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Role of Business Registers

**Improvement of Dutch Statistical Business Register**

**Abstract**

SN faced major challenges in the last years. Business Register Regulation (FRIBS), new technical developments, new business architecture and a major redesign of our primary. Some challenges demanded major redesigns of our SBR. Another challenge was the need for stabilization of our SBR to ensure implementing future improvements. These urgent developments hampered SN in improving at the same time the SBR in order to meet new business needs.

Our internal, national and international stakeholders needed and partly prescribed more information on globalisation, regionalisation and a better description of statistical units outside the SBS domain. SN has coordination problems between national statistics within SN (e.g. between employment statistics and SBS) and between SN and the Dutch Central Bank (DCB). The coordination problems were the result that the SBR was not the backbone for all national (financial) statistics made by SN and DCB. Reason for this is a long time problem in creating statistical units for all users (NA, SBS and DCB). Due to large dependencies, an ambitious project was set up in order to investigate, coordinate and reduce these problems. The project started in 2015 and ends Q1 2017.

The paper will describe the content, the special organisation and the way forward for the implementation phase of the project.

The project addresses the following business needs:

- Better coordination by
  - o reducing the statistical unit problem by achieving one common register serving NA, SBS, government statistics and financial statistics
  - o introduction of the institutional sector code on the enterprise and creating enterprises which relate to the institutional sector and the NACE they are active in
- improving the coverage of enterprises (not covered by our main administrative register)
- an improved description of our statistical units

For this project a special organisation was needed. Beside the project team and steering group a Research Control Board (RCB) was set up which was populated by specialist stakeholders of the SBR. It also included a member of the DCB. The RCB was responsible for guidance to the project team, help defining the business needs and assuring they were achieved. Project results were first presented to the RCB where it was discussed from different perspectives and acknowledging in early stages certain challenges in the problems or in the proposed solutions. Due to the presence of the RCB the project team was able to assess possible solutions presented in different scenarios with attention for the positive or negative effects for different users.

Currently we are in the implementation phase which is organised according to SCRUM<sup>1</sup>. The SCRUM method focusses on customer collaboration, adapting to change, working product (business value). A product owner is, together with the development team, responsible for achieving the most important business needs. A comprehensive set of items is listed which the team will take on board each development iteration. During the implementation phase the project team works closely together with the customers and is flexible to adapt to change.

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<sup>1</sup> [https://en.wikipedia.org/wiki/Scrum\\_\(software\\_development\)](https://en.wikipedia.org/wiki/Scrum_(software_development))

# 1. Introduction

In Statistics Netherlands (SN) the statistical business registers (SBR) is the backbone for almost all economic statistics. The SBR serves as a survey frame for these economic statistics. This means that it is responsible for providing the list of statistical units and its variables which among others can be used for selecting survey samples. By doing this coordination between these statistics using the same units is achieved.

The coverage and the quality of the statistical units in SBR should be of good quality. The SBR provides sample frames for production surveys to compile Short Time and Structural Business Statistics. But the (survey) frames produced by the SBR lacks coverage in certain areas. Coverage in this aspect is in twofold. Coverage issues as in wrong sector classification but also actual missing units in the SBR. If the SBR will be the backbone of all economic statistics, it can also serve in the future as an instrument to support other types of economic statistics:

- Employment Statistics
- Statistics on the Governmental (sector S13)
- Statistics on Financial institutional (sector S12)
- Functional statistics based on local units or KAUs
- FATS-statistics and optimize the connection with the EGR.

Currently especially the employment statistics, statistics on the financial sector and the public sector are not fully able to use the SBR as a population frame. The quality improvement needed is in a better classification of the different institutional sectors as also the actual coverage of certain sectors. These improvements will also directly be beneficial for our employment statistics. In the Netherlands data collection on financial institutions is mainly done by the Dutch Central Bank (DCB). This means that not only internal users of the SBR but we also external users have specific quality expectations of the SBR. There are close collaborations with the DCB. What is missing is sharing a coordinated statistical population being used in both statistical processes.

The lack of this shared statistical population could lead to internal and external inconsistencies. Solving these inconsistencies at the end of the statistical process is a costly procedure and should be as much as possible prevented or corrected in an early stage.

