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Explanation of symbols

.	=	data not available
*	=	provisional figure
x	=	publication prohibited (confidential figure)
0 (0,0)	=	nil of less than half of unit concerned
–	=	(between two figures) inclusive
blank	=	not applicable
2006–2007	=	2006 to 2007 inclusieve
2006/2007	=	average of 2006 up to and including 2007
2006/'07	=	crop year, financial year, school year etc. beginning in 2006 and ending in 2007
2004/'05–2006/'07	=	crop year, financial year etc. 2004/'05 to 2006/'07 inclusive

Due to rounding, some totals may not correspond with the sum of the separate figures.

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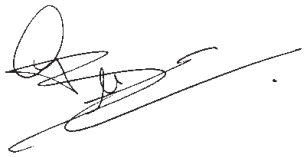
Preface

Statistics Netherlands has initiated a re-engineering project of the Dutch National Accounts (NA). This project includes the following points of interest:
– Implications of the increasing use of administrative data instead of survey data;
– Implications of globalisation (complications with registration of data);
– Efficiency and cutbacks;
– User needs, especially flexibility and timeliness;
– Standardisation of production processes.

Part of the initial phase of this project was a stocktaking exercise of good practices abroad. In order to benefit from the experience and knowledge of our foreign colleagues, a number of national statistical institutes (NSIs) were selected and asked to give an insight into their methodology and processes. For this purpose, a questionnaire was developed and completed by all participating NSIs. In addition, four NSIs were visited.
This report describes the most eye-catching differences between the NA of Statistics Netherlands and the NA of the countries involved in this study. The completed questionnaires and other relevant information upon which this study is based, are included.
Statistics Netherlands wishes to thank the NSIs of (in alphabetical order) Australia, Canada, Denmark, Finland, France, Norway, Sweden and United Kingdom for their co-operation. The extensive answers to the questionnaires and additional information that was kindly provided, were an indispensable contribution to this report. A special thanks to the colleagues of INSEE, ONS, StatCan and Statistics Denmark for their hospitality and the time and effort they put into making the study visits a very advantageous undertaking.



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Contents

1. Introduction 5

2. Countries compared per subject 6
2.1 Output 6
2.2 Input 6
2.3 Administrative data 7
2.4 Quality 8
2.5 Methodology 8
2.6 Globalisation 8
2.7 Software 9
2.8 Organisation 9
2.9 Other relevant issues 10

3. Main findings for each country 11
3.1 Institut Nationale de la Statistique et des Études Économique (INSEE) – France 11
3.2 Office for National Statistics (ONS) – United Kingdom 12
3.3 Danmarks Statistik (DST) – Denmark 14
3.4 Statistics Canada (StatCan) – Canada 16
3.5 Statistisk Sentralbyrå (SSB) – Norway 18
3.6 Statistiska Centralbyrån (SCB) – Sweden 19
3.7 Tilastokeskus (SF) – Finland 20
3.8 Australian Bureau of Statistics (ABS) – Australia 21

4. Contribution of INSEE – France 22
4.1 Questionnaire on National Accounts of INSEE – France 22
4.2 Report of study visit to INSEE – France, June 2006 27
4.3 Outline of the NA process of INSEE – France 34

5. Contribution of ONS – United Kingdom 39
5.1 Questionnaire on National Accounts 39

6. Contribution of DST – Denmark 45
6.1 Questionnaire on National Accounts 45
6.2 Report of study visit to DST – Denmark, July 2006 55

7. Contribution of StatCan – Canada 64
7.1 Questionnaire on National Accounts 64
7.2 The Canadian Unified Survey System 74

8. Contribution of SSB – Norway 79
8.1 Questionnaire on National Accounts 79

9. Contribution of SCB – Sweden 86
9.1 Questionnaire on National Accounts 86

10. Contribution of Tilastokeskus – Finland 93
10.1 Questionnaire on National Accounts 93

11. Contribution of ABS – Australia 100
11.1 Questionnaire on National Accounts 100

12. Contribution of CBS – Netherlands 108
12.1 Questionnaire on National Accounts 108

13. References 116

1. Introduction

Statistics Netherlands has initiated a re-engineering project of the Dutch National Accounts. This project includes the following points of interest:
– Implications of the increasing use of administrative data instead of survey data;
– Implications of globalisation (complications with registration of data);
– Efficiency and cutbacks;
– User needs, especially flexibility and timeliness;
– Standardisation of production processes.

A project organisation has been established to design and implement a production process that is standardised yet flexible, stable and efficient, capable of managing modifications and delay in source information and allowing to meet both user needs and EU quality requirements. Furthermore, it is the opinion of Statistics Netherlands that the future focus of the department of National Accounts should be on balancing statistical information rather than on analysis of source data.

Part of the initial phase of the project was a stocktaking exercise of good practices abroad. In order to benefit from the experience and knowledge of our foreign colleagues, a number of national statistical institutes (NSIs) were selected and asked to give an insight into their methodology and processes.

In order to structuralise our request for information, a questionnaire was developed with a number of questions on the contents, processes and organisation of the NA. Both the, sometimes extensive, answers to the questionnaires and information found on the websites of the NSIs led to further contacts with NA specialists. Some subjects required face-to-face discussions and therefore, study visits were made to four NSIs.

This report contains the information derived from both the questionnaires and reports, and from discussions during the study visits. Its primary interest is to serve as a source of information for the next stage of the Dutch NA redesign project. Secondly, it might be useful as a benchmark for the NSIs which provided information.

In chapter 2, a summary of eye-catching differences is given between the national accounts of the Netherlands and those of other countries involved. Chapter 3 describes the main findings for each NSI in more detail. The completed questionnaires, reports of the study visits and other relevant information can be found in chapters 4 to 12. Finally, the reports and research papers consulted, in addition to information obtained from the completed questionnaires and study visits, are listed in chapter 13.

2. Countries compared per subject

This chapter summarises the most eye-catching differences between the national accounts of Statistics Netherlands (CBS) and the national accounts of the countries included in this study. Each section describes an aspect of the national accounts in accordance with the main subjects of the questionnaire that was designed for this study.

2.1 Output

The most noticeable differences between the output of CBS and the output of the NSIs of the participating countries concern the supply and use tables (SUT).

CBS compiles SUT in current prices and prices of the preceding year for 250 industries and 800 products. Due to confidentiality requirements, the SUT that is published lists 150 industries and 600 products. At the *Office for National Statistics* in Great Britain (ONS), so far, annual SUT show less detail: 123 industries and 123 products. However, the future system at ONS aims at compiling SUT at around 400 x 400 level. *Danmark Statistik* (DST, Statistics Denmark), on the other hand, is known for a very specified and high-quality balanced SUT for the final figures of the annual NA. For provisional and quarterly accounts, unbalanced SUT are used as a tool for estimation. As a consequence, quality of preliminary estimates is relatively limited, but less staff is required. The most eye-catching difference in approaching the SUT is found in the French *Institut Nationale de la Statistique et des Études Économique* (INSEE). Whereas in most countries, industries are in the columns of the SUT, at INSEE the columns represent product groups. As a result, data in the supply table are limited: the supply matrix is on the diagonal.

