

# *Designing and Architecting a Shared Platform for Adaptive Data Collection in Surveys and Censuses*

***FedCASIC 2015***

March 4, 2015

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NOTE:

*The views and opinions expressed in this presentation are those of the authors and do not represent the position of the U.S. Census Bureau*

# *Two Areas of Innovation*

Statistical  
Methodology



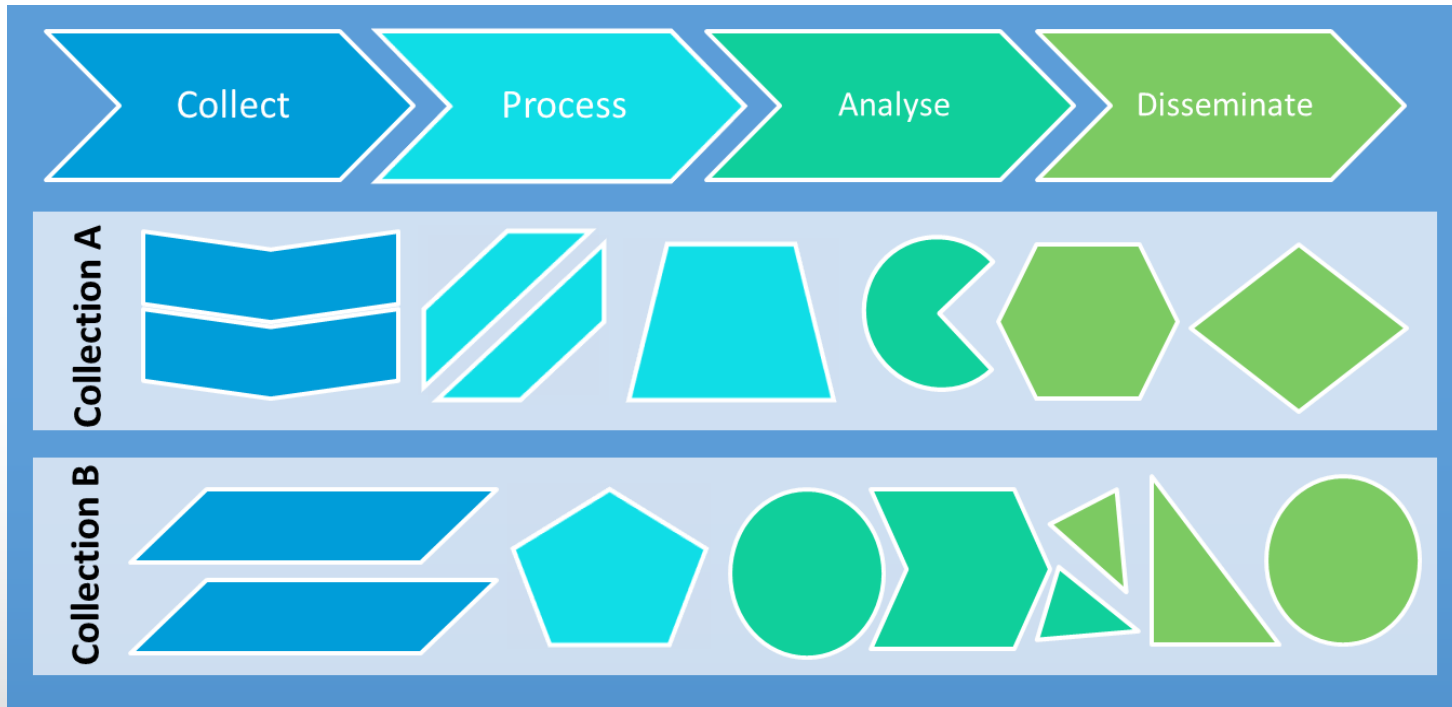
Information  
Technology

# *The Questions*

- Can we be adaptive using our current IT Systems?
- How do we effectively introduce and gain acceptance of new methodological innovations, such as adaptive design?
- Is it really better to create common/shared information technology systems?
- If we agree that shared systems are better, what is the best way to design and build them?