Not having the correct institutional sector adds complexity later in national accounts when the division into different (sub)sectors is really needed. Now a system of dual classification is used which divides the data based on the NACE into the different institutional sectors using allocation tables. These allocation tables are difficult to maintain and it would serve national accounts more to have the actual sector classification in the SBR.

For these reasons SN started CAESAR<sup>2</sup> project. CAESAR aims to improve the coverage of the financial sector and the public sector in the SBR and align the statistical populations on national level.

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<sup>2</sup> CAESAR stands for Characteristics, Absent units, EU-Regulation, Sectorcode, Add to Unit-Environment) or Register

Additional goals are improving coverage serving functional statistics and introducing the globalisation concept into the SBR.

## 2. Current SBR set up and maintenance

In order to understand which improvements are needed a quick description of the SBR maintenance is needed. At SN we have based our SBR on two main administrative sources. These are the Trade Register of the Chamber of Commerce and the Unit register of the Tax Authority. We use the Trade Register as the only input for legal units. Not all legal units active in the Netherlands are required to register at the Trade Register, some (mainly government units) are not even allowed to register. The units not known in Trade Register are registered at the tax authority but are not used in the SBR. Both administrative registers provide information on legal units, local legal units and on relationship between legal units.

This results in 1,8 million enterprise groups in the SBR. Each month we produce a frozen frame which can be used by our users. To ensure the quality of these frozen frames we have different instruments. The most important are:

- A small part of these enterprise groups (plus minus 2000) are being profiled. These 2000 enterprise groups have an effect on 60% of the Dutch Economy.
- Macro validation of the statistical events taken place outside the 2000 largest enterprise groups being profiled
- Chain management where important developments throughout the complete chain of statistics is discussed and together a joined and agreed approach is decided on.

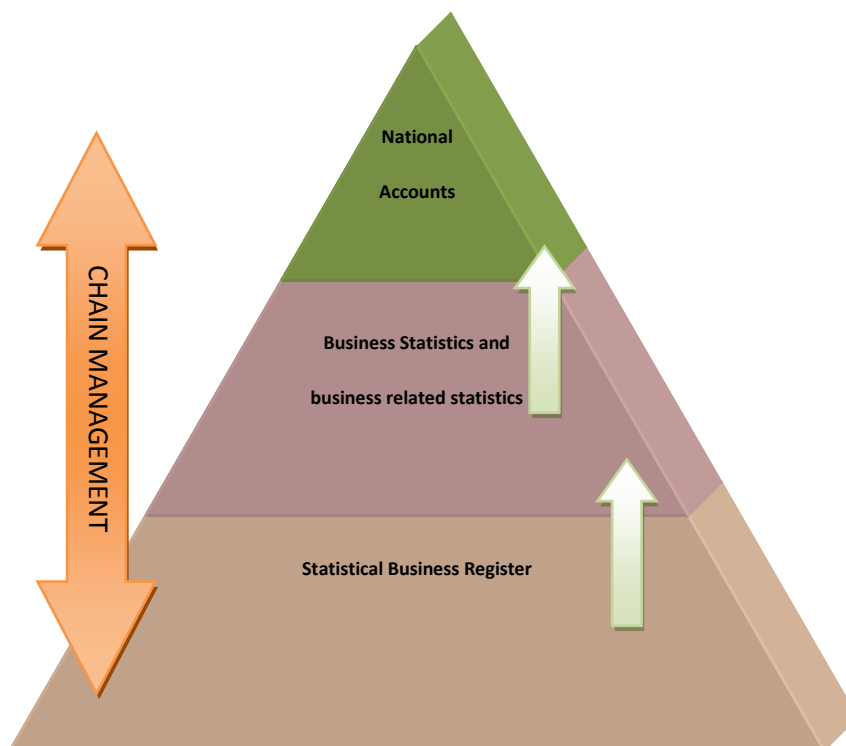


Figure 1 Place of SBR in SN

An small group within SN is responsible for chain management. Chain management is responsible for management of the complete statistical chain, from the register to the statistics to national accounts. The main goal is that all the stakeholders in the chain collaborate to find the most optimal way of working for the chain as whole. In case of incidents the overall picture is always taken into account. Incidents should be solved at those places where the overall benefit is the highest. Chain management is always involved in major changes. Since the CAESAR project has an effect on whole chain within SN and even outside they are an important stakeholder in the project.

