Our experience in producing the CAWI questionnaire for the survey "Statistical Report on the Careers of Doctorate Holders (CDH)"

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1. Introduction

Due to the enforced cost reduction and the need to improve the efficiency, the Statistical Office of the Republic of Slovenia decided to start in 2013 a project with CAWI mode for the survey "Statistical Report on the Careers of Doctorate Holders (CDH)". Until now, the CDH survey has been carried out only through CATI and paper questionnaires. It was necessary to specify how the web questionnaire will look like, how it will be accessed, will it have to be adapted for online use issues, combining its data with data from the CATI questionnaire, etc. In short, the project which we have undertaken, will result in the fact that we will ultimately achieve a standard of manufacture and design of future CAWI and Mixed-mode surveys.

2. Objectives of the project

The objectives of the project were as follows:

- To create a web domain for accessing the CDH survey,
- The CDH survey must be accessible only with a username and password and it must be behind a firewall,
- To create the questionnaire that will be suitable to meet web demands,
- To preserve all properties of the existing CATI questionnaire (introducing »Mixed-Mode«),
- To achieve the standard for the design of future online surveys,
- To record all the problems that we will encounter during development and solve them.

3. Our current CATI questionnaire for the CDH survey

Our current CATI questionnaire consists of the following blocks that gather the information on doctorate holders:

- Block bTel with preliminary questions for determining whether the selected person is appropriate for the survey,
- Block BNonResponse for storing information about the reasons, why a person did not wish to participate in the survey,
- TAppointment table for storing information to be seen by the interviewer on the call screen,
- Block A: PRELIMINARY QUESTIONS - determining the appropriateness of the selected person to be surveyed,
- Block B: Training to achieve a doctorate,
- Block C: Primary employment or Work as of 31 December 2012,
- Block D: Additional employment or Work as of 31 December 2012,
- Block E: Satisfaction with primary employment or primary work, and knowledge, properties and behaviour important for primary employment,
- Block F: Previous employment,
- Block G: International Mobility,
- Block J: Planned migration out of Slovenia, and
- Block K: Experiences related to career.

4. Customizing the questionnaire for CAWI

The CATI questionnaire has a standard layout, but for online surveys it is not too attractive and functional (Figure 1). Furthermore, its blocks with questions also contain help texts in green, intended only for CATI interviewers.

Figure 1: Screen capture of the CATI questionnaire for the CDH survey

Therefore, we have adapted Mode Library for the CAWI questionnaire (Figure 2).
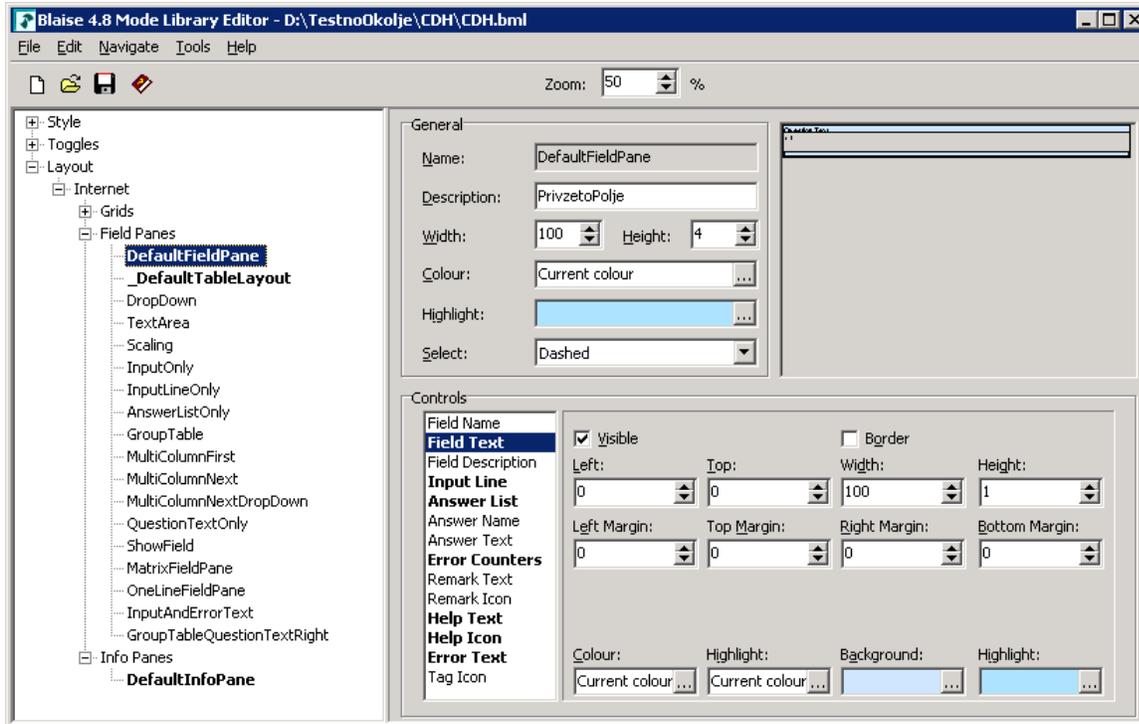
Figure 2: Property settings for DefaultFieldPane

