User Experience of the Blaise 5.12 Version Upgrade at Statistics Finland

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This article discusses Statistics Finland's transition to the Blaise 5.12 version. The transition had to consider the requirements of Statistics Finland's current production environment, the measures resulting from upgrading the surveys and standard layout (resource database), and the timing of the version updates of the survey installation packages. The timing of the update was perceived as a challenge, especially updating the work environment of the interviewers during the specified short period to avoid long interruptions in the interview work.

In addition, the resource database was reconfigured to work with the new rendering options, such as CSS (Cascading Style Sheets) grids to ensure a good user experience for both respondents and interviewers. In the update of the resource database, the key changes in relation to the standard resource database of the new Blaise 5.12 version were compared, and the necessary updates to the resource database of Statistics Finland were carried out.

In connection with the update, it was also researched whether to switch to using the Blaise DEP (Data Entry Program) application in CAPI (Computer-Assisted Personal Interviewing) mode and to test the Blaise 5 CATI (Computer-Assisted Telephone Interviewing) system. The goal was to ensure the operation of the user interface and that the survey package generated without pages in the DEP application. Regarding the CATI system, the transition from Blaise 4 to Blaise 5 was studied using a test survey. Based on the results, Statistics Finland's first Blaise 5 CATI production environment concept was created.

1. Background

At Statistics Finland, Blaise 5 has been used since 2017 as the main household data collection tool. The overall management of the mixed-mode data collection is implemented with the Ruuti system, produced by Statistics Finland itself. Together, these systems form Statistics Finland's main data collection system for household surveys. In business surveys, the in-house production system XCola is mainly used.

1.1 Ruuti System Characteristics

Ruuti is a tool for the daily operation of mixed-mode data collections. Ruuti understands data collection; collection rounds and cycles; two possible collection modes (online answering and interviewing), used together or separately; interviewers and their administration in relation to the interview mode; case/target; persons; and the persons' contact information, addresses, telephone numbers, and emails.

Case and related persons can be taken to Ruuti not only before the start of the collection round/period, but also during it. The characteristics of the case or target also include any prefilled information intended for the survey. When cases and persons are already in Ruuti, their information can be updated if needed.

Ruuti has features such as naming authors for collection periods, distributing items to authors, recording contacts and comments during collection, and producing mass communication (letter/text message/email) mailing lists.

Figure 1. Ruuti System Overview
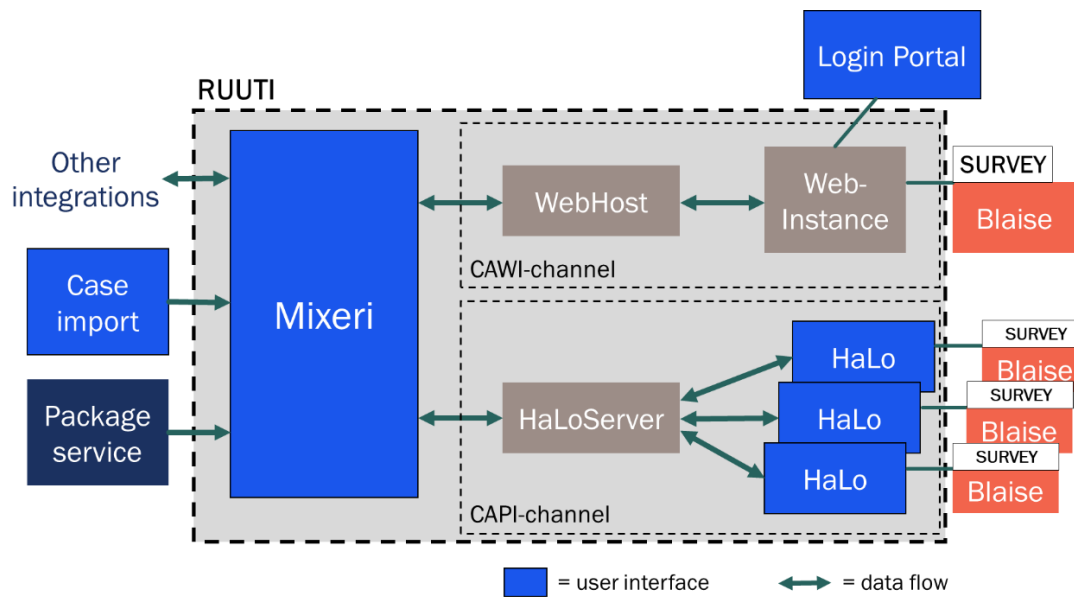
Ruuti automatically deduces the case's status based on what has been done to the case during the collection period up to that point.

