible design
- Work with federal and industry partners to help us fill gaps

2020 Census Cybersecurity Summary



Continually evolving cybersecurity program will give us the best opportunity to:

- ✓ Identify
- ✓ Protect
- ✓ Detect
- ✓ Respond
- ✓ Recover from possible cyber threats

Enable **partners** to get involved in necessary areas.

Mitigate operational challenges to adjust quickly as threats are identified to contain for analysis.

Questions?

Update on Systems Readiness

Atri Kalluri

Chief

Decennial Information Technology Division

2020 Census Systems Readiness Agenda

2018 End-to-End Census Test Solution Architecture

2018 Production Status of Self Response and Field Data Collection Operations

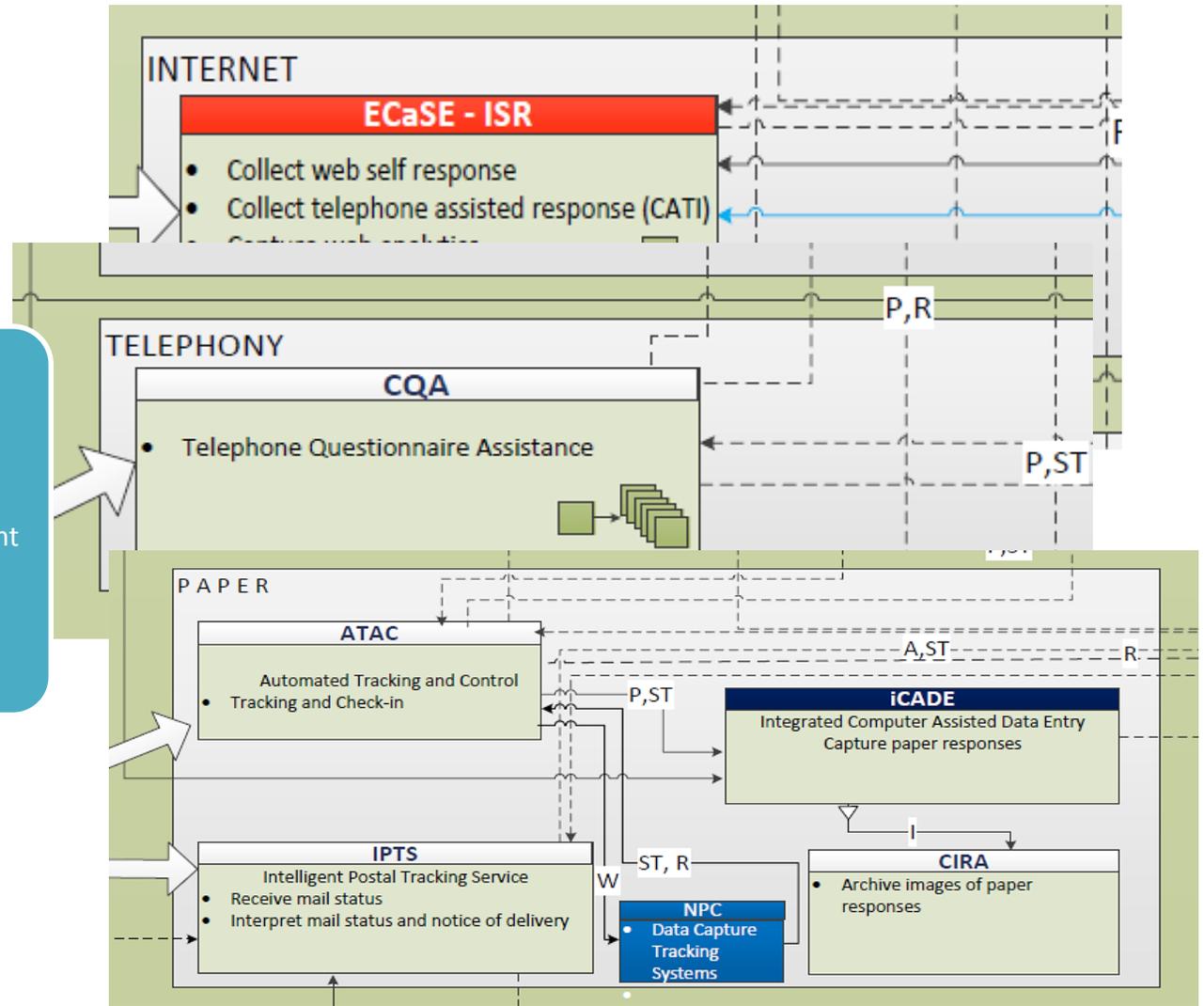
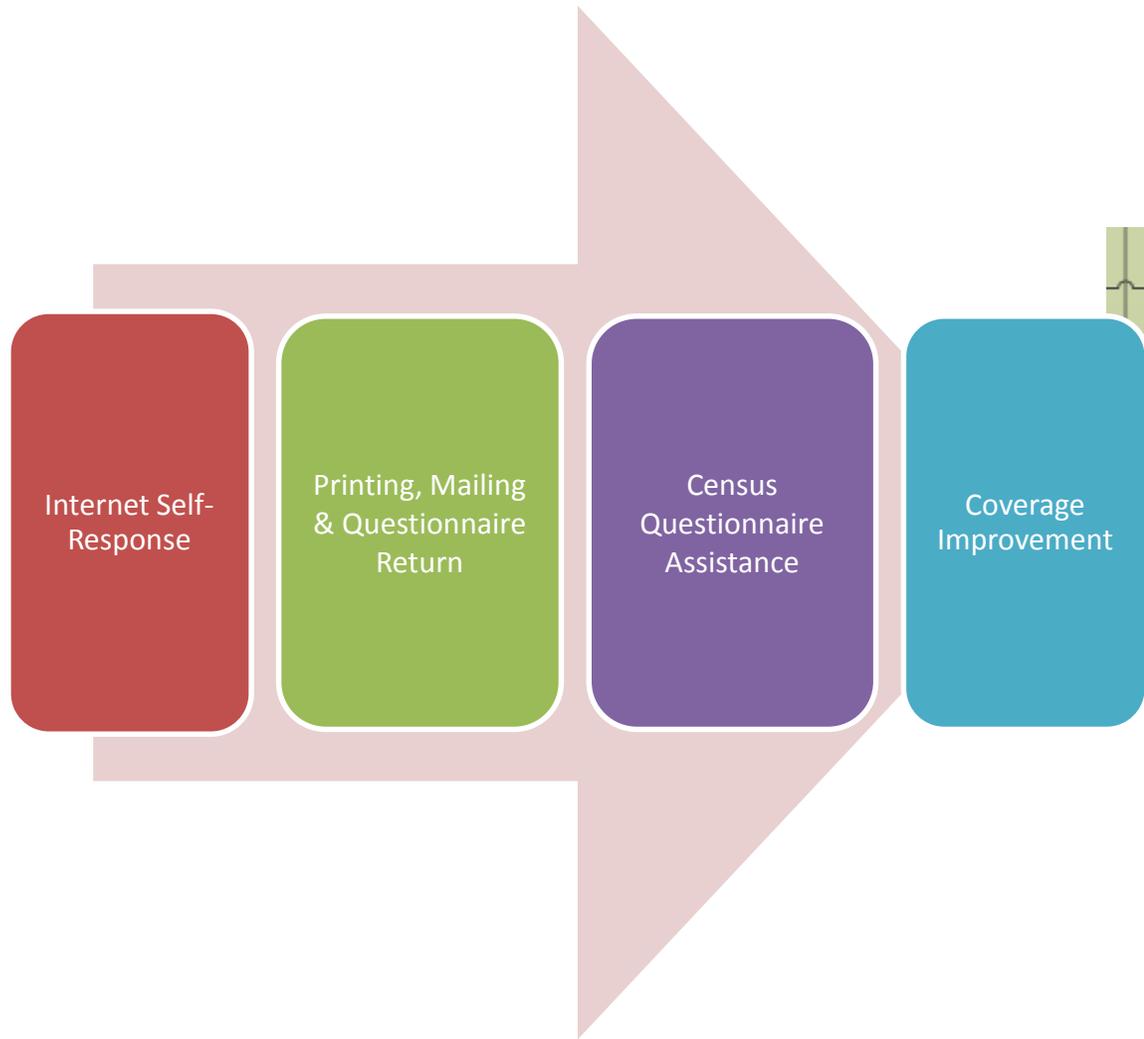
2018 End-to-End Census Test Systems Deployment Status

