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Session 2: Innovation in Statistical Business Registers

One statistical business register for Statistics Netherlands and the Dutch Central Bank

Abstract

In the Netherlands are Centraal Bureau voor de Statistiek (CBS, Statistics Netherlands) and De Nederlandsche Bank (DNB, the Dutch central bank) responsible for our main national statistics. Our National Central Bank (NCB) is responsible for the view on the financial part of the Dutch economy. Statistics from both organizations together should tell the complete story of the Dutch economy. CBS and NCB are intensifying their collaboration from 2017 aimed at improving the quality and consistency of statistics on the Dutch economy, especially on National Accounts and Balance of Payments. Until now coordinated interpretation of these statistics sometimes has been challenging. The integration problems of the statistical outcomes often had their origin in deviations and errors originating in the beginning of the statistical processes. However, the corrections solving the inconsistencies had to take place at the end of the statistical processes. Solving these inconsistencies so late in the statistical process of both organizations takes a lot of effort.

Both processes start with the concrete idea that their population is correct. Later analysis showed that some parts of the economy were observed in both populations and some parts in none of the populations. Working towards a shared statistical population frame which will serve both organizations is the goal CBS and the NCB have. Essential in this project/undertaking/programme is the Statistical Business Register (SBR) kept at CBS. CBS and the NCB will work closely together to ensure that they both accept and will use the statistical units as they are established and maintained in the SBR. Partly this will be done by profiling.

For this to be a success, we will set up a joined Data Quality Management Process (DQM). This DQM process has a lot of challenges in different areas. A large part of this DQM process is already implemented in CBS but now has to be expanded to the NCB. This expansion faces a lot of organizational, technical and resource challenges. Think about different usages of administrative data, sharing administrative data, skills of the persons who will be involved in the DQM process etc. Also timeliness and different organizational priorities can cause difficulties.

This paper will mainly describe the designing of the business process with the necessary responsibilities which will result in the correct registration of these groups in the SBR.

Keywords:

Business register; National Bank; Data Quality management Process; Challenges

1. Introduction

Centraal Bureau voor de Statistiek (CBS, Statistics Netherlands) and De Nederlandsche Bank (DNB, the Dutch central bank) are collaborating to improve the quality and consistency of data on the Dutch economy, with a particular focus on the balance of payments and the national accounts.

To this end, CBS and DNB are establishing a new cooperation chain for macroeconomic statistics, starting from sharing a register, to coordinating the observation to integrating both statistical information in their processes.. Both institutes will be able to make optimum use of one another's expertise in this project. Collaboration through the complete process. The introduction of this intensive collaboration is in response to an increasing demand for statistical information on the Dutch financial sector as well as rising demand for unambiguous information about the Netherlands' financial relations with the rest of the world.

By working together, CBS and DNB are better able to respond to a changing landscape. With the advance of globalization, the complexity in collecting, processing and clarification of data will only increase further. Thanks to this collaboration, both parties will be even better equipped to respond to a changing playing field. For the users of data, we shall be able to align the provision of statistics with the currently relevant economic developments and trends.

CBS will remain responsible for the National Accounts and for monitoring the non-financial sectors. DNB will become responsible for monitoring the whole financial sector, compiling statistics on securities, the national balance of payments and international investment position statistics for the Netherlands.

CBS and DNB always had their own responsibilities in producing statistics. Figure 1 Two different organizations shows the different missions and tasks that CBS and DNB have. One big difference is the supervision task that DNB has.

