

# 2020 Census Program Management Review

**2020 Decennial Architecture Activities**  
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# Building 2020 From IT Enterprise Perspective

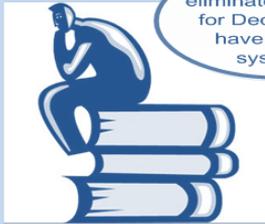
Identify core Decennial business functionality and determine if current IT solutions exist that can be reused. Where multiple systems exist identify the best-of-breed within the Census IT ecosystem and determine what Decennial improvements are needed. Where no feasible solution exists, design new solutions in a manner that can be reused by other surveys and census, where practical. Layout a roadmap strategy that captures needed improvements by each existing system and functionality for each new system. Include measurement timelines and associated risk.

By increasing the Census IT workforce participating in the 2020 Census we improve the overall Census IT delivery model for other surveys, by creating a more efficient processing environment from a technical and operational perspective.

Using systems that are in full operation prior to 2020 we reduce 2020 Decennial system's processing risk.

Use of in-house systems improves the Census and Decennial overall day-to-day cost-model and technical expertise

Where feasible eliminate the need for Decennial to have one-off systems



# 2020 Decennial Architecture Notional Diagram

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Due to the 2020 Decennial architecture effort consisting of multiple solutions depicted in a single architecture the team felt the importance of a multi-view snapshot of a notional target state architecture for the 2020 Census:

- ❑ The initial concentration covered the “Response Data Collection” component of the Survey Lifecycle (SLC) because this area was the major IT cost driver for 2010
- ❑ The diagrams begins to show the complexity of the high-level system dependencies and the four degrees of current system/solution capability readiness for 2020: existing, modification, re-engineering, and new.
- ❑ Initial purpose was to start the 2020 IT system evaluation process, highlight issues, and foster IT conversations around items such as complexity, level of effort, scalability, and in-house versus outsourced systems.

End Goal: To be a driver for completing the 2020 Decennial Architecture and IT Roadmap Execution Plan. The plan will layout the overall tasks, schedule, resources, and risks associated with delivering the 2020 Decennial Architecture and IT Roadmap

# High-Level Architecture Activities Planned

Task	Description
2020 Notional Target-State Architecture View	Create a complete view of all IT systems/solutions that are expected to be deployed in order to conduct the 2020 Census
20RPO Field Test Architecture Request	Determine certain activities and/or testing needs that should be conducted during field test to help support architecture and design decisions
2020 Census Requirements Analysis	Evaluate the requirements presented from 20RPO team to determine if efficient to start the system evaluation process
System-to- Requirements Evaluation	Initiate system deep-dive analysis to evaluate current systems and/or solutions against the 2020 functional requirements, including cost/benefit trade-offs
Technical Analysis/ Alternative Analysis	Certain solutions will require in-depth technical and alternative analysis to determine a recommendation for a specific set of capabilities
Technology Forecast	Need to understand external IT drivers that have potential impact on 2020 design (i.e. FedRAMP, mobile code standardization, new IT products, electronic ID, etc.)
2020 Decennial Architecture (Living Document)	Will provide segment level architecture guidance to the different solution/system implementation owners and/or contractors by laying out 2020 IT blueprint in the following areas: strategy/business architecture, application architecture, data/information architecture, infrastructure architecture, and security architecture
2020 Decennial IT Roadmap	The overall transition and implementation strategy for each solution/system that will be deployed for 2020 Census including: key milestones, deadlines, decision points, risks, contingency plans, and testing activities (functional and performance)

