

# **Deploying new technologies in the Field**

-Challenges and Benefits

# Collection activities

- C&S

- Commodities and Services (all purchased by consumers)



- Housing

- Directly collect information on renter properties
- Owners equivalent rent calculated, not directly collected



# Collection activities

- Priced directly by a 400+ person cadre of part-time Economics Assistants (EAs)
  - Supervised and supported by about 60 Economists in the field
    - Conduct the OJT/ technology training
- Staff covers 87 metropolitan areas of varying sizes from very large (New York, LA) to very small (Sharon, PA) cities
  - Physically dispersed

# Collection activities

Staffing and training:

CPI part-time staff almost all have college degrees; full-time staff are Economists

All staff are given intensive classroom training, on-line training, and on-the-job training to prepare them for the various processes they must perform

- Computer proficiency varies widely
- Part time work-
  - Time for investment in learning technology is limited

# All surveys directly collected

- Survey data directly collected by Economic Assistants
  - No surveys are completed by respondents
  - Either personal visit or telephone collection



# Data Collected on a Tablet



- Check boxes are easy
- Numerous text fields
  - Difficult

# C&S versus Housing

- Very different surveys
- Separate systems
- Housing is a structured survey
- C&S is not structured

# Technology issues: C&S Instrument

- The first time we price a new store, and select goods to be included in the survey is called *initiation*
  - Difficulties with using technology
  - Free form
    - Try to guide respondents, but typically jump subject to subject
    - Difficult to navigate in a collection instrument
  - Survey can be very complicated
    - Many pieces, many screens
      - Messages, edits, data entry
      - Different respondents
      - Long descriptions



# Collection Instrument-description

ELI Checklist - Quote: 010 HM021 - 01A LAWN AND GARDEN AND OUTDOOR EQUIPMENT -  
LARGE EQUIPMENT, POWERED

NOTE: THIS CHECKLIST INCLUDES AN EDIT CHECK FOR SPECS THAT ARE REQUIRED!

## TYPE

- A1 Lawn or garden tractor
- A2 Riding mower
- A3 Push walk-behind mower
- A4 Self-propelled walk-behind mower
- A5 Reel mower
- A6 Tiller/cultivator
- A7 Snow thrower/blower
- A8 Leaf blower/vacuum
- A9 Leaf blower
- A10 Lawn sweeper
- A11 Outdoor lawn vacuum
- A12 Shredder/mulcher/chipper
- A13 Lawn edger
- A14 Log splitter
- A15 Chainsaw
- A99 Other,

## POWER TYPE

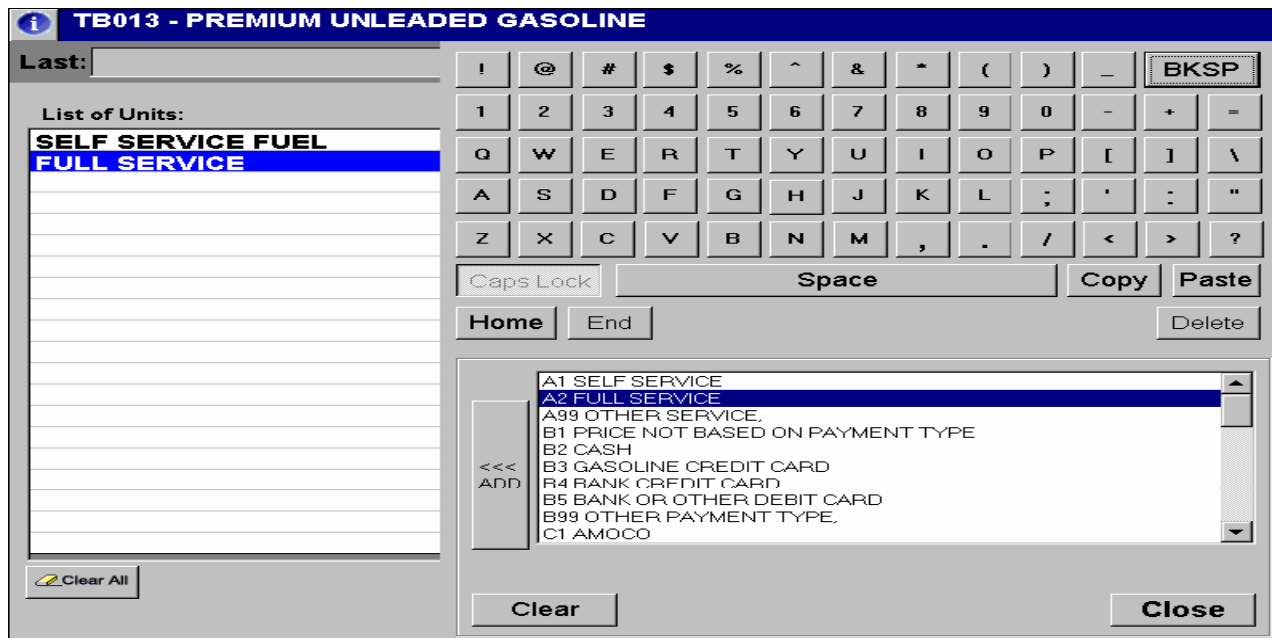
- B1 Gasoline
- B2 Gasoline and oil mix
- B3 Electric cord
- B4 Electric, cordless (rechargeable)