TWO DIFFERENT ORGANISATIONS

De Nederlandsche Bank
DNB

DNB – Working on trust
Safeguard financial stability and thus contributes to sustainable prosperity in the Netherlands through: price stability, a shock-resilient financial system and sound financial institutions
DNB supervises financial institutions, collects statistical information, makes economic statistics and does research:
Transparent, involved and reliable
Division Statistiek: *get more value from data*

CBS – For what actually happens
Publish reliable and coherent statistical information which responds to the needs of Dutch society. Compile (official) national statistics and compile European (community) statistics
The information published by CBS deals with subjects directly affecting the lives of Dutch citizens. These include economic growth, consumer prices, crime but also leisure
Independent, on time and coordinated
DNB Economic and Business Statistics and national accounts (EBN) measures the Dutch economy

cb

Figure 1 Two different organizations

Since both organizations produce (macro) national statistics, which each describe a different domain but together should tell a complete story. These macro-economic statistics (BoP and NA) were not always fully coordinated and this became more and more clear on a (inter)national level. The

differences were mainly due to using different (administrative) sources, different methodologies and different moments of publishing the output. A closer collaboration between DNB and CBS was the result with the goal of having more harmonized output. This still seems like a unique situation in Europe. It will be an intense collaboration where also the autonomy and independency of both organizations is assured. Using the knowledge and experience of both combines the best of both worlds.

This paper will describe which steps have been taken from a Statistical Business Register perspective in supporting the collaboration.

2. What is needed

The ultimate goal is coordinating macroeconomic statistics. It must be possible that the macroeconomic statistics (BoP and NA), and data used for these national statistics will be shared between CBS and DNB and can be integrated in their national macro-economic processes without any other operations. No corrections should be needed before the data can be used. Figure 2 non coordinated registers shows the old situation where two separate frame populations are created. It also shows that on each level there is sharing of data (info on sub-populations, aggregated financial data and sometimes financial data on micro level), but this is in general only aggregated or partial data. For example sharing data on Special purpose entities etc. And it was not really organized structurally, not based on shared datamodels, and leaving to much discussion and hand work during integration. Now we are moving from sharing of information to closely collaborating and creating a product together.

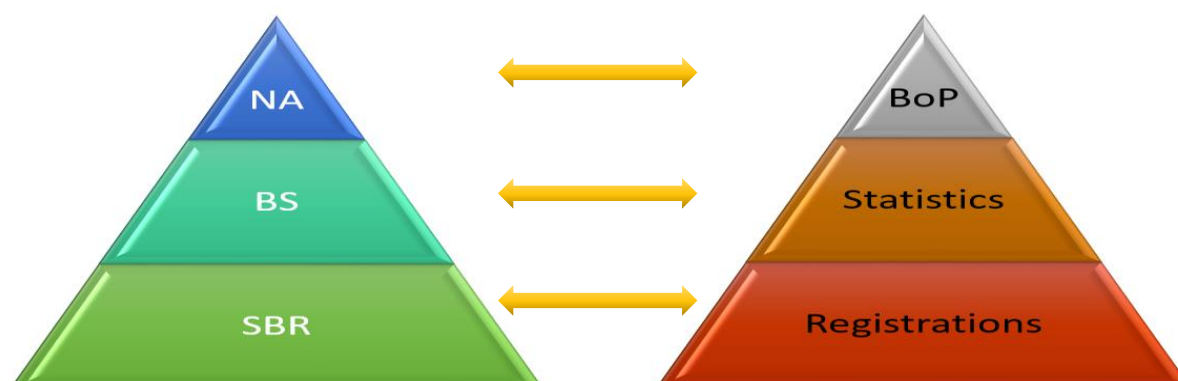


Figure 2 non coordinated registers

Solving inconsistencies on macro level proved to be a complex and costly process. The further in the process to correct the issues the more labor intensive and complex it becomes. As a result CBS and DNB strived for preventing or solving problems as early as possible in the statistical processes. And the beginning of it all is the SBR.

One business register which serves as a backbone for both statistical processes. Using the same backbone assures at least that the units which are used in the different statistical processes are coordinated. One challenge is reaching agreement on the composition of the statistical units.. It should prevent over- and under coverage, reduce the costs of correcting statistics.

