2020 Systems Integration

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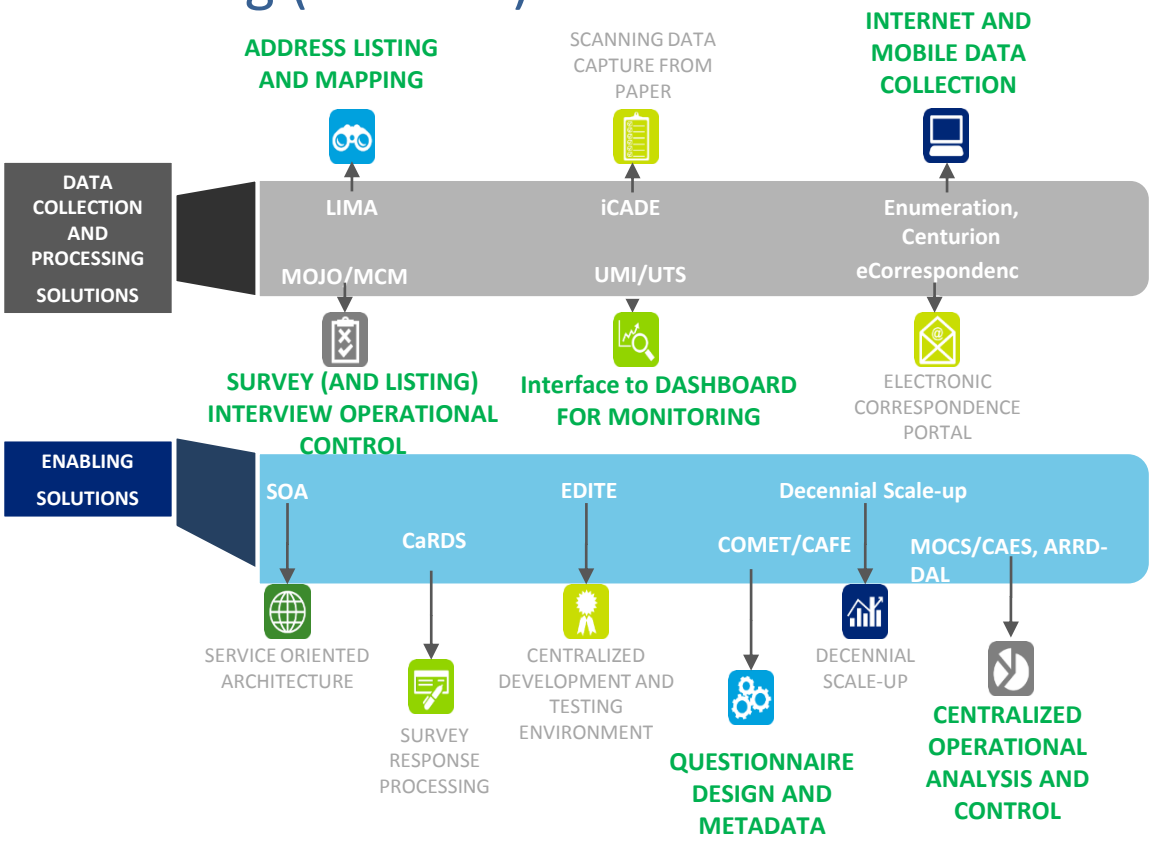
2020 Systems Integration

- Build/Buy Decision
- Platform Implementation
- 2020 Census Solution Architecture
- Systems Readiness for Upcoming Tests

2020 Census Systems Integration

Census Enterprise Data Collection and Processing (CEDCaP)



Capabilities shown in green were part of the COTS Capability Assessment and Analysis (CCAA) and will be provided by the Enterprise Censuses and Surveys Enabling Platform (ECaSE)

CEDCaP Data Collection & Processing Capabilities and Solutions Delivered:	
CEDCaP Capability	CEDCaP Solution
1) Centralized Development and Testing Environment	Enterprise Development, Integration, & Test Environment (EDITE)
2) Service Oriented Architecture (i.e., common infrastructure and efficient system interfaces to allow IT applications to communicate without the need for costly system re-writes)	Application Programming Interface (API) Infrastructure (API-I)
3) Centralized Operational Analysis and Control and Adaptive Survey Design capability, including statistical modeling and administrative records	ECaSE
	Administrative Records and Response Data–Data Access Layer (ARRD-DAL) Concurrent Analysis and Estimation System (CAES)
4) Survey (and Listing) Interview Operational Control	ECaSE
5) Address Listing and Mapping	ECaSE
6) Dashboard for Monitoring Survey Cost, Progress, and Quality and Enterprise Paradata Repository	ECaSE-Interface to Unified Tracking System (UTS)
7) Questionnaire Design and Metadata	ECaSE
8) Internet and Mobile Data Collection	ECaSE
9) Electronic Correspondence Portal	eCorrespondence
10) Scanning Data Capture from Paper	Integrated Computer Assisted Data Entry (iCADE)
11) Survey Response Processing	Control and Response Data System (CaRDS)

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CEDCaP COTS Capability Assessment and Analysis Approach (CCAA)

Process Milestones	
Identify core and key business capabilities	✓
Conduct extensive market research on which capabilities may be commercially available	✓
Prepare a Request for Information (RFI) for industry response	✓
Conduct vendor demonstrations	✓
Prepare a Request for Quotation (RFQ) based on requirements	✓
Complete vendor demonstrations and select qualified vendor solutions	✓
Leverage Carnegie Mellon University's Software Engineering Institute to assist with COTS Capability Assessment and Analysis (CCAA)	✓
Develop the CCAA process	✓
Complete the CCAA process (including three subcomponents)	✓
Complete analysis, including documentation and findings	✓
Prepare overall recommendations and next steps	✓

