Converting the Labour Force Survey to an electronic questionnaire using Blaise 5

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The initial Electronic Data Collection focus for social surveys is the Labour Force Survey, a choice driven by the Labour Force's importance, size, cost, longitudinal design, and opportunities to collaborate with other countries that are also focusing on web data collection research on their LFS.

The aim is to introduce a self-completion web mode to cover part of the sample, thus moving to a mix of three data collection modes: web self-completion, face-to-face interview and telephone interview.

Potential benefits from introducing a web mode include:

- Reduce data collection costs, by decreasing the number of interviews
- Meet respondent expectations i.e. the demand for web / digital services
- Stem falling response rates e.g. by providing flexibility to respondents, who can self-complete the survey at a time convenient to them (within the survey period)
- Drive design improvements across all collection modes
- Reach groups who won't respond via other modes i.e. if specifically targeted via web (although research indicates untargeted web surveys generally achieve similar socio-demographic coverage to existing modes)

The extent to which these benefits can be delivered will be determined during the course of the research. It is unlikely that we can achieve a survey design that delivers all of these benefits i.e. reduce costs, change sample demographics and increase response – each would require a different design. Furthermore, the survey's complexity (operations, survey design, questionnaire length and convolution) plus the high profile nature of its outputs, makes this a significant challenge. This challenge requires major investment and a considered and logical research approach, with a high degree of caution to ensure that the quality of statistical outputs is controlled and managed and that operational stability is maintained.

Modulising

The Labour Force Survey consists of approximately 600 variables which are potentially asked and approximately 300 derived variables. Currently, the average interview time for a wave 1 interview on the LFS is approximately 31 minutes for an individual and 75 minutes for household (30 minutes FtF and 34 minutes TO individual. Previous qualitative and quantitative ONS internet research concluded that 30 minutes is the maximum time respondents would be prepared to spend completing an internet questionnaire - for both individual and household questionnaires. The 2011 LFS internet pilot contained only the key ONS Labour Market Division questions and on average, respondents fully completed the survey in 18 minutes. This poses a problem for loading the full LFS questionnaire online when aiming to comply with the 30 minute recommendation.

As noted above, the LFS as it currently stands is too lengthy to load the full content into one questionnaire online. Modularising the LFS for an online mode entails creating more than one version of an online LFS questionnaire (to be issued in the same interview period to subgroups of the web sample). Each version of the online LFS is referred to as a 'module'. As depicted by Figure 1 below, each module would contain:

- A demographic core (e.g. age, sex, household grid, relationship grid etc)

- A cross topic set of questions, unique to the module, to enable key bivariate analysis (i.e. in the employment module this would comprise of variables required by LMD to run crosstabs on the employment variables)