The annual input – output (I/O) table at CBS covers approximately 150 activities and is compiled in both current prices and prices of the preceding year and both at basic value and producers' prices. ONS publishes an I/O table only once every five years.

CBS publishes the three Gross Domestic Product (GDP) estimates on a quarterly basis in current prices, prices of the preceding year and changes in volume, except for the income account, which is not published in constant prices. *Statistics Canada* (StatCan) releases GDP estimates on a quarterly basis as well, but on top of that, a GDP by industry is released on a monthly basis.

At the Norwegian *Statistisk Sentralbyrå* (SSB, Statistics Norway), provisional annual accounts are on a quarterly basis. At CBS, the provisional annual accounts have been compiled separately so far, but there are concrete plans to adopt a comparable strategy.

All NSIs involved in this study, carry out revisions regularly, but with different frequencies. While CBS revises its NA approximately once every five years, ONS has a yearly revision policy.

Regarding the overall output programme, it might be noted that DST in general publishes fewer details compared to other countries considered in this study. All Eurostat obligations are fully met, but, due to budget restrictions, DST publishes few NA data on top of the Eurostat obligations.

2.2 Input

Dutch SUT are mainly based on business survey information. The Division of Business Statistics (BS) of CBS is responsible for conducting these surveys and delivering the edited micro data and output aggregates to the Department of NA in the Division of

Macro-economic Statistics and Dissemination. For small enterprises, tax data are used instead of and in addition to survey data in business statistics. Although work on micro data is the responsibility of the Division of BS, in some cases NA staff checks micro data as well. Transformation of data to the concepts of NA is almost exclusively the field of NA staff.

At INSEE, fiscal data form the backbone of business statistics; surveys are complementary, whereas in the Netherlands the current situation is almost the opposite. Extensive data for intermediate consumption is collected only once every five years. All work on micro data and part of the integration of the NA lie within the responsibility of the directorate of business statistics. The transformation to NA definitions is performed on a macro basis within the National Accounts department.

Whereas NA activities regarding micro data at CBS are limited, at DST the division of National Accounts uses micro data of enterprises intensively. These data are checked, made consistent if necessary and transformed to data suitable for the National Accounts. Consistent source statistics (accounts statistics) form a sound starting point for the compilation of National Accounts. If necessary, NA compiles consistent data on a unit level up to local kind of activity unit (LKAU).

2.3 Administrative data

The use of administrative data at CBS is increasing. Fiscal data are increasingly used in business statistics and data from supervisory authorities play an important role in sector accounts. Moreover, due to recent legislation, CBS is only permitted to conduct surveys, if the necessary data cannot be obtained alternatively. Therefore, one of the points of interest of the redesign project of NA is to map the consequences of the increasing use of administrative data instead of survey data.

Better coverage, lower cost and response burden are often mentioned as advantages of using administrative data. However, drawbacks exist as well: usually administrative sources are less detailed and poorer with respect to timeliness. SSB emphasizes the need to assess this trade-off carefully.

Although the Swedish *Statistika Centralbyrån* (SCB, Statistics Sweden) uses administrative sources extensively, additional surveys are necessary to obtain information not available in these sources. This combination of survey information and administrative sources shows that two important demands can be met simultaneously: good data quality and level of detail is compatible with a lower response burden.

StatCan has established a chart of accounts to map national accounts variables to standard business accounting variables. This enables the survey system to collect the appropriate variables to measure economic aggregates of output, value added, factor and proprietors' income and investment and consumer expenditure. Besides the use of administrative data as direct input, tax data are used as a check on the macro level in Canada, except for T4 (pay slips), which is used as a benchmark to determine wages and salaries by province. This holds for all kinds of taxes on products. Important examples are the federal (GST) and provincial (PST) VAT-type taxes. In the Netherlands, on the other hand, the difference between paid and imputed VAT is left as it is.

The Finnish *Tilastokeskus* (SF, Statistics Finland) extensively uses administrative data. Where necessary, the administrative sources are supplemented with information gathered through surveys. One of the most important data sources is the Structural Business Statistics (SBS), which is compiled using direct inquiry and tax data combined with Business Register classifications. Tax data are treated automatically using mass editing and imputation techniques. Tax authority data include information on profit and loss account, balance sheet and investments. The data are received for all the

enterprises paying income taxes in Finland and having ended their accounting period during the statistical year.

2.4 Quality

The ambition of the Dutch redesign project is to realise a number of goals, while at least maintaining current quality. However, quality is difficult to define. **CBS** holds the view that some of the key words are reliability, timeliness, level of detail, compliance with international quality standards and transparency.

With respect to output, the ONS has a very open strategy on the publication of quality information. The ONS is also piloting a quality report for GDP data releases, in which quality is described as a combination of six dimensions; an explanation is given for every dimension.

Standards on quality are difficult to define. Like CBS, DST has no explicit standards for the quality of the output of NA. DST concentrates on user needs: the user's requirements need to be met. In other words: NA figures should not be responsible for wrong decisions.

2.5 Methodology

Flexibility and transparency of the current NA processes at CBS leave room for improvement. Methodologies and processes used to compile the accounts are therefore also part of the study of practices abroad. CBS uses simultaneous balancing: SUT are balanced in current prices and prices of the preceding year at the same time. At ONS, SUT are balanced in current prices only. Constant prices are computed afterwards. SUT or GDP estimates are input to sector accounts, rather similar to the Dutch situation. In contrast, INSEE compiles sector accounts and SUT for non-financial institutions simultaneously.

DST uses a very sophisticated process (and system) for the compilation of SUT for the final annual figures. SUT is partly balanced automatically in a kind of iterative process to gain consistency. This concerns the balancing of supply and demand per commodity. A manual balancing takes places in order to reach the 'targets' on intermediate consumption and detailed final expenditure. The results form the cornerstone of the Danish National Accounts. 'Targets' on a meso level are used in the balancing process in order to judge the intermediary results. The goods and services dimension of the SUT is very detailed (around 2,500 entries). This facilitates the balancing process as the number of users of each individual commodity is limited, so that discrepancies can be easily allocated.

2.6 Globalisation

Large enterprises are of primary importance to the NA. However, it is becoming increasingly difficult to assess which part of activities of complex multinational enterprises attributes to Dutch GDP (and which part to the GDPs of the other countries involved).

To address this issue, CBS has started a project to try to register data of a limited number of this type of enterprises consistently. StatCan has a separate group dealing with 'complex enterprises' and important enterprises, whereas in the Netherlands only a small number of complex enterprises are monitored. ONS has a special group dealing with large companies with five senior profilers and ten desk researchers, while at INSEE

a project on profiling complex businesses just started. So far, two businesses have been profiled.

