Mixed-Mode Sample Management System: An Early Glance

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Four Powerful Social and Economic Forces

1. From homogeneity to heterogeneity
2. From batch to flow
3. From fixed to adaptive
4. From centralized to decentralized to… a third way?

Dr. Bob Groves, IBUC 2007 Keynote Speaker
Challenges from these Forces

• The customized survey design needs new paradata to customize designs to sample units
• Software functionality must be designed with responsive design in mind
  – real-time analysis of paradata
  – integrated statistical analyses to direct question flow or recruitment step actions
• This requires centralization of information resources, but dispersed use of the resources

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What is Paradata?

• Information that can be used for sample/case management, such as:
  – Call records (result codes, call notes, time of contact, etc…)
  – Respondent information (address, phone numbers, respondent profile, etc…)
  – Sample information (PSU, segment, sampling unit, etc)
  – Contact, Interview and household observation data
  – Interview key attributes (length of IW, break off variables, answers for some analysis variables, etc…)

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Vision for Mixed Mode

• A fully integrated mixed-mode sample (case) management system that allows sample movement, management, and reporting between collection modes, both prior to and during data collection.

• Build on our success - capture the best features and functions of our existing sample management and other systems.
High-Level Concepts

• Mixed-mode sample management system
  – Integrated system utilizing paradata
  – Paradata stored in a mode-neutral format
  – System will manage paradata
High-Level Functional Requirements

• One logical system presenting a universal point of entry for the user
• Allow for different modes within same study
• Flexibility for survey collection design
• Real-time paradata and survey data movement between samples and interviewers
• Track the status and life history of individual cases
• Allow for transfer of cases between interviewers and across modes and surveys
• Allow for capture and management of metadata and paradata
• Centralized allocation, scheduling, and planning of resources based on skills, location, language, shift, etc.
Development Process

- **Phase I – Requirements and Analysis**
- **Phase II – Design, Develop, Test/Implement and Stabilize**
  - This phase will refine the requirements of the system and the system architecture and database structures, and will build and test a prototype in a pilot/production setting.
- **Phase III – Design, Develop, Test/Implement, Stabilize**
  - This will be a second round of activities, similar to that in Phase II, and will end with a stable production system with system documentation and training modules.
Phase I Deliveries

- Business Requirements
- Features List
- User Interface Prototype
- Flow Diagrams
- Architectural Considerations
- Architectural Design
- Data Model
- Technical Recommendation
Business Requirements and Features (1)

- 650 major requirements aggregated to 220 Features
- Need to include more non-functional requirements
- Focuses on the operational requirements of the entire mixed mode data collection
Business Requirements and Features (2)

- Grouped into 12 categories:
  - Database and Device Management
  - Interfacing with Other Systems
  - Interviewing
  - Online Help
  - Production Management
  - Production Support
  - Sample Delivery (Scheduler)
  - Sample Line Generation and Management
  - Security
  - Study Setup
  - Survey Support Services
  - User Interface
User Interface Prototype

• Evolved from the business requirements, SME (Subject Matter Experts) interaction and iterations

• “Prototype, prototype…”
Flow Diagrams – Use Cases

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Services Oriented Architecture (SOA)
- A collection of services
- Services communicate with each other
- The communication can involve either simple data exchange or it could involve two or more services coordinating some activity

Web Services
- XML, UDDI, HTTP, SOAP
Technical Recommendations

- Software development environment: Microsoft .NET Framework 3.x
- Programming Language: C#
- SOA with Web Services for communication
- Database: Microsoft SQL Server 2005 (2008?)
- Replication
Next Step

• System design
  – Describes desired features and operations in detail, including screen layouts, business rules, process diagrams, pseudo-code, and other documentation.

• Implementation
Thank You

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