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| http://europa.eu/abc/symbols/emblem/images/europ_flag/jaune.jpg | ***israel flag*** | danskflag | Twinning |

**EU Twinning Project**

**IS12/ENP-APFI/08**

Support to the Israeli Central Bureau of Statistics

in the development of National Accounts, Education Statistics, Survey Methodology, ICBS Website and

Coordination of Israel National Statistical System

Component D

**Survey methodology**

Activity D.3

**Design of web-based survey and questionnaire (CAWI)**

*Implemented by:*

|  |  |  |
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**Jerusalem**

29 April - 1 May 2014

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**List of Abbreviations**

BC Beneficiary Country (Israel)

FAQ Frequently Asked Questions

ICBS The Israeli Central Bureau of Statistics

DST Statistics Denmark

MS EU Member State

NIS New Israeli Shekel

# General comments

The MS Expert mission D.3 was the fifth activity within the Survey Methodology component of the EU/Israel Twinning project on statistics.

The mission was implemented according to the agreed set of Terms of Reference and Agenda which are included in this report as Annex D3.1 and D3.2, respectively.

The MS Experts would like to thank the staff of the Central Bureau of Statistics for their hospitality, fruitful discussions and the information provided during the mission.

The views and observations stated in this report are those of the MS Experts and do not necessarily correspond to the views of EU or Statistics Denmark.

# Assessment

The ICBS conducts a large number of surveys on Israeli enterprises. Only for one smaller survey the data is collected electronically, the remainder of the surveys being conducted either by using paper questionnaires or by telephone interviews.

ICBS and its management are well aware that a switch to electronically reported data from the business sector is enevitable. This could take the form of system-to-system reporting and reporting on web questionnaires through an official portal which fulfills the respondents’ need for data security.

The change from paper questionnaires to digital solutions will not come un-expected for the Israeli enterprises. It will be a rather ressource-intensive process, and the financial gains for the ICBS will only be mid to long term – in the form of a reduced need for manually entering the data in the ICBS and also because of the possibility of having built-in quality checks in the questionnare. It is important to note that well-designed web-questionnaires probably will contribute to the quality of the statistics.

Statistics Denmark's experience is that it, after having failed initially, only eventually managed to change to electronical web-based forms, when the necessary skills were gathered in a special interdisciplinary (cross-cittomg) unit that had the entire top-level support and backing of the involved agencies, including the statistical divisions, the data collection division, and the IT division.

# Results

During the mission both ICBS and Statistics Denmark presented their experience with electronic reporting, and fruitful discussions were taken. The Power Point presentations and other material used during the mission are attached to this report as annexes D3.4-13.

In particular, a very rough draft to the hotel questionnaire of ICBS was drafted, see Annex D3.9.

The discussions during the mission showed that the hotel questionnaire should not be chosen for the pilot, because too many of the respondents would see a system-to-system solution as preferable. Still, the principles applied and the considerations taken when drafting the hotel questionnaire are rather general, and could generally be re-used or transferred to any other web-questionnaire that ICBS would choose for a pilot study.

# Recommendations

Switching from paper to web-questionnaires will be a resource intensive task. It is important to consider as many aspects of the project as possible, as early as possible in the process. The sections below describe some of the most important of these issues.

**Organizational issues**

The project on web-questionnaires for business surveys should be initiated through a top management decision. The management decision must be based on key managers’ joint recommendations. If there are different assessments between the key managers, these assessments shall be presented openly so that the top management can consider them.

Having decided on implementing the project on web-questionnaires, the top management should do the prioritizing and monitor the project’s progress continuously, for example, by progress reports on a monthly basis.

ICBS does not have a single unit which focuses on the overall digital task – such a unit should be established in order for the project to succeed. The units contributing to the cross-cutting project organization must transfer resources to this cross-cutting unit.

A project manager, independent of the “general” organization and referring directly to top-management, should be appointed to be responsible for communication between different teams within the cross-cutting project unit.