### **3. CAESAR project**

At the end of 2014 SN started the CAESAR project. The first year was aimed at analysing the business needs and understanding possible solutions. The solution were not only aimed at IT, but also looking at processes, people and organisational elements.

In the Netherlands the DCB is responsible for the largest part of the data collection on financial units. The information collected is used by as well the DCB as SN. At the moment there is only a close collaboration on the special purpose entities, for the rest we rely on the population defined by DCB. But also this population has quality issues. Both institutions produce their own statistics and try to coordinate their outcome as much as possible. The idea behind this approach was that using the data collected by DCB should prevent large differences between the different statistics. One of the problems of this approach was that the SN statistics describing these financial units were not completely in line with other SN statistics which do use the SBR and which also refer to the financial sector. But this is not a solid solution for the future.

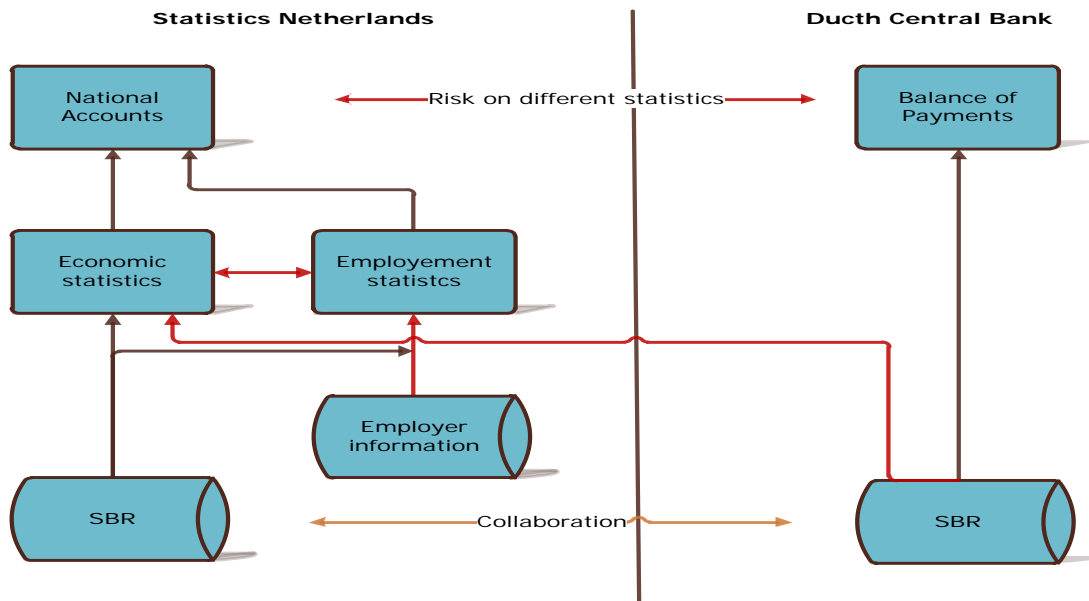
The financial and the public sector in the SBR are not at the required level to be used in their statistical process. For this reason these statistics are not merely based on the units in the SBR. Additional data is used or the SBR is used as an additional source.

#### **3.1 Project goals**

When we have a closer look at the way economic statistics are produced in the Netherlands, we can identify a few areas where we have coordination problems. Figure 2 shows these areas by the red lines. These lines represent:

- Employment statistics use wage information where employers are the statistical units. The SBR is used as an additional source to add certain information (NACE, Size class). Employment information which cannot be linked to an enterprise of the SBR is still used in the process. This results in more employment in certain industries which are not reported by these specific NACE statistics. (SN internal challenge)
- Data collection on financial units is done based by the DCB and on their units. These are not enterprises known in the SBR and there are risks on missing/double units. This risk might result in:
  - o Inconsistencies between the Balance of Payment and the NA

- The population of SUs used to compile Employment statistics are not in line with the population of SUs used to compile Structural Business Statistics. Might lead to inconsistencies.



