TWINNING CONTRACT

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Support to the State and Entity Statistical Institutions, phase VI

MISSION REPORT

on

**Activity 2.1.9
Improvement of SBR Application**

Mission carried out by
Søren Netterstrøm, Statistics Denmark

23 - 27 May 2016.

Version: Final

STATISTICS DENMARK   Statistics Finland

Expert contact information

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List of Abbreviations

BHAS   Agency for Statistics of Bosnia and Herzegovina
BiH   Bosnia and Herzegovina
CBBH   Central Bank of Bosnia and Herzegovina
EC   European Commission
EU   European Union
FBiH   Federation of Bosnia and Herzegovina
FIS   Institute for Statistics of Federation of Bosnia and Herzegovina
MS   EU Member State
RSIS   Institute for Statistics of Republika Srpska
RTA   Resident Twinning Adviser
TOR   Terms of Reference

1. General comments

This mission report was prepared within the Twinning Project „Support to the State and Entity Statistical Institutions, phase VI.

The main purpose of this mission was to improve SBR in relation to Enterprise Groups, Business Demography and the coding of institutional sectors.
In the lifetime of SBR a number of issues have turned up and a list of issues was provided by the three statistical institutes before the mission. This mission was also used to address these issues as well.

The consultant would like to express his thanks to all officials and individuals met for the kind support and valuable information which he received during the stay in BH, and which highly facilitated the work of the consultant.

The views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, BHAS / FIS / RSIS or Statistics Denmark.

2. Assessment and results

2.2.1 Enterprise groups.

In order to deal with Enterprise Groups two new tables are needed in the database.

EnterpriseGroup

EnterpriseGroupID	Automatically generated in the same way as EnterpriseID
Name	
2 digit NACE code	
Starting date	
Termination Date	
Fk_LeadingEnterprise	Pointer

EnterpriseGroup_Enterprise_Relation

Fk_EnterpriseGroup	Pointer
FK_Enterprise	Pointer
Starting date of relation	
Termination date of relation	

This structure allows for dealing with the fact than an enterprise at different points of time may relate to different enterprise groups and that enterprise groups over time may consist of different enterprises.

It was discussed to include information about control-relation (ownership). Information may be available from an external source. If decided, this should be established as a table giving the relation between legal units (A owns/controls B with x % ownership).

As the complex picture may be rather complicated it may be better to keep this information in a separate document for each Enterprise Group, as it is not anticipated that there will be more than a few groups established.

The online application needs to be updated with a form holding information about the enterprise group, including a list of all enterprises in the group (at any time).

For the Enterprise it is suggested to hold the information in same area as employment/turnover, adding a new tab, Selecting that tab should display all relations, active and inactive, that the Enterprise may have. This solution is chosen because the inclusion/exclusion of an Enterprise from an EnterpriseGroup is not considerer as an update of the enterprise.

2.2.2 Business Demography

SBR includes data from the administrative source about the main demographic events (succession, takeover, merge and split) at the level of legal units. The quality and coverage of these data are not known.

It was discussed to promote these data to the level of Enterprise. No decision was taken as this will await the upcoming mission devoted to business demography.

A problem mainly related to entrepreneurs (and potentially other Legal Units with a single owner) was raised. In many cases the same person may start a succession of units (and even several at the same time). For each of these units a new Enterprise and corresponding Local Unit is created. It may be more correct to have only one Enterprise in these cases.

To accomplish this, the ID of the owner (for single-owner units) should be stored with the legal unit. This data is available from the administrative sources.

Whenever a new Legal Unit is created it should be checked if there is already another Legal Unit with the same owner. In that case the existing Enterprise should be used (and potentially update if inactive). There might however be a problem with activity codes when there a several concurrently active units. The matter should be further investigated.

See also 2.2.5 for problems of status of active/inactive

2.2.3 Sector Codes

The National Account divisions have initiated the work of sector coding.

The sector code is assigned on the basis of the Activity code of the Enterprise and the Legal Form, Ownership Code and Origin of Capital from the Legal Unit.

The National Account divisions are working on establishing a set of rules for automatic encoding. Such a system will however not be able to cover all units, in a number of cases it seems that a manual coding is required.

For the initial load of sector codes, first all manually established codes will be inserted (from lists in electronic form provided by the National Account) and the remainder will be created using the automated rules.

Once the initial set of sector codes are loaded, there is a need to be able to update the codes whenever a new unit is created or the activity code or one of the other codes used for established the sector code are changed. This should be done using the set of rules described above. However, as mentioned before, there will be cases that cannot be handled through automatic encoding. To deal with this issue the consultant suggest that the rules are constructed in such a way, that all potential combinations of codes are covered or a special code for not yet classified is used as the last resort. It the latter case and in cases where further investigations may be needed, the rules also include information that a special unfinished transaction (to be handled by National Account) is created in order to verify or correct the assigned sector code.

