

A system allowing sequential interviewing of household¹ members, where the household members are individual cases, within the Blaise CATI-framework

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Introduction

The Norwegian labour force survey (LFS) uses a household sample where each household member is an individual case in the Blaise-database. The previously used case management system at Statistics Norway was mainly oriented towards CAPI. Multi-person household was easy to manage as every member of a household was routed to the same interviewer, who was able to interview the whole household one after the other during the same session, if possible.

The new case management system (Sivadm) now in use at Statistics Norway is more oriented towards CATI (with possibilities for CAPI and CAWI), and it was therefore necessary to develop a system within the Blaise CATI-framework to allow the CATI-interviewers to interview an entire multi-person household consisting of individual cases in one session. The system offers the interviewer updated interview statuses of all household members, both in the dial screen and within each form, and an option to open a form for another household member at the end of the interview.

Background

The previous case management system used at Statistics Norway was primarily an offline CAPI system (CAI), where the interviewers connected to the central database at regular intervals to return and download cases. The system was used as a list based CATI-system (CATI-L), since true CAPI was (and is) not used for the LFS in Norway. All cases belonging to a certain household were transferred to a single local interviewer, and an entire household, if all present, could be interviewed in one session. The system made it relatively simple for the interviewer to keep track of the household, with regard to appointments, and also whether it would be beneficial to do a proxy interviews for absent household members.

A new case management system (Sivadm) which together Blaise forms the new interview management system at Statistics Norway (SIV) has long been under development. It is centred around a database driven CATI-system (CATI-D) to better utilise Statistics Norway's two call centres, while also allowing the ca. 100 interviewers working from their homes to connect to the system from home and work online. SIV also provides an integrated offline CAPI/CATI-L solution.

To allow for sequential interviewing of household members on CATI-D, two approaches have been considered:

1. All cases of a household contained within one single form.
2. Each case of a household at single form, with a functionality to move between the cases within a household.

The first scenario would allow household appointments, and also shared address and telephone numbers for the household. But it would not allow for individual treatment for each case, and it would also significantly complicate administration.

¹ In reality a family sample, due to limitations in the register of residents.

The second scenario would allow individual treatment of each case, but new functionality had to be developed: Interview status for each household member must be displayed in the Dial menu and within the forms, and it must be possible to start an interview with at another household member upon finishing an interview.

In addition, it was a requirement that cases can be moved to the offline system for follow up by the local interviewers (CATI-L) after a certain time period has passed. This is quite simple to accomplish with the second scenario, but would probably require changes in the offline system if we went for the first option. After careful consideration it was decided to develop the necessary functionality to make option 2 possible.

Technical description

The new solution builds on and extends on the existing integration between Sivadm and Blaise, in particular mechanisms which synchronises events between the two systems. The main mechanisms are Manipula procedures which are run OnDialBegin and OnDialEnd, as specified in the CATI-specification.

Blaise and Sivadm integration

Synchronisation and integration between the Blaise and Sivadm is based on that each case, irrespective of which survey they belong to, has a unique identification number (io_idnr). Events from Blaise are written to a special table in Oracle which Sivadm reads at regular intervals, the events are mainly changes in the status of the cases, and also information about changes in address and/or telephone numbers. If there is an address or telephone number change in the Blaise-database(s), Sivadm will read this information through the Blaise-API. Events from Sivadm to Blaise are always written directly the Blaise-database through the Blaise-API.

Overview of the system

The system developed for LFS is an extension of mechanisms already present.

1. Status information about all respondents is stored in a separate Blaise-database: status.bdb.
2. Io_idnr for all household members are included for all respondents. This is used to read and write status information to status.bdb.
3. A procedure runs OnDialBegin which reads status information for the household members.
4. Status information about the household members is presented in the dial menu, in addition to age and telephone numbers.
5. The same status information is also presented at the beginning and end of the form. The interviewer can select which household member to open next at the end of the form. An option to let the CATI-scheduler select a form is also available.
6. A procedure running OnDialEnd calls an external Manipula setup to write status information (skriv_status2) about the current respondent to status.bdb, in addition to an Oracle table used by the Sivadm application.
7. Depending on the choice made by the interviewer at the end of the form, the Dial menu of a selected household member or a form selected by the CATI scheduler appears.