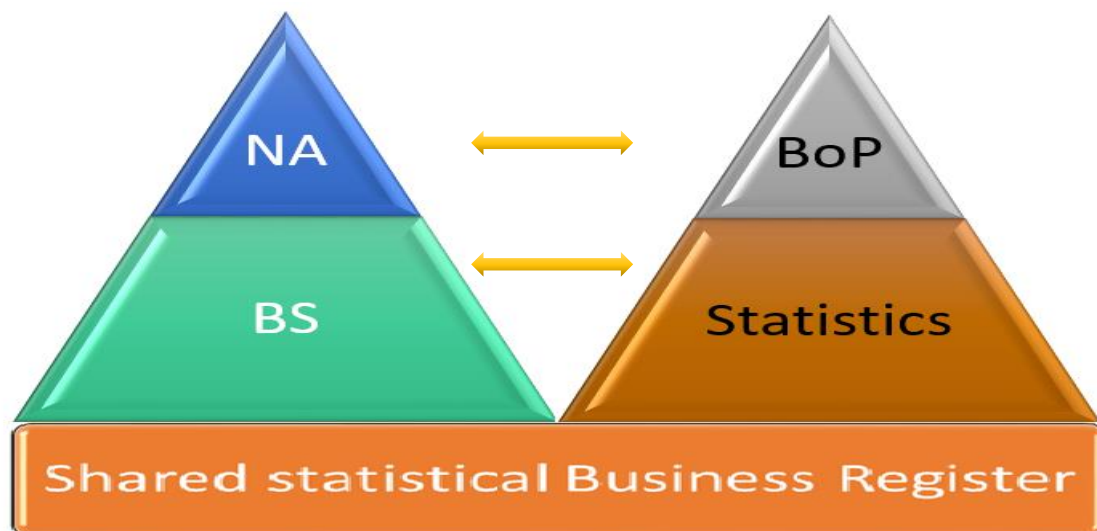


Figure 3 Coordinated statistics

The central question was:

What do we need to change to support CBS and DNB in sharing one business registers which would serve the individual statistics?

3. One Statistical Business Register

The end goal is a well-defined, accepted coordinated business register which serves statistical processes that produce individual, business, sector statistics and integrated statistics of both organizations.

3.1 Holistic Approach

Sharing one business register is a challenging business goal which cannot be achieved easy. Essential in achieving this end goal is to have a broad perspective. Success is dependent on many different factors. Having a good functioning SBR IT system is only part of the success. Without the correct organization, well trained people or good designed business processes, the SBR will not be function properly. The POPIT model is a tool used to ensure that that all internal business aspects are considered at the outset and throughout any business change. The POPIT model is to ensure that you have taken a holistic approach to the change process and considered other aspects of the business, in addition to the more obvious business processes and IT systems. POP-IT means that not only the IT part is important, but also the people doing the work, the processes involved and the organization. These factors combined provide a helicopter view on a business change. In so doing, you can uncover where problems lie and what improvements might be possible. See Figure 4 POPIT model below.

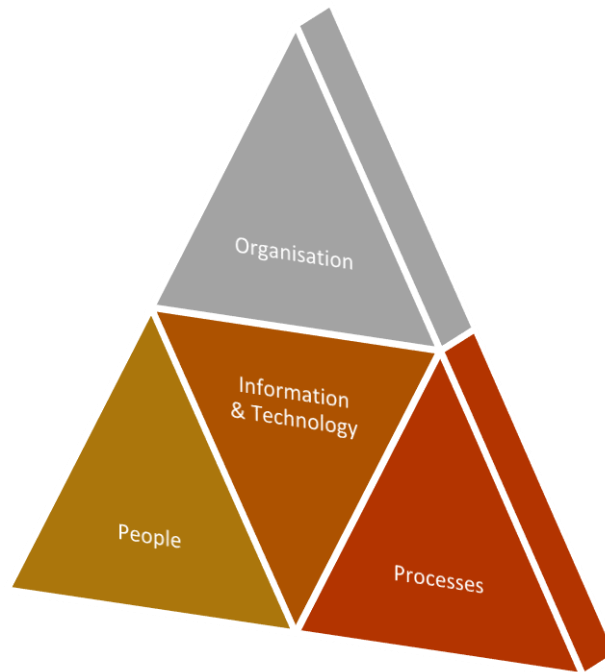


Figure 4 POPIT model

3.2 Information and Technology

The most known change people think about is the IT part. And in many business changes this is vital part. But it is not only technology which is important. Also the information part needs to be considered.