In order to do this, a decision table could be used.

The following example show the principle (note, codes are fictional)

NACE Code	Legal Form	Ownership	Org. Capital	Sector Code	Unfinished
1010	1	1	1	10101	
1010	1	2	-	10102	
1010	2	-	-	10101	
1010	-	-	-	10102	X
-	-	-	-	99999	X

Note: - indicates that the code is not taken into consideration. The table is processed top-down.
The last lie ensures that there is always a result regardless of NACE code (error), the next to second set the sector code base on NACE code alone etc.

2.2.4 Problems related to Sector Codes

It has turned out however, that the information from administrative register regarding legal form, type of ownership and origin of capital in a number of cases is either wrong or missing, preventing a correct assignment of sector codes.

To what extent this will actually prevent the correct assignment of sector code is not clear. The size and impact on the distribution of economic indicators are also not known.

There are a number of proposals on how to deal with this situation.

It was discussed a possibility to include the three codes from Legal Unit at the level of Enterprise, where they might be updated by the statistics institutes in case of errors. However these attributes are not attributes of an Enterprise as per the EU Regulation No. 177/2008, but a satellite table to the Legal Units could be imagined, holding this information with the option of updating the information.

The benefit of this approach would be, that in the cases where a new activity code is assigned to the Enterprise, the automatic procedure would have access to the corrected code, but when new units are created the problem still remains. In the case that a new classification for sector codes are introduced (included a new set of rules) this may also be useful.

However, introducing such a new table would increase the general burden of updating SBR and it is not clear who will have the responsibility to maintain this information and how many resources this would require. The sources for obtaining this information is not known. The resources required to update the online application to take care of in order to show and allow update of this new data and other software updates must also be considered.

Another approach (suggested by the consultant) would be to expand the rules to cover cases where this information is missing using only the activity code to assign the sector code and potentially issue an unfinished transaction. This would however not cover those cases where the code is incorrect as they would not be discovered.

The actual improvement of quality in the National Account from a more correct assignment of sector codes should be estimated and compared to the cost in order to obtain this improvement. The resources may be better used by concentrating on those units that has a huge impact on the statistical results.

2.2.4 Activity codes (NACE)

The issue was raised how to freeze certain fields for a certain period after manual updating. The issue was discussed in relation to activity codes, where this seems most relevant.

In order to do this, it was suggested to change the data model by adding a new table (Enterprise_ActvityCodes), that would hold the four activity codes together with a source code and the date of change. The activity codes are then removed from table enterprise_data. This would separate the date of change for activity code from the general date of change.

The source code should be assigned in priority order, i.e. 1 for SBR survey, 2 for SBS survey down to a codes for administrative sources. The activity code could then only be changed (at least for a certain period) if the new source has a higher priority. In other cases an unfinished transaction (or warning) should be created.

If this approach is followed, the online application should be changed so that historically browsing can be done either on the general information or on the activity code.

A similar approach should also be established for local units.

An alternative would be just to add the source and last data of change for activity code to the Enterprise_data (and LocalUnit_data) table. This simplifies to needed update of the

online application (and the usage of the online application). This suggestion is based on comments from Banja Luka during the review of the summary report.

2.2.6 Frozen version

The issue of frozen versions was taken.

The recommendation is to include only Enterprise and Local Units in frozen version.
For each enterprise and local unit, a single row (record) is created holding the most current information and 1 figure for turnover and employment (either for last year available or last 2 years available, quarterly for last year?).

A frozen version should refer to a day that is some time before the day the frozen version is actually created to allow updates relevant to this day to be included. For name etc. as well as activity codes, there is assumed to be a delay so the current information should be used. However new units with a starting day after the reference date should not be included and terminations after the reference date should be disregarded to have the correct population on the reference date.

2.2.7. Employment on local unit level

Data regarding employment of legal local unit level is available from administrative sources. A table to hold this information may be included and used to feed a table for employment on local unit were suggested.

The quality of these data was discussed and it seems that in some cases employment is split between legal unit and legal local units where in other cases all employment is reported on the legal unit only.

It should be worth to reconsider the creation of new tables, taking the quality of the data available into consideration.

2.2.8 Suspension of NACE rev 1.1

SBR currently obtain both activity code in NACE rev 2 and NACE rev 1.1.
The NACE rev 1.1. should be removed from the user interface.