In Blaise Menu Editor for the website, we have made two panels: header for the top and navigation for navigating through the questionnaire at the bottom. The website was designed in a way that the header is always visible on top with the logo of the Statistical Office on the left hand side and the title of the questionnaire on the right hand side, next to the logo. The logo of the Statistical Office is set as a flat button. Clicking on the logo opens the official homepage of the Statistical Office of the Republic of Slovenia (Figure 3). The navigation panel with Forward, Back, Exit and Save buttons was placed at the bottom of the webpage. Background for both panels was set to the colour that was already used in the Mode Library.
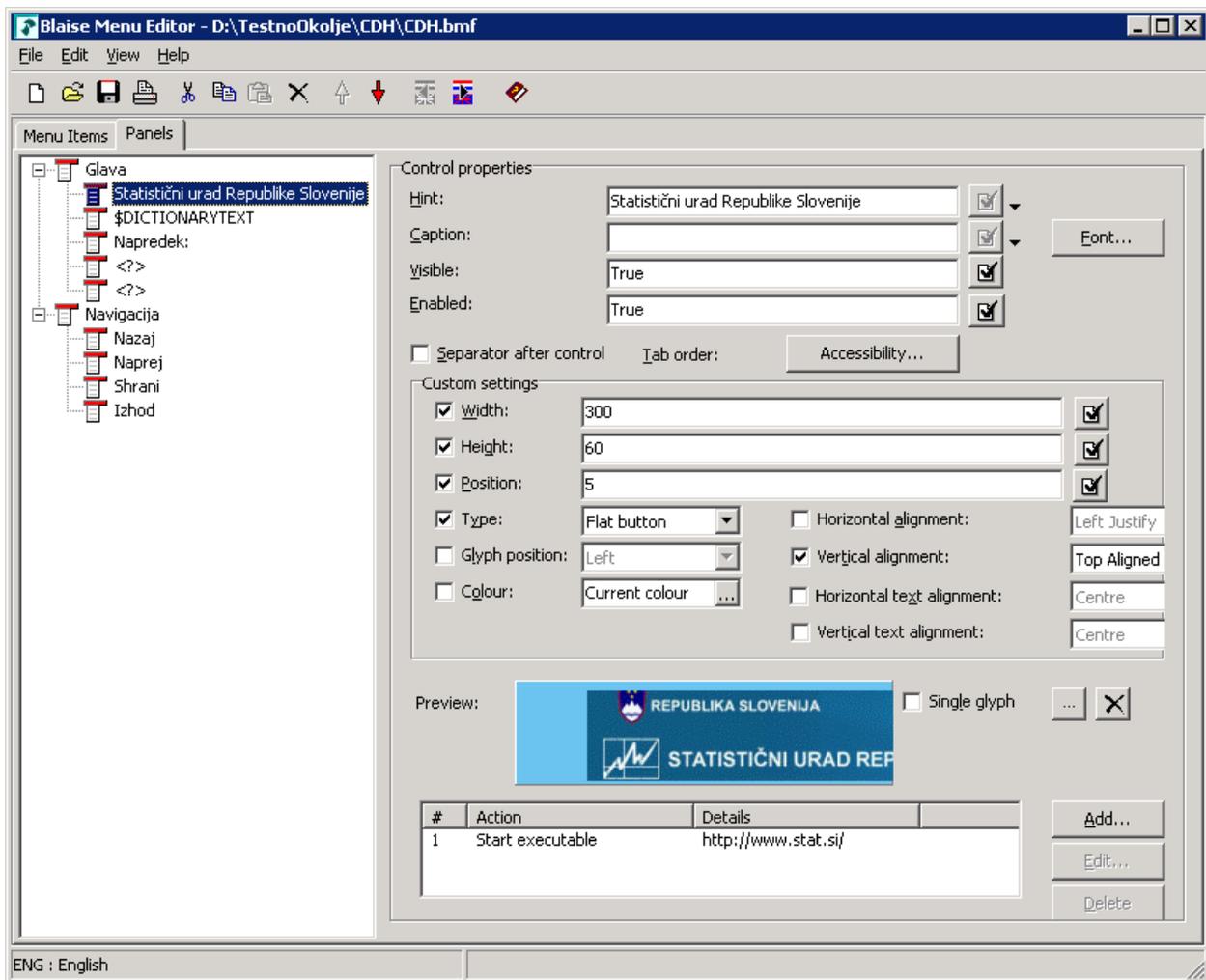
Figure3: Panels for the CAWI questionnaire