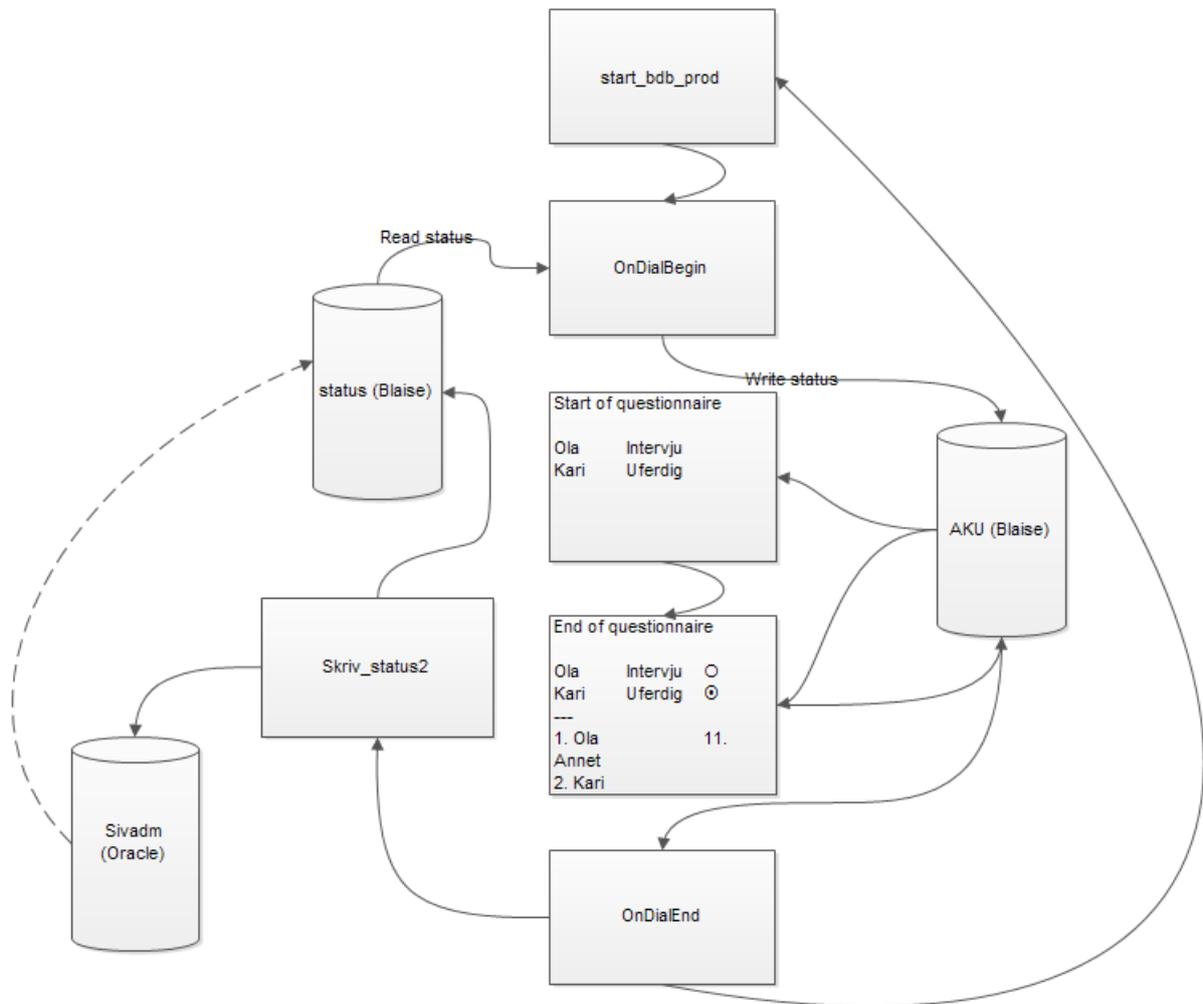


Figure 1: Overview of the system

Prefilled case information and status database

Prefilled case information, including io_idnr, name, age, gender, etc. of every household member, is included in every form. This is used to read status information for the household members from the status-database (status.bdb).

This is the datamodel for the status-database:

```

datamodel status
  primary
    io_idnr
  fields
    io_idnr : integer[8]
    status_case : string[2], empty
    intervju_status : string[2], empty
    merke : string[1], empty
    telefon1 : string[9], dontknow ,empty
    telefon2 : string[9], dontknow ,empty
    telefon3 : string[9], dontknow ,empty
endmodel

```

The "status_case" field can have the following meanings:

00: interview

01: non-eligible respondent

02: non-response

The telephone fields will be used to display phone numbers of the household members in the Dial menu. This is currently being tested, and is not yet a part of the production system.

CATI-Specification

In the CATI-specification it is possible to define procedures which should be run before the Dial menu and at the end for a form specified using OnDialBegin and OnDialEnd under “Events”. Code to read and write to the status-database is included in these procedures.

Procedures (registrerkontakt2)

OnDialBegin

The relevant code loops through an array containing io_idnr for all household members in the current form, and calls another procedure to retrieve the interview status of the household members from the status database.

OnDialEnd

The procedure used OnDialEnd is responsible for calling an external manipula setup (skriv_status2), in order to write statuses to Sivadm. The procedure checks if the survey in question is the LFS and passes a parameter to skriv_status2 to tell it to write status information to the status-database described earlier.