Update on 2018 End-to-End Census Test Releases

2020 Census Releases

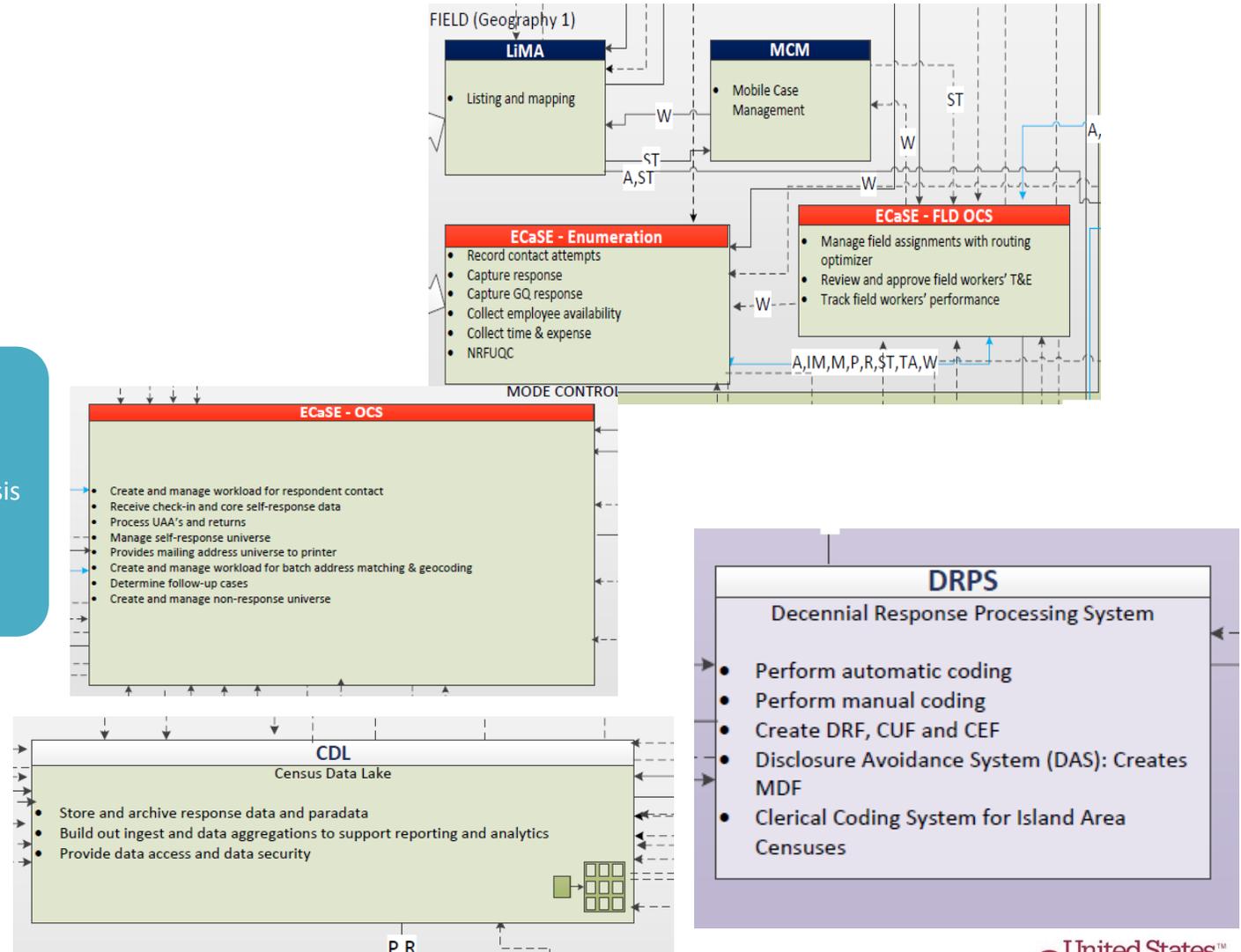
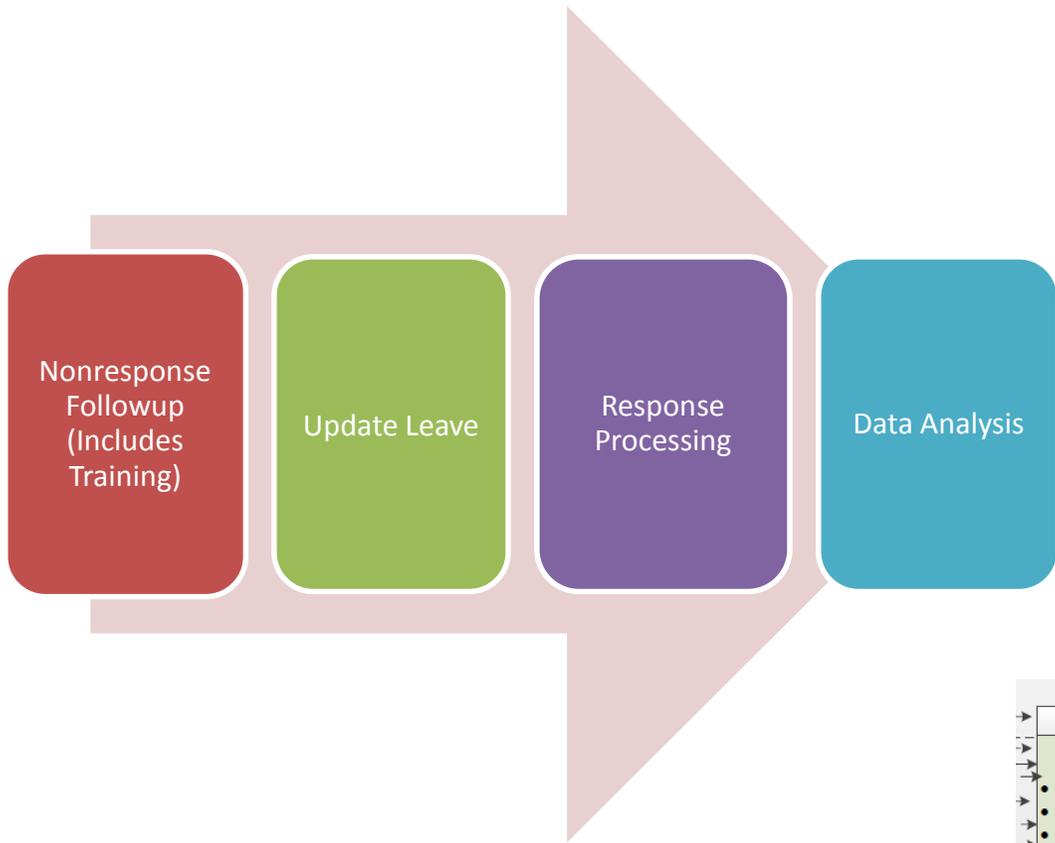
2020 Census Systems Readiness

