

Blaise 5 Multimode Management – A Report by the BCLUB Multimode Management Group

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The BCLUB Multimode Management Group formed in October 2017. Its task was to define functionality for multimode survey management. The group members represent a wide variety of experiences and practices. The eight participating institutes and 16 individuals are:

- Office for National Statistics (ONS): Mike Hart
- RTI: R. Suresh, Gilbert Rodriguez, and Lilia Filippenko
- UK National Centre for Social Research: Sven Sjodin, Nafiis Boodhumeah, and Colin Miceli
- Statistics Norway: Hilde Degerdal, Trond Båshus, and Jan Haslund
- University of Michigan, Survey Research Center: Patty Maher – lead.
- Westat: Richard Frey
- Social & Scientific Systems, Inc.: Ans Bilhorn-Janssens, and Taylor Abernathy
- Statistics Netherlands: Lon Hofman and Tim Carati

Two institutes provided answers about their use of Blaise 4 CATI. They are

- Statistics Denmark, Leif Bochis
- National Agricultural Statistics Service, Emily Caron

1. Executive Summary and Some Founding Principles

Blaise 5 should provide a Multimode Management System that is flexible and adaptable by the institutes that use it. It should not duplicate capabilities that statistical institutes normally provide for themselves. The system should recognize survey management methods such as responsive and adaptive design. The following summarizes the principles that came from the Multimode Management Group.

Multimode Survey Management is all about contacting respondents and securing their cooperation. This is done through **channels of communication** (de Leeuw 2005). A few examples are mail, email, and phone. It is also necessary to recognize inbound communications such as mail in, log in, or call in.

Modes concern the technology used to conduct the survey. A few examples of modes are paper, web, or CATI. **Multiple modes** mean using a **multimode instrument** or **related mode-specific instruments** to conduct the survey. Sometimes the channel is tightly connected to the mode. This is true for CATI where the call attempt and interviewing are conducted with the same system. On the other hand, a web complete may be prompted by mail, email, a phone call, or a text message.

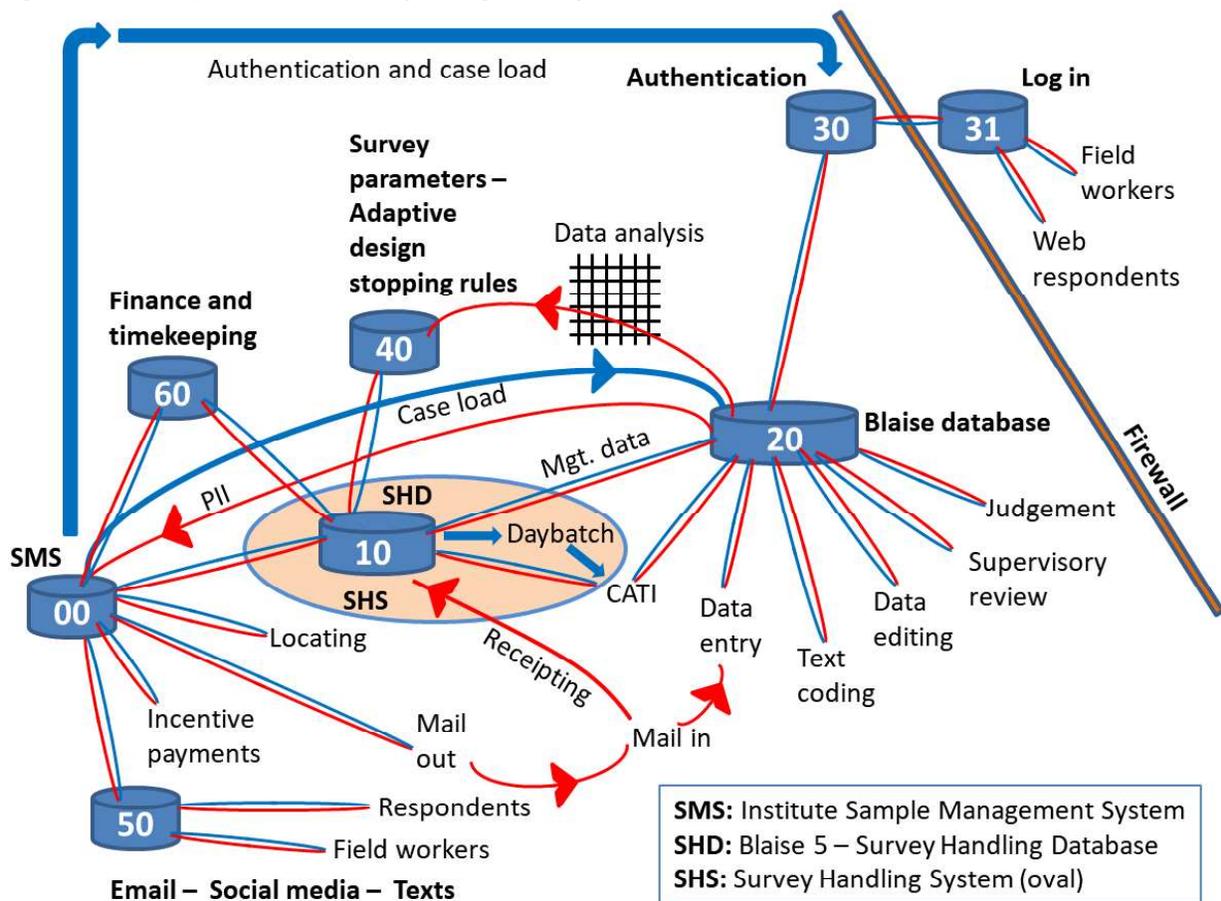
This report assumes the institute already has a **Sample Management System (SMS)**. It contains Personally Identifiable Information (PII). The SMS can batch emails, receipt paper questionnaires, or locate respondents. Blaise will not duplicate this capability.