Dial menu

The interviewer is presented with information about name, age, status and telephone numbers of all household members.

Ring! [X]

Ringemeny

Skjema
 Avtale
 Endre Kontaktopplysninger
 Opptatt

Ikke svar
 Telefonsvarer
 Send til sporing

OK

Avbryt

Hjelp

Spørsmåls data:

| | |
|-----------|---|
| IO_nummer | 70901 |
| VisTlf1 | [REDACTED] |
| VisTlf2 | |
| VisTlf3 | |
| F_nummer | [REDACTED] |
| Navn_IO | [REDACTED], Alder: 44, Kjønn: Kvinne |
| Kommune | [REDACTED] |
| Adressa | |
| p_Adressa | [REDACTED] |
| MedHvem | |
| Avtmeld | |
| Ringtlf | |
| tfforsok | |
| SpesRing | |
| hinfo[1] | [REDACTED], Alder: 48, Status: Uferdig, Tlf: [REDACTED] |
| hinfo[2] | [REDACTED], Alder: 18, Status: Uferdig, Tlf: [REDACTED] |
| hinfo[3] | |
| hinfo[4] | |
| hinfo[5] | |
| hinfo[6] | |
| hinfo[7] | |
| hinfo[8] | |
| hinfo[9] | |
| Resu1 | Int |
| Resu2 | Int |
| Resu3 | Int |
| Resu4 | Int |
| Resu5 | Int |
| Resu6 | Int |
| Resu7 | |
| PeriodeNr | 4 |

Mer Info

Ring

Rediger...

Figure 2: Dial menu

Beginning of form

The form starts with a presentation of name, age and status of household members.

The screenshot shows a software window titled 'aku2012k1 | Endre kontaktinformasjon'. The main content area has a yellow background and displays the following information:

70901 [redacted] tlf 67734491, Alder: 44 år.

Familien består av:

IO-nummer: 70900, Navn: [redacted], Alder: 48, Status: Uferdig
IO-nummer: 70902, Navn: [redacted], Alder: 18, Status: Uferdig

Trykk <Enter> for å gå videre med intervju av IO

Below the main area is a list of variables:

| | | |
|------------|--------------------------|----------|
| fhoversikt | <input type="checkbox"/> | direkInt |
| Innled | <input type="checkbox"/> | HvemGav |
| Frafgr | | FlgInnl |
| Dvifgr | | flGng2 |
| Avggr | | flGng3 |
| FrafSpes | <input type="text"/> | |
| Starttid | 10:34 | |
| Samtykke1 | <input type="checkbox"/> | |
| KommNavn | <input type="text"/> | |
| NyKomm | | |

The bottom status bar shows: Gammel 1/33 Endret Med feil Naviger aku2012k1 Intervjuing

Figure 3: Beginning of form

End of form, and selection of next case.

At the end of the form, name, age and status are again presented for the interviewer, and in addition there is an option to start interview with any of the household members without a current status, or alternatively start an arbitrary respondent selected by the CATI-scheduler.