In order to prepare for a new version of NACE in the future, the fields may be preserved (and hidden in the user interface) to make it easy to reintroduce having duplicate NACE versions.

Before removing the data it is suggested to make a frozen version including this data.

2.2.9 Improving the options for browsing/extracting data from SBR

The current online system enables the users to browse data for on a set of criteria (name, municipality, postal code) and activity code. However they can not be combined. At least on option to limit the extract to only active units should be considered.

The consultant demonstrated an application based on Excel that would allow to extract data based on either municipality or activity code and potentially limited to active units only (Enterprises or local units). The result would be stored in an excel sheet. Using the capabilities of Excel other filters may then be applied and data could be sorted in different ways.

The data extracted is taken from a view and should resemble the data suggested for frozen versions in order to get a single row for each unit.

In the view of the consultant, the online application is an excellent tool for examining a few units in depth, with the capabilities to jump from one unit type to another.
However to analyse a larger set of units the Excel solution in many cases offers a more useful solution.

2.2.10 Informing surveys on changed activity codes

In the original design of SBR it was anticipated to inform surveys whenever the activity code or other important data changed for a unit used by that survey.
The survey side contained the necessary link.

This system was due to time pressure however never implemented.

There was a request from a user for such a feedback from SBR and this message system should be reconsidered. This feedback should include both changes made at the request of the survey and changes made from other sources.

2.2.10 Automatic update of Local Unit when Enterprise is updated

When an Enterprise is updated using the online application it is necessary to manually update the local unit (based on the enterprise) as well.

It should be considered to change this in a way, where the update is performed using a stored procedure that will automatically update the local unit as well.

If the change is related to name, address etc. this should only affect the main local unit, in case of termination all local units should be terminated.

The detailed rules should be further considered and documented similar to the way the original system was designed (pseudo-code).

3. Conclusions and recommendations

The statistical institutes are recommended to make a plan for how to implement or further examine the proposals and suggestions of this report including a priority of the tasks. For this purpose, the consultant proposes to revive the steering group for SBR that was set up just before SBR was ready to go into production, as this group has a clear mandate to make the necessary decisions.

Topics for the next mission

There is no further mission planned regarding the improvement of SBR. The expert however will be back for a coming mission on Enterprise Groups and the opportunity may be taken to briefly discuss further some of the issues raised in this report if needed.

Annex 1. Terms of Reference

EU Twinning Project BA-12-IB-ST-01

Terms of Reference

Component: 2.1. Statistical Business Register

23 – 27.5.2016.
Agency for Statistics of BiH, Zelenih beretki 26, Sarajevo

Activity 2.1.9 Improvement of SBR Application

Improvement of SBR Application

Benchmarks

- 5-year development plan updated by 1st project quarter and by 8th project quarter
- Methodology for linking SBR with the compilation of SBS business demography characteristics available by 4th project quarter
- Methodology for enterprise groups in SBR available by 8th project quarter
- Institutional sectors code assigned to the SBR units by 8th project quarter
- SBR is ready to be used for analysis of business demography by 8th project quarter

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Purpose of activity

The expected activities are:
- Customizing SBR IT application for introduction of new SBR features according to EU Regulation: enterprise group, business demography, institutional sector codes
- Technical upgrade of SBR application in order to improve procedures for:
  - Data updating
  - Introduction of new administrative sources into SBR (apart from Tax authority office, other registers are now periodically available, how to introduce and treat them in "administrative part" of SBR)
  - Introduction of so called "date of validity", beside the existing date of registration, date of last change and date of cessation
  - Introduction of number of employees on (legal) local units level
  - Marking of burdening rate on statistical units by various statistical surveys
  - Marking of non-response rate
  - Etc.
- Discussion on outstanding issues

Expected output

- Data model improved
- SBR application customized for introduction of new SBR features (enterprise group, business demography, institutional sector codes)
- Outstanding issues solved

List of Participants

MS Experts

Søren Netterstrøm   Statistics Denmark

Agency for Statistics of BiH

Dzenita Mustafić	Specialist for SBR (Coordinator for SBR Component, BHAS)
Mevlija Odobasić	Senior Advisor for SBR
Ivana Tavra Čolo	Senior Official for SBR
Branislava Cvijetić	Senior Advisor for IT
Senija Fačić	Head of Branch Office in Brčko District
Vedad Osmanović	Senior Advisor for IT in Brčko District

Institute for Statistics of Federation of BiH (FIS)

Enisa Rastić	Head of Department for business, statistical register and classifications in FIS
Enverea Hurić	Senior Advisor for Economic classifications in FIS
Razija Bičakčić	Senior Advisor for IT in FIS
Emira Beširević	Senior Official for SBR in FIS
Nidžara Zahiragić	Specialist for SPR in FIS