Ruuti distributes all generated information automatically within the system wherever information is needed.

Ruuti can ask the survey installation package service for the survey installation package versions available for each data collection. After the user has selected the installation package, Ruuti distributes the Blaise installation package to the necessary places, uses Blaise to install the survey ready for use, and commands Blaise to open the survey for answering. After the survey closes, Ruuti receives the information generated in the response.

Ruuti talks with the Login Portal to enable web responders to access the survey.

Within the limits of user rights, Ruuti offers the survey data output via application programming interface as it is, regardless of the content.

Ruuti is not responsible for the content and functionality of the forms, it is not a long-term storage place for collected data or a tool for planning data collection, nor is it a tool for developing data collection.

1.2   Blaise Version Upgrade Challenges

A part of the characteristics of Ruuti is that interviewers have their own case management application called HaLo. HaLo provides case management tools for interviewers and handles the Blaise survey package management. It also provides offline interview capability and handles the data from all the installed surveys.

In addition to the HaLo installation, the interviewers currently have a Blaise server installation installed on their workstations. This is because Blaise DEP has not been used in Statistics Finland, and the surveys have been opened in interviewer mode (CAPI) with a local web browser. Such a solution was decided on in 2017 because the user interface built for interviewers worked in the

browser without problems with the previous version of Blaise, while the dimensions of the page base and some of the controls did not work in the user interface while opened using DEP.

Because of this choice, upgrading Blaise for the interviewers has required not only the HaLo application update, but also a new Blaise installation, instead of just sending a new DEP solution in the distribution. When installing a new Blaise version, it has been necessary to carefully consider whether the new version is backward compatible with the installation packages built for the previous version. As the production is running all the time, it is either necessary to schedule the updates to the turning points of the key data collection rounds around the turn of the year, or to carry out the updates during an unwanted production break.

Due to the heavy update process of introducing new Blaise versions into use in Statistics Finland, the update interval is once or twice a year and mostly for bug fix upgrades, if possible. Also, new Blaise versions cannot be put into production flexibly and with short notice. As a result, the introduction of the new Blaise version involves long-term testing and waiting until the biggest bugs from the latest released versions have already been ironed out and the operation is relatively reliable.

2.   Blaise 5.12 Upgrade

In Statistics Finland, the current production version in use is Blaise 5.8. In the selection of the production version, testing results have typically been used, and the opinion of Statistics Netherlands (CBS) has been sought on the production suitability of the version. A couple of previous production versions have been selected with these criteria. Major version upgrades are carried out at Statistics Finland every couple of years. Smaller updates are pushed to production more often if necessary. In this case, a "major version update" means an increase in the middle version number.

2.1   Testing Process, Briefly

Normally, a new Blaise version is initially tested with an in-house test survey, which contains all the most common answer types and layout definitions used in Statistics Finland. In this test phase, we will test that the survey works in both modes (CAWI and CAPI); that there are no problems with generating the layout in browsers or DEP; and that all the controls used in user interface, custom solutions, and different screen dimensions work within the layout. It is important to make sure that general usability is good and accessibility functions are working as they should. Also, a few common mobile devices are used in tests.

After a successful test in the first phase, the second phase consists of a few of our most complex surveys being upgraded with the new Blaise version and tested for bugs, especially if some unique or complex solutions have been used in a survey, such as household structure or custom features, which are not found in our test survey.

In the third phase, we create a Ruuti system compatible survey installation package and test the survey in the Ruuti test environment. Before this test is possible, we usually must upgrade Ruuti API libraries with the new ones that come with the new Blaise version package. After these tests, the new Blaise version is fit for production use in Statistics Finland.

2.2   Upgrading Resource Database

Before the testing process, it was assumed that a lot of work needs to be done with the resource database. The biggest fear was that the new rendering options, such as CSS, could cause changes in

the customized resource database and even force some kind of massive refactoring, or that there would be some other layout problems.

In this case, the biggest issues were with the CAPI mode layout. It is constructed in a way that the interviewer may answer an enumeration type of question by choosing an alternative or addressing an option number in the field. See Figure 2.