Questionnaire designers’ specific qualifications are crucial for the project to succeed. It is not only a normal questionnaire competence, just as it is not only an IT programming task. Therefore, it may be necessary to train the existing staff, and/or to recruit and involve external expertise in electronic interaction.

**Development of the questionnaires**

The development of electronic web-based questionnaires should initially be based on the paper form. At first, the task is to

* create a user-friendly electronic form
* focus on graphics
* focus on the logical structure and the respondent's natural process when filling in the questionnaire.

To begin with focus should be on getting data from the respondents and not being over-critical with respect to the quality. It's preferable to get data on 99 out of 100 variables, rather than everything being rejected because of an error. When the quality of the questionnaire has been ensured and approved, the demands on the quality of the reported can be further strengthened.

Later, the electronic form could be developed based on the specific opportunities in an electronic form, such as inter-active assistance, pre-filling with previous reports and soft editing. It is vital to the success that you do not initially develop a questionnaire that does it all. It's already a big challenge to make a simple electronic form that respondents find it easy to fill in.

Choose a simple (short) survey to start with for the pilot.

The choice of survey should also be based on considerations on the respondents’ IT readiness, and it should not be a too small survey (number of respondents) - it is essential that success appears in the first project. The trend is that more and more respondents prefer electronic user-friendly solutions, which they can control.

Keep it simple to start with, and limit the number of (too many) seemingly attractive functionalities, because there is a real danger of too many checks, sums etc. endangering the user-friendliness of the web-questionnaire.

As an example of this, consider soft and hard validations – soft validations are be preferable, especially in the beginning – because the focus must be on the user-friendliness.

Testing is important at all stages in the process and different organizational levels: design, developer, end-user (enterprises), acceptance, general management level (project manager).

**Other** **considerations regarding the questionnaire – response burden and quality**

It is important with only a few (as possible) clicks (for the end-user) to get the answering process started.

Too much reading distracts and irritates the respondents, so instructions should only focus on the most relevant information directly on the screen. Other information, e.g. definitions etc., should be available upon clicks.

The strongest data, i.e. the very most important data which is often also the data of the highest quality because it is known to the management of the enterprise, should be placed up front. Other parts of the questionnaire could then be tested against these high quality data. Generally, the sequencing of the questionnaire’s questions should as far as possible reflect what the respondents consider most relevant and important.

It is recommended to use simple graphics to support the communication (**bold**, *italic* etc.). As for filling in the questionnaire, vertical scrolling is generally accepted by respondents when lacking a bit of space – while horizontal scrolling should be avoided.

**Phases to create a questionnaire**

In order to establish clarity about the decisions and management, the questionnaire should be “owned” by the cross-cutting project unit during the development of the web-questionnaire,:

* The subject matter unit will give all the input they can
* The project unit will ensure the homogeneity, general quality and rules

In Statistics Denmark, the project unit consisted of 3 designers with expertise in web-questionnaires and interaction with respondents, and 3 IT developers. It is recommended to ICBS to operate with a project unit that is not considerably smaller or larger than a total of 6 staff with the expertise described above.

A part of Statistics Denmark’s project plan for the so-called “Virk project” in order to have all its web-questionnaires produced, tested and eventually put on the web is presented below:

Each member of the team with their own color



What to be done by whom each week going thru the 21 phases

Abbreviation for each questionnaire

Short information’s for each questionnaire

The abbreviations used in the detailed work plan correspond to the table below where each phase is explained in detail:

|  |  |  |  |
| --- | --- | --- | --- |
| **Phase** | **Abbreviation** | **Explanation** | **Who is responsible** |
| 1 | Im0 | The design team have a meeting, where they discuss the questionnaire in generally and the functionality in specific. | Designer |
| 2 | Om1 | Startup meeting with the users, where the design team present their ideas according to design and functionality of the questionnaire. It's possible for the users to give in their comments. | Designer |
| 3 | Oi2  | Typically the developer have 4 levels of developing the questionnaire - developer environment, test environment, preproduction environment and the production environment. In this phase the database are created in the developer and the test environment. | Developer |
| 4 | Duf3  | The designer create the first version of the questionnaire. The version is without functionality behind the buttons etc. | Designer |
| 5 | Dm4 | Design meeting with the users where the first version will be presented and it's possible for users to give their comments. It's the last chance for the users to give additional input | Designer |
| 6 | Ts6 | Due to security reasons every user should be created in the Database before they can use the questionnaire | Developer |
| 7 | Dmf7 | The Developer develop the second version of the questionnaire and this time with functionality behind the buttons etc. | Developer |
| 8 | Ex8 | A Designer but not the designer that have made the 1 version make a test of the questionnaire | Designer |
| 9 | U9 | The Developer correct the errors that was detected in previous phase. | Developer |
| 10 | Ibt10 | The questionnaire is fully tested by an internal user, that have experience in testing It-systems | Designer |
| 11 | U11 | The Developer correct the errors that was detected in previous phase | Developer |
| 12 | Tfp12a | The database are created in the preproduction environment | Developer |
| 13 | Ebt12b | The questionnaire is fully tested by an external user, that typically is an employ in a company that's part of the survey. Typically the questionnaire is tested by 2-3 companies | Designer |
| 14 | Ok13a | To improve the code of the questionnaire another developer than the developer that have made it look thru the entire code to ensure that the quality is ok | Developer |
| 15 | U13b | The Developer correct the errors that was detected in the previous two phases | Developer |
| 16 | Vm14 | The Designer shows the questionnaire to the user so they know what the final result have been | Designer |
| 17 | At15 | The project manager make a accepttest of the questionnaire to ensure that data in the fields of the questionnaire is saved in the correct variable in the database | Project manager |
| 18 | U16a | The Developer correct the errors that was detected in previous phase | Developer |
| 19 | Tfp16b | The database are created in the production environment | Developer |
| 20 | Oks17 | The Designer make the last update of the requirement-document according to the final version of the questionnaire | Designer |
| 21 | Oms18 | Approximately 2-3 weeks after the companies has started to use the questionnaire the designer have a short meeting with the users to hear their experience so far | Designer |

**Further explanation to each phase**

1. Start-up meeting (general planning by the team)
2. The subject matter unit’s wishes and mutual expectations regarding the division of labour
3. Programming the database (the variables)
4. Infopath – basis for steps 5-7
5. Is this what the subject matter unit expected - last chance to give additional input!
6. Make sure that all relevant users can access the relevant tables etc. (security)
7. Complete questionnaire
8. Quality assurance by another developer
9. Follow-up on possible issues resulting from step 9
10. Internal tester (experienced, professional )
11. Follow-up on possible issues resulting from step 10
12. Preparation for external test
13. Two or three enterprises test the questionnaire (designer observes, takes notes, aks)
14. Quality assurance
15. Follow-up on possible issues resulting from step 14
16. No new demands from the subject matter unit (no “nice-to-have” things)
17. General review by project leader
18. Follow-up on possible issues resulting from step 17
19. Moving from a test-environment to production
20. Possible last-minute updates, resulting from the move to production environment
21. Follow-up meeting with subject matter unit: how is the questionnaire actually working?

**Time plan for the remaining part of the Twinning project**

The hotel questionnaire which was drafted during the mission can well serve as an example of a user-friendly web-questionnaire. Naturally, it should be further developed by ICBS before it is finally designed for the respondents to fill it in.

Should another questionnaire than the hotel questionnaire be chosen for the pilot, the fundamental principles applied for the hotel questionnaire should still be taken into account. The questionnaire chosen for the pilot should be completed in its web-form, and all ICBS internal testing of the questionnaire taken care of before 1 December 2014.