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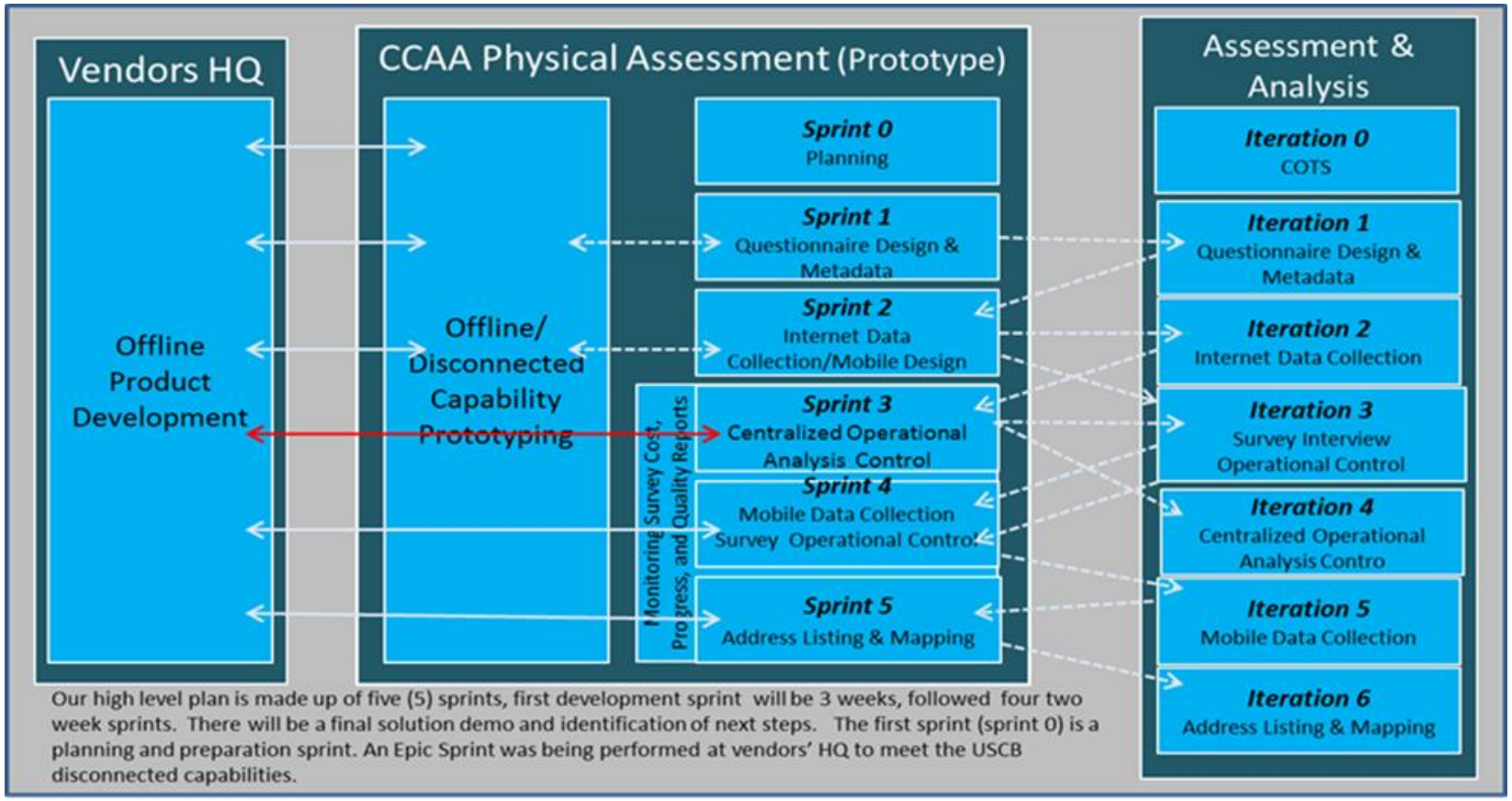
CEDCaP CCAA Proof of Concept Phase

90-day period, made up of 6 sprints



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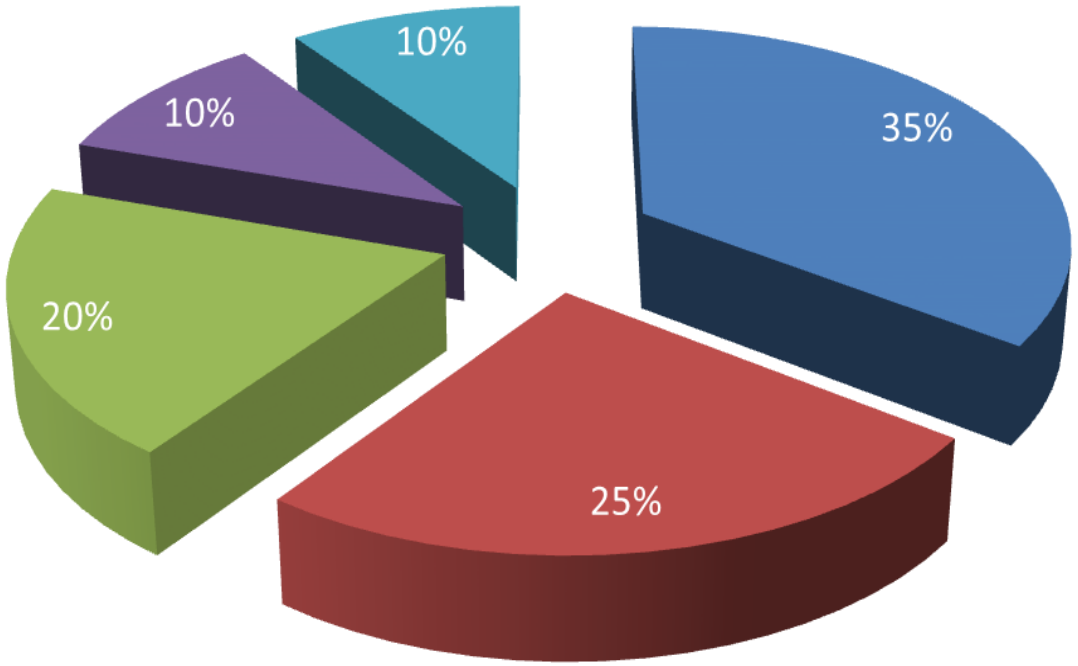
CEDCaP CCAA Criteria and Weights for Build/Buy Decision