A **Survey Handling Database (SHD)** should be provided by Blaise. The SHD database holds a representation of the sample and keeps track of what happens to each case. It does not hold any PII. The link between the SMS and the SHD is a unique Case ID. The SHD allows the institute to keep track of overall effort on a case, to prioritize strategies for a case or group of cases, and keeps track of costs. It manages status codes that represent **happenings** (events), **operational statuses**, **actions**, and maps survey history to **final disposition** codes.

A **Survey Handling System (SHS)** should be provided by Blaise. The **SHS** handles the communication between the **SMS**, the **SHD**, and other survey modules.

Figure 1 below gives a possible schematic of the SMS, the SHD, and other survey systems. The system portrayed would handle a Paper/CASI/CATI/CAPI survey. Figure 1 indicates the complexity of some modern-day multimode surveys. Subsidiary systems such as those for incentive payments or supervisory review are included because any of them can send a case back into the survey pool.

Figure 1: An Example Multimode Survey Management System¹



The relationship between the SMS, the SHD, and the SHS is as follows:

- All Personally Identifiable Information (PII) is handled by the SMS, not the SHD.
- There is constant communication between the SMS, the SHD, and other modules via the SHS.
- Either the SMS is under the command of the SHD or it reports its actions to the SHD.

The database for **Survey Parameters – Adaptive Design – Stopping Rules** reflects Responsive and Adaptive Design. This is one of the means of parameterizing the Multimode Management System.

An institute-provided **data analysis** system assesses the stability of estimates for key variables for each designated domain. These estimates are compared to stopping rules in the **Survey Parameters** database.

¹ This is an idealized diagram. Details will differ for each institute.

An **action** is a term that describes what should happen to a case or group of cases. Examples of actions include putting a case on rest, stopping work on a case, or including a case in a CATI daybatch. An action can also be considered an instruction. **Actions** are determined by algorithms based on case history and survey parameters, or by manual intervention. The institute should be able to plug in its own algorithms.

A **Supervisory Review** utility allows for manual intervention. Such a utility should implement a hierarchy of supervisory levels and the actions allowed for each level.

A **happening** is 'what happened' in any of the system modules. Examples of a happening are a busy attempt in CATI, a log-in to a web authentication system, or a receipt of a paper questionnaire. This term **happening** is used to avoid confusion with the term **event** as it is used in the Blaise (and other) systems. **Happenings** can imply information that can be used to adapt survey management. For example, a web log-on, even if there is no survey progress, means that you have reached the respondent.

Four groups of status codes are at the heart of the Multimode Management System. They are **happenings codes**, **operational status codes**, **action codes**, and **final disposition codes**.

2. The Challenges of Multimode Survey Management

Multimode surveys have been around for decades. What has changed technologically, since about 1990, is the explosion of survey-taking and communication technologies. The number of ways an individual can be reached has multiplied. Thirty years ago you would primarily reach a respondent through a household. These days you primarily reach a respondent through individual multiple channels. The challenge therefore, is to manage all contact attempts, across all channels, in a way that maximizes the overall survey performance.

- This may mean that you reduce the probability of success with one person or set of people in order to increase the overall probability of success, especially taking into account the need to adequately cover all subgroups.

2.2 Multimode Survey Management Goals

A multimode management system must be able to manage conflicting survey management goals.

Goal 1: The surveying institute must stay within costs, within deadlines, and achieve an acceptable response. The institute must be able to change its survey-taking approach during the survey period through Responsive and Adaptive Survey Design.

Goal 2: The respondent must be able to distinguish legitimate survey contacts from other contacts, for example sales contacts. The Multimode Management System should estimate perceived burden on the respondent and pace contact attempts to diminish the feeling of burden over time.

Goal 3: Recognize when a respondent engages in a survey. This may be a completion, a partial completion, or some kind of refusal.

Goal 4: Coordinate contact attempts through mail, email, text messages, and phone attempts.

Goal 5: Manage the tension between optimal use of resources versus the staffing demands of interviewers and supervisors.

Goal 6: Achieve precision levels for subgroups such as sampling strata, or hard-to-interview populations.