It should be considered how to test the web-questionnaire on real respondents. Even though it may be impossible to use the web-questionnaire in the (monthly) production except in a longer-term perspective, it is of very big importance to go through all the test phases as mentioned above. A number of enterprises should be contacted in order to test the web-questionnaire, even without the reporting portal being established.

In the short to medium term it is important that ICBS discuss when the big project could be initiated. It is also important that the strategy regarding a proper web-portal is outlined together with an associated time plan.

In the longer run, i.e. after the Twinning project, a proper project organization should be established, taking into account the different kinds of expertise needed for the project to succeed. Whether this includes out-sourcing, for example regarding the all-important design issue, or not, is possibly not very important. In fact, outsourcing could be useful in the very initial stages of the process, for example regarding the questionnaire chosen for the pilot, in order to gain specific experience with the design challenges related to a web-questionnaire. However, it may show more efficient for ICBS to employ directly the necessary expertise, taking into account that the web-questionnaire project is only the beginning, and even after the completion there will be an organizational need for this expertise in the continuous process of modernizing and optimizing the web-questionnaires.

**Annex D3.1 Terms of reference**

**Component D: Survey methodology**

**Mandatory results of the component**

MR16 Establishment of quality control methods and tools for monitoring field interviewers

MR17 Establishment of quality control methods and tools for monitoring telephone

 Interviewers

MR18 Establishment of a manual of guidelines for interviewers

**MR19 Detailed design of at least one web questionnaire**

MR20 Guidelines in cognitive aspects of questionnaire and interview design

MR21 Guidelines on how to measure and reduce response burden on enterprises

**Activity D.3: Design of web-based survey and questionnaire (CAWI)**

**Subject / purpose of the D.3 activity**

Review of current challenges with web-based surveys. Presentation and discussion of methods used in web-based surveys and methods to be used to increase response rate.

**Expected output of the D.3 activity**

Mission report with recommendations on

* Improving response rate in web-based surveys
* How to improve web-questionnaire

**Annex D3.2 Programme (Agenda): 29 April – 1 May 2014**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Place** | **Time** | **Event** |
| Tue29/04 | CBS | 09:00 | Welcome and acquaintance |
| 09:15 | RTA and CBS: Summary and implications from Twinning activities D1, D2, D4 and D6 (CAPI, CATI, Questionnaire Design, Response burden measurement and reduction) |
| 09:30 | Web-questionnaires in ICBS – current status business trends survey and high education survey including screens demo |
| 10:30 | Coffee break |
| 11:00 | Web-questionnaires in Statistics Denmark: history, background and the chosen strategy and actual status and plans. |
| 11:45 | Discussion: main challenges for ICBS related to web-questionnaires and possible solutions – for example web-portal, data security, financial ressources, staff qualifications, IT software and infrastructure in ICBS, psychological barriers in enterprises etc. |
| 12:30 | Lunch |
| 13:15 | The hotel survey of ICBS and the questionnaire – on-the-spot drafting of a new web-based questionnaireWorkshop on the hotel Survey |
|  |  | 15:00 | End of day 1 |
| Wed30/04 | CBS | 09:00 | Summary from day 1 |
| 09:15 | The use of eye tracking (Statistics Denmark) |
| 09:30 | Presentation of example from Statistics Denmark - including description of the data flow, approval procedures, response contact etc. |
| 10:45 | Coffee break |
| 11:15 | Testing procedures (Statistics Denmark) – internally as well as with external parties (enterprises) |
| 12:30 | Lunch |
| 13:30 | Drafting a principal plan for a broad introduction of web-questionnaires in Israel – discussion (introduction by Statistics Denmark) and technical set up |
| 15:30 | End of day 2 |
| Thu o1/05 | CBS | 09:00 | Continuation of drafting af plan |
| 10:15 | Implications for data provider policy and response burden when introducing web-based reporting from enterprises |
| 12:00 | Lunch |
| 12:45 | Report writing and preparation for debriefing |
| 13:45 | Debriefing (together with A.5) |
| 14:30 | End of meeting |

**Annex D3.3 Persons met**