SSB uses three means to make a distinction between domestic and foreign GDP of multinational companies. Firstly, interrelationships between Norwegian multinationals are mapped and integrated in the business register. Secondly, companies are asked to separate domestic activity from activity abroad. Thirdly, for companies with a complex international business structure (as is the case with oil companies), the distinction between domestic activities and activities abroad is made in close discussions with the companies involved.

2.7 Software

CBS uses a number of dedicated software applications for input, balancing and output of NA. The sources for the SUT are adapted to national accounts definitions and are processed in the system called Airbag (*algemeen inlees-, reken- en bewerkingssysteem voor de aanbod- en gebruiktabellen*, which stands for 'general read in and computation system for SUT'). Integration of both quarterly and annual SUT takes place in iAGT (*integratiesysteem aanbod- en gebruiktabellen*, which means 'integration system for SUT'). Similarly, for both quarterly and annual sector accounts one system is used called iSR (*integratiesysteem sectorrekeningen,* meaning 'integration system for sector accounts'). All three systems are based on SQL-Server databases with MS-Access front ends. In addition, specialists use self-made applications and spreadsheets to carry out their own calculations. For labour accounts, a new system is currently being developed. Subsequent to the redesign of NA and the new processes that will be designed, new IT systems will be developed.

The situation at ONS is comparable in the sense that ONS is undergoing a large scale systems modernisation programme too, which is similar to the so-called 'ICT master plan' of Statistics Netherlands.

Similar to the Dutch system Airbag, all the changes in concepts and definitions at the NA department of INSEE are performed in a central system in a uniform and recoverable way. At the department, there is one central, flexible database for all data in the national accounts ranging from the NA sources to the published data. Due to the possibility of storing different versions of data in the central database, it is easy to make process tables. The production of process tables is an ambition of Dutch NA as well.

StatCan uses a data warehouse in the form of an analytical warehouse portal. It includes documentation on all information needed on the subjects involved. All years and releases are included and can therefore be compared easily. It consists of n-dimensional cubes with figures including all source data. The approach is similar to that of StatLine, the CBS database used for online dissemination of statistics, but is used for analytical and processing purposes only. Another system exists in which the supply and use table (I/O table) can be balanced.

DST makes use of central databases for the storage of their data (source data, indicators). Data manipulation on aggregated data is done with Excel. Macros have been written for the transfer of data between the databases and Excel.

2.8 Organisation

For economic statistics in StatCan a project management team exists, which discusses all matters concerning statistical programme and process and takes strategic decisions. Going concern is the responsibility of an Operations Management Committee. This way of organising changes in the statistical programme and wishes precludes surprises for

the departments involved: ‘Collection’, ‘Analysis’ and ‘National Accounts’. Problems that occur in the chain of activities are also discussed in these forums. NA has a leading role in solving the problems. In the Netherlands such committees do not exist so explicitly. The statistical programme, however, is decided on by an independent committee: the CCS (Central Committee of Statistics).

When comparing staff numbers between NSIs, differences in division of labour (which activities are carried out within the NA department and which outside) and in output programme need to be taken into account. The NA department at ONS, for instance, does not compile labour accounts, but, on the other hand, includes a methodology team. Taking these differences into account, the number of staff is comparable to the Dutch situation. At DST, part of the compilation of the sector accounts, that is carried out within the National Accounts Department in the Netherlands, is done in other departments in Denmark. Moreover, the output programme is more limited compared to that of CBS. Yet, DST seems to be rather efficiently organised.

Division of labour in the National Accounts of SSB is organised according to NA category or institutional sector. For example, the same person works on the financial sector in the institutional sector accounts, the financial sector in balance of payments and financial industries in the supply and use tables. This responsibility applies for all versions (provisional, final) and periodicities (quarterly, annual). At CBS, there are sometimes several different staff members involved in SUT and institutional sector accounts and/or annual and quarterly (sector) accounts.

2.9 Other relevant issues

An interesting observation is the register system that has been developed by SCB. The four statistical registers are population register, activity register, real estate register and business register. These statistical registers are linked, using key variables. By doing so, compiling coherent and consistent subject matter publications is facilitated.

At StatCan, there are many communication lines between the various divisions. All divisions are positively involved in the redesign of NA. The business statistics division sees NA as the main client, whereas in the Netherlands NA is sometimes regarded as a matter of secondary importance.

The ONS is experimenting with automatic balancing procedures. Difficulties that have been encountered are the computational speed of the implemented systems, and the effort needed to write down the complete set of equations.

3. Main findings for each country

In this chapter, the main findings obtained from both study visits, questionnaires and research papers are presented for each NSI. More detailed information can be found in chapters 4 to 11.

3.1 Institut Nationale de la Statistique et des Études Économique (INSEE) – France

INSEE is of interest for the redesign of the Dutch National accounts, because of the use of fiscal data and the way Supply and Use tables are compiled in France. The main sources for data for non-financial corporations are the tax declarations by non-financial corporations and a structural business survey held once a year. This structural annual survey is a survey that – in principle – asks information additional to the tax declaration. It is closely connected to the tax information concerning units and concepts. The fiscal unit, which is in practice equal to the legal unit, is used in INSEE.

3.1.1 From business statistics to National Accounts

INSEE has a dedicated system (SIE, *système intermédiaire d'entreprises*, intermediate enterprise system) that functions as a first step on the bridge between the business statistics and the National Accounts. It forms the first level of transformation of individual data from business accounting to National Accounts concepts. Corrections are made on an individual level (large units) as well as on an aggregated level (small units, e.g. for missing units). The system produces data for the sector non-financial corporations excluding agriculture. It fills the current accounts. It also produces the 'output table' for the non-financial, non-agricultural corporations. This table shows the production by product category in each industry. These industries are classified by 'main activity'. The French system differs from the system that is presently foreseen to be the Dutch ESB (*economisch statistisch bestand*, literally 'economical statistical file'). Goals of the ESB-project include improvement of the use of administrative data for business statistics and providing a medium for storage, analysis, integration and publication of data. A difference is that, so far, less use is made in the Netherlands of data from the tax authorities, and more different surveys are used. As a result, there are more different types of sources that will be integrated in the ESB. Furthermore, the emphasis is, more than in the French situation, on the problems that occur in the integration of units from different sources when units have different demarcations. A second difference between the French and the Dutch systems is that all the work on micro data and a greater part of integration in INSEE lies within the responsibility of the directorate of business statistics than is the case for Statistics Netherlands. Even in the current plans for the ESB, there is less emphasis on integration for the National Accounts than in the SIE. Although there are plans to enhance the tasks of the Division of Business Statistics in supplying the data in a column of the supply and use table (data by economic activity), integration by row is not included in the plans for the future ESB. To what extent adjustment to NA definitions and concepts should be performed within the ESB is still under discussion. A third difference is that the calculation of the data for the SUT and for the sector accounts is done simultaneously so that the figures are consistent. In the Dutch National Accounts there is, as yet, a lower degree of integration between the sector accounts and the SUT compared to the French National Accounts.