Business Functional Need

35% - The degree to which the alternative satisfies a set of defined business requirement and related quality attributes.

System Design

25% - The degree in which the alternative satisfies an identified set of important architectural quality attributes (e.g. illities).

Schedule

20% - The ability of the alternative to be confidently deployed to meet the required timelines.

Cost

10% - The relative comparison of estimated five-year total cost of ownership for a given alternative.

Vendor/Dev Team Viability

10% - Indicator of vendor/development team and tool's stability and ability to meet the Bureau's long term needs.

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CEDCaP CCAA Decision

- Complete review of the process and findings is available: http://www2.census.gov/about/policies/cedcap/cedcap-report-final.pdf
- The hybrid approach combines the selected COTS platform with select in-house custom solutions
- This approach will address the short-term goal of successfully deploying the 2017 Census Test, in preparation for the 2018 End-to-End Census Test and ultimately the 2020 Census

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Platform Implementation

- **E**nterprise **C**ensuses **a**nd **S**urveys **E**nabling (ECaSE) Platform
- A new project in Decennial IT Division under the CEDCaP Program
- Five key areas of application development on the ECaSE platform:
  - Content Metadata
  - Control Systems
  - Internet Self Response
  - Enumeration
  - Listing and Mapping
- Agile/Scrum Methodology

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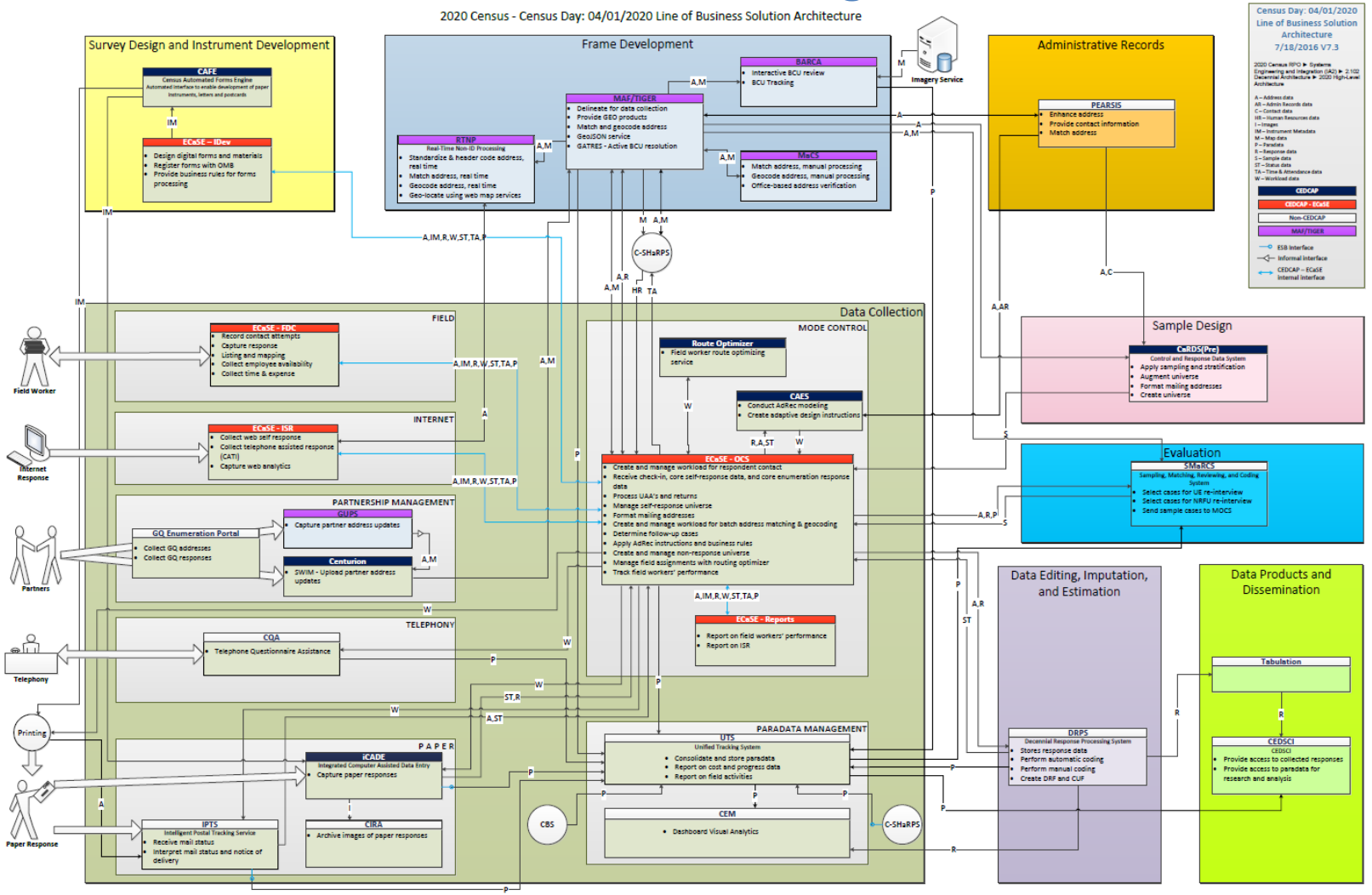
2020 Census Solution Architecture Diagram