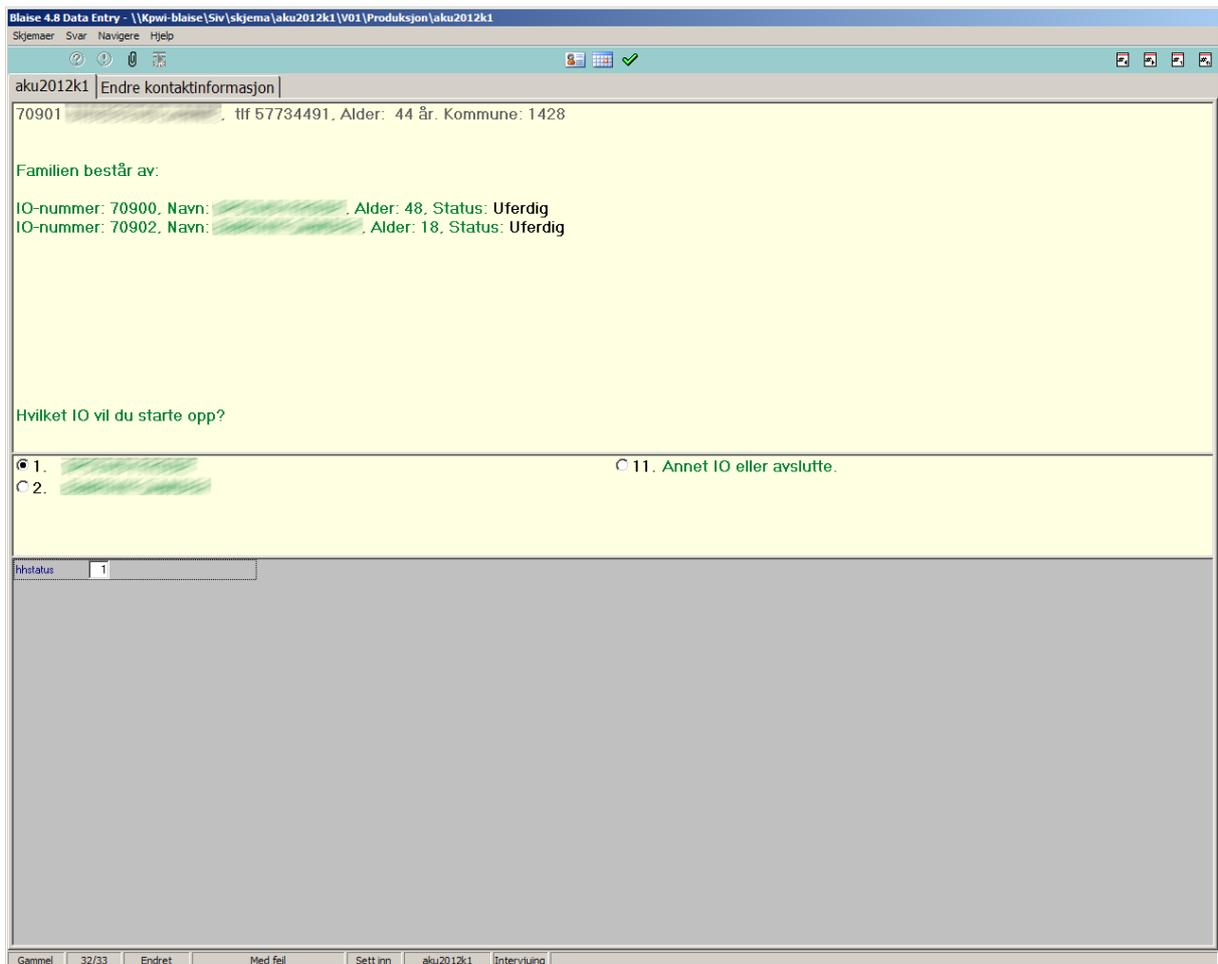


Figure 4: End of form

From pilot to production

Two pilots were planned before LFS was put into a production environment. The first was run for one reference week in the 3rd quarter 2011. One important bug was identified and fixed and the pilot also helped to establish new routines for the call centre interviewers.

The second pilot was run in the 4th quarter to ensure that the routines for preparing 2-8 wave respondents worked as intended, since some changes to the SAS-programs used for sample preparations were needed due of the transition from CAI to SIV.

The LFS was transferred to production the 4th quarter 2011, with no significant technical problems identified.

Production lifecycle

A reference week starts first on the CATI-D system, and runs there for about one week. All non-contact non-response cases are then transferred to the offline CATI-L system for individual follow up by local interviewers. Other types of non-response are handled continually.

Future developments and problem areas

The system will continually be under development, and will take advantage of improvements made specifically for the LFS, but also general improvement to SIV. This involves development of new features in both the Blaise and Sivadm part of SIV.

Improvements of the CATI-system

The interviewers have asked for more information about the household to be presented in the Dial menu. Most important is the inclusion of telephone numbers for all household members. This feature is currently being tested.

Currently it is not possible to open a Dial screen for another household member without actually completing a form or making an appointment. A future improvement will be to open a form for any household member (more) directly from the dial menu.

Other possible improvement includes appointments for the entire household, and also some kind of locking of the forms of the other household members when an interview with a household member has started, to prevent the Blaise CATI scheduler to deliver the cases belonging to the household to other interviewers. This last problem has to a certain degree been eased by sorting the daybatch in a way that minimizes the probability of this occurring.

Online CATI-L

Today we are using the offline system provided by SIV for follow up (CATI-L). This makes it very difficult to monitor progress for cases that are sent to the offline system. A future improvement to SIV, allowing online list based CATI interviewing (CATI-LD), can be used to great advantage to the LFS. Using this system, the local interviewers will work on a list of cases within the web based Sivadm application. This will allow real time monitoring of progress, since the all interviewers will work using the same central Blaise-database, and also ease movement of cases between CATI-D and CATI-LD. An option for the interviewer to move cases to the offline system is also planned.

CAWI

A probable future extension to the LFS will be to integrate a CAWI solution, but this is a project in a very early planning stage.

Conclusion

The transition of the LFS from the previous case management system, CAI, to SIV has in most respects gone as planned. The system for sequential interviewing of household members within the Blaise CATI frameworks has also worked well, although there is potential for improvement. Especially when it comes to the handling of appointments, information presented to the interviewers and more flexibility in how and when a CATI interviewer can move between the forms of household members.

Literature

Gravem, Dag. F. *Towards an integrated mixed-mode case management system for the Norwegian LFS*. Paper presented at the Workshop on Labour Force Survey Methodology, Wiesbaden 12-13 May 2011.