Our wish was that the questionnaire would be used in the Mixed-mode. The next goal was that the content of the questionnaire is identical regardless of the mode in which it is used. The problem was, that the display of the contents in CATI or CAWI was completely different:

- Very rarely at CATI was it necessary to use the command NEWPAGE, because the interviewer promptly reads to the respondent a question, fills in the answer and then moves to the next question. In the CAWI questionnaire, questions with fields for entering answers are optimally shown and listed on pages (in blocks with questions the command NEWPAGE is often used). It was preferred that the need for the use of the vertical slider is reduced to the minimum.
- To easier distinguish between the question text and the answer text, the questions in CAWI are shown in bold text without interviewing instructions, which were displayed in green. If such texts were present in the CATI questionnaire, we changed them into the texts for helping the respondent. These texts were presented in italics. We did not want to show those texts as hints.

We had to decide whether we will ask ourselves in each block, at each question, in what mode we currently are, or we will ask ourselves about that only in our Datamodel and then call for blocks with modified questions for CATI or CAWI. We opted for the second option. We have stored a block with questions for CATI in the INC file, which we have named BlokA_CATI.INC, etc. The same block for the CAWI questionnaire was stored in the INC file without an extension _CATI (e.g. BlokA.INC). Questions in these files are modified in the way, that they are suitable for appearance in the CAWI questionnaire. For the switching between the modes, we have used a conditional symbol