Concepts and methodologies

The current SBR is set up and maintained by CBS. And is based on CBS internal needs. Not only the internal needs, but also (inter)national regulations define the way the SBR has been set up. Our SBR holds the following units:

- Legal units
- Enterprise Groups
- Enterprises
- Local units

Methodologies have been designed to use administrative data to derive the statistical units in the SBR. And we have a data quality process which looks and intervenes where quality might be poor and requires correction.

Now with the new user, come also new needs. For DNB the institutional unit is the important statistical unit. In the overall part of the SBR the operationalization of the enterprise is a 1 to 1 match with that of the institutional unit (IU). But there are cases where IUs need to have a different construction compared to the enterprise. Especially in financial and government institutions this is the case. A workaround might be needed to have an institutional unit where the criteria are not sufficiently met to create an enterprise.. Whereas enterprises are characterized by having turnover or employees, institutional units may be characterized by a substantial balance total without having turnover and employees. this is only in special circumstances. In most cases the IU is equal to the Enterprise. For example pension funds that have outsourced the financial administrative work to

another legal unit, leaving not employees and turnover in the pension fund and therefore may not classify as enterprise in the strict sense, but they classify as institutional unit. The legal units doing the administrative work either in or outside the same group will in classify as enterprise because they have employees and turnover. Also Special purpose entities are an example where ENT \diamond IU.

Companies have many different ways of organizing themselves, especially for financial reasons. DNB has expectations in how these different organizational cases are reflected in the construction of the statistical units which can be used by DNB. E.g. what to do with SPE's? How to deal with top holdings in a group with enterprises that are active in various economic activities?

Which population is extra relevant for DNB and should be subjected to manual profiling? To what extend should enterprise groups be divided in institutional units, weighing contribution to involved financial subsectors and administrative burden?

IT

The SBR has always been stored at CBS. CBS has years of experience in maintaining the SBR from a technical and functional point of view. The logical path to follow was to make us of this strength and keep it at CBS and using the business and IT architectures which have served CBS for many years with great success. But a new external organization is going to be part of the DQM process and will use the SBR as a population frame for their statistical processes. So IT arrangements have to be taken in order to let the DNB have access to the SBR keeping in mind all the legal challenges.

The following actions have been taken:

- DNB can view the SBR and the statistical units included. They are not able to update any units directly.
- DNB will in the future be able to retrieve the population needed for their statistical process with all the necessary information on these units.
- A secure transport way is available for sharing data on enterprise groups which are subject to the joined DQM process.
- DNB as a source for updating activity code and institutional sector code on the legal unit level.
- Templates have been defined together which are used in communicating information on enterprise groups together.

3.3 (Business) processes

(business) processes are vital to making the new IT system work. On a high a few processes needed to change. The most important three processes are described below.

Data Quality Management

DNB is the expert in financial institutions and therefore plays a vital role in achieving high quality of these units in the SBR. This actually was an extension of the DQM process which CBS already has implemented. For certain enterprise groups extra manual profiling is needed. The process below describes the DQM process for financial companies which are subject to the profiling process.

The list of financial companies, enterprise groups, that are subject to profiling is determined based on the importance in 2 or more publication cells, where the cells are the different subsectors in S12. These groups can also have an S11 or S13 component. Groups with legal units in any combination of S122 Credit institutions, S128 Insurance institutions and S129 Pension funds are on the list. The list is

extended with enterprise groups with substantial financial statistical importance. The importance is estimated based on balance total¹ for the individual legal units in the enterprise group. The balance total of the legal units with the same subsector in a group are aggregated. If the aggregated balance total for a given subsector in a group exceed a specified subsector specific threshold the enterprise group will be part of the potential list. We have to gain some experience here. After initial profiling it will be determined if it should be part of the final list, based on substance in more than one (sub)sector.

