Today's Presentation Roadmap

- ANES Overview
- Technologies Used
- iPAQ Innovations
- Integration of FLASH Instrument with Blaise Instrument on the Laptop
- ANES Transmission Techniques

2

American National Election Study

- (ANES) Time Series Study is the single most valuable source of data on voting behavior and public opinion available
- A central component in many fields that study political behavior, such as
  - Party identification,
  - Issue voting,
  - Political knowledge,
  - Economic perceptions,
  - And much more.
- Diverse Survey presented as National Public Life Study

3

www.rti.org   8/17/2014   RTI INTERNATIONAL

The American National Election Study (ANES), funded primarily by the American National Science Foundation (NSF), has involved the collection of national survey data on voting, public opinion, political participation, and other related research topics since 1948. This project is a "public good," meaning that data are collected to serve social scientists throughout the world.

(ANES) Time Series Study is the single most valuable source of data on voting behavior and public opinion available

A central component in many fields that study political behavior, such as

        Party identification,

        Issue voting,

        Political knowledge,

        Economic perceptions,

        And much more.

Diverse Survey presented as National Public Life Study. It asked

3

questions about

    Religion Issues

    Gender Issues

    Ethnicity

    Very diverse study with many combinations of opinions

Additionally, the survey included a pre-election instrument and a post-election instrument. Both were approximately an hour–long interview and the same respondent population was used in the pre and post election surveys.

Technologies Used in Data Collection

- Systems
  - IPAQ Handheld Device
  - Laptop PC
  - Web-based Case Management System (CMS)
  - Integrated Field Management System (IFMS)
- Software and Technology
  - ASP.Net 2.0 – Used to implement web-based CMS
  - Microsoft® SQL Server 2000 – Used for data storage and case status management
  - Custom software– CAI Manager, Blaise, data management utilities, Data Transmission System (DTS)

www.rti.org   8/17/2014

Software and Hardware Overview (Technologies used)

The ANES project used a variety of hardware and software systems to enable successful data collection. Because data collection was done in a multi-mode fashion, the systems used were required to have the capability of synchronizing the flow of data to both the IPAQ handheld device and the laptop PC. Below is a short description of the tools used.

Integrated Field Management System (IFMS)

Handles data and survey software updates on all hardware devices.

Server Software

Microsoft ASP.NET 2.0 – The project web site was developed using Microsoft ASP.NET technologies. The web site was used by project supervisors to assign and recall cases, view reports and transmit/receive data via web services.

Microsoft SQL Server 2000 – SQL Server was used for data storage for the web site and transmission systems. Also used to track the status of

cases assigned to field interviewers using the Integrated Field management System (IFMS).

Custom data management utilities used to process incoming and outgoing data files.

Web service used for transmitting files to and from the field laptops

CAI manager – Application used by interviewers to manage and access interview instruments

Transmission (DTS) – Utility used to establish connections to RTI servers and process file transmission orders. This program was also used to establish a connection which was used by the IPAQ devices for data transmission.

Blaise – Third-party application used to implement the interview questionnaires used in data collection.

Adobe® Flash Player – Used to administer one portion of the field interview.

Electronic Payment, Time and Expense (e-PTE) – Application used to electronically transmit timesheet information.

See above

General Survey System (GSS) – The GSS application is used to administer the screener and collect data for other short forms.

Case Management System (CMS) – The CMS application is used to manage the cases on the iPAQ and record field events.

Xmit – This application is used to transmit data to/from the server.

Updater – The Updater application facilitates updating of the applications electronically in the field.

The touch-screen technology allowed the Field Interviewer to quickly administer the screener, ensured that the sample selection was accurate, and screening data were available much faster.

Different modules conducted for the case.
In essence another Case Management System although somewhat reduced

In the screenshot on the right you see that the keyboard itself is on the screen. You use a stylus to select which value to place in the answer. When you need alphabetic letters a QWERTY keyboard layout is displayed.

Good reliable entries, although misspellings were common, but no mistake what the intent was.

The screening software is an instrument in itself. Developed for use on different projects

iPAQ-Based Sampling Software

- Provides ability to do complex sample selection from household roster
- Provides the capability to
  - Support complex random sampling,
  - Apply complex eligibility rules,
  - Hides all calculations from FI to prevent selection biases.