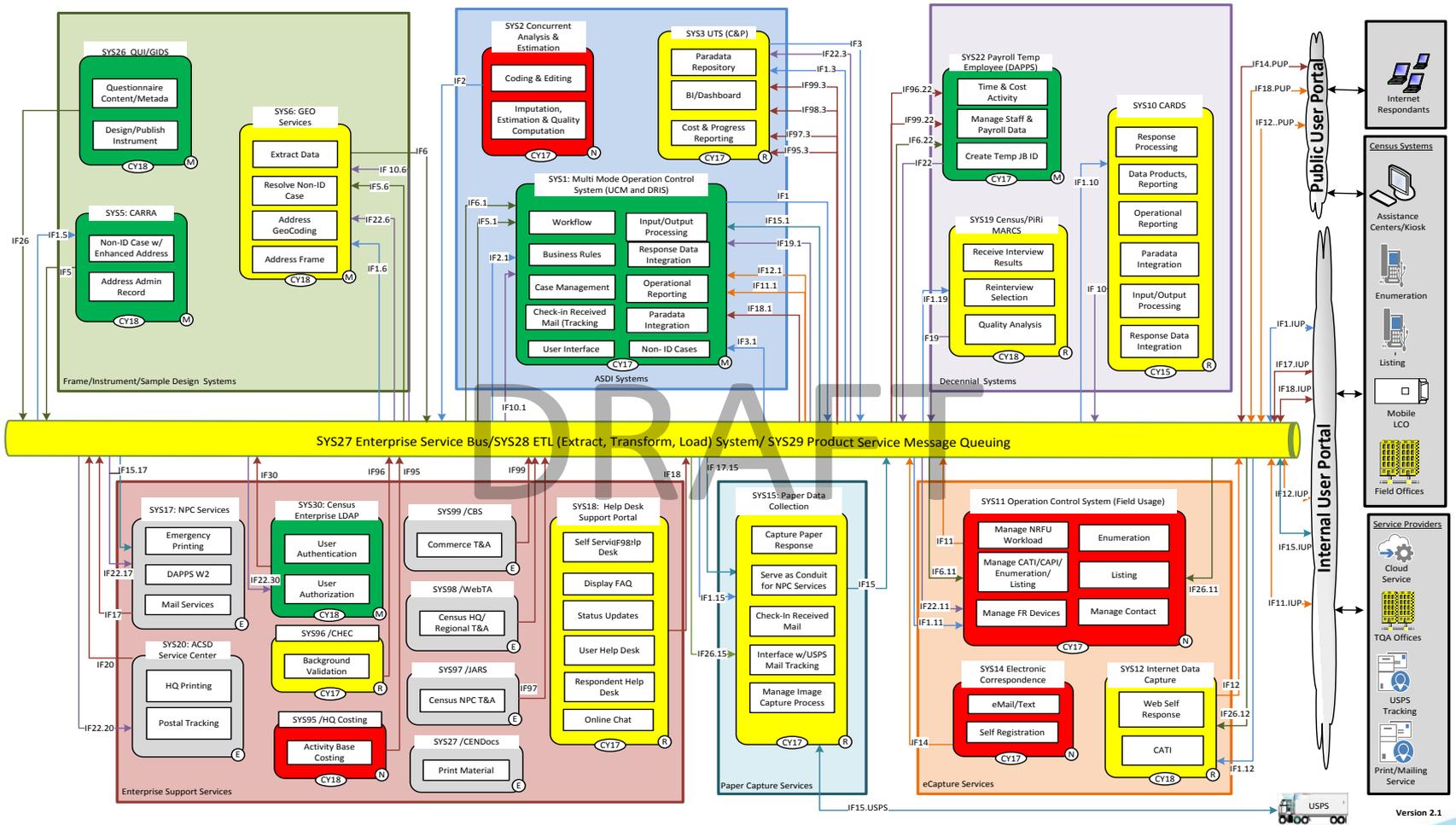
# Architecture Dependent Activities (20RPO)

Name	Architecture Documentation Dependency
2020 Census ConOps and Function Maps	The overall strategy/thinking on the Census Bureau’s approach to conducting the 2020 and high-level business capabilities - key to the business architecture module
Research & Field Test Results	The system related results may need to be integrated into the architecture design
2020 Project Breakdown	The operational setup of the 2020 Census will drive IT decisions (i.e. system deployment, network infrastructure, HW/SW infrastructure, etc.)
2020 Requirements	The development of the requirements taking them from mission, to business, to project/system level is the foundation for the architecture designs and all systems/solutions should map back to a specific requirement and/or set
2020 Helpdesk Strategy	Provides the functional and nonfunctional Helpdesk system requirements
Approval Process (IT Investment)	Based on the “System Technical Analysis/Alternative Analysis” the team will make system recommendations which require executive level approval
2020 Workload Metrics	Drives how to properly size systems and determine scaling needs which impacts system design and architecture
2010 Lessons Learned and Recommendations	Identify and understand previous issues and areas of high risk to minimize repeating them
Ongoing Reassessments	Policy, workforce, budget, and operations decisions may impact the overall design