- Coverage of a main theme, for example 'Employment' or 'Education' and light coverage of other topics, for example 'Illness' as opposed to exclusively covering topics. This would enable analysts to combine the main theme data from the module with the full topic data from the FtF and TO modes. This design also means that the full LFS questionnaire can be loaded online with no need to cut/reduce the number of topics covered in general, i.e. all topics will be asked but not to each respondent - hence modularised approach.
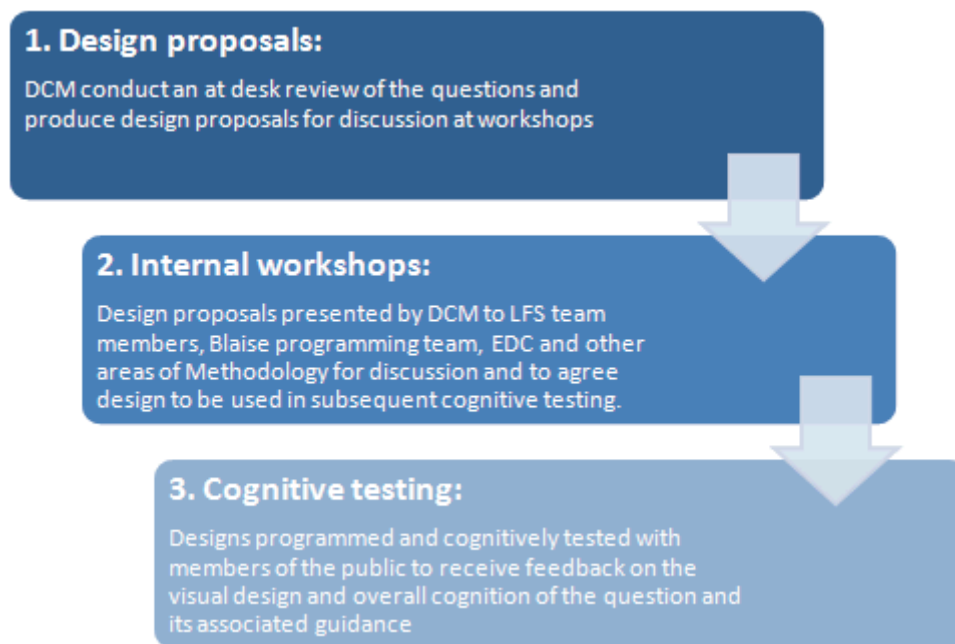
Figure 1. Modularised LFS:
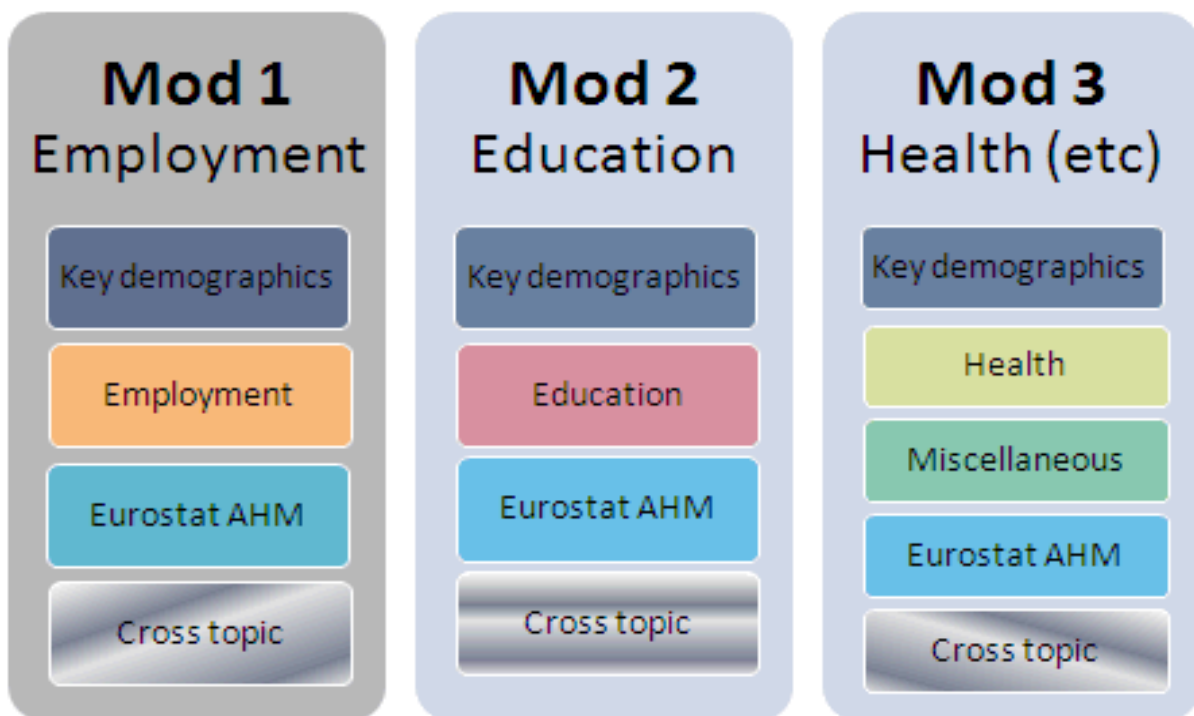
Content for the Alpha pilot wave 1 questionnaire:

The employment module has been selected first for development. Part of this development work includes qualitative research whereby Data Collection Methodology will conduct a questionnaire review of the LFS questionnaire to ensure the questions are suitable for online completion. The questionnaire review comprises of three stages (see Figure 2):

Figure 2. Depiction of the questionnaire review process

1. Design proposals:
DCM conduct an at desk review of the questions and produce design proposals for discussion at workshops

2. Internal workshops:
Design proposals presented by DCM to LFS team members, Blaise programming team, EDC and other areas of Methodology for discussion and to agree design to be used in subsequent cognitive testing.