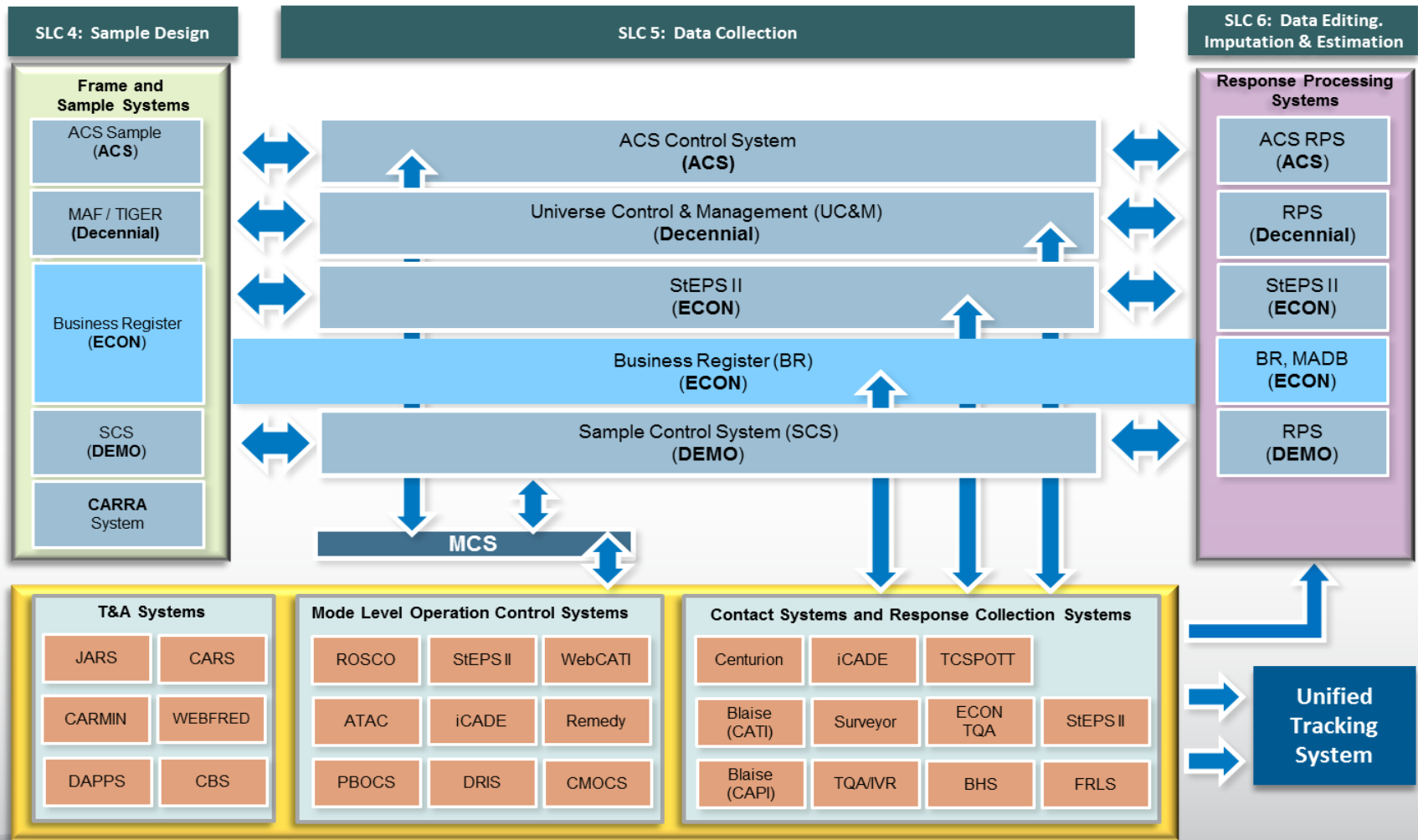
# Can we be adaptive using our current IT systems?