**Figure 2 SN and DCB collaboration**

The CAESAR project aims at the following improvements for the SBR:

- Good coverage of the financial sector
- Good coverage of the public sector
- Better coverage of employers
- Introduction of globalisation aspect
- Improved regional information

The challenge of these improvements lie in the details. For the shared statistical population to work agreement is needed on type and derivation of (statistical) units, variables of units, organisational issues, processes, responsibilities, IT functionality, confidentiality etc.

The most important improvement the CAESAR project will realise are:

1. Introduction of the sector classification on the level of the enterprise in the SBR. This also required in some cases that the set of legal units belonging to a certain enterprise had to be changed.
2. Data on specific populations (public and financial) known by the statistical compilers is used as input for the SBR. We know process datasets on public units, special purpose entities and other financial units into the SBR. With this we are improving the heart of the SBR.

3. Using tax units which have a link with the employers in the wage information for creating legal units which can be used in the SBR as part of enterprise (groups). This means adding a second administrative source for creating and updating legal units.
4. Setting up a satellite register of the SBR holding global and regional information.

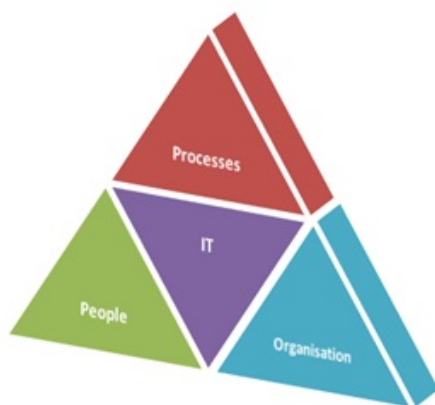
These improvements will result in:

- Better attribution of wages and hours worked to the financial and the S12 and S13
- Decreasing complexity in dividing NACE information to institutional sectors
- Improving the population of financial and public units in the SBR resulting in using the SBR as a population frame for **all** economic statistics
- Improved coordination with the DCB concerning the data collection of financial units.
- More in line with EU regulations

### 3.2 Project approach

Besides the IT aspect which was clear from the beginning of the project we realised that only focusing on the IT part does not guarantee that the benefits are realised. In fact it almost always does not result in the expected out. For this we always pay attention to three other aspects which ensures that we have an holistic approach. This holistic approach ensures as much as possible that the needed business changes are successful.

Figure 3 shows the four essential elements for a successful business change. When adapting our business register from an **IT** perspective we know that these changes need to be adopted by our users. Therefor we formulated a business team (with project stakeholders). This business team has access to a pré-production environment where the preliminary results of the SBR improvements are presented and they can directly see which effects it has for them.



Getting the correct classification requires a new way of working (**processes**) for the SBR department. The profilers (**people**) need to know how the sector classification is derived, they need to know when to overrule the system, a collaboration with the statistical users (**people**) has to be set up, a working arrangement with the DCB has to be set up.

**Figure 3 Holistic approach for business changes**

This also requires a slightly different **organisation**. The external collaboration with the DCB needs an upgrade. Both organisations need to know who to talk to and when this is needed. Also it is possible that chain management needs a change, since the DCB is an important stakeholder now. The statistical users will have more and more influence on the SBR.

### **3.3 Introduction of the sector classification in the SBR**

Getting the new update ESA2010 sector classification in the SBR has three important process. The first is the automated algorithm where on legal unit level we derive the sector classification. For this we have created an algorithm which based on legal form, NACE, persons employed, foreign owner allocates the legal unit to a specific subsector. An additional improvement is using high quality information from the government statistics and the DCB know to which subsector their legal units belong. Their information is included into the SBR.

To get the correct subsector on the level of the enterprise we assess based on the legal units which are part of the enterprise which subsector has the highest employment. This subsector with the most employment will be used for the enterprise.

Each month before the new monthly frame is created we assess the quality. This quality assessment looks at developments from a NACE and size class perspective. Unusual development require extra validation. From 2017 on the sector classification is the third aspect which will be assessed. This extra validation is mostly relevant for the part where only the automated algorithm is used.