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named CATI_Mode (Figure 4), defined under Project | Options…. It behaves as being defined with $DEFINE directive.

```
{--------------------------------------------------------------------------------------
 V anketi CDH - CATI in CAWI mode je vključen naslednji sklop (skupen obema):
 --------------------------------------------------------------------------------------}
INCLUDE "bPred.inc" {Blok bPred}
{$IFDEF CATI_Mode}
    {--------------------------------------------------------------------------------------
     V anketo CDH - CATI mode so vključeni naslednji sklopi:
     --------------------------------------------------------------------------------------}
    INCLUDE "bTel.inc" {Blok bTel}
    INCLUDE "BNonResponse.inc" {Blok BNonResponse}
    INCLUDE "TAppointment.inc" {Tabela TAppointment}
    INCLUDE "BlokA_CATI.inc" {Sklop A: UVODNA VPRAŠANJA - ugotavljanje ustreznosti izbrane osebe za anketiranje}
    INCLUDE "BlokB_CATI.inc" {Sklop B: Izobraževanje za dosego doktorata}
    INCLUDE "BlokC_CATI.inc" {Sklop C: Osnovna zaposlitev oz. delo na dan 31.12.2012}
    INCLUDE "BlokD_CATI.inc" {Sklop D: DOdatna zaposlitev oz. delo na dan 31.12.2012}
    INCLUDE "BlokE_CATI.inc" {Sklop E: Zadovoljstvo z osnovno zaposlitvijo oz. osnovnim delom in znanja, lastnosti
    INCLUDE "BlokF_CATI.inc" {Sklop F: Prejšnja oz. predhodna zaposlitev}
    INCLUDE "BlokG_CATI.inc" {Sklop G: Mednarodna mobilnost}
    INCLUDE "BlokJ_CATI.inc" {Sklop J: Načrtovana selitev iz Slovenije}
    INCLUDE "BlokK_CATI.inc" {Sklop K: Izkušnje, povezane s kariero}
{$ELSE}
    {--------------------------------------------------------------------------------------
     V anketo CDH - CAWI mode so vključeni naslednji sklopi, prilagojeni za internet:
     --------------------------------------------------------------------------------------}
    INCLUDE "BlokA.inc" {Sklop A: UVODNA VPRAŠANJA - ugotavljanje ustreznosti izbrane osebe za anketiranje}
    INCLUDE "BlokB.inc" {Sklop B: Izobraževanje za dosego doktorata}
    INCLUDE "BlokC.inc" {Sklop C: Osnovna zaposlitev oz. delo na dan 31.12.2012}
    INCLUDE "BlokD.inc" {Sklop D: DOdatna zaposlitev oz. delo na dan 31.12.2012}
    INCLUDE "BlokE.inc" {Sklop E: Zadovoljstvo z osnovno zaposlitvijo oz. osnovnim delom in znanja, lastnosti ter
    INCLUDE "BlokF.inc" {Sklop F: Prejšnja oz. predhodna zaposlitev}
    INCLUDE "BlokG.inc" {Sklop G: Mednarodna mobilnost}
    INCLUDE "BlokJ.inc" {Sklop J: Načrtovana selitev iz Slovenije}
    INCLUDE "BlokK.inc" {Sklop K: Izkušnje, povezane s kariero}
    {--------------------------------------------------------------------------------------}
{$ENDIF}
```

Figure 4: Part of code in Datamodel for switching between CATI and CAWI mode

This way of programming has enabled us to:

- Maintain all the code for CATI intact,
- Arbitrarily change the code and Layout for the CAWI questionnaire,
- Have each block with questions located in its own INC. file,
- Edit a block of questions faster and more transparently,
- Make the code in Datamodel shorter and much more transparent,
- Achieve a Mixed-mode Datamodel,
- Design a nice interface for the online survey (Figure 5).