The second step on the bridge between the business statistics and the National Accounts – a transformation to the NA concepts – is fully done on aggregated data within the National Accounts department. All changes in concepts and definitions are performed in a uniform and recoverable manner over all product groups. This differs from the Dutch system in which all industry specialists and sector specialists are responsible for the methods by which the sources are adjusted to the National Accounts concepts. The data and the adjustments are not centrally accessible.

3.1.2 Difference between Frech and Dutch SUT

There is one important difference between the French and Dutch supply and use table: in France the 'branches' in the columns of the supply and use table represent product groups, whereas in the Netherlands, the columns represent industries. Because of this, the data in the supply table are on the diagonal. Due to this homogeneous supply and use table, an economic analysis of the inputs per product group is more significant than an analysis of inputs per economic activity. Furthermore, intermediate consumption is more stable over time for a homogeneous column. Therefore, in the case of lack of data, intermediate consumption can be estimated more easily. At the INSEE, detailed information about intermediate consumption by product group is only available once every five years. For the years in between, a strategy is developed to estimate this information based on the totals. Statistics Netherlands collects the information on intermediate consumption every year, but the quality of these data is not as high as for the production data.

3.1.3 Database infrastructure

There is one central, flexible database in the National Accounts department for all data. This database (Pelican) has a greater span than each of the National Accounts databases at Statistics Netherlands. It contains data for both the sector accounts and for the supply and use table and ranges from the input from the directorate of business statistics to the publication data. It combines the data, which, in Statistics Netherlands, are contained in ISR, Airbag, IAGT and the publication database, plus the spreadsheets and Access databases managed by specialists. Because of the possibility of storing different versions of the data in Pelican, it is easy to make process tables. During the compilation of the National Accounts, process tables can already be created.

3.2 Office for National Statistics (ONS) – United Kingdom

This section has been constructed on the basis of three sources of information:
– Papers [1, 2, 3, 4]
– A questionnaire completed by Jon Beadle, head of the Business Change Division of the Department of National Accounts at ONS
– A visit to the Office for National Statistics

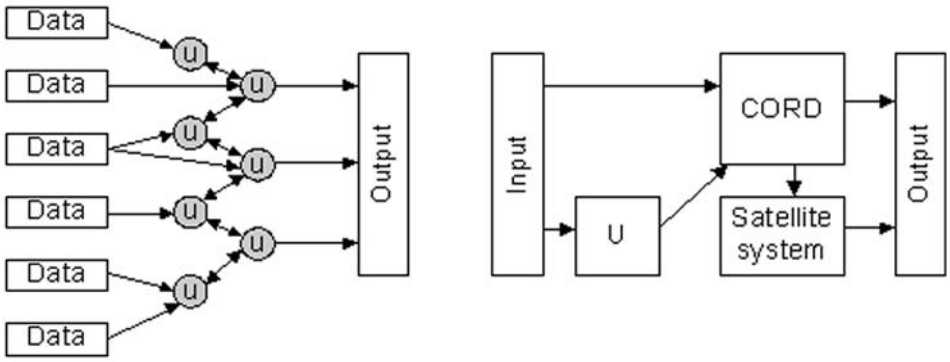
The ONS was selected, because they are currently working on a re-engineering project and have a clear policy with regard to transparency. The following subjects were discussed during the two-day visit:
– The re-engineering project
– Organisation, staff and tasks of the National Accounts division
– Main outline of the system
– Automatic balancing methods

3.2.1 Re-engineering National Accounts at ONS

The Office for National Statistics is currently involved in a re-engineering programme. This re-engineering programme is ONS-wide.
The ONS-wide re-engineering programme consists of a number of projects, which are divided into Systems & Processes, Methods and Organisational structure. The scope of this programme is largely governed by the amount of resources available. The central view is that making statistics should be a more linear process than it currently is. In the current situation (see Figure 1), different sources give input to different units. In each unit, data are transformed, edited, et cetera. The data direction is not fixed: data go from unit (u in the diagram) to unit, and are sometimes integrated during later stages of the process. In the future situation, data delivery should be more centralised. When data

need to be merged before they can be loaded into the Central ONS Repository for Data (CORD), this is done in a separate unit. From the central system, data are made available for publication. If special computations are needed, for example, balancing for benchmarking (adaptation of 4 quarters to a year), these computations are performed in a separate unit too. Thus, the statistical process remains unidirectional as can be seen in diagram 1.

Diagram 1
The current (left) and the future (right) situation



The CORD system should work ONS-wide, such that everybody works with uniformly defined metadata on the same database. Operations on this central repository are performed by rules (a rule-based system) that can be edited by specialists. A combination of SAS, JAVA and Oracle is used to build this new system. The implementation is taking more time than originally planned. One of the reasons for this is that the CORD system is an integrated system for ONS. An integrated system requires an integrated organisation. During the implementation, it became evident that it was difficult to obtain uniform specifications from the various ONS departments.

3.2.2 Strenghts and weaknesses of National Accounts

A review was performed for the department of National Accounts and was published in paper [2]. In this review, strengths and weaknesses of National Accounts are listed. The strengths are completeness, a high level of integration, timeliness of some estimates (particularly early estimates of GDP) and the strong emphasis on data for short-term indicators. The perceived weaknesses of National Accounts are the bias in early estimates (especially in capital expenditure), incoherence between alternative measures of GDP, incoherence between sector and financial accounts, quality of data inputs and consistency over time and inflexibility to make changes.

3.2.3 Two examples of re-engineering projects

With respect to the bias in early estimates, one of the re-engineering projects that deals with National Accounts has the objective to reduce the bias by researching a series of conceptual questions. Particularly, the government sector is difficult to describe statistically, due to the source situation. There are a lot of diverse and often untimely data sources that have to be used together to measure government activity.
Another re-engineering project is concerned with the implementation of automatic balancing. Three methods for automatic balancing are implemented: linear programming, least squares and RAS balancing. Some difficulties arise in these implementations. For RAS balancing, the equations need to be specified very carefully to avoid singular matrices. Another problem is that the computation of an inverse matrix is very time-consuming in the current implementation. Conjugate gradient methods have been

tried to compute solutions of linear systems faster. One of the main objectives is to implement this automatic balancing for balancing Supply and Use tables in current and previous years' prices simultaneously.

3.2.4 Quality measurements

Apart from the re-engineering programme, the ONS is very explicit in quality measurements. As from late December 2004, the office began to publish so-called revision triangles for all the main published key indicators. In such a triangle the successive estimates are described for the various time periods. These triangles are linked to the revision strategy of ONS. Time series are updated annually. There are two motives to revise the time series every year instead of stocking up changes for a larger revision once every *x* years. Firstly, the latter revision strategy is more time consuming, as a thorough administration of revision subjects is required. Moreover, data from data sources must be adapted to the 'old' situation which may lead to errors. Secondly, customers of ONS want the most recent best quality data with the corresponding time series.