- Accidental Architecture



1. Source: Fostering Interoperability in Official Statistics: Common Statistical Production Architecture (UNECE, 2013)

# This is what Accidental Architecture looks like at Census:



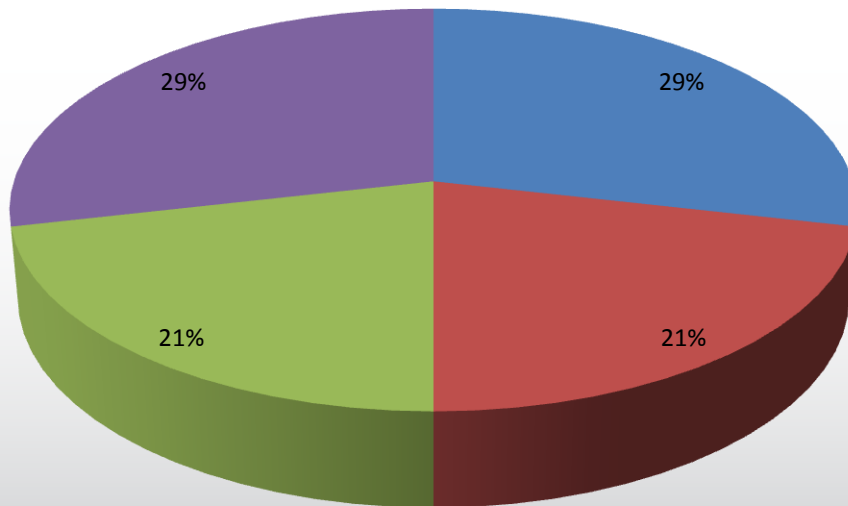
# *The Result?*

- Higher system costs
  - development, operations and maintenance
- Nearly nonexistent interoperability
- Less data accessibility, discoverability, usability
- Much more difficult to use data analytics and adaptive survey design approaches

# How do we effectively introduce and gain acceptance of new methodological innovations, such as adaptive design?

- Conducted interviews with NSOs, Statistical Firms, and Academic Statistical Organizations

## Interviewee Backgrounds

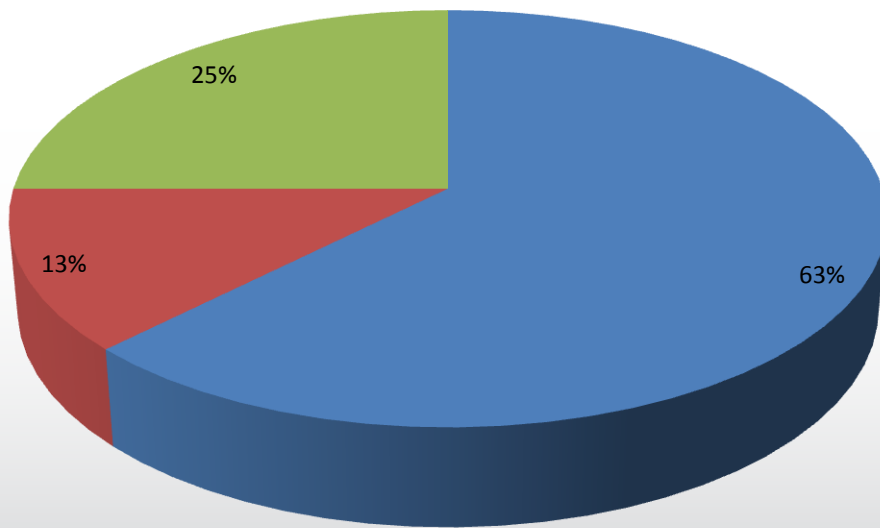


- Statistical Survey or Census Research and Methodology
- Statistical Survey or Census Management and Implementation
- Information Technology (IT) Architecture and Planning
- Information Technology (IT) Management and Implementation



# *How do we effectively introduce and gain acceptance of new methodological innovations, such as adaptive design?*

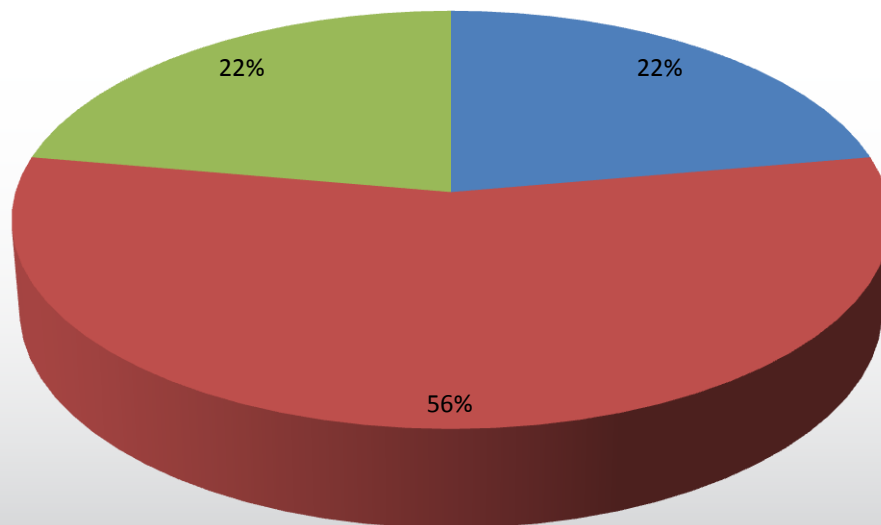
## Openness to New Statistical Methodologies