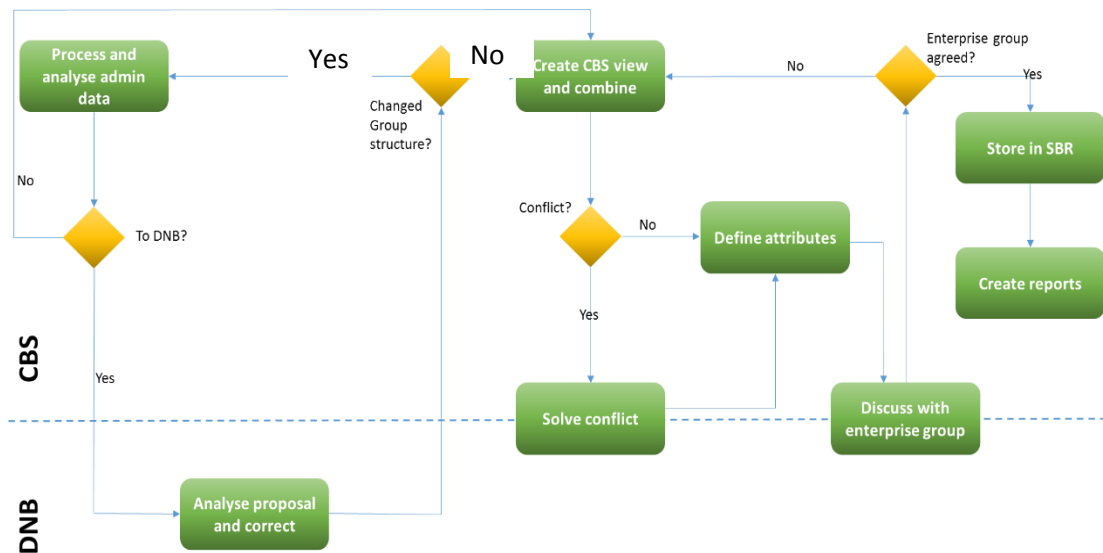


Figure 5 DQM process

Key elements in the process are:

- The SBR system generates - based on administrative data and predefined algorithms - a first view on the enterprise group (EG) and their statistical units (SBR generates ENTs).
- DNB analyses and proposes their view on the construction of statistical units. DNB does this from an IU perspective. It is possible that DNB has additional sources which could lead to adding/removing legal units to the enterprise group structure.
- CBS analyses the DNB proposal, creates their own view and compares these two views. If needed, the CBS communicates conflicts back to DNB. In case of a conflict, this needs to be solved together. A conflict can be when some legal units are allocated to different statistical units or when some legal units are not allocated to a statistical unit at all. This solving of conflicts must be seen as future lessons learned.
- After agreement between CBS and DNB the proposal is discussed with a contact person of the enterprise group. If for some reason the enterprise group does not accept the statistical units (e.g. they are unable to report on the suggested statistical unit), a solution must be found between these three partners. It is possible that DNB has a bit more legal possibilities in convincing/pressuring the enterprise group that data is needed for these created statistical units. What should be done if no agreement can be reached, the normal procedure is to follow

¹ Source for the balance total is fiscal data. Matching and interpreting this data is not completely straight forward. We have to deal with ao. data on fiscal unit level and unavailability of fiscal information (especially for pension funds).

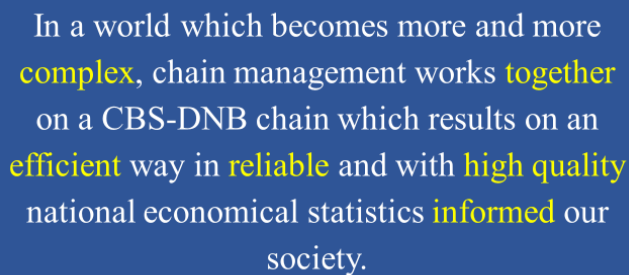
the proposal from the enterprise group. At least then quality data will be received in units which might not be actually how DNB/CBS would like to see it..