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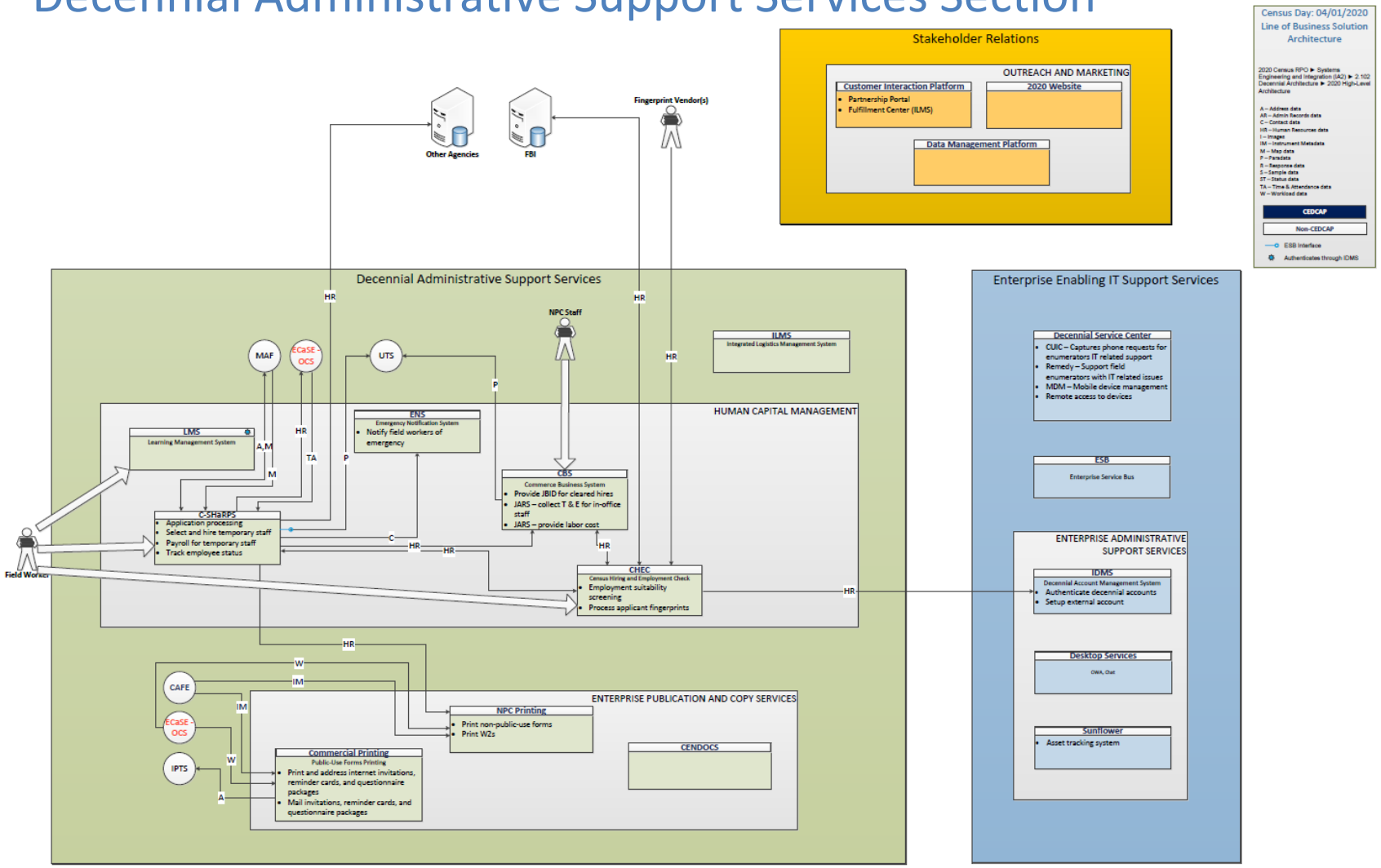
Decennial Administrative Support Services Section



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Survey Design and Instrument Development