- High interest, easy acceptance
- Moderate interest, but must be widely accepted before adoption
- Little interest - focus is to "keep the trains running"

# *If we agree that shared systems are better, what is the best way to design and build them?*

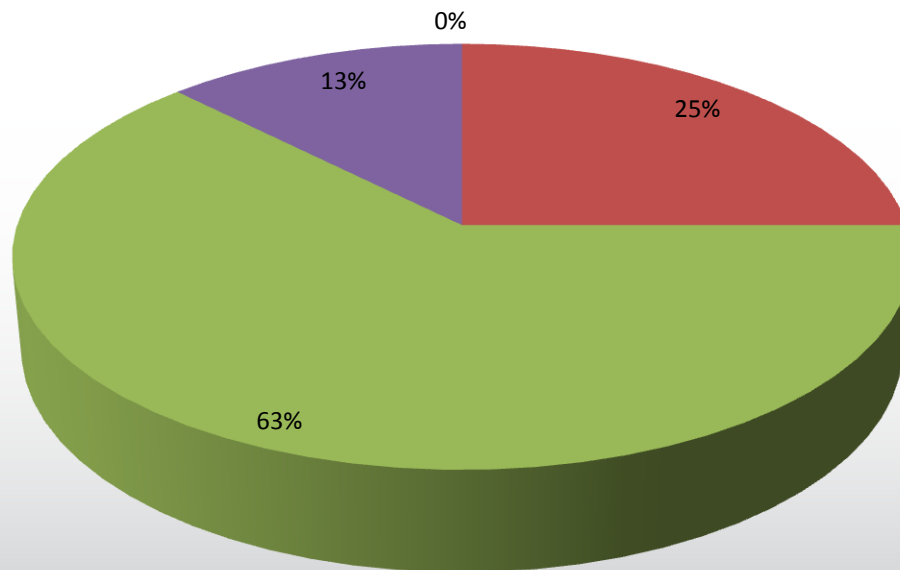
## The Divide Between Survey Methodology and IT



- Clear boundary between survey methodology and IT
- Nominal boundary between Survey Methodology and IT
- No boundary between Survey Methodology and IT

# *If we agree that shared systems are better, what is the best way to design and build them?*

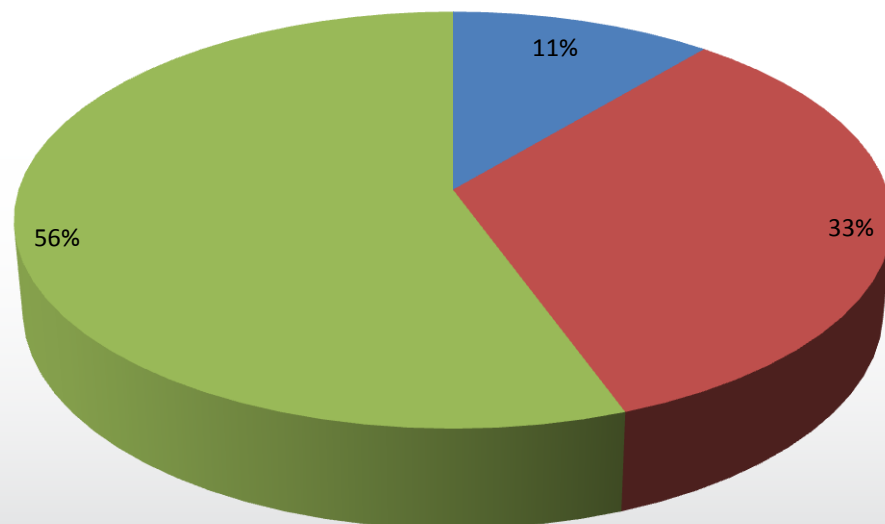
## Where Is System Innovation Likely to Originate?