Revert to Last Collect Clear All Select Cluste CA Msg Field Msg OK Cancel

**ELI**

# Collection Instrument-selecting an item

- Initiation
  - The EA uses a process called “disaggregation” to choose a specific item for inclusion in the index
    - This is a statistical process that uses the outlet’s specific sales experience to ultimately pick an item
    - Starts with a “universe” of all items in an outlet that fits the overall ELI definition
    - the EA takes up to 5 steps to continually narrow the possibilities until we arrive at a “unique item”



# Technology issues: Housing Instrument

- A structured Interview
- Benefit
  - Provides “Skip Pattern” automatically
  - Edits: Missing information
- Disadvantages
  - If software fails--interview is over
  - Pauses in software can awkward
  - Usability can be challenging-multiple units

# Collection Instrument Housing

NUMBER OF ROOMS SCREEN

Disagg Messages Pen Panel KB Incomplete Previous Jump Return Next

102 LESLI 1 102 LESLI 2 102 LESLI 3 102 LESLI 4

102 LESLIE AVE 3, Alexandria city, VA, 22314

\*\*\*\*\* Please verify the number of rooms in this apartment. \*\*\*\*\*

BEDROOMS	2	2	◆	<b>What is the reason for the change?</b> <input type="radio"/> SPLIT, USE FACESHEET TO ENTER UNIT APARTMENT, ENTER MSG <input type="radio"/> MERGE, USE FACESHEET TO ENTER UNIT APARTMENT, ENTER MSG <input type="radio"/> PREVIOUS DATA INCORRECT **VERIFY UNIT ADDRESS** <input type="radio"/> RECONFIGURATION - NO SPLIT OR MERGE
FULL BATHS	1	1	◆	
HALF BATHS	1	1	◆	
OTHER ROOMS	2	3	◆	
TOTAL ROOMS	6	7		

Has there been a change in the number of rooms?

YES  NO

# Challenges



- Meeting tight deadlines with computer based surveys
  - CPI has frequent deadlines
  - Impacted by software/hardware issues
    - Numerous technology points
      - Servers fail/hardware fails/phone lines fail
  - No longer room for error
    - Domino of software/systems failure
      - Missed deadlines

# Challenges



## ■ Hardware Issues

- Aging computers/fast decline in reliability
- Obsolete
- Uneven budgets result in delayed replacement
  - Must plan 3 years out for replacement
- Can lose a day or more of collection work
  - Work is stored on local drive in short term, so a hardware crash can delete collection work

## ■ Software

- Fast decline in operating systems software support
- Huge resources in developing/updating internal collection instruments

# Challenges

- Maintaining Security

- Number of security requirements increase

- More passwords, encryptions, firewalls

- More opportunities for issues that disrupt collection

- Number of security patches increase

- Must be downloaded remotely and verified in system

- Now part of the quarterly production process

- Data collectors closed out of system if deadline for update is missed



# Challenges

- Deploying new technology
  - Typically we use remote downloads
    - Complicated process for the User
    - Difficult to coordinate with data collection/deadlines
    - Often issues with a few each time
      - Handled by help desk
        - » Often hard to keep staff



# Challenge: Low bandwidth



- Many use a slow dial-up
  - Work from home
- Downloading software updates slow
- Makes on-demand training difficult

# Challenges

- Management tools are often last on the list
  - Often no money or resources left to develop good management tools
    - Get the collection instrument out the door
  - Response codes in housing come out a month after the fact
    - How do you manage “no contacts”
  - In C&S the processors take 3 hours
    - Don't know if deadline was missed until late that night
    - Can't create real time queries

# Challenges

- More difficult to put a story together
  - Fewer “sniff” tests without paper
    - Notes on margins, erased notes
    - Lining the paper up in sequence

# Benefits

- Should not be underestimated
  - More timely CPI
  - More edits
  - Greater accuracy
    - Transmit and review work before its in the index
  - Easier monitoring when compared to paper
  - Technology has allowed us to build a central data quality system

# Where do we go from here?

- Do we simplify procedures to simplify technology challenges?
- Will changes in technology drive the solution
  - PDA-simplify forms?
  - Move to more of a checklist format?
- How do we mesh a lower GS pay (GS 5-7) with technology and procedures?
- How can we better manage our surveys?
  - Do we combine collection instruments into one survey format?
    - Management of surveys would be easier