# Architecture Dependent Activities (Enterprise)

Name	Architecture Documentation Dependency
SOA Strategy	Provides guidance and design patterns relating to deployment of service oriented architecture and how the enterprise service bus will be deployed and architected
IT Infrastructure Roadmap	Provides enterprise vision and guidance relating to the physical IT infrastructure
ASDI B1 Deployment	Successful deployment sets the stage for the Baseline 2 (2020 Census centric) and any changes and/or slippage may impact the 2020 Census design
Mobile Architecture Strategies	Provides the guidance, framework, and application patterns for all mobile deployments
Cloud Computing Strategy	Provides the guidance/criteria for the implementation of cloud computing
Headquarters Dissemination Initiatives	Will drive the dissemination design for 2020 and may recommend changes to Data Access & Dissemination System or upstream systems that feed into dissemination
Security Policy & Procedures	Security policy and procedures will drive all design recommendations (i.e. U.S. citizen identity management, external HW provisioning, etc.)
Enterprise Architecture	Informs and guides IT design and architecture decisions by providing standards, design patterns, governance, architecture reviews, IT portfolio information, etc.
Software Development Lifecycle (SDLC)	Provides consistent life-cycle development methodology processes which also includes a consistent requirements development and management process
IT Shared Services Program	Candidate services are being identified and evaluated at enterprise level to make deployment recommendations

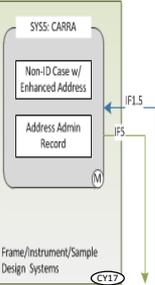
# 2020 Notional Target Architecture Diagram



Version 2.1

Mission Enabled Support      Security and Privacy Services      IT Support Services/Systems (Technical Help Desk, Asset Management, Operational Management and Monitoring)      Network & Communication Support

# Understanding the Notional Architecture Diagram

Name	Symbol	Meaning
Existing		System requires no Decennial specific changes
New		System that currently does not exist
Modified		Minor architectural changes (i.e. interface changes, service enable, etc.)
Re-engineered		Major design changes as direct result of meeting Decennial requirements
Targeted Production Date		The targeted calendar year the system is to be ready for production
Data Provider (System)		The system that will be providing data to be consumed
Data Consumer (System)		The system that will be consuming data from the provider
External Interface		Depicts interface with external component/system
Arrow Colors		Identifies which system group (“blocks of color”) the data provider resides
Arrow Numbering (i.e. ICD# or ICD#.#)		The first number identifies the “system number” of the data provider and second number identifies the “system number” of the data consumer
Blocks of Color		Groups systems into common areas specific to Decennial processing
Gray Box		Used to symbolize a specific system or set of subsystems
System Number/ Name		Used to reference and identify a specific systems within the diagram
White Box		Identify core system functionality in respect to Decennial processing

# Initial IT Architecture Insight

- ❑ 2010 workload peak of 8.15 million questionnaires processed per day is approximately 2.5x greater than the next highest survey/census yearly workload (ACS 3.5 million per year), highly impacting the processing in the data collection segment system area
- ❑ The systems (in-house or outsourced) should be designed to properly allow for scaling elasticity – the ability to physically expand and compress based on workload, this will allow for more efficiencies in system processing and cost
- ❑ The business strategy related to operational deployment (i.e. BYOD, “real-time” processing, targeted address canvassing, use of admin records, field operation consolidation, help-desk strategy, etc.) will drive IT designs and increase operational dependency on IT systems
- ❑ New Feature Effect - Internet response processing and adaptive design will create a different workload processing characteristic relative to 2010 and need to be taken into consideration
- ❑ In-house system development may still require Census Bureau to leverage external service providers to assist in building and hosting our systems
- ❑ A service based architecture (i.e. cloud services, SOA implémentation, etc.) is recommended to allow for the various types of disparate systems to integrate and/or interoperate with one another
- ❑ A ideal system deployment model would maximize the number of systems that are in full operation prior to actual 2020 deployment, duplicating a “Pilot” scenario via other survey/Census usage

# Questions

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