- Statistical Methodologists
- Information Technology Architects
- Statistical Methodologists and IT Architects together
- Don't Know/Not sure

# *If we agree that shared systems are better, what is the best way to design and build them?*

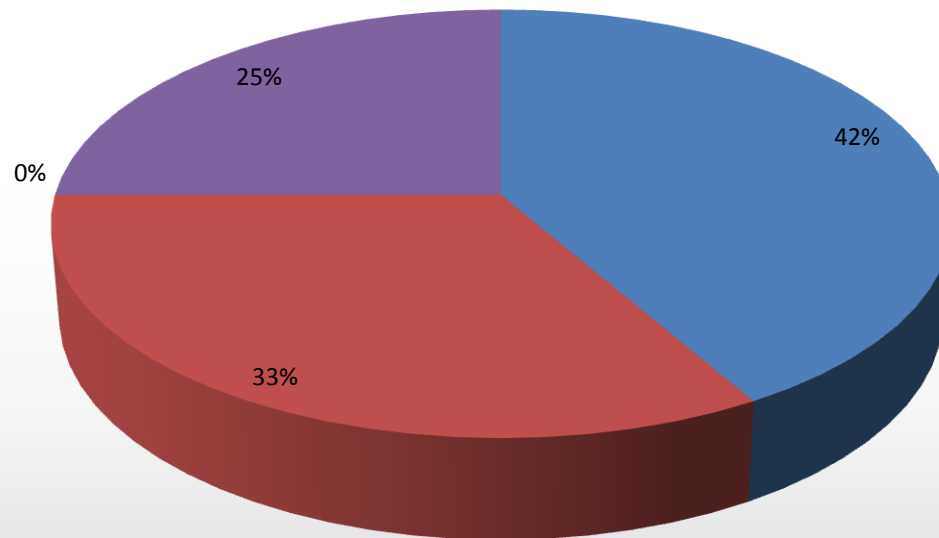
## Sharing Systems Across Surveys



- Each survey has unique IT systems dedicated to that effort
- Surveys share some systems, but primarily among areas with similar characteristics
- All surveys/censuses use the same core set of systems

# *If we agree that shared systems are better, what is the best way to design and build them?*

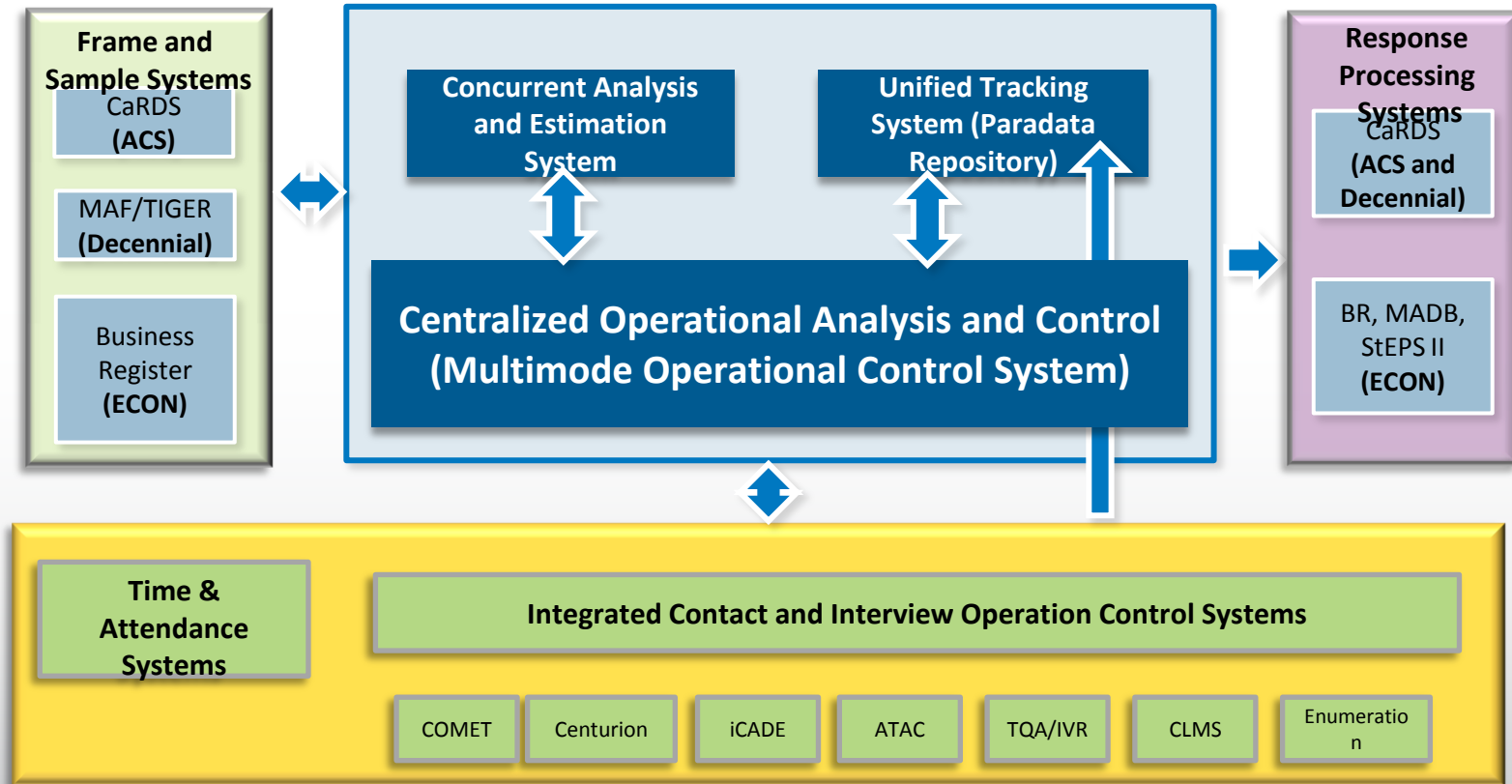
## Success in Implementing New IT Systems