In order to publish the revision triangles, the revisions are computed and special research is conducted to explain large differences. The ONS is also piloting a quality report for Gross Domestic Product (GDP) data releases. In the quality report, quality is divided into 6 dimensions:

– Relevance: The degree to which the statistical product meets user needs for both coverage and content.
– Accuracy: The closeness between an estimated result and the (unknown) true value.
– Timeliness and punctuality: Timeliness refers to the lapse of time between publication and the period to which the data refer. Punctuality refers to the time lag between the actual and planned dates of publication.
– Accessibility and Clarity: Accessibility is the ease with which users are able to access the data, also reflecting the format(s) in which the data are available and the availability of supporting information. Clarity refers to the quality and sufficiency of the metadata, illustrations and accompanying advice.
– Comparability: The degree to which data can be compared over time and domain.
– Coherence: The degree to which data, derived from different sources or methods, but referring to the same phenomenon, are similar.

For every characteristic, an explanation is given concerning the situation for the corresponding GDP estimate the report deals with. In addition, a summary of the methods used to compile the output is given. The quality information on the accounts is published later than the accounts (in a period in which production tasks are less time-consuming). The quality information is very explicit: even information about individual companies is given, if it is necessary for explaining unusual numbers.

Apart from the key observations highlighted above, more information about the ONS is obtained in this benchmark study. It is presented in chapter 5, where the outline of the questionnaire that was set up for the study of national statistical institutes is followed.

3.3 Danmarks Statistik (DST) – Denmark

3.3.1 Relevance of DST for Dutch redesign project

For a number of reasons Danmarks Statistik (DST, Statistics Denmark) is an interesting NSI from the perspective of the Dutch re-engineering project. In the first place, DST is well known, because of the efficient way statistics in general and in particular National Accounts are being composed. Only 570 employees work at DST, of whom fewer than 30 in the National Accounts Department. In the report 'Review of Statistics Denmark', the

Danish statistics and the Danish NSI are compared with a number of foreign statistics and foreign NSIs. Taking into account the size of the country, the comparison of costs on the one hand and output on the other hand, the outcome is very favourable for DST. In the second place, DST has developed and uses a solid methodology with respect to the compilation of supply and use tables. The annual supply and use tables are composed on a very detailed level. In fact, they can be considered the cornerstone of the Danish National Accounts. In the third place DST has a large experience with utilising administrative information. The use of administrative data is an integrated part of the production process in DST. In the fourth place, DST is also an NSI that has a leading position in the field of working with standardised IT-tools. The four points mentioned above were explored and discussed in more detail during the study visit.

3.3.2 Brief report of the study visit to DST

After the study visit, the first conclusion could perhaps be that the starting point – the source situation for the National Accounts – is a bit more favourable than in the Netherlands. Consistent source statistics form a sound basis for the compilation of the National Accounts. A second important conclusion might be that DST in a number of respects makes deliberate (cost-reducing) choices which enable it to produce the required National Accounts statistics. This second conclusion can be elaborated a bit. The first choice that was made by DST was that very specified and high-quality supply and use tables are only compiled for the final annual figures. This is done by partly automatically balancing the supply and use tables per commodity in a kind of iterative process. A manual balancing process takes place in order to reach the 'targets' on intermediate consumption and detailed final expenditure. By doing so, the supply and use tables can function as the core of the National Accounts. Relevant parts of the sector accounts can easily and in a labour-extensive way be compiled on the basis of these supply and use tables. Furthermore, the results of the final supply and use tables can be used as input for the preliminary estimates. The second (related) choice of DST is that relatively few staff members are required for the compilation of preliminary annual and quarterly estimates. This can largely be explained by the fact that DST does not aim to compile fully balanced supply and use tables for these preliminary estimates. A third choice especially relates to the integration process of the sector accounts. The sectors government, financial corporations and rest of the world are hardly adjusted in the integration process. As a consequence, fewer staff members are involved than in the Netherlands. A fourth choice concerns the size of the publication programme. All international requirements are met, but compared to the Netherlands less additional information is produced and especially the Danish sector accounts are compiled and published on a higher aggregation level. A fifth choice (and difference with CBS) is that, although all European regulations are met, maximum use is made of the possibility of derogation requests. By doing so, time is gained and costs are saved.

3.3.3 Final remarks

Two final remarks should be made. The work programmes of the National Accounts departments of DST and CBS are not fully comparable. Part of the compilation of the sector accounts that is carried out within the National Accounts Department in the Netherlands is done in other departments in Denmark: about 10 people of the Danish departments of Government Finances and Balance of Payments are involved in compilation of the non-financial sector accounts for government, financial corporations and the rest of the world. In these departments all financial accounts are composed too. Furthermore, in contrast to CBS, for the time being no quarterly sector accounts are composed (except for the government) and the compilation of the quarterly financial accounts is carried out by the Danish Central Bank. Finally, with respect to the re-engineering project, it could be mentioned that it is the opinion of DST that a re-design of source statistics (business statistics) should not be combined with the re-engineering project of the National Accounts. Combining the two involves huge changes over a short period of time, with substantial risks for the continuity of production processes.

3.4 Statistics Canada (StatCan) – Canada

Statistics Canada is relevant for the Dutch redesign project, for two reasons in particular. Firstly, StatCan is known for the reliability and timeliness of NA output. These two quality dimensions are difficult to meet simultaneously and are points of interest for our redesign project. Secondly, like CBS, StatCan is working on a modernisation programme of the NA. The study visit to StatCan has led to a number of key observations that might be significant for the redesign of the Dutch national accounts.

3.4.1 Statistical programme

A number of committees, in which all statistics are represented, is put in charge with elaboration, discussion and communication on the process and of course decision-making. The most important committee is the Project Management Team that decides which strategy will be followed in the statistical programme and process. The Operations Management Committee, consisting of leaders, discusses operations. Then follow five more teams: on Frame Operations, Sampling, Tax Data Operations, Content/Collection, and Processing Operations.

3.4.2 Globalisation

StatCan has a separate group dealing with 'complex enterprises' and important enterprises: the Enterprise Portfolio Management (EPM) group. This group is in charge of keeping in close contact with these enterprises and produces consistent data for the enterprises and unit levels below (such as the establishment and possibly the local unit). This includes production-related data. If observed data are not available, StatCan constructs the data on a low level using labour data, revenue and depreciation to allocate high-level data to the establishments. Each Enterprise Portfolio Manager, usually an economist with a good knowledge of accounting, handles several complex enterprises. The EPM programme has been successful in improving response, timeliness and quality of survey data. A great deal of this success was achieved by reducing the response burden imposed on EPM enterprises.

3.4.3 Chart of accounts

Another point of interest is that a chart of accounts has been established to map survey and administrative sources variables to standard business accounting variables, taking into account requirements of national accounts. This enables the survey system to collect appropriate variables to measure economic aggregates of output, value added, factor and proprietors' income. The chart of accounts enables the use of other administrative data as well, such as corporate income tax data, also derived from business accounting systems to minimise the response burden.