9

www.rti.org   8/17/2014

The screening questions when completed resulted in an immediate notice of selection or rejection of the respondent even though the algorithms were complex. Upon selection, the full interview could begin immediately using a laptop in the privacy of the respondent's home.

Many of you may be experienced with matrices printed on paper and the guidelines/rules applied.

Last digit of the case ID = X

Number of eligible respondents = X

However, subjective events might be applied inadvertently

Did the person you're talking to have onions for lunch?

Use of FLASH technology as part of the CAPI interview

- Affective Misattribution Procedure (AMP)
  - Adobe® Flash® Platform
  - Flash-based, 3rd-party-developed, assessment
  - Part of the ANES 2008 CAPI interview
- Integration of the AMP module and the Blaise instrument
  - Blaise Component Pack (BCP) within Visual Basic .Net application
  - Launch the AMP module during the CAPI interview
  - Pass a date and time of the AMP module into the Blaise database
  - Deliver collected data

10

www.rti.org   8/17/2014

"The Adobe® Flash® Platform is an integrated set of technologies surrounded by an established ecosystem of support programs, business partners, and enthusiastic user communities. Together, they provide everything you need to create and deliver the most compelling applications, content, and video to the widest possible audience."

The ANES PIs asked RTI to include a flash-based, 3rd-party-developed instrument as part of the ANES 2008 interview. The AMP module is a self-administered interview which displays number of pictures. A respondent should rate each picture by pressing appropriate letter on a laptop's keyboard. There was some anticipation that the AMP module (due to the nature of its questions) may result in either high item-nonresponse or break-off's altogether. That's why it was placed at the very rear of the interview. Upon return to the Blaise instrument, a few more questions were asked to conclude the CAPI interview.

To address the ANES PIs requests, Adobe Flash Player, part of the Adobe® Flash® Platform, was installed on all Field Interviewer laptops to allow execution of the AMP module. A special, Visual Basic .Net, program was developed to start the AMP module without leaving the

10

Blaise instrument. This program established connection with the Blaise database by using Blaise API functions in Blaise Component Pack (BCP), an additional tool available in Blaise.

When the interview reached a predefined question, the VB.Net program started and informed an interviewer that a respondent should answer questions in the AMP module. After receiving an answer that respondent is ready for the AMP module, the AMP module started.

At that moment the date and time were saved in the Blaise database. When the AMP module was completed by the respondent, corresponding time was saved in the Blaise database again and the program returned to the CAPI interview for completion. Collected date and time of the start and end of the AMP module were used to determine length of an execution of the AMP module.

Answers given by a respondent in the AMP module were saved in a file which was copied by the VB.Net program in a specific place on laptop with the name as <caseID>.sol. When a completed CAPI interview was ready for transfer to RTI, that file was transmitted along with the Blaise data. At RTI, all files with the data from the AMP module, were placed in one folder and then delivered to the client.
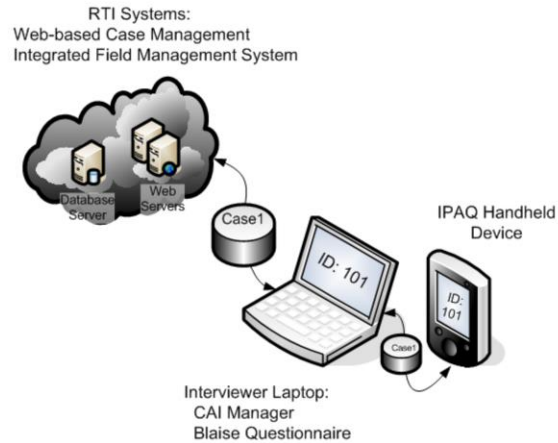
Some of us like pictures

The movement of case data between the field machines and the servers at RTI required coordination with multiple existing transmission systems. The iPAQ and laptop each have transmission systems designed to operate independently of each other but needed to work in unison for the project to provide a streamlined experience for the user.