Figure 5: Example of CAWI questionnaire

5. Security and authentication

We wanted to restrict access to our web survey. So we have decided to use the approach from an example that is shipped with the Blaise system. It is usually located in folder "\Blaise 4.8 Enterprise\Samples\Internet\Interview\Login". With this approach the authentication questions are separated from the questions of our web survey. In our case the respondent is asked for a username and password. Those two are compared with stored usernames and passwords in a Blaise database. If the username password combination is correct, the respondent will automatically be redirected to the desired questionnaire instead of to a receipt page. We will use pre-generated usernames and passwords, stored in separated Blaise database on the Web Server. For the page IntroLogin.asp we have adapted the content and changed the background colour to a shade of blue. We have added a legal notice about providing information as well as contact information for general and technical assistance (Figure 6).
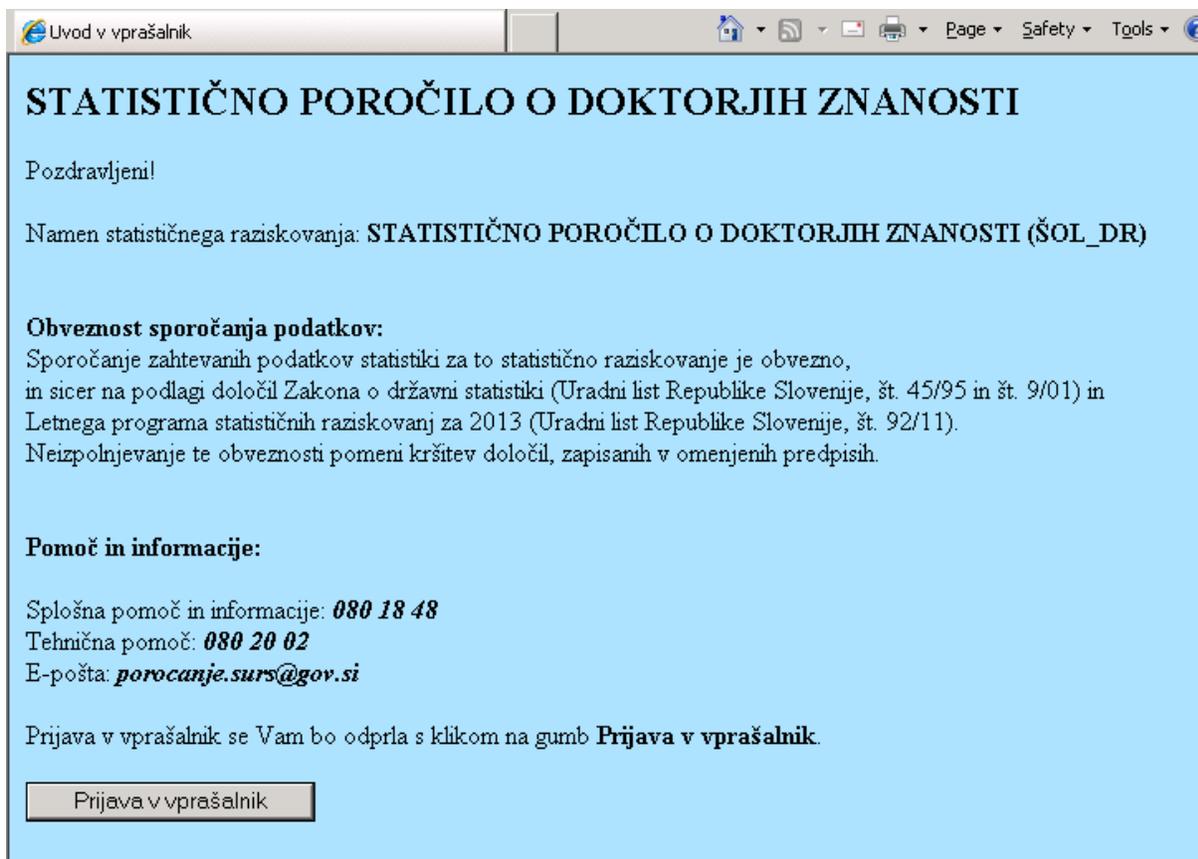
Figure 6: Modified page IntroLogin.asp

For the page GotoSecureInterview.asp we had to add the Slovenian language, translate texts into that language and assign SecureInterviewStartPage variable to CDH.asp. Adding the Slovenian language with translated text was also done for the file InvalidPassword.asp. For making the web survey available to the public, we agreed to publish it on a special subdomain called **cawi.stat.si**. The name of this subdomain was created with an eye to the future web surveys, which will be available there.

6. Translation of key contents into the Slovenian language

To have Slovenian text in other web surveys in the future, we decided to translate key contents in stylesheet files biHTMLWebPage.xsl, biHTMLWebPage.xsl , biHTMLDialog.xsl, in all system pages, error pages, in ReceiptPage.asp, AbortPage.asp and in BiInterviewStarter. First, it was necessary to add the Slovenian language as a new language and then translate English terms. This was quite time consuming. All translated files were saved in a separate folder named PredlogeSURS. This folder will then be copied and used in any future project. In files ReceiptPage.asp and AbortPage.asp we basically did not make many changes. It was necessary to translate the text into the Slovenian language and properly adapt those two files (with UTF-8) for displaying the contents of the questions with special characters that are common in the Central European region.

7. Our focus is the future

At carrying out this survey we intend for the first time to collect information from the online questionnaire (in addition to telephone and postal questionnaire). Unfortunately, a pilot survey will not be implemented this year. Only cognitive testing of CAWI and CATI questionnaires (the latter due to the inclusion of some additional questions in the questionnaire) will be conducted. Because the ongoing survey has a sequential course (CAWI, CATI, PAPI), it is necessary to accurately predict the distribution of "supporting" materials. We have determined

and adapted a set of activities and deadlines (time schedule for the implementation of CDH 2013), and some of the arrangements related to designing and testing the questionnaire and implementing the survey.