3.4.4 Business register

The fourth key observation is that, like in the Netherlands, the Canadian approach to economic surveys is based on a central frame developed and maintained at StatCan called the Business Register. The register (Cuthill 1990) was developed in the 1980s as part of a larger initiative to create generic tools and frameworks for conducting business surveys.

The register is now the backbone of more than 90 surveys. It is managed by the Business Register Division, a central division that provides services to survey programme areas. The register consists of a suite of files, programmes and processes that interact with businesses through direct profiling, survey responses and feedback and – indirectly – through administrative files such as taxation files.

The register is a list of businesses engaged in the production of goods and services. Among them are both incorporated and unincorporated businesses, except some smaller entities. It covers all sectors of the Canadian economy: commercial, non-profit, religious, government and institutional activities.

Since businesses vary in structure and complexity, there is a need to define a standard set of rules to adequately measure production units. Once the structure is established, various pieces of information can be maintained. The register includes identification, location, contact information, organisation, classification (NAICS) and basic information, such as the number of employees and gross business income.

Enterprise and establishment levels are the main concepts used for conducting business surveys. Based on these concepts, enterprises are categorised as complex or simple in structure.

For a business to be created, it requires a legal status, which implies a legal structure. Such a structure enables the business to communicate with government organisations such as Canada Revenue Agency (CRA), the national taxation agency. Each year, businesses must communicate with the CRA using a unique business number to report their income tax statement, to declare taxes collected as well as payroll deductions. These reports from the CRA are transferred to StatCan under certain agreements, and form the basis of the updating signals for the Business Register. The legal structure is maintained on the register.

The Business Register is updated on a continuous basis using three mechanisms. For large and complex enterprises, updating is achieved through direct profiling, which consists of contacting the enterprise and establishing its structure and contact points. This is a manual process conducted and maintained in the Business Register Division.

For most enterprises, sources of updates are administrative files produced by the CRA. Enterprises are legally obliged to submit three sets of information to the CRA: Goods and Services Tax collected (GST), payroll deduction retained from employees, and annual income tax forms.

3.4.5 Use of tax data

As in the Business Register, tax data are used in many areas of the national accounts. The GST and payroll deduction files are obtained on a monthly basis, and constitute of prime source of information to determine the presence of activity as well as to detect new enterprises. Enterprises also provide information, such as number of employees (payroll deduction) or taxable sales (GST), about the size of the enterprise. The annual income tax files provide a more detailed picture of each enterprise. In this case, two files are available: one for incorporated businesses (T2) and one for unincorporated businesses (T1).

Significant progress has been achieved in making better use of tax data. In the Unified Enterprise Survey (UES), survey data are being replaced with tax data in many cases, both as planned tax replacement and for survey non-response. In the reference year 2003 alone, 17,000 tax records were used from a sample of 55,000. More importantly, this initiative has cut the response burden for smaller enterprises.

On a macro level, tax data are used as a check, except for T4 (pay slips), which are used as benchmark to determine wages and salaries by province. This applies to all kinds of taxes on products. Important examples are the federal (GST) and provincial (PST) VAT-type taxes. This check also plays an important role in balancing/allocating the provincial data.

For all expenditure at purchasers' prices an estimate is made for the 'tax contents'. If total tax does not agree with the amount of taxes received by the government, further analysis of the estimates is imperative.

3.4.6 GDP estimation

The movement and trend of the GDP estimates (quarterly expenditure and monthly industry-based) are reconciled for every quarter. After reconciliation, growth rates of the two estimates are not entirely consistent, but fall within 0.2%. The statistical discrepancy between income-based GDP and expenditure-based GDP is equally distributed. The discrepancy with production-based GDP should stay within 0.2%. Given the fact that the production-based GDP is in basic prices and the other GDPs are in market prices, a difference may arise. If the discrepancy is 0.2% or more, part of it will be divided over the production. Statistical discrepancies in the sector accounts exist for all sectors. The Canadian National Accounts (CSNA) produces income- and expenditure-based estimates on a quarterly basis. The CSNA also releases GDP by industry on a monthly basis. All three GDP estimates are reconciled and benchmarked yearly with the final estimates of the I/O accounts at current prices, which are released 2.5 years after the reference year. A similar benchmarking process at constant prices also takes place each year. Currently, the focus is mainly on benchmarking monthly GDP by industry estimates to the annual constant price estimates of the I/O accounts. The final demand in constant prices derived from the I/O accounts is also reconciled with the final demand in constant prices released in the context of the income and expenditure accounts. Sector accounts and balance sheets are released quarterly (four sectors).

3.4.7 Final remarks

There are two final remarks to be made. There are a lot of communication lines between divisions. All divisions are positively involved in the modernisation programme of NA. The Business Statistics Division sees NA as its main client. The Enterprise Statistics Division (charged with managing and co-ordinating all establishment-based statistics) plays an important role. The Canadian national accounts in StatCan are very grateful to have such a division.
In addition, StatCan uses a data warehouse in the form of an analytical warehouse portal. It includes documentation on all information you need concerning the subjects involved. All years and releases are included and can easily be compared. It looks like StatLine, but is only used for analytical and processing purposes. It consists of n-dimensional cubes with figures including all source data. Another system exists in which you can balance the supply and use table (I/O table).

3.5 Statistisk Sentralbyrå (SSB) – Norway

Since Statistisk Sentralbyrå (SSB, Statistics Norway) is well known for its experience in using administrative data, SSB was asked to help our redesign project by completing a questionnaire. From the extensive information provided, the following observations can be made.

3.5.1 Output

Like CBS, SSB publishes a wide variety of NA products in both provisional and final versions. Contrary to the Dutch situation, in addition to quarterly accounts adjusted to annual data, unadjusted versions are compiled as well. Another difference is the fact that SSB's provisional accounts are quarterly-based. In the Netherlands, provisional annual accounts have been compiled separately so far, but there are concrete plans to adopt a comparable strategy.

3.5.2 Administrative data

As mentioned above, SSB has used administrative data for many years. Better coverage, lower cost and response burden are often mentioned as advantages of using

administrative data. However, drawbacks exist as well. Usually, administrative sources have less detail and poorer timeliness. SSB emphasizes the need to assess this trade-off carefully. The VAT-register, for example, provides high coverage, but has a time lag of two quarters, whereas survey-based direct data collection from enterprises gives higher actuality, but also higher costs and uncertainty.

3.5.3 Globalisation

Norway as well as the Netherlands has to deal with the statistical difficulties connected to multinational enterprises. To try to make a distinction between domestic and foreign GDP of multinational companies, SSB uses three means. Firstly, interrelationships between Norwegian multinationals are mapped and integrated in the business register. Secondly, companies are asked to separate domestic activity from activity abroad. Thirdly, for companies with a complex international business structure (as is the case with oil companies), the distinction between domestic activity and activity abroad is made in close consultation with the companies involved.

3.5.4 Organisation

Interesting observations can also be made about the organisation of Statistics Norway.