The resulting system utilized pieces of each transmission system and new processes were created on the server to keep data in sync. This way, the user could make a single case assignment or recall and the system would take care of propagating the orders to each transmission system.

The field systems utilized a fairly basic setup for transmissions. With the iPAQ connected to the laptop via a USB cable, only a single connection to the internet would be required. The laptop established a connection with RTI using its modem and with the USB connection, the iPAQ would be able to use the same connection from the laptop. After successfully connecting to RTI, the laptop transmission program would perform its

data transfer first. After completion of the laptop transmission, the user would be prompted to start the process on the iPAQ and the data transfers from the iPAQ would take place using the existing connection.

The web services used by the project used Secure Sockets Layer (SSL) to encrypt data during transmission. This ensured all communications over the internet were secure.

Integrated Systems Techniques

- Web-based CMS and IPAQ devices previously used as standalone component
- Developed software to allow web-based CMS to share information with IFMS
- CAI Manager program extended for laptop case management

12

www.rti.org 8/17/2014

Integrated Systems

IPAQ screener and related web-based CMS used on prior studies, but never in conjunction with a PC-based CAPI questionnaire

Existing IFMS used to deliver and retrieve case information for PC-based questionnaires

Since case assignments were managed by the web-based CMS, upgrades were made to both CMS and IFMS to allow the two systems to share information, and coordinate data flow.

Status of IPAQ cases was tracked in the CMS, while laptop cases were tracked in the IFMS

CAI Manager was updated so that it could manage cases on an individual basis, in accordance with the operational principles of the IFMS

12

The ANES Transmission System

- Coordination with multiple existing transmission systems
- Mission: To keep data in sync
- Mission: One transmission using a single connection to the internet
- Used a "Daisy-Chain" procedure for all devices during transmission process
- Data from laptop sent first followed by data from iPAQ

13

www.rti.org   8/17/2014   RTI
INTERNATIONAL

ANES Data Transmission -- Continued

- Information transmitted
  - Case data files for IPAQ and laptop instruments
  - Case status information for screener and main interview
  - Program updates for IPAQ and laptop
  - Instrument updates for IPAQ and laptop
- Integration of IPAQ and laptop updates
  - Updates for both devices are managed through a centralized server
  - Provides the ability to update both devices in the same session with minimal human intervention
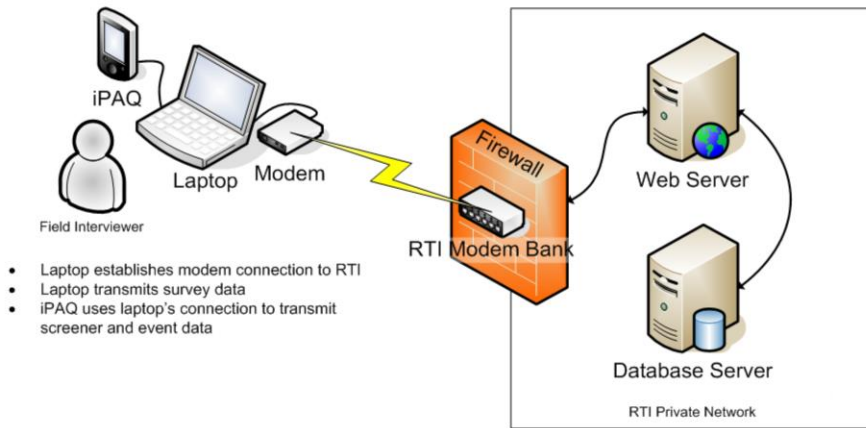
14

www.rti.org   8/17/2014   RTI INTERNATIONAL

Updates to the iPAQ and laptop were managed from the centralized database server reducing the need for human intervention. These updates included:

Instrument updates to the iPAQ

Instrument updates to the laptop

Preload data unique to the respondent (in the follow-up wave 2 interview)

The ANES Transmission System

iPAQ

Field Interviewer

Laptop   Modem

- Laptop establishes modem connection to RTI
- Laptop transmits survey data
- iPAQ uses laptop's connection to transmit screener and event data

Firewall

RTI Modem Bank

Web Server

Database Server

RTI Private Network

15

www.rti.org   8/17/2014   RTI INTERNATIONAL