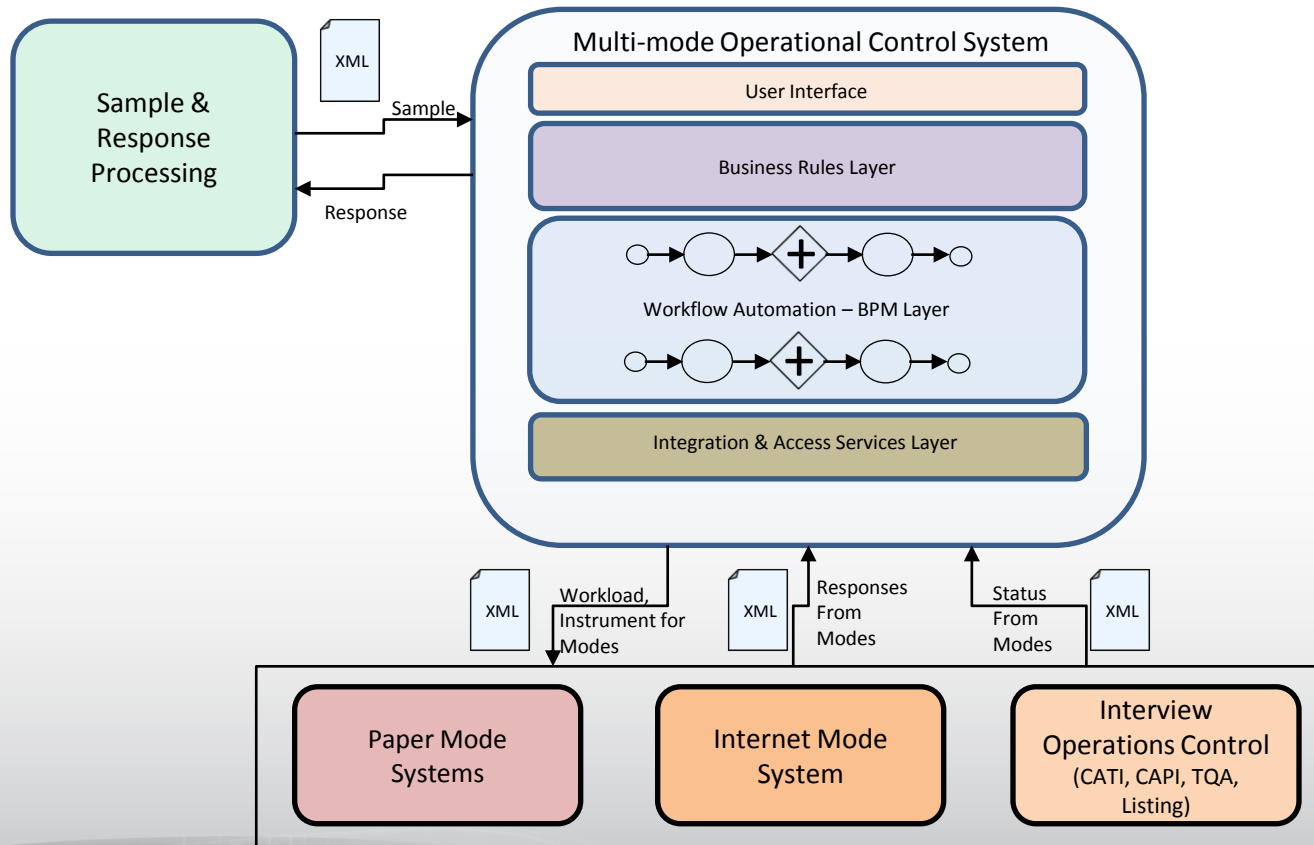
- Generally work well when implemented.
- Eventually work well, but have a rocky start.
- Often do not deliver what was promised and rarely work well.
- Scrapped one or more new IT system implementations in the last seven years.