Division of labour in the National Accounts of SSB is organised according to NA category or institutional sector. For example, the same person works on the financial sector in the institutional sector accounts, the financial sector in balance of payments and financial industries in the supply and use tables. This responsibility applies for all versions (provisional, final) and periodicities (quarterly, annual). In the Netherlands, there are sometimes several different staff members involved in SUT and institutional sector accounts and/or annual and quarterly (sector) accounts.

In comparison with the Netherlands, the NA unit of SSB is rather small with only about 28 staff members. Although Eurostat Regulations do not apply to Norway, the NA programme carried out by SSB is still considerable. It could therefore be concluded that SSB works rather efficiently. The National Accounts division has a flat structure, with one head and one deputy head of division. NA collaborates closely with the Division for public finance and credit market statistics with regard to government data and institutional sector accounts. Furthermore, annual financial balance sheets are compiled by this division.

3.6 Statistiska Centralbyrån (SCB) – Sweden

Statistiska Centralbyrån (SCB, Statistics Sweden) has many years of experience in the use of administrative data for statistical purposes. Since one of the ambitions of the Dutch redesign of National Accounts is to extend the use of register data while reducing surveys in order to lower response burden, SCB was requested to complete a questionnaire and provide other information. Based on the questionnaire and other documents, the following main observations can be made.

3.6.1 Administrative data

Although SCB uses administrative sources extensively, additional surveys are necessary to obtain information not available in these sources. Since surveys are limited to the information that is otherwise not available, response burden is substantially lower than in the Netherlands. This combination of survey information and administrative sources shows that two important demands can be met simultaneously: good data quality and level of detail are compatible with lower response burden.

The use of administrative sources does not affect the processes of National Accounts to a great extent. The National Accounts unit does not use source data directly; data are collected and converted into statistics by the source statisticians.

An important advantage of the use of administrative data is the improvement of quality while reducing response burden and cost. Since administrative data often cover (almost) the entire population, sampling errors do not exist and accuracy is predominantly higher than with surveys. Some disadvantages however need to be mentioned as well.

Firstly, corrected figures are not always introduced in the database, since the authority responsible for the register does not use the database in this way.

Secondly, SCB is not able to add questions. Therefore, the level of detail is insufficient in some cases. This problem is solved by using small additional surveys.

Thirdly, timeliness may be a problem. As a consequence, these data can sometimes not be used for the first calculations.

3.6.2 Register system

Another interesting observation is the register system that has been developed by SCB. The starting point is a number of administrative registers. Administrative data as such, however, are not usable, but have to be transformed to statistical data. This process includes editing, treatment of unit and item non-response, selection of variables and linking files, dealing with differences in reference date et cetera. The four resulting statistical registers are population register, activity register, real estate register and business register. These statistical registers are linked, using key variables. By doing so, coherent and consistent subject matter publications can be made.

3.7 Tilastokeskus (SF) – Finland

Like SCB, Tilastokeskus (SF, Statistics Finland has extensive experience in the use of administrative data for statistical purposes. Since one of the ambitions of the Dutch redesign of National Accounts is to extend the use of register data, while reducing surveys in order to lower response burden, SF was requested to complete a questionnaire. From the completed questionnaire, the following key observations are obtained, that might be of importance for the Dutch national accounts.

3.7.1 Surveys and administrative data

In line with the Statistics Law of Finland and SF policy, SF extensively uses administrative data. Where necessary, the administrative sources are supplemented with information gathered through surveys.

One of the most important data sources is the Structural Business Statistics (SBS), which is compiled using direct inquiry and tax data combined with Business Register classifications. These data (the SAS database) are compiled in the Business Structures Unit in SF. Direct data treatment involves around 15 persons working on manual data collection, editing and imputation. Tax data are treated automatically using mass editing and imputation techniques. These automated routines require 1–2 persons working on the maintenance and development of the system.

The SBS survey consists of two main sources (or sub-surveys): the administrative tax data and direct inquiry. The survey frame is defined step by step. All units included in SBS survey are drawn from the Business Register.

The preparatory frame consists of all active enterprises, including following legal forms natural persons, decedents' estates, corporations subject to taxation, general partnerships, bankrupts' estates, limited partnerships, shipping companies under joint ownership, limited companies, co-operative societies, economic associations and government enterprises. Housing corporations are excluded from the survey frame.

Furthermore, the frame is limited via direct inquiry. The frame for direct inquiry is drawn from the Business Register. The frame includes enterprises having their main activity within NACE 1.1 activities C–O, excluding J and L. This implies that for enterprises beyond these activity boundaries, only administrative data exist and variables beyond these data are not estimated.

Finally, the smallest enterprises are excluded from the frame. The enterprise is excluded, if none of three minimum constraints are fulfilled.

Tax authority data include information on profit and loss account, balance sheet and investments. The data are received for all the enterprises paying income taxes in Finland and having ended their accounting period during the statistical year.

3.7.2 Globalisation

Globalisation has been a big problem, when compiling economic statistics in Finland. SF has started several projects aimed at improving observation and processing of multinational enterprises, but a proper general solution has not been found as yet. Instead, SF has investigated multinational enterprises on case-by-case basis between units which produce and process the data. SF has now started to plan the strategy for all economic statistics. Several programmes are planned for solving problems with measuring multinational enterprises (e.g. price and volume measures, globalisation in general, data collection). These programmes should commence this year.

As for arrangements with other NSIs, SF sometimes discusses some special cases with Sweden (e.g. treatment of ships) and Estonia (at the moment SF tries to investigate labour recruitment from Estonia to Finland). Foreign trade statistics (compiled in Board of Customs) have made mirror studies with neighbouring countries.

3.8 Australian Bureau of Statistics (ABS) – Australia

The Australian Bureau of Statistics (ABS) is generally considered one of the best NSIs in the world. National Accounts in Australia can also be considered as being of high quality. The fact that ABS can be characterised as innovative and the large amount of methodological knowledge that is available within the ABS could explain its leading position.

It seems that the NA-programme of Australia, although Eurostat Regulations obviously do not apply, is rather sizable in comparison with many other countries. Considering that only 57 FTEs are needed to carry out this program, it could be concluded that the NA department works in an efficient manner. Maybe even more important is the fact that many methodological papers have been composed, of which many are available on the ABS website, including several on the area of National Accounts. This illustrates that a substantial amount of knowledge is available and it guarantees a good quality of the Australian (NA) statistics. Furthermore, ABS seems to have a rather clear-cut view about its goals, ambitions and necessary quality requirements.

Finally, it should be noted that ABS is currently carrying out a 'National Accounts Process Improvement'. This might be of importance for the Dutch re-engineering project. However, for the time being no results are available. That is the main reason that ABS has not been visited (yet). Information on NA of ABS in this report is therefore limited to the completed questionnaire (see chapter 11).