2018 End-to-End Census Test – Self Response Operations



2020 Census Systems Readiness

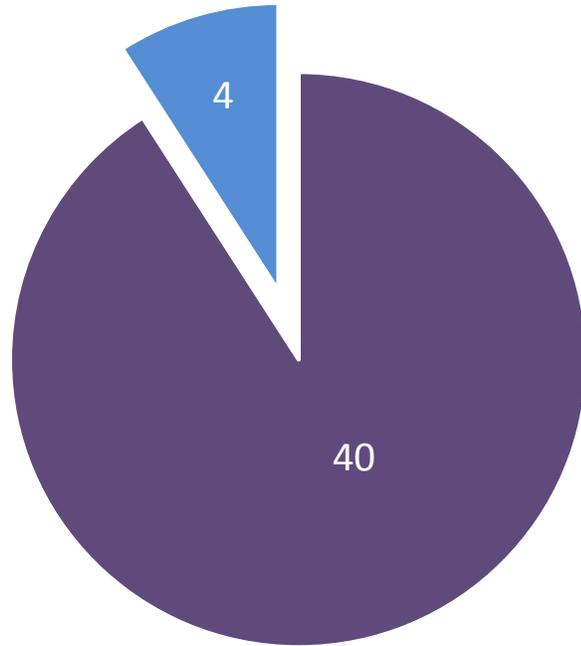
2018 End-to-End Census Test – Field Data Collection Operations



2020 Census Systems Readiness

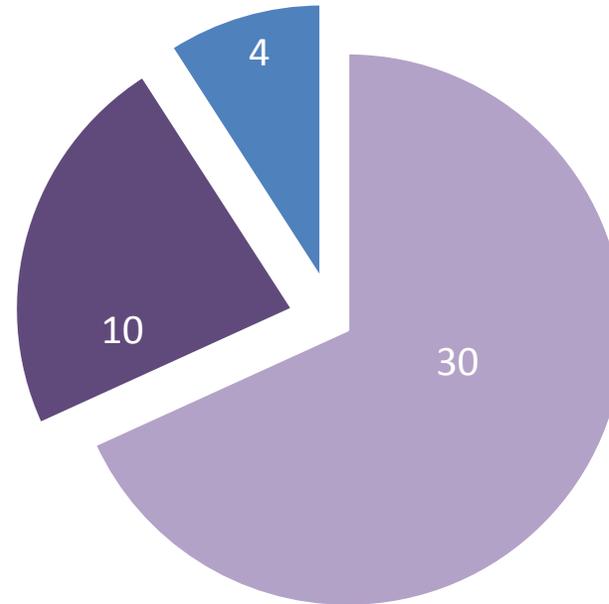
2018 End-to-End Census Test System Deployment Status

System Deployment Status



- Systems Deployed in Support of Operations to Date
- Systems Not Yet Deployed in Support of Operations to Date

System Enhancements Status



- No Further Enhancements for Future Operations
- Enhancement for Future Operations Planned
- Systems Not Yet Deployed in Support of Operations to Date