Figure 2. No Enumeration Buttons Visible While Using Browser without CSS Grids Options
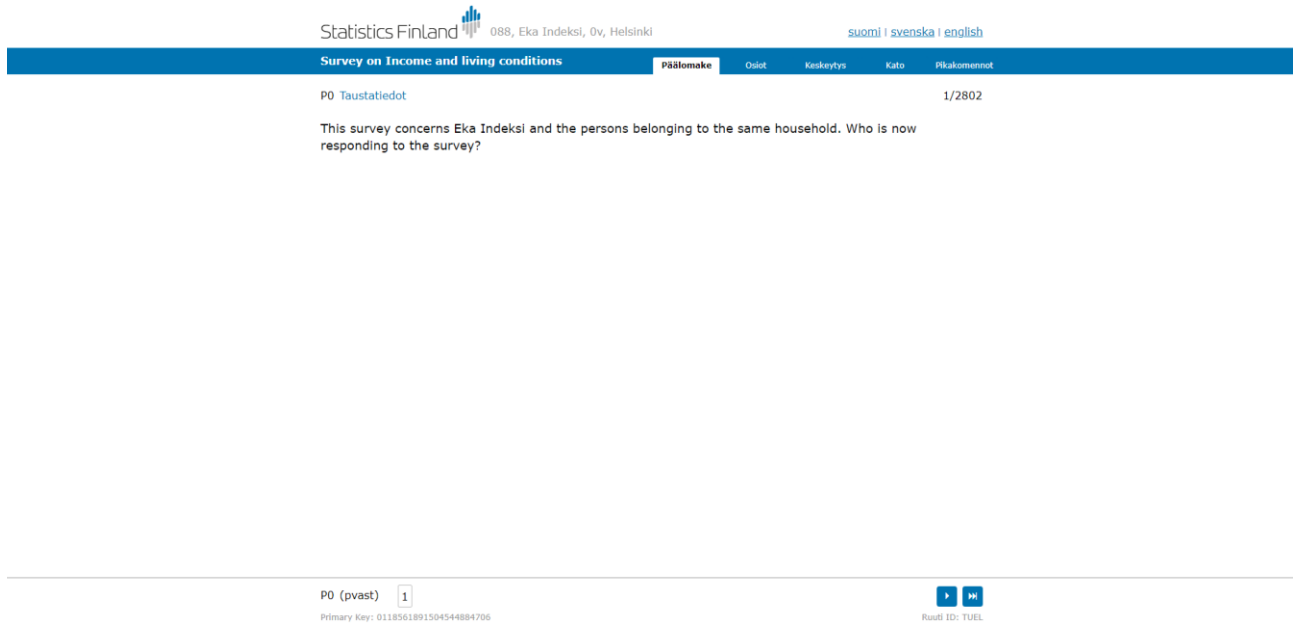
This error was related to the new rendering options. Viewing the survey in a browser without using the "Use CSS grids instead of size tree" option in the data entry settings caused the enumeration buttons to vanish totally from the user interface. With these settings in DEP, everything worked as it was supposed to. See Figure 3.

Figure 3. No CSS Grids in Use Did Not Affect DEP
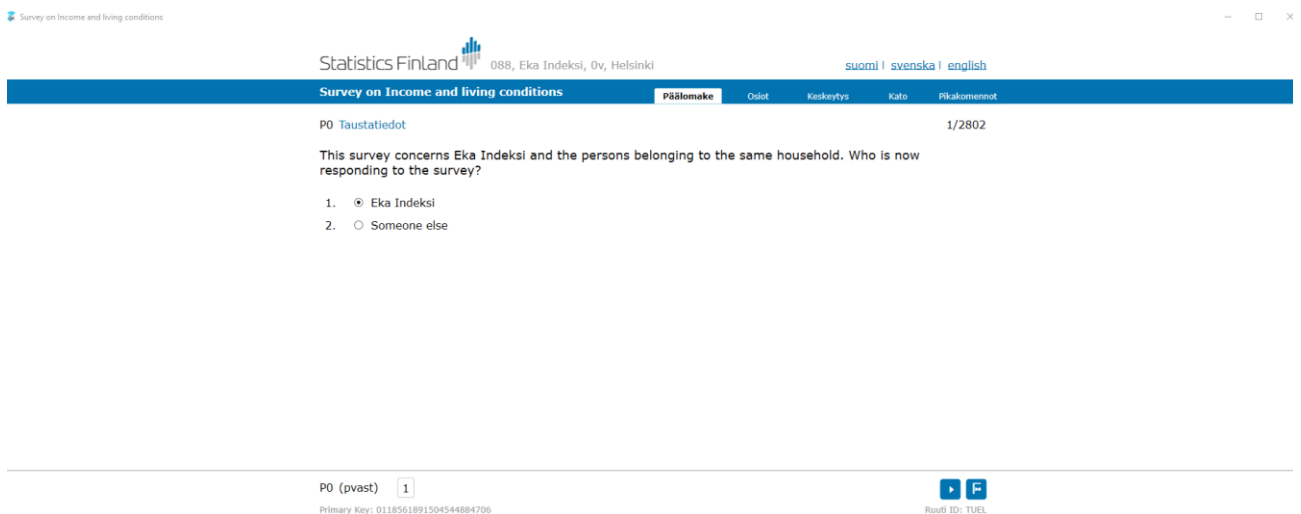
When the CSS grids option was checked, you could see all the enumeration buttons as they should be in the user interface when using a browser to view the survey.