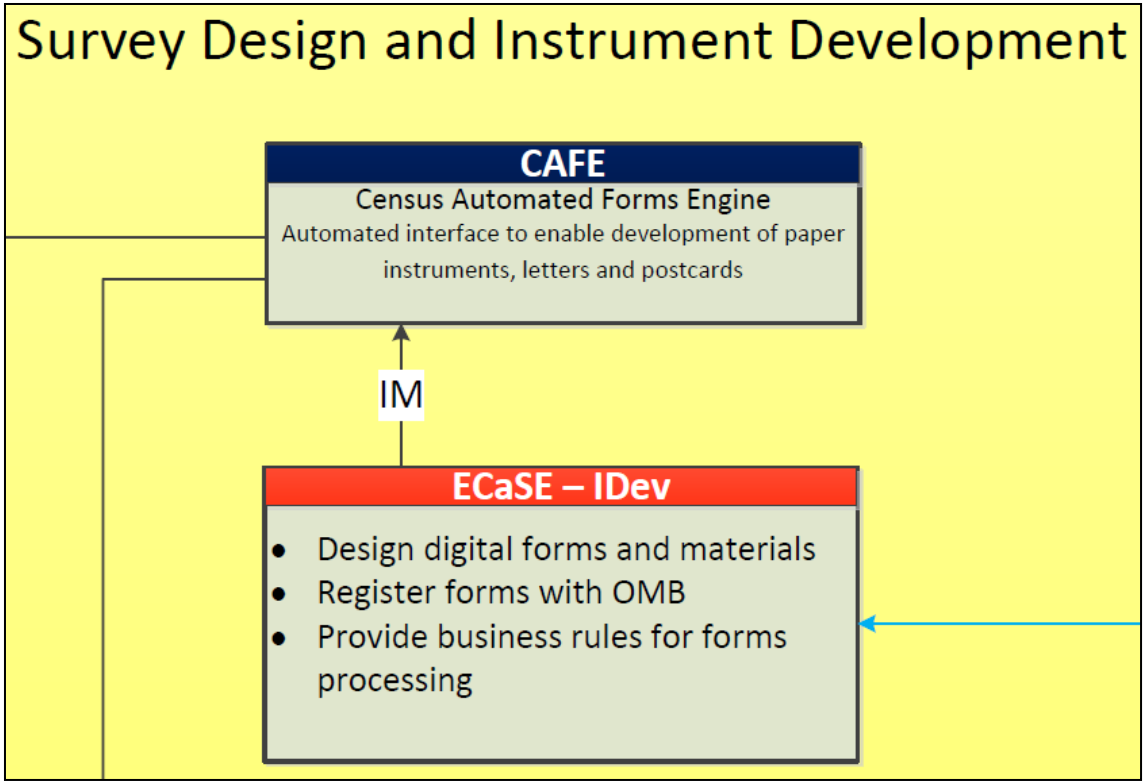
Census Day: 04/01/2020
Line of Business Solution Architecture
7/18/2016 V7.3

2020 Census RPO ► Systems Engineering and Integration (IA2) ► 2.102 Decennial Architecture ► 2020 High-Level Architecture

A – Address data
AR – Admin Records data
C – Contact data
HR – Human Resources data
I – Images
IM – Instrument Metadata
M – Map data
P – Paradata
R – Response data
S – Sample data
ST – Status data
TA – Time & Attendance data
W – Workload data

CEDCAP
CEDCAP - ECaSE
Non-CEDCAP
MAF/TIGER

ESB Interface
Informal interface
CEDCAP – ECaSE internal interface



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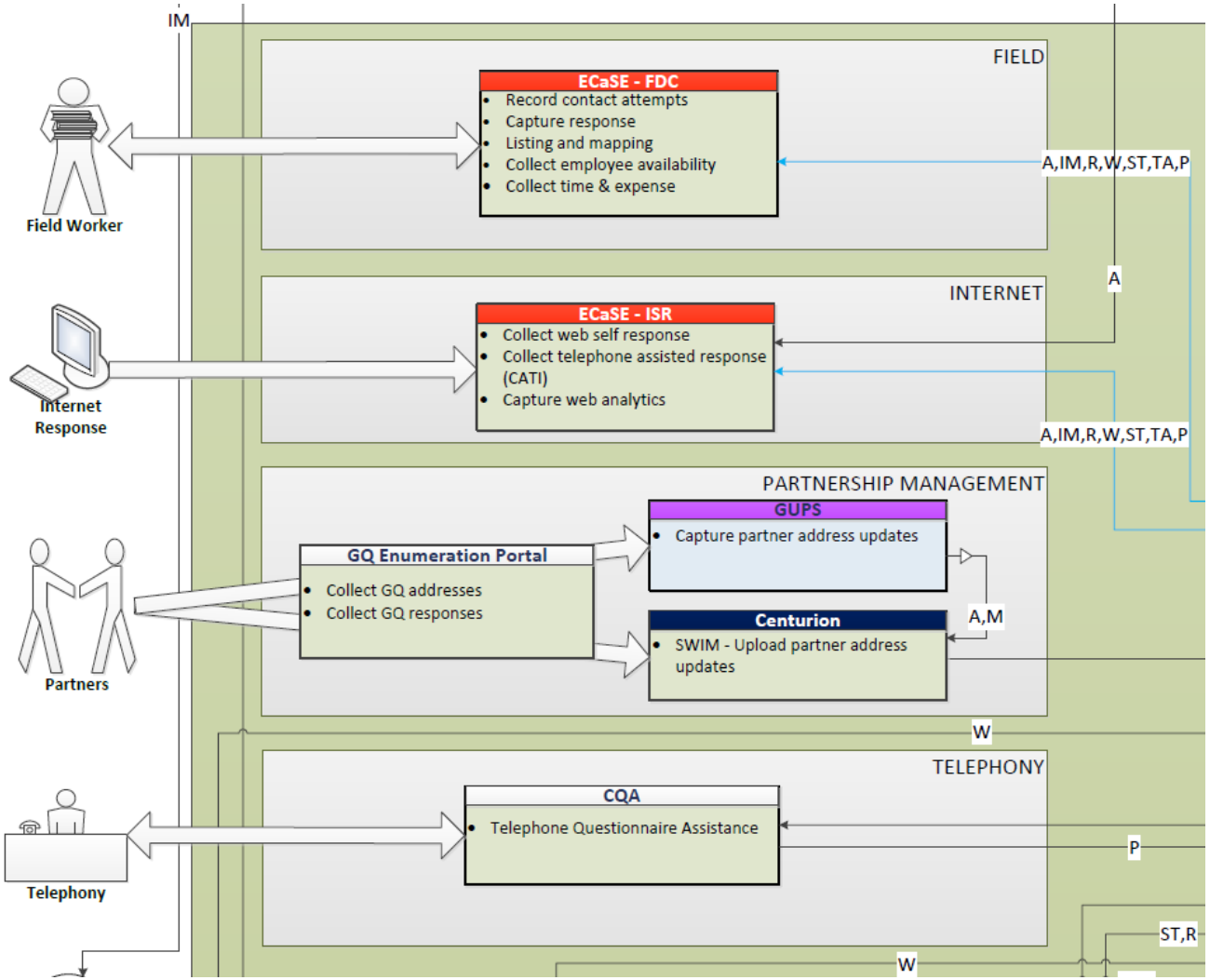
Field and Internet Components