2020 Census Systems Readiness

2018 End-to-End Census Test Releases

| 2018 End-to-End Census Test Releases | Operational Areas Supported | Test Readiness Review (TRR) | Production Readiness Review (PRR) | Conduct Operation | Status |
|--------------------------------------|--|-----------------------------|-----------------------------------|-------------------|-----------------------------------|
| Release I | In-Office Address Canvassing (AdCan) | ---- | 12/13/2016 | ---- | In-Production |
| Recruiting Release 1 | AdCan Recruiting | 11/18/2016 | 12/1/2016 | 3/31/2017 | Complete |
| Training Release 1 | AdCan Training | 3/8/2017 | 6/22/2017 | 7/31/2017 | Complete |
| Release A | In-Field AdCan (TRR 1 = Final functionality for all AdCan systems except ECaSE, LiMA/MCM, and UTS; TRR 2 = Final ECaSE, LiMA/MCM, UTS functionality) | (1) 3/8/2017 | 7/26/2017 | 8/28/2017 | Complete |
| | | (2) 5/10/2017 | | | |
| Recruiting Release 2 | Field Enumeration Recruiting | 6/15/2017 | 7/31/2017 | 9/5/2017 | Complete |
| Training Release 2 | Nonresponse Followup (NRFU) Training | 10/11/2017 | 1/12/2018 | 3/19/2018 | In-Production |
| Release C | (2) Self-Response; includes: Printing/Mailing/Workload & Census Questionnaire Assistance (CQA)/Self-Response | 11/17/2017 | 1/26/2018 | 2/12/2018 | In-Production |
| | (3) Group Quarters Workload (GQ)/Advanced Contact/All GQ Training | 3/27/2018 | 5/21/2018 | 6/11/2018 | Program-level Testing |
| Release D | (1) Field Enumeration; includes Update Leave/NRFU/Coverage Improvement operations | 12/6/2017 | 2/12/2018 | 3/14/2018 | In-Production |
| | (2) GQ eResponse/GQ Enumeration/Service Based Enumeration | 4/17/2018 | 6/11/2018 | 7/16/2018 | Program-level Testing |
| Release E | (1) Tabulation and Dissemination - Residual Coding | 2/26/2018 | 4/4/2018 | 5/1/2018 | Operational Readiness Testing |
| | (2) Tabulation and Dissemination - Post Capture Data Interface, Primary Selection Algorithm, Census Unedited File/Fraud Detection | 7/11/2018 | 9/4/2018 | 10/1/2018 | Development/Project-level testing |
| | (3) Tabulation and Dissemination - Census Edited File, Micro Data File, Disseminate redistricting data required by Public Law 94-171 | 10/31/2018 | 12/3/2018 | 1/7/2019 | Development/Project-level testing |

2020 Census Systems Readiness

2018 End-to-End Census Test Systems

| System | No Further Enhancements for Future Releases | 2018 End-to-End Census Test Releases | | | | | | | | |
|---|---|--------------------------------------|----------------------|--------------------|-------------------------------|----------------------|--------------------|---------------------------------|--------------------------------|--|
| | | Systems in Production | | | | | | Future Releases | | |
| | | In-Office AdCan (Release I) | Recruiting Release 1 | Training Release 1 | Release A | Recruiting Release 2 | Training Release 2 | Release C | Release D | Release E |
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| 2020 Website | 1 | | | | | | | ✓ ₃ | ✓ ₂ | ✓ ₃ |
| ATAC (Automated Tracking and Control) | 2 | | | | | | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| BARCA (Block Assessment, Research, and Classification Application) | 3 | | ✓ | | | | | | | |
| CAES (Concurrent Analysis and Estimation System) | 4 | | | | | | | | ✓ ₁ | |
| CaRDS (Control and Response Data System) | | | | | | | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| CBS (Commerce Business System) | 5 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| CDL (Census Data Lake) | | | | | | | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| CENDOCS (Census Document System) | 6 | | ✓ | ✓ | ✓ _{1,2} | ✓ | | | | |

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2020 Census Systems Readiness

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| CHEC (Census Hiring and Employment Check System) | 7 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₃ | | |
| CHRIS (Census Human Resources Information System) | 8 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| CIRA (Census Image Retrieval Application) | 9 | | | | | | | ✓ ₂ | ✓ ₁ ✓ ₂ | |
| CQA (Census Questionnaire Assistance) | 10 | | | | | | | ✓ ₂ | ✓ ₁ | |
| DAPPS (Decennial Applicant, Personnel and Payroll Systems) | 11 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₃ | ✓ ₁ ✓ ₂ | |
| Desktop Services | 12 | | ✓ | ✓ | ✓ _{1,2} | ✓ | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| DRPS (Decennial Response Processing System) | | | | | | | | ✓ ₂ | ✓ ₁ | ✓ ₁ ✓ ₂ ✓ ₃ |
| DPACS (Decennial Physical Access Control System (PACS)) | 13 | | | | | | ✓ | ✓ ₃ | | |