In general, most of the fears did not come true, and the update of the resource database was successful without major complications.

2.3   Testing DEP

After the successful resource database update, it was necessary to study how DEP would work with our updated resource database and layout settings. It was decided in the spring that if DEP would work, it would replace the current way of work to ease the installation burden and to help with running multiple versions of Blaise installations on an interviewer's workstation at the same time by running surveys in ThickClient mode.

The testing itself was carried out by using one of our heaviest surveys, "Survey on Income and Living Conditions." In the test, it was necessary to successfully set up a standalone ThickClient survey and run the survey package without generated pages. It was necessary to have evidence that there is no risk the survey would not work in practice. It is not efficient to distribute installation packages with static pages when their size could be gigabytes. In the Ruuti system, there are multiple survey installation packages per survey per year assigned in use.

In the actual testing, the results were promising. There were no problems with running the survey, and the quick conclusion was that it will be implemented into production in autumn 2023.

These changes will affect the Ruuti system and the HaLo application, also.

3.   CATI

Blaise 4 is still used in two enterprise data collections in Statistics Finland. Also, both are conducted in CATI mode, which we are not currently using in any other survey or in Ruuti data collections. A part of the Blaise 5.12 update plan was to create a clear picture of the Blaise 5 CATI system and find a solution for our old Blaise 4 CATI survey model. The problems with the Transport Layer Security protocol 1.2 compatibility issue with Blaise 4 was considered one of the reasons to get rid of Blaise 4. The first plan was to install and test Blaise's own sample survey to get used to the phases of setting up a simple CATI survey in Blaise 5.12. The selected sample was a traditional CATI survey called "Health Survey." The survey was selected because it is simple and reflects the need for use well.

In the installation phase, a provided installation readme-documentation was followed to the letter. These steps included how to build and install the multipackage, create a daybatch, add some users, and run the survey.

While running the survey as an interviewer role user, there was a notification message in the Blaise survey window after login that stated, "Cannot select case because no valid daybatch file was found for 12.7.2023." Despite trying to redo all the steps, it was a dead end finding a solution without help. So, this message escalated into a couple of months of communication with CBS. With their help, the error was found in the end by studying Windows application logs and using a special installation package that CBS provided for the troubleshooting.

After receiving a bug fix package from CBS for test usage, the CATI system could finally be tested as it was meant to be originally.

4.   Conclusions and Next Steps

During October and November, the Blaise 5.12 update will be performed. The update requires upgrading active production surveys with the new Blaise version and packaging the Blaise ThickClient solution for distribution to interviewers. In addition, the Ruuti system must be updated as needed, so that the changed way of using the Blaise system does not cause problems in the operation between the systems. In the first distribution package, active production survey installation packages are also delivered to the interviewers. In the future, these installation packages will be distributed normally via the Ruuti system distribution. The amount of distributed survey installation packages in November is around 30 pieces.

At the time this paper was written, the next phase for CATI testing was to introduce and study the new Blaise 5 CATI system with a representative from the interviewer work organizing role. This step will provide specifications and create the conditions for the CATI Blaise 4 to Blaise 5 upgrade.

The next step concerning the CATI update is to create the first actual Blaise 5 CATI survey version from one of our Blaise 4 business surveys during the early weeks of October. In this usage case is the decision that the Blaise 5 CATI will be set up on its own dedicated server environment and interviewers will use a browser to log in to the system. Hopefully, we will have our AD users successfully synchronized to a server manager before going into production.

The experience of upgrading Blaise 5 versions to the next version has improved over the past six years. In the past, the version updates always felt like a big effort from the whole organization, and it seemed that there was always some troublesome bug in every Blaise version. Over the past few years, the experience has greatly improved, and the incidence of compatibility issues has decreased. In addition, the service desk model CBS has used for a few years now has been very customer friendly. The overall experience of handling cases with CBS has grown better and faster.

In the original abstract, there was a mention of studying Blaise 5.12 paradata viewer and testing tools as a part of this paper, but due to time constraints, these subjects are not included. If possible, these subjects will be referred to in the actual presentation in IBUC 2023.