The third process is profiling. The sector classification will take a more important role in the profiling process. Profilers have small experience with the sector classification, but it will become more important. Again it is important to realise that this is done in close collaboration with the statistical users.

These three processes described above should maximize the quality of the institutional sector classification in the SBR.

### **3.4 Collaboration in introducing the sector classification in the SBR**

In the CAESAR project we have selected a set of enterprise groups where special attention was needed for getting the correct sector classification. They were mainly financial and public enterprise groups, but also non-financial enterprise groups with financial part. In the project we set up a team which became responsible for the correct registration in the SBR. This team consisted of SBR and statistical users, but also national accounts are involved. The goal is finding a way of creating units which has the highest added value for the complete chain.

The process used in the project was:

- Collect the current status in the SBR and provide to the statistical user
- The statistical user reflects on the situation, proposes (if needed) a change and discusses this change with national accounts.

*In case they cannot agree, chain management should decide*



- The SBR department looks at the proposal and assesses the implication for all other statistical users. If changes needed they are discussed with the statistical users and national accounts.  
*In case they cannot agree, chain management should decide*
- If agreements is met, it can be included in the SBR at the end of 2016 and be used.

This process will not only be used in the project. In a slightly different form this will also be used when the project has ended and all is in production.

### **3.5 Applying the globalisation and regional aspect to the SBR**

For SN it is vital to add globalisation information to the SBR. Within SN there is an important need to be able to interpret the national statistics in a global aspect. Also in order to be able to respond to changing needs concerning more global(isation) statistics, information on global enterprise groups will be included into the SBR. Also for this two different developments are needed.

- We need to improve and automate our internal registration of the foreign parents and where possible our foreign subsidiaries. Key to this is identifying these units in a unique way. By identifying these units using a global identification service EGR IS<sup>3</sup>, our data can be processed in the European Groups Register.
- The (final) frame information from the EGR which is the result of a coordinated process between all ESS partners needs to be incorporated in the SBR. This information should be used by all partners and therefore also by SN.

At SN we follow the institutional approach for regional information. Our local units are regional divisions of our enterprises and therefore also holds the NACE of the enterprise. We currently have a satellite which adds more specific information to our attributes. There is a link between this regional register and the SBR.

CAESAR will set up a satellite (might be two satellites) which uses the SBR as a backbone. This satellite will hold the global and the regional information needed by our users. The same timeframe etc. as the SBR will be used.

## **4. Project approach**

The project which was responsible for the preliminary investigation was carried out by a small team which included business analysts, information analysts and domain experts of the SBR. The team was responsible for assessing the business needs and finding fitting solutions which have the highest overall benefit. The goal was not to solve individual problems, but to find a solution which benefitted the complete chain of economic statistics. The project faced organisational challenges because of the fact that it was across SN divisions but also across organisations. The project was divided into two parts:

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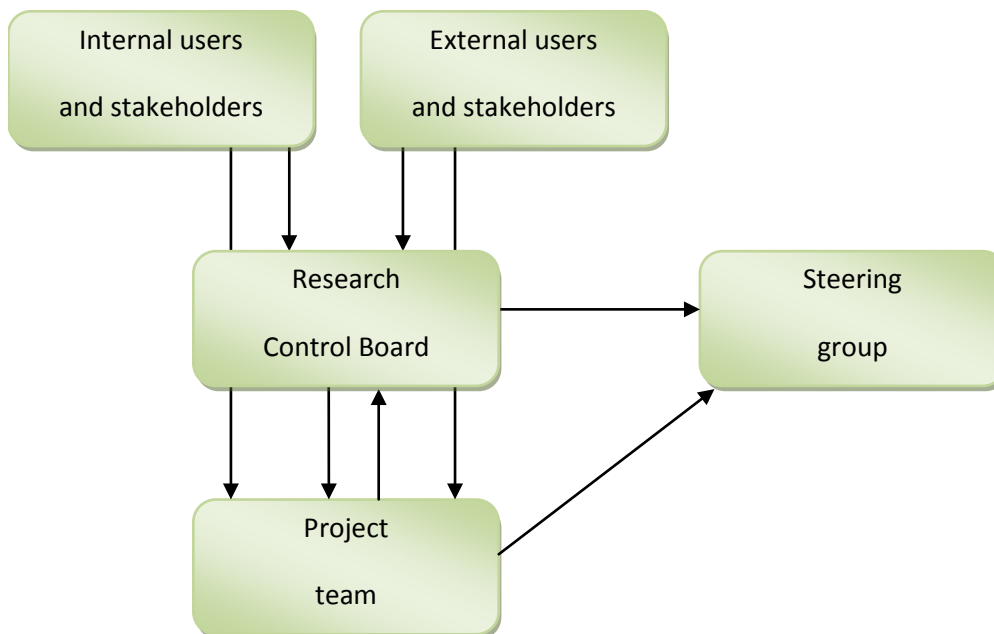
<sup>3</sup> More information on the EGR IS can be found at [http://ec.europa.eu/eurostat/statistics-explained/index.php/EuroGroups\\_register\\_identification\\_service](http://ec.europa.eu/eurostat/statistics-explained/index.php/EuroGroups_register_identification_service)