- Each enterprise group which is being profiled is profiled by one profiler from DNB and one profiler from CBS.

CBS-DNB Chain management

CBS has years of experience with chain management and knows what the benefits are. In CBS chain management has proven its purpose when different departments are working together in a chain of processes producing the output needed by the users.

The goal of the cross organizations chain management is:



In a world which becomes more and more **complex**, chain management works **together** on a CBS-DNB chain which results on an **efficient** way in **reliable** and with **high quality** national economical statistics **informed** our society.

Figure 6 Chain management goals

Chain management is the coordination and management of various statistical processes from the perspective of the whole chain. Not managing the whole chain might lead to irrational outcomes.²

It comprises the whole set of management and operating activities which aim for improving the cooperation of all actors in the chain so that the result of this joint effort is optimal and transparent for all users. The chain is designed as a set of links between processes. It can be seen as a collaboration between partners which function on their own with their own goals. But when looking at the end goal for the users they can't function without each other. Chain management is a way of working together in a non-hierarchical way.

Key values of chain management are:

² A distinction must be made between process management and chain management. Process management is confined to the direction and correction of the happy or unhappy flow within one process. Monitoring of the process flow is vital and makes feedback loops possible. Due to process management the owner of the process can adjust the process within manageable margins and be 'in control'

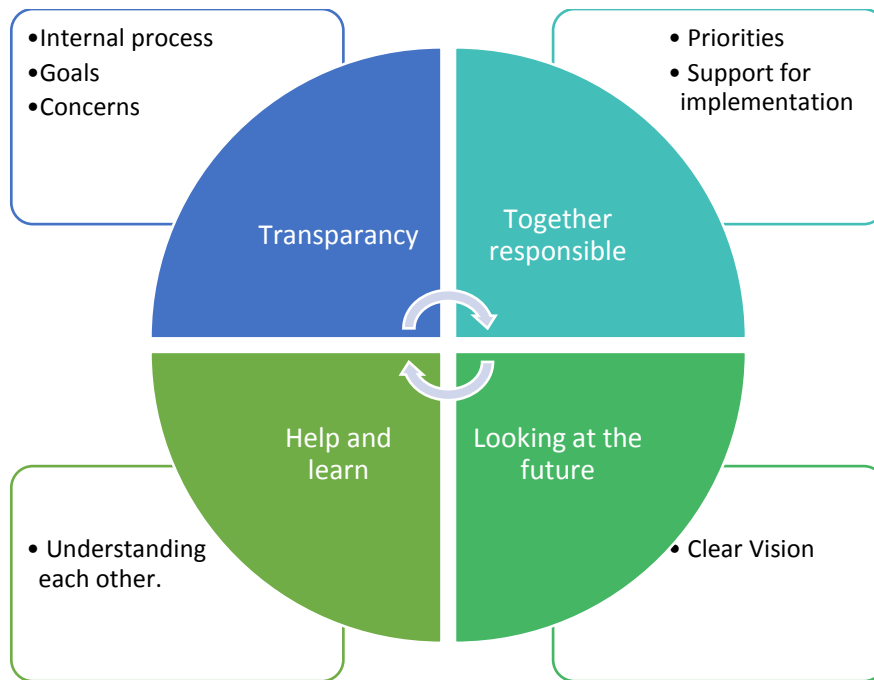


Figure 7 Chain management values

Chain management is important when many parallel and sequential processes together result in output. For the individual process owners

3.4 Organization

In DNB and CBS changes in organization are needed in order to provide a good base for the new business processes.