# What is the approach at the U.S. Census Bureau?

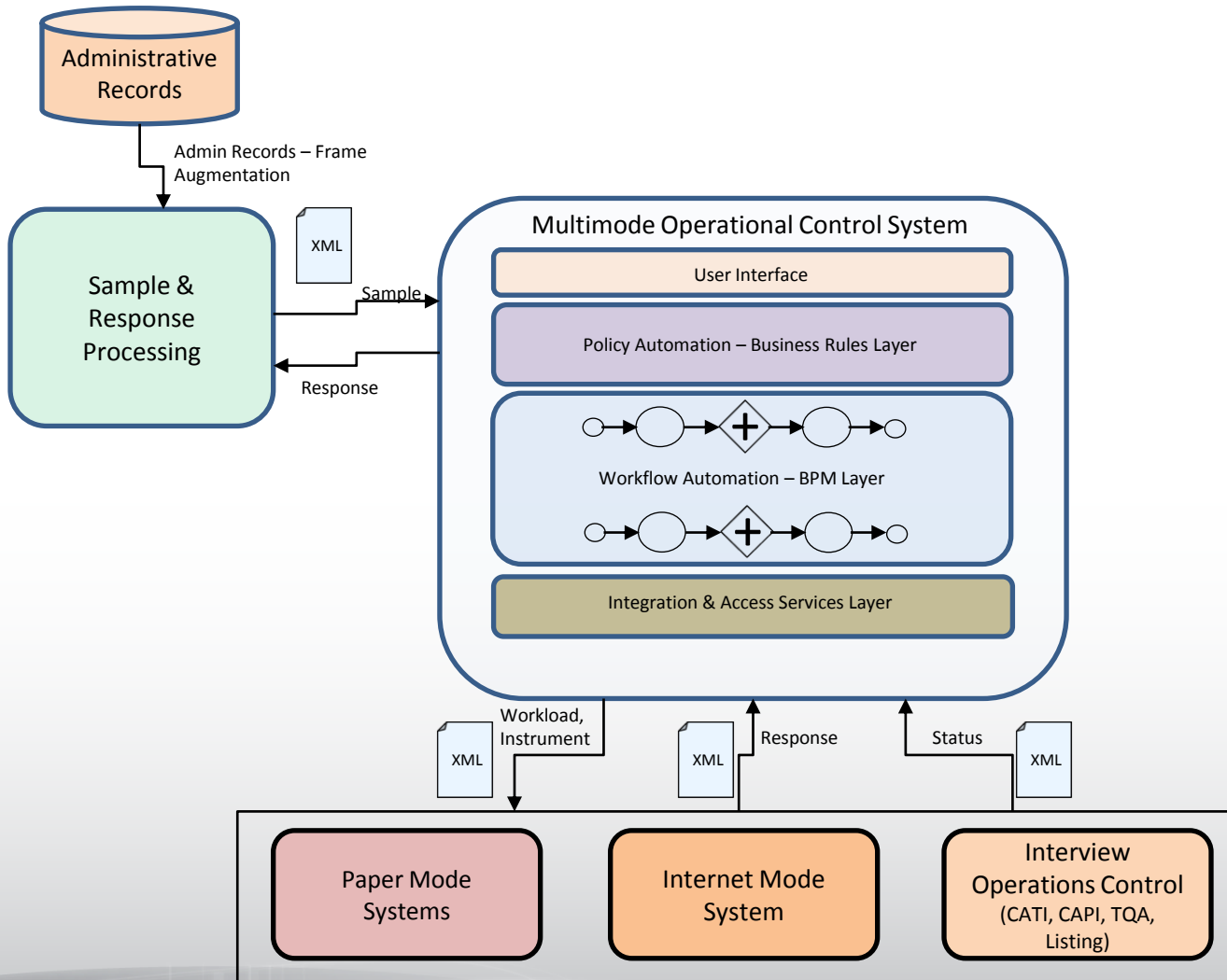
## Survey Data Collection Platform as a Service