2.3 Fielding Strategies

This report recognizes three kinds of fielding strategies.

Sequential: One mode is fielded first then another mode (or more) is fielded later.

Concurrent: All modes are open at once and the respondent can choose a mode.

Blended: This is a combination of the sequential and concurrent methods. For example, CASI and CATI may be available at the same time, but CATI only accepts call-ins at first.

BCLUB members use all three approaches. An institute might have a default approach, but most institutes need the ability to adopt any strategy depending on the survey. The following mode combinations were mentioned by the group.

- CASI/CATI
- CATI/CAPI
- CASI/Paper
- CASI/CAPI
- CASI/CATI/CAPI
- Paper/CASI/CATI
- Paper/CASI/CATI/CAPI

No matter which strategy is adopted, it is necessary to coordinate what happens to the case in each mode. For example, if a case is completed in one mode, it should be turned off in other modes. If a case is partially completed in CASI (for example) the institute should be able to complete it in CATI or CAPI. A refusal in any mode should stop all out-bound contact attempts, however, but leave open the possibility that the respondent self-completes (CASI or paper) later.

3. Contact Information

The institute SMS holds all contact information including PII. The Survey Handling Database (SHD) holds a representation of the SMS and links to it through a unique Case ID. The SHD will hold many indicator items and many counts.

3.1 Kinds of Contact Information in the SMS

Possible contact items include:

- Phone numbers with information about properties such as landline/cell.
- Street and/or mailing address
- Email addresses, and information about properties such as personal/business.
- Social media addresses

4 The Notion of Burden

If a respondent has multiple valid channels of communication, the individual can feel overwhelmed by receiving multiple messages from different sources. The multimode management system should include a burden indicator for contacting attempts. An extensive search of the survey management literature reveals few descriptions of how to measure burden. It is possible to define a burden indicator to each happening. Perhaps a time-lapse multiplier can reduce the value of the indicator over time so that rest periods can reduce the perceived burden.

5 Scope: Channels of Communication Considered

Five channels of communication are considered in this report. They are:

- Phone
- Personal visit
- Email
- Text
- Social media

Phone and visit are so tied to CATI and CAPI respectively, they are considered as part of the modes section below.

6 Scope: Modes Considered

The BCLUB multimode management group decided to focus on the following modes:

- CAPI,
- CATI,
- Web,
- Paper, and
- Device modes; this refers to the use of a smart phone or tablet in a stand-alone capacity.

7 Scope: The Line between Blaise 5 Functionality and Institute Capability

Blaise 5 cannot provide all survey management capability. It can provide a core functionality that is easy to modify to suit different kinds of surveys and different kinds of institutes. It is necessary to differentiate between an institute's Sample Management System (SMS) and a Blaise 5 provided Survey Handling Database (SHD).

The SMS is an institute-provided capability. It can be a database system or a spreadsheet. The SMS provides sample data to the SHD. The SHD handles the coordination between the channels of communication and data collection modes. Blaise 5 only needs to define and operate the SHD.

8 Scope: Kinds of Surveys – Record Types

It is striking how many kinds of surveys are handled in the Blaise community. Taken as a whole, there are survey management needs that cannot be met completely. Thus it is necessary to define the kinds of surveys that Blaise 5 can handle out-of-the-box.

The Blaise 5 multimode survey management capability should focus first on the **person-level** survey. The SHD should allow linking multiple respondents within a household.

Longitudinal surveys are commonly conducted by Blaise institutes. In this kind of survey, the institute keeps track of household members, valid contact items, sample attrition, and related data. The Blaise 5 SHD can handle a round of a longitudinal survey as if it is a single-round survey. It is up to the SMS to provide the latest valid information to the SHD.

9. Coding Schemes

An important extension of Blaise 5 survey management over Blaise 4 survey management is to provide coding schemes for **happenings, operational status, actions**, and a mapping to a **set of final dispositions** such as the AAPOR Final Disposition codes (AAPOR 20016). Further, it should allow an

institute to plug in its own schemes. Even further, the institute should be able to modify its schemes between surveys, or on the fly.

10. Responsive and Adaptive Design using Survey Management Paradata

For this part of the report, only paradata that relate to attempted contacts or inbound contacts are important. Other kinds of paradata, such as instrument audit trails, are not treated here.

Every contact attempt or inbound contact should be logged. For each contact attempt or respondent approach, a **contact record** should be recorded.

11. Survey Management Reports

Blaise should produce basic reports and also provide survey management data so that an institute can generate its own advance reports. To allow the institute to generate its own reports, the Survey Handling System (SHS) should provide the following information.

- Sample frame data that are useful for reports, e.g.,
 - Stratum
 - Location
 - Respondent demographic data

These are the sample domains important for Responsive and Adaptive Design.

- Values of key design variables
- Log of contact records
- Operational status codes
- Indications of group membership for each case, e.g.,
 - Groups of interviewers
 - Survey Language
 - Survey wave

13. References

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