3. Cognitive testing:
Designs programmed and cognitively tested with members of the public to receive feedback on the visual design and overall cognition of the question and its associated guidance

As outlined above, the LFS contains a high number of variables and the questionnaire review process is lengthy and must be conducted in stages. The employment module will be used in the Alpha pilot (May 2015) however a full questionnaire review of the relevant questions will only have taken place for a limited number of variables. Figures 3 and 4 depict the recommended approach.

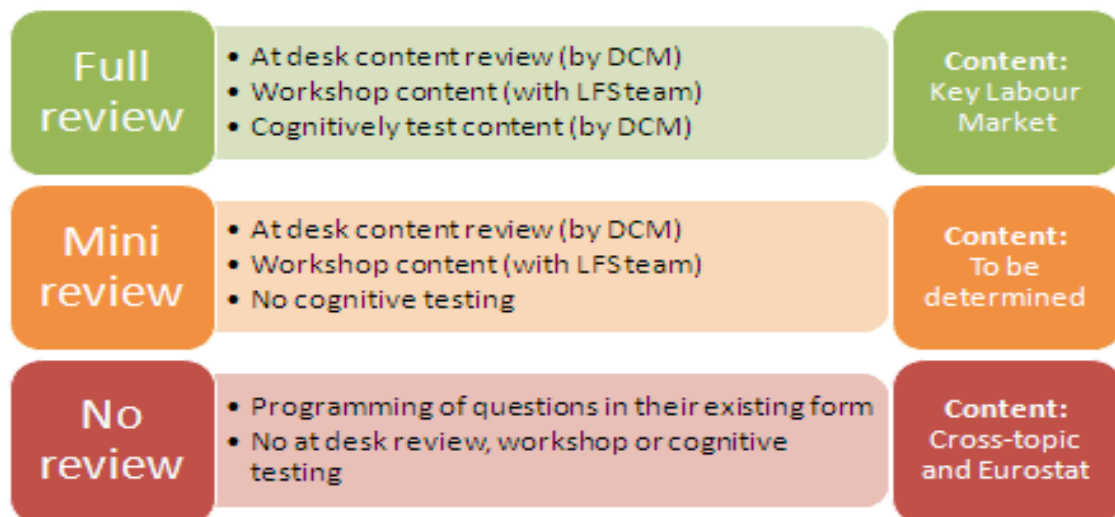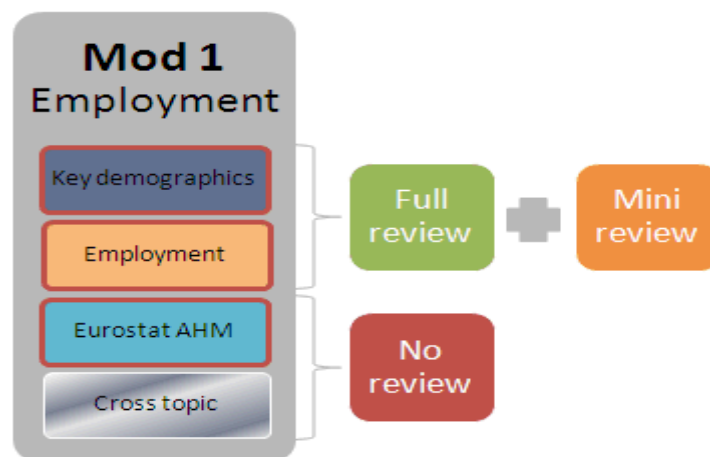Figure 3. Type of review to be conducted

Figure 4. Questionnaire review approach for the Employment module (red border indicates content included in Alpha pilot):

A mixed review approach will be taken for the 'Key demographics' and 'Employment' sections of the questionnaire due to priorities. The 'Eurostat Ad Hoc Module' will not be reviewed for Alpha. The 'Cross topic' section will not be included in the Alpha pilot as the content of this section is yet to be determined; an extensive consultation exercise with clients is required to define the content.

Data Collection Methodology suppliers agreed that it was realistic to fully review approximately 20 variables in the run up to the pilot. Therefore Labour Market Division were consulted and asked to inform priorities and identify the key variables required for their analysis. Table 1 shows the list of prioritised variables.