# Census Single Platform to Manage Multiple Data Collection Modes

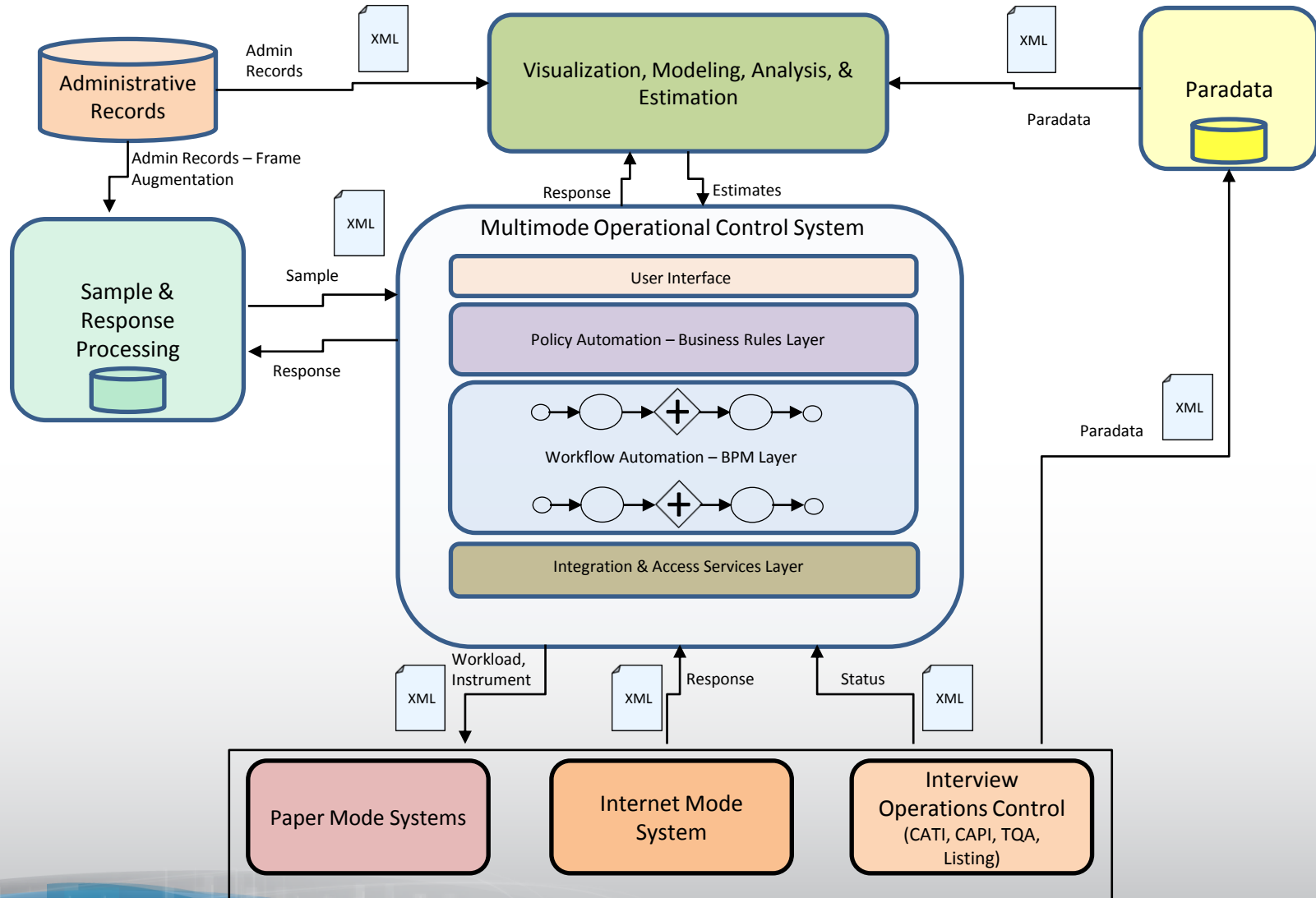


# Augment Frame Data





# Adaptive Orchestration of Data Collection





# Contact Information

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