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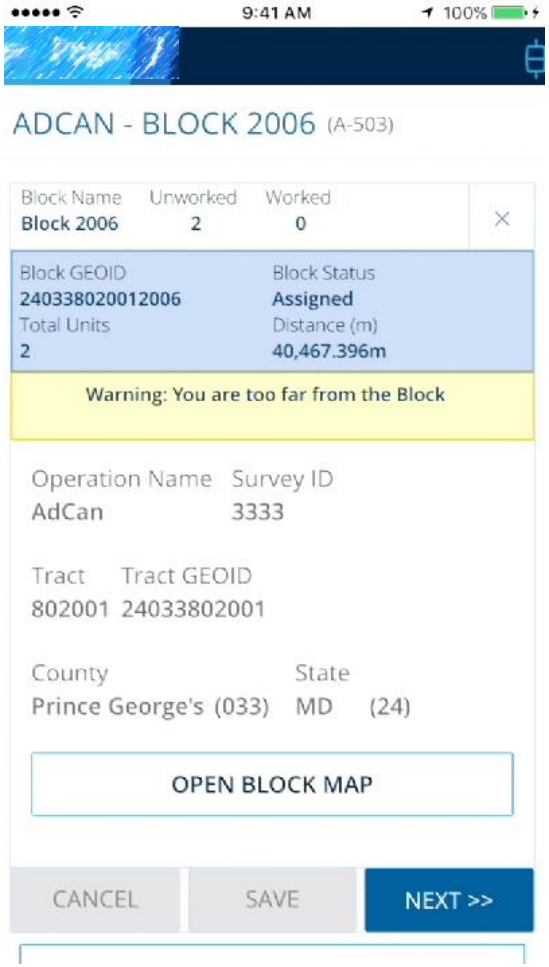
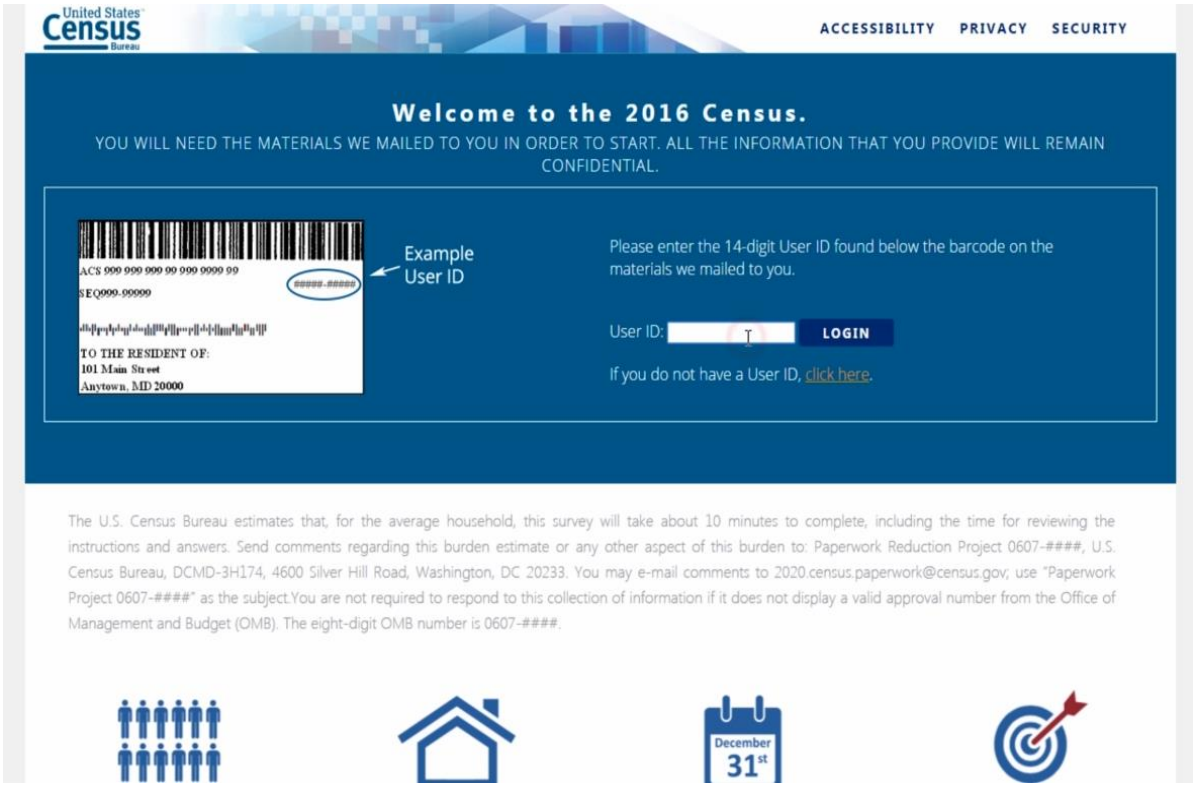
Address Canvassing and Self-Response Videos