Institute for Statistics of Republika Srpska (RSIS)

Nataša Teinović	Senior Official for SBR
Slavica Josipović	Specialist for SBR
Borjan Cvjetkovic	Specialist for SPR in RSIS

SBR statistical users

Representatives from National Accounts and Business statistics were attending the mission on Tuesday morning

Twinning Project Administration

Søren Leth-Sørensen	RTA
Djemka Šahinpašic	RTA Assistant
Haris Imamović	Interpreter

Agenda

Location: <u>Agency for Statistics of BiH</u>, Zelenih beretki 26, Sarajevo
FIS conference room.

Time	Day	Place	Event	Purpose / Detail of event
09:00-11:00	Monday, morning		MS experts briefing with the RTA	To discuss the mission and discuss previous experience
12:00-15:30	Monday, afternoon		SBR and IT Staff with MS Experts	Customizing SBR IT application for introduction of new SBR features according to EU Regulation: enterprise group, business demography, institutional sector codes
8:30-15:30	Tuesday		SBR and IT Staff with MS Experts	Customizing SBR IT application for introduction of new SBR features according to EU Regulation: enterprise group, business demography, institutional sector codes
8:30-15:30	Wednesday		SBR and IT Staff with MS Experts	Customizing SBR IT application for introduction of new SBR features according to EU Regulation: enterprise group, business demography, institutional sector codes
8:30-15:30	Thursday		MS expert and BC SBR and IT staff meeting with relevant SBR users	Customizing SBR IT application for introduction of new SBR features according to EU Regulation: enterprise group, business demography, institutional sector codes
8:30-13:00	Friday, morning		SBR and IT Staff with MS Experts	Presentation of results, agreement on mission report, homework for the next mission, implications for the next activities

Annex 2. Persons met

Agency for Statistics of BiH

Dzenita Mustafić	Specialist for SBR (Coordinator for SBR Component, BHAS)
Mevlija Odobasić	Senior Advisor for SBR
Branislava Cvijetić	Senior Advisor for IT
Senija Fačić	Head of Branch Office in Brčko District
Vedad Osmanović	Senior Advisor for IT in Brčko District

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Emira Beširević	Senior Official for SBR in FIS
Nidžara Zahiragić	Specialist for SPR in FIS

Institute for Statistics of Republika Srpska (RSIS)

Nataša Teinović	Senior Official for SBR
Slavica Josipović	Specialist for SBR
Borjan Cvjetkovic	IT sector
Mladen Marić	Head of Department for application development and database administration (video link)

SBR statistical users

National Accounts BHAS, FIS, RSIS

Dijana Mlikota,	Assistant Director for Macroeconomic Statistics
Nisveta Džebo	Assistant Director for Economic Statistics
Nermina Ibrišević-Ademović,	Head of National Accounts Department
Jelena Đokić	Assistant Director in Sector for National Accounts, Registers and Sampling (video link)
Rada Radanović	Head of National Accounts Department (video link)
Dijana Maleš	Senior Official for investment , national wealth and consumption of fixed capital (video link)

Dragana Kunovac,   Senior Official for the government sector and the

                                financial sector (video link)

Business Statistics BHAS, FIS, RSIS

Structural Business Statistics (STS)

Tima Karačić   Head of Department for Structural Business Statistics

Bojana Cicović   Senior Official for Structural Business Statistics

Samka Avdić   Acting Assistant Director of Business Statistics

Alma Čolpa   Senior Official for Structural Business Statistics

Slađana Nikić   Specialist for Structural Business Statistics (video link)

Producer prices in construction-CPPI

Nusreta Imamović-Kaljanac, Head of Department for Industry, Construction

                                and Energy Statistics

Želimir Radišić   Senior official for Construction Statistics (video link)

Mirjana Bandur   Senior official for statistics of mining, manufacturing

                                 and energy (video link)

Biljana Đukić   Head of the Department for Production Statistics (video link)

Producer prices in services-SPPI

Lejla Krehić   Junior officer in Prices Department

Lejla Borovina   Junior officer in Department for Services Statistics

Dušanka Mandić   Services Statistics

Jelena Glamočika   Head of Department for Services Statistics (video link)

Aleksandra Đonlaga   Services Statistics Department (video link)

Rada Lazendić   Official in the service statistics department (video link)

Miroslav Ilić   Senior official for tourism statistics (video link)

Twinning Project Administration

Søren Leth-Sørensen   RTA

Djemka Šahinpašic   RTA Assistant

Haris Imamović   Interpreter