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2020 Census Systems Readiness

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| DSC (Decennial Service Center) | 14 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| ECaSE ENUM (Enterprise Censuses and Surveys Enabling Platform – Enumeration) | | | | | | | ✓ | ✓ ₃ | ✓ ₁ ✓ ₂ | |
| ECaSE FLD OCS (Enterprise Censuses and Surveys Enabling Platform – Field Operation Control System) | | | | ✓ | ✓ ₂ | ✓ | ✓ | ✓ ₃ | ✓ ₁ ✓ ₂ | |
| ECaSE ISR (Enterprise Censuses and Surveys Enabling Platform – Internet Self-Response) | 15 | | | | | | | ✓ ₂ | ✓ ₁ | |
| ECaSE OCS (Enterprise Censuses and Surveys Enabling Platform – Operational Control System) | | | | | ✓ ₂ | | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| Geospatial Services | 16 | | | | ✓ _{1,2} | | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| iCADE (Integrated Computer Assisted Data Entry) | 17 | | | | | | | ✓ ₂ | ✓ ₁ ✓ ₂ | |

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| IDMS (Identity Management System) | 18 | | | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₃ |
| ILMS (Integrated Logistics Management System) | 19 | | | | ✓ _{1,2} | ✓ | ✓ | | ✓ ₁ ✓ ₂ | |
| IPTS (Intelligent Postal Tracking System) | | | | | | | | ✓ ₂ | ✓ ₁ ✓ ₂ | |
| LiMA (Listing and Mapping Application) | 20 | | | | ✓ ₂ | | | | ✓ ₁ | |
| MaCS (Matching and Coding Software) | 21 | | | | | | | ✓ ₂ | | |
| MAF/TIGER (Master Address File/Topologically Integrated Geographic Encoding and Referencing Database) | 22 | ✓ | ✓ | | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| MCM (Mobile Case Management) | 23 | | | | ✓ ₂ | | | | ✓ ₁ | |
| MOJO Optimizer/Modeler (MOJO – Optimizer/Modeling) | 24 | | | | ✓ _{1,2} | | | | ✓ ₁ | |

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| MOJO Recruiting Dashboard | 25 | | ✓ | ✓ | | ✓ | ✓ | ✓ ₃ | | |
| NPC Printing (Printing at the National Processing Center) | 26 | | | | ✓ _{1,2} | ✓ | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| OneForm Designer Plus | 27 | Standalone system; no program-level integration testing required | | | | | | | | |
| PEARSIS (Production Environment for Administrative Records, Staging, Integration, and Storage) | | | | | | | | ✓ ₂ | ✓ ₁ | ✓ ₂ ✓ ₃ |
| R&A (Recruiting and Assessment) | 28 | | ✓ | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₃ | ✓ ₁ ✓ ₂ | |
| RTNP (Real Time Non-ID Processing) | 29 | | | | | | | ✓ ₂ | | |

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2020 Census Systems Readiness

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| SMARCS (Sampling, Matching, Reviewing, and Coding System) | | | | | ✓ _{1,2} | | | | ✓ ₁ | ✓ ₂ |
| SOA (Service Oriented Architecture) | 30 | | | ✓ | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| UTS (Unified Tracking System) | | ✓ | ✓ | ✓ | ✓ ₂ | ✓ | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |

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2020 Census Systems Readiness