Table 1. Variable overview

Variable name	Type of variable	Variable description
Typsch12	Question variable	Type of government training scheme the respondent is on
Schm12	Question variable	Asks whether the respondent was on a government training scheme for reference date
Sex	Question variable	Respondent gender
Age	Question variable	Respondent age
Yptjob	Question variable	Asks why they took a part time job rather than a full time job
Cured8	Derived variable	Current education received
Durun	Derived variable	Duration of ILO unemployment
Ftpt	Derived variable	Whether working full or part time
Inecac05	Derived variable	Economic activity (International definition)
Redund	Derived variable	Whether made redundant in last 3 months
Secjmbr	Derived variable	Whether second job/status in second job
Sumhrs	Derived variable	Total actual hours worked in main and second job
Govtor	Derived variable	Government Office Regions

Although Labour Market Division was able to provide a greatly reduced list of variables, the majority of which are derived variables. After further investigation, to include all of the question variables that contribute to the derived variables would mean reviewing a total of 47 variables. It was not possible to review the full list ahead of the Alpha pilot. Labour Market Division were asked to reduce the list further and identified Inecac05 as the most important variable. An analysis was conducted to determine which variables contribute to Inecac05 and to identify potential overlap with the other variables listed. The result of this analysis is as follows, the blue highlights the duplication of the Inecac05 variables in the other key Labour Market Division variables:

Figure 5. Inecac05 composition analysis

	Key Labour Market variables							N/A
	Priority 3	Priority 2	Priority 2	Priority 1	Priority 3	Priority 2	Priority 3	
DV name ▶	cured8	durun	ftpt	inecac05	redund	secjmbr	sumhrs	govtor
Feeder variables ▶	ioutcome	age	ioutcome	ioutcome	ioutcome	ioutcome	ioutcome	UALAD99 (from sample file)
▶	age	wrking	age	age	age	age	age	
▶	wrking	jbaway	wrking	wrking	refwky	wrking	jbaway	
▶	jbaway	ownbus	jbaway	jbaway	leftyr	jbaway	typsch12	
▶	ownbus	relbus	ownbus	ownbus	refwkm	typsch12	acthr2	
▶	relbus	country	relbus	relbus	leftm	ytetjb	totac1	
▶	course	schm12	typsch12	country	everwk	stat2	totac2	
▶	attend	fund12	ytetjb	schm12	redyl13	secjob	illwk	
▶	enroll	typsch12	ftptwk	fund12	redany	y2job	illdays1 - 7	
▶		ytetjb		typsch12	conmpy		everot	
▶		start		ytetjb	consey		actwkdy1 - 7	
▶		look4		start	conmon			
▶		lkyt4		look4	redpaid			
▶		lktimb		lkyt4				
▶		refwky		helpse				
▶		leftyr		statr				
▶		refwkm		nolwm				
▶		leftm		likewk				
▶		lktima		statr				
▶		everwk		ystart				
▶				wait				

Figure 5 illustrates that there is a great deal of duplication across the other variables identified by LMD. Therefore, DCM and EDC agreed the following approach for review:

Priority 1: INECAC05

Priority 2: DURUN
        FTPT
        SECJMBR

Priority 3: CURED8
        REDUND (unlikely - variables not yet reviewed)
        SUMHRS ("   "   "   )

The variables for Inecac05 will be reviewed first, followed by the others listed in order of priority.

Cognitive Interviewing Approach

Principles
- Optimising is key - design to exploit / take advantage of each mode **not** unimode design
- You need to rethink how you redesign questionnaires
- Design for the future not the past (ignore 20, 30, 40 year old questionnaires)
- Been protected by the interviewers by asking poor questionnaires collecting poor data
- Need to reduce our expectations of respondents – this will help with non-response!

Recommended approach
- Embedded experiments – small, regular and often
- Quasi-experimental designs – before and after change analysis
- Don't forget to use your paradata (inform qual and quant work)
- Make use of labs for questionnaire testing, i.e. usability suites
- Conduct qualitative research – advocate mixing qual and quant for best insight and results

Much of our principles have drawn up through experience and in conjunction with an ESSnet (ESS - European Statistical System) Project on Data Collection for Social Surveys using Multi Modes. The ESSnet was initiated by Eurostat in the autumn of 2012 with a running time of two years and the project was shared by a consortium of Statistical Offices in five countries, Netherlands, United Kingdom, Norway, Finland and Germany. The cooperation between partners was very successful and discussion within the consortium helped improve instruments and methods. The final workshop was held on the 4th September 2014 and the papers can be found here:

https://www.destatis.de/EN/AboutUs/Events/ESSnet/Agenda.html

Based on the recommended approach of conducting embedded experiments which are small regular and often ONS has been conducting cognitive interviewing with small groups of respondents, up to 20), on an individual basis since 2011 with more to come. These sessions have focussed on:

- Visual design
- Colour and fonts
- Banners
- Help icons
- Question format / functionality
- Navigation
- Edit checks and validation

Procedure

The interviews consisted of observation of respondents' self-completion of the questionnaire on an ONS laptop (unassisted), interviewers making notes of respondent behaviour including how they dealt with various functions and question types, 'think aloud' comments made and difficulties encountered. This was followed by retrospective probing aided by a topic guide, covering: question comprehension and answer processes (including use of instructions and guidance and validation of answers); editing and validation checks; visual design and functionality; general reactions to the questionnaire and how it related to the respondent communications; and thoughts on being invited subsequently to take part in Wave 1 (hypothetical).

Analysis and Reporting

Interview recordings were then summarised into a framework chart and a thematic content analysis conducted.

For each question or information screen we present screenshots and then findings related to the topics covered together with points for discussion across the project development team. Where

possible recommendations for program changes are made. Overarching topics are reported at the end.

Below are some of the findings in relation to each area referred to previously.

Visual design
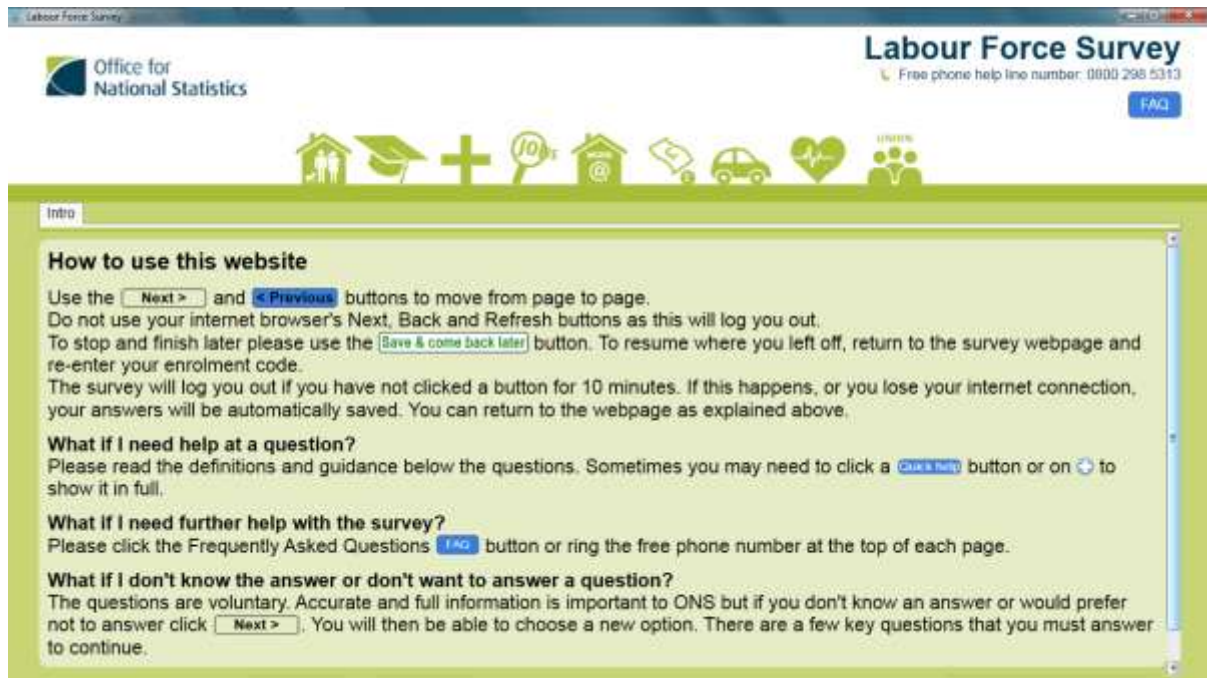
- Keep text to a minimum
- Grids with more than four respondents become cumbersome
- Placement of Help text needs to be thought through, more is not always helpful

Colour and fonts

- Respondents prefer a large font, but they did not struggle to read the questions. The exception to this was where there was a lot of information presented on screen, when respondents tended to lean forward and squint in order to read the text
- Ensure that fonts are consistent throughout, i.e. logo, banner and questions must all be the same
- Respondents liked the use of bold for the question to differentiate it from the answer categories and instructions
- The colour of the background is important it needs to be striking / eye catching / clear