Address Canvassing



Internet Self-Response

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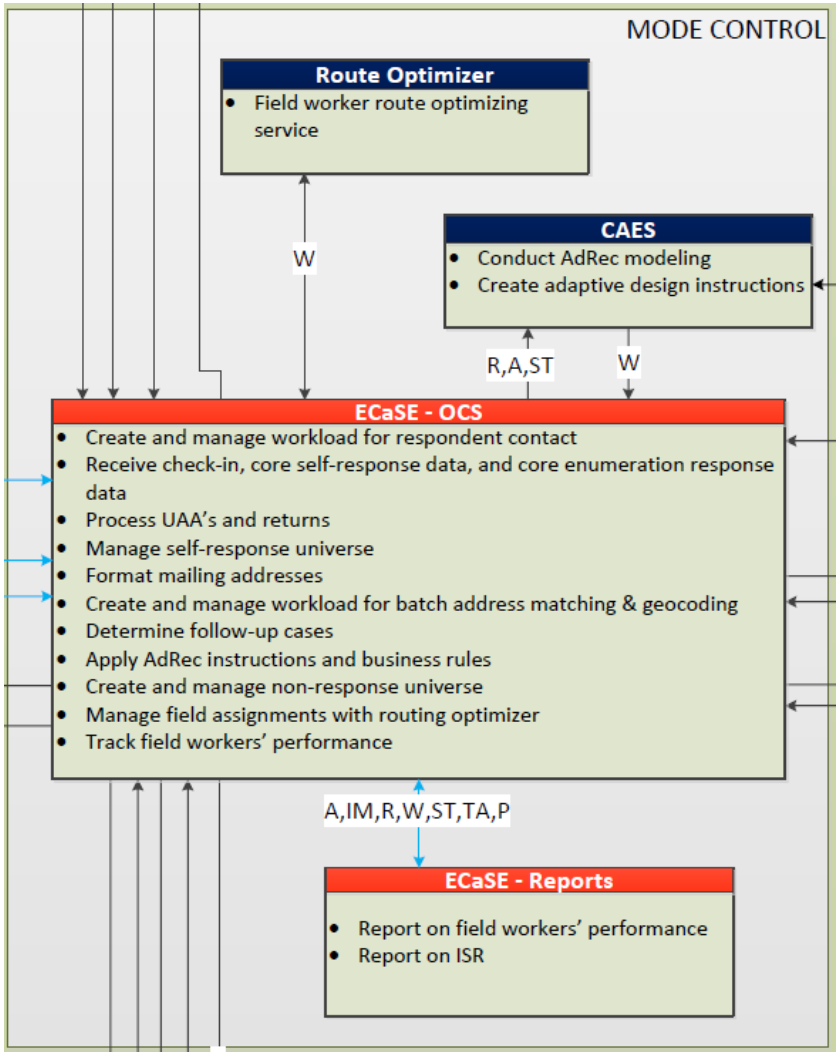
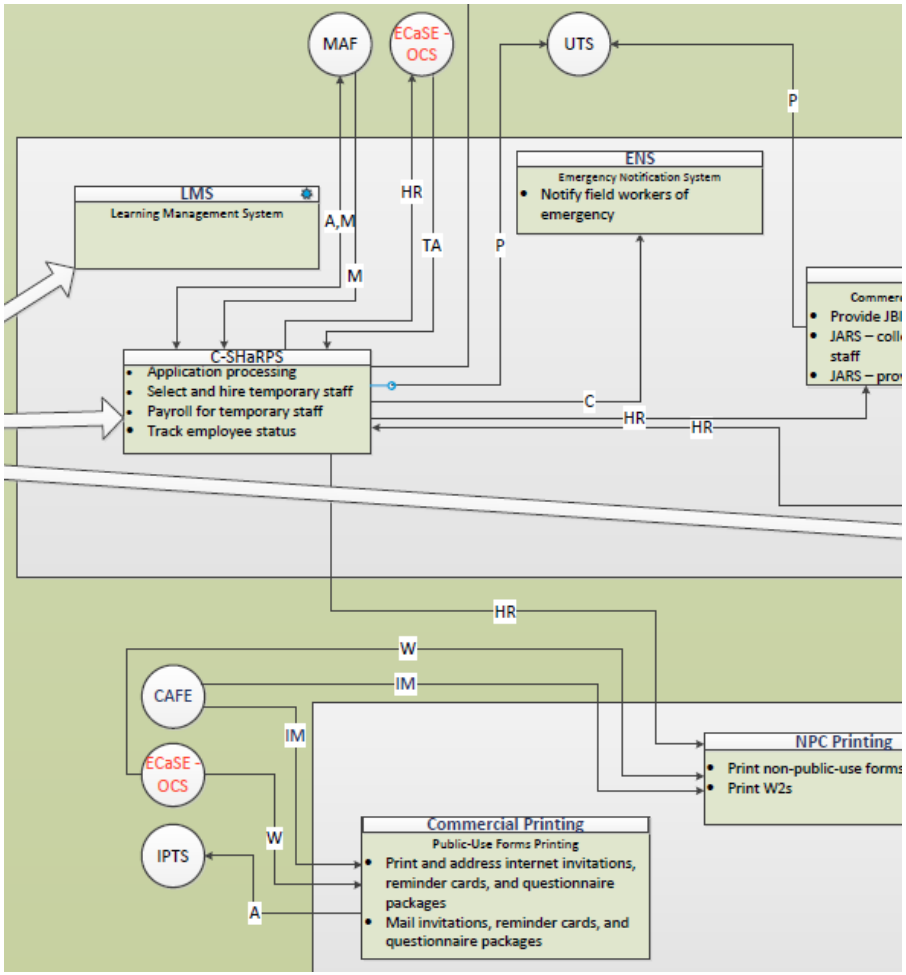
Operational Control





