Re-Engineered Field Operations Powered by a Unified Platform

FedCASIC 2019    |    April 17, 2019

Pegasystems, Inc.
Pegasystems Presenter Introductions

- TJ Oleksiak
  Account Executive
  US Federal Gov't
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- Raghu Govindaraj
  Principal System Architect
  Pega Consulting
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- Sherif Elshayeb
  Principal System Architect
  Pega Consulting
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Context for Today’s Talk

The 2020 Census
Goals and Key Innovation Areas

Overarching Goal: To count everyone once, only once, and in the right place

Challenge Goal: Conduct a 2020 Census at a lower cost per housing unit (adjusted for inflation) than the 2010 Census, while maintaining high quality results

Focus on Four Key Innovation Areas

- Reengineering Address Canvassing
- Optimizing Self-Response
- Utilizing Administrative Records and Third-Party Data
- Reengineering Field Operations

2020 Census: Count the Population
Reengineering Field Operations

Use technology to more efficiently and effectively manage the 2020 Census fieldwork.

Streamlined Office and Staffing Structure

- Area Manager of Operations
- Census Field Managers
- Census Field Supervisors
- Listers and Enumerators

Increased use of Technology

- Automated and optimized work assignments
- Automated recruiting, training, payroll and expense reporting
- Ability to conduct address updates and enumeration on same device
- Reduced paper and manual processing

Increased Management and Staff Productivity

- Increased visibility into case status for improved workforce management
- Redesigned quality assurance operations
- Improved communications
Who is Pega? Who uses Pega?

- Software company founded in 1983 in Cambridge, MA - USA
- 4,000+ employees worldwide
- Public company since 1996, NASDAQ: PEGA
- Multiple patents and awards for software innovation
Core to Pega: Low Code Development

A shared language for innovation

- Business and IT collaborate in a single environment.
- Business friendly models define application behavior.
- Continuous and real-time collaboration between business and IT.
- Software that Writes your Software™. Auto-generated:
  - Java
  - HTML5 / CSS3
  - JavaScript
  - SQL
- Proven to deliver 12X faster than code.
- Quickly scale and extend your apps.
- Future Proof Architecture.
Enterprise Census and Surveys Enabling (ECaSE) Platform
Pega software selected for Enterprise Survey Operations (2020 and beyond)

Market Leading Unified COTS Platform

Census COTS Capability Assessment and Analysis Findings – May 2016

- Commercial Best Practices
- Cloud Choice / Elasticity
- Reuse / Layer Cake
- Software that Writes Software helps “future proof”

- Speed to Value: “The resulting functionality from a ten-day sprint was often comparable to the results of in-house custom development of approximately six months."
- Innovations (e.g. mobile offline)
- Flexibility (e.g. mobile platform independence)

https://www2.census.gov/about/policies/cedcap/cedcap-report-final.pdf

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# What Is Pega Providing for the 2020 Census?

**Enterprise Census and Surveys Enabling (ECaSE) Platform Capabilities**

**CASE MANAGEMENT**

1. **ECaSE OCS**
   - Survey Operational Control System
   - Survey: The “central brain” that ingests address and probability data, plans survey operations, produces operational “workloads” and tracks progress of response data collection across survey modes (channels).

2. **ECaSE FOCS**
   - Field Operational Control System
   - Field: Ingests the remaining workloads for field operations, such as Address Canvassing or Non-Response Follow Up and helps distribute the workloads to the mobile devices of individual Field Representatives and Enumerators.

3. **Mobile Case Management**
   - Dashboard & Monitoring, Time and Expense
   - Control and Monitor: The Dashboard for managing the mobile operations and tracking of progress of the Enumerators in the field.

**DATA COLLECTION**

2. **ECaSE ISR**
   - Internet Self Response
   - Internet Data Collection: The web-based data collection instrument that will be public facing for the 2020 Census. Anticipated to have peak volume of 600K concurrent users with a total potential workload of 150m+ households.

4. **ECaSE Enumeration (ENUM)**
   - Enumeration / Non-Response Follow up
   - Mobile Data Collection: The mobile data collection instrument that will be loaded on the Apple iPhone devices for field enumerators.
Enterprise Census and Surveys Enabling (ECaSE) Platform
Key Delivery Achievements & Results

- **Speed to Delivery:** 2017 Census Test ISR delivered in 6 months.
- **Secure:** Internet Self Response (ISR) penetration tested by third party for the 2017 Census Test and there were no major findings reported. Census continues to test for security with government and commercial partners.
- **Scalable:** Tests prove ISR scales to 600k concurrent users. Performance and scale testing for ENUM underway; Architecture designed for elasticity to scale up or down on AWS GovCloud infrastructure.
- **Enablement & Self-Sufficiency:** Agile Development; Pega Enablement focus and progress.

“I’m happy to report we could scale ISR to the needed number of concurrent users, as defined by the demand models and infrastructure in the cloud. Based on results, the 2020 Census Executive Steering Committee has made the decision to use ECaSE ISR as THE ISR SOLUTION for the 2020 Census.” – Atri Kalluri, Chief, Decennial IT Directorate (DITD), at 2020 Census Program Management Review (PMR), January 26, 2018
2018 End-To-End Test Results and 2020 Census Operations Readiness

2018 End to End Test Achievements:

- **Field Enumeration,** “We’ve now successfully tested these technological advances that will allow for a more efficient use of our workforce for the 2020 Census. In the 2018 Census Test, we were able to complete 1.56 cases per hour worked, compared to 1.05 in the 2010 Census.” – Al Fontenot
  

- “The relative ease with which the temporary staff we hire as enumerators were able to utilize the technology was great. There was some concern that the iPhones might not come as easily to retired folks as millennials. ... I was out in the field with a veteran of several censuses, a retired woman, and she was able to use it like a pro. That’s why we saw increased productivity among enumerators.” – Ron Jarmin
  
Publicly Available Demonstrations

Internet Self Response (ISR)

- At the 2020 Census PMR from January 2017, Census staff delivered a 10 minute demo of the Pega-powered ECaSE Internet Self Response (ISR) instrument. The presentation was delivered by Jason Reese, ISR Product Owner from Census.
- To watch the ISR demo from the PMR you can go to https://youtu.be/p8hk8Vi5R_A and fast forward to 01:02:30.