1. Understanding the needs, investigating possible solutions and deciding on solutions to be developed
2. Developing the solutions for the SBR

It required a special project organisation to ensure that the project was meeting the business needs. The most important new project feature was the Research Control Board.

#### 4.1 Research Control Board

In order to assure that the project fulfilled as much as possible the needs of the users continuous contact with the customers and stakeholders is needed. For this to be realised we created a RCB (Research Control Board). In the RCB representatives of different users and stakeholders are included. These representatives are experts and are mandated for taking decisions. The goal is to achieve overall agreement when addressing issues. The RCB is responsible for advising the steering group of the project.



**Figure 4**

As figure 5 makes clear is that the RCB plays a central role in the project. As always have the internal and external users and stakeholders needs which the project needs to attain. But they are now really presented in the project by the RCB. Regular meetings between the project team and the RCB were organised to achieve two goals:

1. Project team → Research Control Board  
Assure that the problems the project group was solving and the possible solutions were in line with the expectations the users and stakeholders have.
2. Research Control Board → Project team  
Provide guidance to the project team.

At the end of the first part of our project we had different finalisation phases. These phases were:

1. the project team proposed certain solutions which should be evaluated by the RCB
2. the project team together with the RCB discussed the possible solutions. Made a few different choices and concluded on advise to the steering group.
3. The steering decided based advise from phase 2 which solutions should be developed. Another important result was prioritising the solutions to be developed.

## 4.2 SCRUM in CAESAR

The actual development project is organised in a SCRUM/Agile way. Scrum is a management and control process that cuts through complexity to focus on building software that meets business needs. Management and teams are able to get their hands around the requirements and technologies, never let go, and deliver working software, incrementally and empirically.

The CAESAR project is organised in the following way

- Product owner (PO): Representative of the business register department which is responsible of preserving the business needs of the stakeholders and customers who will use the solution. The most important part was to divide the project into parts which all provide actual benefit to the end user. The division is goal driven and not the result of functional decomposition.
- Development Team: Group of developers, business and information analyst and testers which are responsible for translating the business needs into actual solutions.
- Scrum master: person who leads the team through the scrum process.
- Users/stakeholders: the customers for which the solutions

## 5. Conclusion

The CAESAR project is challenging in many ways. It tries to solve issues which have their origin long ago. Also they require cross division and cross organisational collaboration. These are circumstances to be thought of lightly.

Developing the SBR, which is mainly aimed at holding information on enterprises and enterprise groups, to a register that it is also able to hold units which can be used in financial and government statistics is complex. The ideal situation where everything fits and suits all users might never be realised. But by having the benefit of the complete chain as a goal we will find a situation which is the best we can create. This situation is also created in the project (approach) which also tries to keep the ultimate benefit in mind.

Also the globalisation and regional information in the satellite solution is a solution for now, but we already know that this solution (in the mentioned holistic approach) must be flexible. For sure we will be faced with changing needs. This requires also that the solutions need to be able to respond to these changes.