2018 End-to-End Census Test Acquired & Support Systems

| System | 2018 End-to-End Census Test Releases | | | | | | | | |
|--|--------------------------------------|----------------------|--------------------|-------------------------------|----------------------|--------------------|---------------------------------|--------------------------------|--|
| | Systems in Production | | | | | | Future Releases | | |
| | In-Office AdCan (Release I) | Recruiting Release 1 | Training Release 1 | Release A | Recruiting Release 2 | Training Release 2 | Release C | Release D | Release E |
| Test Readiness Review Dates | ---- | 11/18/2016 | 3/8/2017 | (1) 3/8/2017 (2) 5/10/2017 | 6/15/2017 | 10/11/2017 | (2) 11/17/2017 (3) 3/27/2018 | (1) 12/6/2017 (2) 4/17/2018 | (1) 2/26/2018 (2) 7/11/2018 (3) 10/31/2018 |
| Production Readiness Review Dates | 12/13/2016 | 12/1/2016 | 6/22/2017 | 7/26/2017 | 7/31/2017 | 1/12/2018 | (2) 1/26/2018 (3) 5/21/2018 | (1) 2/12/2018 (2) 6/11/2018 | (1) 4/4/2018 (2) 9/4/2018 (3) 12/3/2018 |
| Conduct Operation Dates | ---- | 3/31/2017 | 7/31/2017 | 8/28/2017 | 9/5/2017 | 3/19/2018 | (2) 2/12/2018 (3) 6/11/2018 | (1) 3/14/2018 (2) 7/16/2018 | (1) 5/1/2018 (2) 10/1/2018 (3) 1/7/2019 |
| Acquired and Support Systems | | | | | | | | | |
| CFS Hotline (Census Field Supervisor Hotline) | | | ✓ | ✓ _{1,2} | | | | ✓ ₁ ✓ ₂ | |
| Commercial Printing | | | | | | | ✓ ₂ | ✓ ₁ | |
| dDaaS (Decennial Device as a Service) | | | | | | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| DSSD (Decennial Statistical Studies Division) | | | | | | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ |
| ENS (Emergency Notification System) | | ✓ | | ✓ _{1,2} | ✓ | ✓ | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | |
| ERD (Economic Reimbursable Surveys Division) | | | | | | | | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| Fingerprint Vendor | | | | | | ✓ | ✓ ₃ | | |
| NPC (National Processing Center) | | | | | | | ✓ ₂ ✓ ₃ | ✓ ₁ ✓ ₂ | ✓ ₂ ✓ ₃ |
| POP (Population Division) | | | | | | | | | ✓ ₃ |
| Sunflower | | ✓ | ✓ | ✓ _{1,2} | ✓ | | | ✓ ₁ ✓ ₂ | |

- ✓_x = Participated/Will Participate in Census/Census Test (with TRR information)
- Grey = Not Applicable
- Blue = In production
- Purple = CEDCaP System

2020 Census Systems Readiness

2018 End-to-End Census Test - Systems Not Deployed in Support of Operations to Date

| System | 2018 End-to-End Census Test Releases | | | | | | | | |
|--|--------------------------------------|-------------------------|-----------------------|---------------|-------------------------|-----------------------|-----------------|----------------|----------------|
| | Systems in Production | | | | | | Future Releases | | |
| | In-Office AdCan (Release I) | Recruiting Release 1 | Training Release 1 | Release A | Recruiting Release 2 | Training Release 2 | Release C | Release D | Release E |
| Test Readiness Review Dates | ---- | 11/18/2016 | 3/8/2017 | (1) 3/8/2017 | 6/15/2017 | 10/11/2017 | (2) 11/17/2017 | (1) 12/6/2017 | (1) 2/26/2018 |
| | | | | (2) 5/10/2017 | | | (3) 3/27/2018 | (2) 4/17/2018 | (2) 7/11/2018 |
| | | | | | | | | (3) 10/31/2018 | |
| Production Readiness Review Dates | 12/13/2016 | 12/1/2016 | 6/22/2017 | 7/26/2017 | 7/31/2017 | 1/12/2018 | (2) 1/26/2018 | (1) 2/12/2018 | (1) 4/4/2018 |
| | | | | | | | (3) 5/21/2018 | (2) 6/11/2018 | (2) 9/4/2018 |
| | | | | | | | | | (3) 12/3/2018 |
| Conduct Operation Dates | ---- | 3/31/2017 | 7/31/2017 | 8/28/2017 | 9/5/2017 | 3/19/2018 | (2) 2/12/2018 | (1) 3/14/2018 | (1) 5/1/2018 |
| | | | | | | | (3) 6/11/2018 | (2) 7/16/2018 | (2) 10/1/2018 |
| | | | | | | | | | (3) 1/7/2019 |
| CEDSCI (Center for Enterprise Dissemination Services and Consumer Innovation) | | | | | | | | | ✓ ₃ |
| Centurion | | | | | | | | ✓ ₂ | |
| FDS (Fraud Detection System) | | | | | | | | | ✓ ₂ |
| Tabulation (Decennial Tabulation System) | | | | | | | | | ✓ ₃ |

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2020 Census Systems Readiness