Enumeration (ENUM)

- PMR:
  - At the 2020 Census Program Management Review (PMR) from April 2018, our customer delivered a 20+ minute live demo of an Pega Mobile 2020 Census field enumeration application.
  - The backstory on Non Response Follow Up Operations (i.e. functional overview) begins at 1:05:30
    - The actual live demo of Pega ECaSE ENUM starts at 1:13:55. It runs through 1:37.
- ESRI Federal Users Conference:
  - At the ESRI Federal User’s Conference in January 2019, Census Deputy Director, Ron Jarmin, delivered a 30 minute keynote on the mainstage. Featured in the Census presentation was about 4-5 minutes on the Pega Field Enumeration application and it’s integration with the ESRI maps. You can see the Field Enumeration portion starting at 16:30 at https://www.youtube.com/watch?v=GsxaTzr5b0Y

*the team demoed what is arguably the most transformative tool of all: an app called ECaSE, which some 350,000 census workers will use as they take to the streets on foot next year to follow up with the estimated 60 million households that are expected not to respond to the census the first time around. The app, which was developed in partnership with a contractor, will run on iPhone 8 devices provided by the bureau, and will personalize canvassers’ routes based on their work availability, the languages they speak, and the best time of day to visit each household. The data they collect will be encrypted and automatically uploaded to the Census Bureau’s central repository. The goal is to replace, or at least radically reduce, the 17 million pages of paper maps that the bureau printed out for the 2010 census and the 50 million paper questionnaires that field workers had to tote around with them. And because the tools are expected to make field workers more efficient, the bureau expects to hire roughly half as many people as it did in 2010.* https://www.wired.com/story/us-census-2020-goes-digital/10
“FOCS”
Field Operational Control System
What Is Pega Providing for the 2020 Census?
Enterprise Census and Surveys Enabling (ECaSE) Platform Capabilities

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Survey
The “central brain” that ingests address and probability data, plans survey operations, produces operational “workloads” and tracks progress of response data collection across survey modes (channels).

| **ECaSE FOCS** Field Operational Control System
Field
Ingests the remaining workloads for field operations, such as Address Canvassing or Non-Response Follow Up and helps distribute the workloads to the mobile devices of individual Field Representatives and Enumerators.

| **Mobile Case Management** Dashboard & Monitoring, Time and Expense
Control and Monitor
The Dashboard for managing the mobile operations and tracking of progress of the Enumerators in the field.

| **ECaSE ISR** Internet Self Response
Internet Data Collection
The web-based data collection instrument that will be public facing for the 2020 Census. Anticipated to have peak volume of 600k concurrent users with a total potential workload of 150m+ households.

| **ECaSE Enumeration (ENUM)** Enumeration / Non-Response Follow Up
Mobile Data Collection
The mobile data collection instrument that will be loaded on the Apple iPhone devices for field enumerators.
Field Cases Overview

- Form teams of field workers based on geography
- Manage field worker availability
- Manage field worker performance
- Manage work assignment
- Perform Case Reviews by Supervisor
- Manage operation progress
- Detect and Manage Fraud
Managing Remaining Work and Re-assigning Cases

- Ability to easily view work remaining by area
- Ability to assign workers to work areas
Team Management, Building, and Availability

- Visually associate field workers with supervisors
- Visually build teams of field workers
- Manage work based on availability of field workers
- Alert supervisors of shortages of workers
Managing T&E Cases

• Payroll and Expense submission
• Payroll and Expense Approval
• Detect Fraudulent Payroll and Expense Submissions
Enumeration ("ENUM")

Mobile Field Enumeration Application
## What Is Pega Providing for the 2020 Census?

### Enterprise Census and Surveys Enabling (ECaSE) Platform Capabilities

### CASE MANAGEMENT

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Field Data Capture: My Work

- List of survey cases assigned for that day
- Work on assigned survey case
- Check the map for assigned cases location
- Work offline and online
- Survey syncs automatically when the device reaches coverage area
Field Data Capture: Working a Case

- Enumerators can check for the location of the survey case
- Enumerators can record household members information like name, age and other details
- Enumerators can change the language during the interview to Spanish and back to English at any given time
- Enumerators can record attempted notes for a survey case being worked on
- Enumerators can record dangerous address notes for each survey case being worked
Field Data Capture: Time And Expense

- Enumerators can record their time and expenses
- Record time spent for survey or training
- Mileage consumed for the survey or training
- Time & Expenses History will provide enumerators a clear view of submitted T&E status (accepted/pending)
Field Data Capture: Time And Expense (cont’d)

- Expenses incurred during survey or training
- Ability to take pictures of the receipt from the application and attaching it to the expense
- Submit the expenses for approval
Field Data Capture: Work Availability

- Enumerators can record their availability by week
- Record their availability / Non availability for each day
- Based on enumerators availability survey cases are assigned to them