Some examples:

- DNB has expert areas where their people work in. At DNB separate departments are responsible for certain types of financial institutions (one for pensions, one for insurances etc). But companies often have different (financial) activities incorporated in one enterprise group. This would mean that at DNB more than one persons is responsible for one certain enterprise group.this makes working together between DNB and CBS difficult. The best way is that it is handled by one person at DNB and one person at CBS. This requires a different way of working for DNB. One has to represent all DNB experts and be the gateway of communication to CBS. At CBS also one person is responsible for a group.
- until now only few financial companies were profiled. For the other set of financial companies CBS relied on our algorithms. DNB needs more financial groups profiled. CBS needs to expand the portfolios of their profilers. Also the priority of working needs to be re-arranged. CBS needs to incorporated the profiling of financial groups and have this work prioritized related to their regular profiling work.
- Combined meetings are essential in understanding what is done how and why. When DNB understands the way of working of CBS and vice versa this will make accepting choices more easy.
- Organizing who is responsible for defining values for important statistical unit attributes for the companies (e.g. for DNB the size classes seem less relevant, but for CBS these are vital.

So DNB must support in setting the correct size class even though this information is not used by DNB).

Size classes in terms of employment might be less important for DNB but are one of the essential characteristics for CBS. When DNB profiles a group also this information needs to be gathered in a proper way.

3.5 People

And then the last but not the least element to take into account is the people who are doing the work. In the end manual work is needed and they need to be well equipped in order to produce the expected outcome. Profiling an enterprise group is not a skill that everyone has from the start. Skills required are among others:

- Communicating skills. Need to be able to speak to different types of people.
- Economic, financial and law knowledge

Important aspects are:

- CBS people need to train and work together with the DNB profilers. For this they need to understand where the intentions and needs of DNB profilers are, which information is relevant for them.
- DNB employees will start with the profiling process in close collaboration with their CBS profiling partner. They need to understand the main principles CBS profilers apply to derive statistical units fit for CBS statistics.

4. Conclusions and future challenges

Sharing one business register is not an easy task and will take a lot of years of hard work, investments, adapting to new situations and (external) changes. But it also offers a lot of opportunities. We are combining the strength of two organizations which have different focus. Working together brings CBS and DNB closer to their ultimate goal: *Describing the complete economic situation in the Netherlands as good as possible.*

The SBR which serves as a backbone for all economic statistics gets a higher quality and therefore is better fit for purpose.

CBS and DNB both already are very happy with the work that has been done. Appreciation for this was described as: *'It is not always easy, but the employees of both organizations realize that the new organization of the work benefits the quality of the statistics. And that is what is important. One advantage is that CBS and DNB both have the same high standards regarding quality of making statistics. This can be seen for example in how both organizations handle confidential data. DNB has committed itself the ESCB Public Commitment on Statistics and CBS follows the Code of Practice from the ESS. Both standards are completely in line with each other.'*

But as said. We are not there yet and

for sure there a lot of challenges ahead.. Some challenges we are facing in the future:

- Optimizing the DQM process.
At the moment the profiling **one** financial group takes a lot of effort. Many communications and discussions between DNB and CBS are needed to finalize the profile of a group. It is a learning process which will improve over time. Also the CBS internal communications

requires time. Some special cases need to be discussed with our internal statistical users. Since the whole economic statistical chain uses the SBR as a backbone, the statistical units should be constructed in such a way which is optimal for the whole. In the SBR we create enterprises, but sometimes the enterprises which are created are a proxy for an institutional unit. This takes time. Add an external partner and the time needed grows a lot. More experience and understanding is needed to speed up this process in the future.

- Commitment from management.
Without these new processes people already have enough work for the amount of hours that they work. Add in new tasks which require a learning period, and new prioritizations are needed. The people should have full support from the management and management has to expect that in the beginning small steps and successes/losses should be accepted.
- Big changes to the SBR-system in the future will become a bit more difficult.
Before this was a CBS internal project, but it will become a joined effort where also DNB has to adapt to the necessary changes.

But as long as all people share the same focus, accept the common goal(s) and have a transparent communication these challenges can be overtaken.