2020 Census Releases

| 2020 Census Releases | Operational Areas Supported | Test Readiness Review (TRR) | Production Readiness Review (PRR) | Conduct Operation |
|----------------------|--|-----------------------------|-----------------------------------|-------------------|
| Release 1 | Recruiting for all positions/AdCan Recruiting; Selection/Hiring/Training of Recruiting Assistants, Partnership Assistants, Office Operations Supervisors, and Clerks | 5/21/2018 | 7/23/2018 | 9/1/2018 |
| Release 2 | Address Canvassing selection of Census Field Supervisors, Enumerator and Listers; Post Enumeration Survey (PES) Sample Release: Initial Sample for PES; AdCan Training; In-Field Address Canvassing; Peak Operation Recruiting | 11/5/2018 | 3/1/2019 | 5/1/2019 |
| Release 3 | Advertising and Earned Media; Housing Unit Count Review; Peak Operation Training (includes UL/GQ/Update Enumerate (UE)/NRFU); PES - Independent Listing Training; PES - Independent Listing; GQ Workload and Advanced Contact/CQA Training/Printing and Mailing Workload; Remote Alaska; Island Areas Censuses; Enumeration at Transitory Locations; Self-Response (includes Mailing/Self-Response/CQA/Coverage Improvement); Peak Operations (includes UL/UE/GQ/SBE/Early NRFU/NRFU); PES - Person Interview; PES - Initial Housing Unit Follow-up; PES - Person Interview Matching (E-Sample ID, Computer Matching, Before Followup Clerical Matching) | 2/19/2019 | 6/5/2019 | 11/1/2019 |
| Release 4 | Tabulation/Dissemination; Archiving; Federally Affiliated Count Overseas; Redistricting Data; PES - Person Follow-up; Count Question Resolution; PES - Final Housing Unit Follow-up; PES - Reports and Release Findings | 10/3/2019 | 2/3/2020 | 7/1/2020 |

2020 Census Systems Readiness

2020 Census Only Systems

| System | 2020 Census Releases | | | |
|--|----------------------|-----------|-----------|-----------|
| | Release 1 | Release 2 | Release 3 | Release 4 |
| Test Readiness Review Dates | 5/21/2018 | 11/5/2018 | 2/19/2019 | 10/3/2019 |
| Production Readiness Review Dates | 7/23/2018 | 3/1/2019 | 6/5/2019 | 2/3/2020 |
| Conduct Operation Dates | 9/1/2018 | 5/1/2019 | 11/1/2019 | 7/1/2020 |
| CEM (Customer Experience Management) | | | ✓ | |
| CRM (Customer Relationship Management) | | | ✓ | |
| DMP (Data Management Platform) | | | ✓ | |
| GUPS (Geographic Update Partnership Software) | | | ✓* | |
| PES Clerical Match and Map Update (Post-Enumeration Survey - Clerical Matching System and Map Update) | | | ✓ | ✓ |
| PES Imputation and Estimation (Post-Enumeration Survey - Imputation and Estimation System) | | | ✓ | ✓ |
| PES PCS (Post-Enumeration Survey - Processing and Control System) | | | ✓ | ✓ |
| WebTQA (Web Telephone Questionnaire Assistance) | ✓* | | | |

✓* = Release G for Geographic Programs

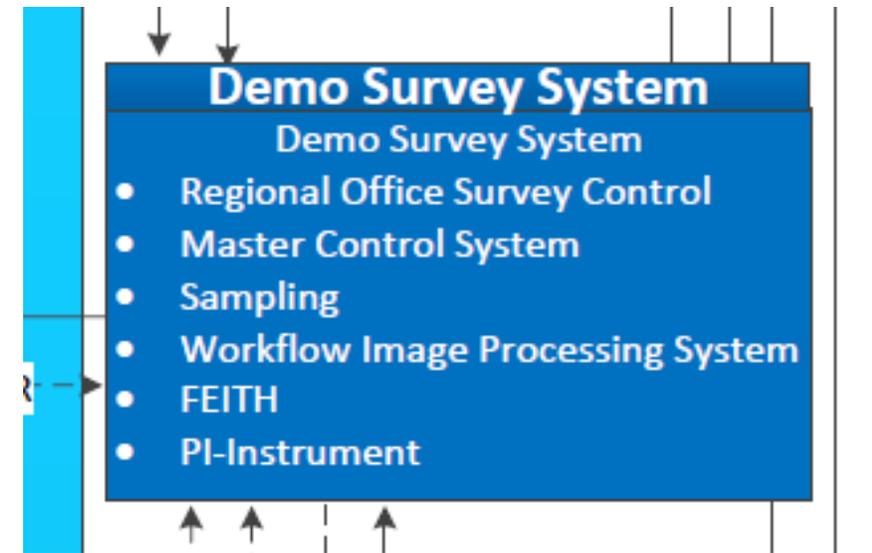
2020 Census Systems Readiness

Demographic Survey System: Additional Support System for 2020

The Demographic Survey System is being added to support Post Enumeration Survey for the 2020 Census.

Functionality provided by the Demo Survey System:

- Manages data-collection activities
- Loads Sample Control Input File and receives response data
- Selects a sample of Basic Collection Units
- Processes workflow images
- Documents retrieval
- Collects Person Interview results during Coverage Measurement field operations



Questions?