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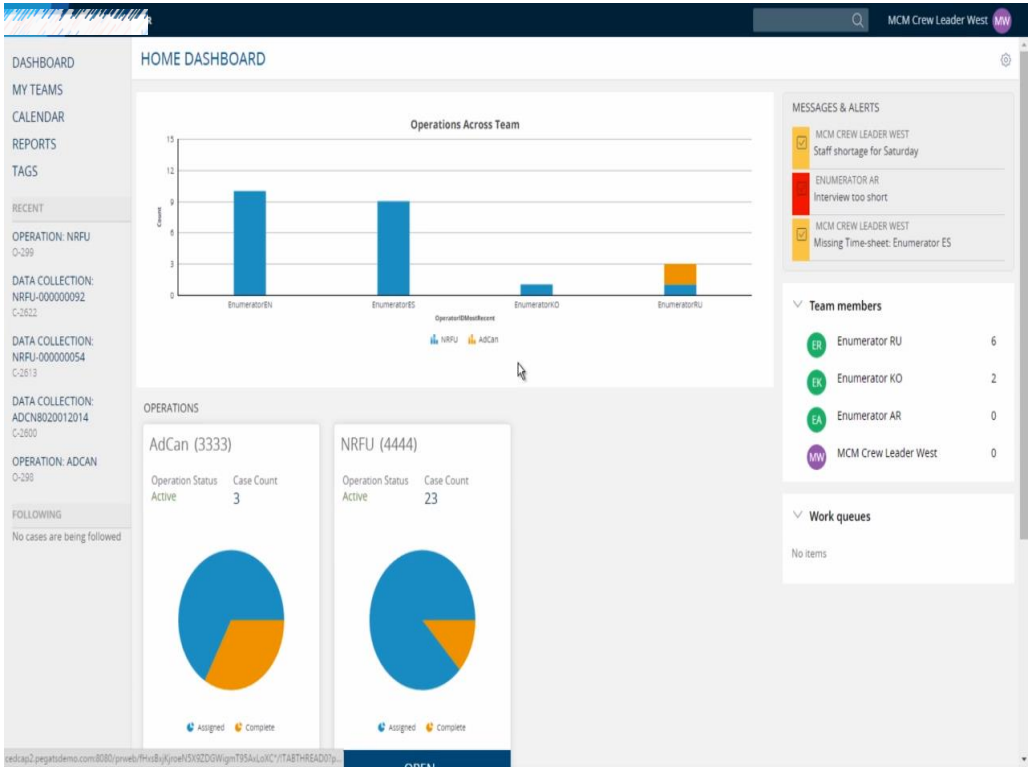
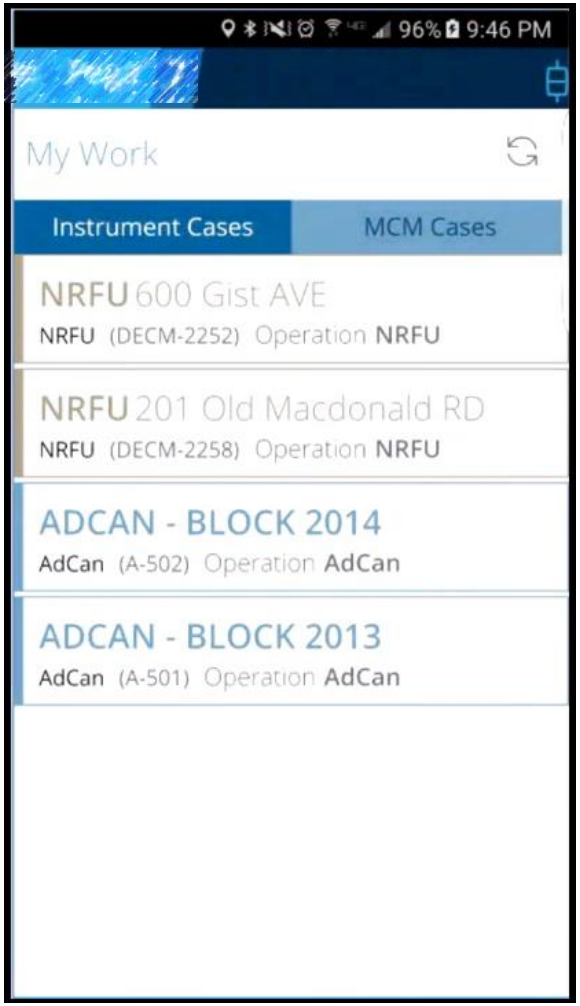
Operational Control System and Enumeration Videos



Operational Control System



Enumeration

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Systems Readiness for Upcoming Tests

2020 Census Lifecycle