Cognitive testing will be carried out first:

- For the online questionnaire (CAWI) and the telephone questionnaire (CATI);
- On 10 male and female doctors (5 on online questionnaire and 5 on telephone questionnaire), that are employed at SURS;
- In the period between 26 June 2013 and 12 July 2013;
- Prior to the testing, a questionnaire for recording the findings will be prepared;
- If after the test no significant and substantive changes to the questionnaire are made, we are planning to include responses of participants in the final data.

Data collection will take place with the combined method in three successive steps:

1. Online survey (conducted from 26 August 2013 to 11 September 2013). Access to the questionnaire will be open until 16 September 2013.
2. Telephone survey (conducted from 18 September 2013 to 30 September 2013 or 2 October 2013 - the deadline is provided for analysis),
3. Postal survey (conducted from 11 October 2013 to 24 October 2013). During this period we will re-open the access to the online questionnaire.

Steps and timeline for conducting the data collection will be adjusted if necessary. This will depend on the number of responses for each mode of data collection.

Dispatching accompanying materials:

- Invitation letters (or e-mails to those for whom we are able to obtain e-mail address) will be sent to respondents together with a password and a notice about the deadline for completing the questionnaire on the same day, 26 August 2013. In the invitation letter that will be sent by post there will be no mention that a notification will also be sent by e-mail, while the e-invitation will state that the invitation letter was sent by post.
- On 04 September 2013 a reminder will be sent about the deadline for completing the questionnaire (for those for whom we were able to obtain e-mail address, they will be sent only by e-mail;- to the rest they will be sent by post). In the reminder it will be mentioned that after this date, if they are not able to complete the online survey, they will be contacted by telephone.
- At the end of the telephone survey we will send to all those who did not respond to the telephone questionnaire or online questionnaire a mail questionnaire (together with invitation letter with a password and a link to the online questionnaire and an envelope with the stamp for sending the questionnaire back to SURS). In the notification letter it will be mentioned that a link to the online questionnaire is reopened and the questionnaire can also be completed online.
- After the last deadline for sending the mail questionnaire back to SURS, we will consider if it will be necessary to send another reminder.

The CDH 2013 survey is a preparatory phase of optimization and modernization of processes for interviewing people and households. The implementation of this survey with online questionnaire represents only a fraction in the mosaic that is necessary for introducing CAWI to SURS. You do need to look at it as one in a number of experiments (tests of individual activities) that have yet to be put into full implementation before implementing CAWI to SURS. We will be invest considerable effort to adapt questionnaires for the online survey.
It has been decided that after the CDH 2013 survey we will produce policies and guidelines for the initiative to carry out the pilot for introducing CAWI to SURS.

8. Conclusion

Many people think that we set ourselves quite a big goal:- i.e. to design a CAWI questionnaire, preferably in a Mixed-mode, with the possibility to switch between CATI and CAWI modes. It was necessary to adjust the entire CATI questionnaire to the new requirements for appearance, functionality and security. It was necessary to set a subdomain to the official domain of our Statistical Office and to secure access to the web survey. It was also necessary to adjust Blaise key contents to the Slovenian language and its peculiarities. The result is that we designed a functional and eye appealing web survey, to which the respondent must sign in with a username and password. During this phase of the project there is still some uncertainty about how to implement some issues. For example, at the moment it is not yet agreed, under what rules completed records will be transferred from the server to the location for collecting data from other sources (which is not determined yet). Also CATI and CAWI do not have exactly the same database structure that would allow us to facilitate easy switching between CATI and CAWI and eliminate the step of adapting the content of one or another in-to a common database. For future surveys it also raises the dilemma of how respondents will be informed about the survey (by mail, by email or by both) and how usernames and passwords will be sent to them.

But we managed to bring the appearance of our CAWI questionnaire (header, navigation, background, appearance of question texts, appearance of help texts and system notifications) one step closer to standardization and the key contents that will be used in future questionnaires. However, there is no progress if there is no remaining challenge also for the future.