Banners

- Utilise the screen space available for the question and answer text, respondents are frustrated by having to scroll down or read text that was too condensed
- It varied as to whether respondents noticed the 'FAQ' button
- Respondents saw FAQs as a preferable alternative to a helpline, and would use them before using a helpline
- More information on the helpline including opening hours was suggested
- Respondents liked the fact the FAQ and helpline remain present throughout

Help icons

- The presence of the 'i' icon for the instruction caused some confusion as the cursor changed to a hand when hovering over it, suggesting to respondents that they could click on it
- Respondents were not sure whether more information would become available to them were they to click on the button

Question format/functionality

- Respondents generally had no issues with the drop down selections but having radio buttons for questions where there were few options to choose from radio buttons were preferred as this is quicker than a drop down
- Ensure radio buttons are large enough to avoid respondents making keying errors
- Respondents found searching through long lists frustrating

Navigation

- Respondents want an indication of progress – we deliberately displayed none
- Suggestions included:
    - A percentage completion at the bottom of the screen.
    - A moving icon indicating the stage of questionnaire such as the car icon on the DVLA website.
    - An index on the side to show all the questions and enable respondents to go back to previous questions and indicate progress i.e. a progress 'tree' index at the side of the questionnaire.

Edit checks and validation messages

- Respondents considered the design of the error message in terms of colour was effective.

- Make error messages eye catching.
- Ensure the wordings of messages are clear and straightforward
- Respondents preferred having the error messages appear when completing the question rather than at the end of the
- Error messages in grid are confusing to respondents, they cause confusion and scrolling
- Provide explicit information / guidance on what buttons will do
- Respondents require a clear 'confirmation of completion' page

ESSnet conclusions

A web Labour Force Survey is possible, but there are obstacles
Mixed mode is the future – not web only due to bias and poor response rates
Web achieves the same demographics as current modes
There are mode effects but we shouldn't allow them to stop us
Time series **will** be compromised and trends breached, this will be continuous, we need NSI's and Eurostat to help customers understand and to communicate this.

The ESSnet DCSS project has come to an end and many of the countries in the ESS plan to introduce web as part of their mixed-mode designs for social surveys, and based on the findings of the project there seems to be no fundamental reason to advise against this strategy.

In 2014, many of the important challenges identified at the beginning of the project still remain. These include web questionnaire design issues, such as, finding effective uses of instructions to explain complex statistical concepts to subgroups among web respondents or devising optimal navigation for complex household questionnaires. Also many IT-related challenges continue to exist or have become even more relevant, such as finding a strategy to deal with respondents wishing to complete web questionnaires on mobile devices or the development of good software solutions for case management in mixed-mode designs.

Working with Blaise 5

The Office for National Statistics (ONS) has used two other packages to test collecting data on the web, Blaise IS (the internet mode for Blaise 4) and ConfirmIT. Both have shown that it can be done, and screen designs with certain constraints can be achieved. Blaise 5 is a step change in capability when compared to Blaise IS, but it is not without 'features' which some might define as bugs. Given the screen designs we were aiming to achieve (visual appearance being key to respondent take up), and given what we knew about Blaise IS and ConfirmIT and with the software we had available, we decided that we would attempt the Labour Force Survey with Blaise 5.

ONS has an excellent working relationship with the Blaise development team at Statistics Netherlands and I believe both organisations have benefited from the development of the Labour Force Survey in Blaise 5. In some respects we have acted as a testing team for the developers spotting bugs / defects and feeding back the results to them as new releases of Blaise 5 have become available. ONS has benefited by highlighting that certain functionality was missing and this has been included in future releases.

If I had a criticism of the development process it would be that some versions of Blaise 5 have been released with insufficient internal testing by the developers. This has led to a loss of confidence in

the product internally within ONS and given that Blaise 5 lacks a multi-mode capability, something competing products have, is causing questions to be asked about the future of Blaise within ONS.

This is also a question for other NSI's and I was pleased to hear that Statistics Netherlands has committed to Blaise 5 as a strategic solution for their data collection and an increase in the size of the development team. I look forward to hearing how the Blaise team will tackle multi mode case management within Blaise 5 as multi mode is the future.

It is not all gloom and doom however and ONS will be running our first Blaise 5 Pilot in June, our questionnaire has been signed off by the customer and feedback we have received from ESSnet and testing indicates that we have a product that looks modern, inviting and has some clever features.

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