4. Contribution of INSEE – France

4.1 Questionnaire on National Accounts of INSEE – France

4.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

Annual accounts

We compile for the annual accounts relating to one year:

– goods and services accounts and industry accounts, integrated into a supply and use table framework: this represents about 15,000 variables, calculated in 2 price systems;
– sector accounts: we compile the full set of non financial sector accounts, for 13 sectors and sub-sectors and the RoW; this amounts to about 500 variables;
– sector accounts: we compile the full set of financial sector accounts, for at least 13 sectors and sub-sectors and the RoW; this amounts to about 600 variables;
– sector accounts: we compile complete balance sheets, for all sectors, as well as changes in balance sheet accounts: this represents about 300 variables.

Quarterly accounts

Quarterly accounts are less detailed than annual ones. However, we produce on a quarterly basis:

– goods and services accounts and industry accounts, integrated into a supply and use table framework of about 40 industries and products, in 2 price systems
– non financial sector accounts;
– financial sector accounts.

b. Timeliness

What is the timeliness of the different NA products?

For quarterly non financial accounts, the publications are:

– flash estimate at t+42 days
– first results at t+50 days
– detailed results (including sector accounts) t+90 days

For annual accounts, until now, we have been publishing at the same time in spring of year *n* (formerly end of April, now the 19th of May):

– a final account for year n-3
– a semi final account for year n-2
– and a provisional account for year n-1
– together with the quarterly accounts of the first quarter of year n

The new date of public finance notification (PDE) in late March introduces the need of publication for public accounts and also indirectly (because of ratios) for the GDP.

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Only quarterly accounts are permanently revised.

For annual accounts, once a publication is issued, figures for one given year are revised only one year later, if not final.

Benchmark revisions are now planned every 5 year.

4.1.2 Input

a. What can be said about the environment in which the NA are compiled:

– *How is the quality and availability of source data?*
– *Which registrations are available and in what way is the information used?*
– What are the complications?

We are, for the time being, quite satisfied with the data sources. From the 2000 benchmark year onwards, we have reoriented the annual NA compilation around our main statistical sources which consist in, as far as the most part of the GDP is concerned, a business structural statistics system.

Of course, this information is available only for the needs of the final version of the accounts. For a given financial exercise of year *n*, the information is fully available in mid-year *n+2*.

b. Obtaining input

How does data delivery from source statistics to the NA take place?

As far as the data on non financial enterprises statistics is concerned, the data necessary for NA purposes consists in a file which contains the so-called intermediate system on non financial enterprises. This file is provided by the Directorate of business statistics.

This system consists in a collection of business accounting data, homogenised in an intermediate form – between business accounting and national accounting. The transition to full NA concepts, and the extrapolation for underground economy (undeclared activity) is made in the NA department.

c. Cooperation with tax authorities

Do you have documentation or can you elaborate on the cooperation with the tax authorities:

– *Are specific questions added for statistical purposes or is INSEE otherwise involved in the contents of fiscal questionnaires?*
– *How are responsibilities distributed between INSEE and the tax authorities?*
– *What are specific problems, e.g. due to differences in definition of variables and units, of the use of fiscal data and how are they dealt with?*

Cooperation of NA – and more generally of INSEE – with tax authorities has a rather long history in France (1960s).

About data on enterprises, some precisions have first to be provided:

– the taxable unit in the French fiscal system is the legal unit;
– for the assessment of their taxable income, enterprises have to provide to tax authorities a complete system of standard accounts and additional notes: these accounts are compiled according to an accounting system of concepts and under a standardised format of transactions and accounts (this is in line with an European legislation), they are quite the same accounts that the enterprises provide to their shareholders and other third parties;
– INSEE obtains from the statistical authorities the accounts which support their fiscal declaration, i.e. a profit and loss account, a balance sheet and other complementary accounting data (on their immobilisations, for instance), for the biggest enterprises (up to 100,000 units);
– there is no specific difficulty due to the fact that the information was provided to tax authorities: once again, the information provided is quite the same accounting information that business provide for their own management and shareholders; transition to NA data is part of a more general issue of transition from business accounting to NA accounting.

4.1.3 Transformation of administrative data

a. Process

In which part of the compilation process of the NA are administrative data transformed to the ESA 1995 concepts?

We are reluctant to the term 'administrative data'. In the NA compilation process, the most important data which may be described as being of an administrative origin deal with:

– the non financial enterprises;
– financial institutions (supervision);
– insurance enterprises (supervision);
– general government.

For the first three groups, despite their administrative origin, data gathered contains an information which is of an accounting nature, and which is not too biased by their administrative purpose.

Data on general government activity raise classical issues.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

Given the reservations made above on the administrative nature of data, the transformation – from accounting concepts – to NA concepts is completely made inside the NA department.

This has to be amended for government data. The unit in charge of their collection inside the Ministry of finances is quite a 'subsidiary' of the NA department, and processes a large part of the transformation process. However, the final touch is made inside the NA department.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to ESA 1995 concepts?

For non financial enterprises, there is a two-step process before the NA compilation process:

– for the biggest enterprises, their individual accounts are grouped in a file, with only individual adjustments (at the unit level);
– the second step is the intermediate system process; it completes the previous system with the whole population of enterprises: for this purpose, extrapolations are necessary for missing units as well as for reduced information; this is made at an intermediate level, characterised by size and main activity.

Transformation towards NA is then carried out at an aggregated level.

4.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

b. Criteria

What are, according to you, the criteria that makes a country an outstanding National Accounts producer?

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

We have not time enough to respond to this part of your questionnaire. Questions 4.1.4a and 4.1.4b, in particular, are very ambitious and cannot be answered quickly. It is not sure that anybody, inside the NA Department, is very conscious of these issues.
It is nevertheless obvious that interest towards NA has increased in the recent past, but only in two areas:
– availability in a short delay of quarterly data;
– general government accounts.

It is far more difficult to know the expectations of the public (in general) in other aspects of NA products.
For the issue dealing with administrative data, we are not aware of specific problems. Once again, we think that we are not too much tied by their administrative origin. In fact, it would be more accurate to say that our raw material consists in accounting data provided through an administrative procedure.

4.1.5 Methodology

a. Orientation of NA

As stated in the first e-mail, we have understood that your system of NA is more directly oriented to the analytical usefulness for economic analysis. What are the implications of this approach for the organisation, methodology and compilation processes of NA?
The following is true:
– the French statistical office (INS and economic studies) has a clear orientation towards economic analysis, in addition to pure statistical tasks;
– inside INSEE, the NA department belongs to the directorate (Directorate of economic studies and synthesis) where the main economic studies are produced;
– moreover, the quarterly accounts division has got a long tradition of cooperation with the department which issues biannual short-term forecasts (INSEE is a leading actor in this field): for instance, people from the quarterly accounts take part to the short-term diagnosis.

What are the implications as far as organisation and methodology are concerned ?
– there are obvious implications for QA: not for organisation and for methodology[1)]; but, it is clear that, at the stage of the final synthesis of a quarterly release, quarterly accountants assess their results at the light of the current data on the short-term movements;
– in the case of annual accounts, in practice, there is no implication concerning the organisation, methodology and compilation processes: they are simply closer to a group of users than if they had only outside users.

b. Methodology of compilation

Which methodologies are being used to compile the accounts:
– *Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?*
– *In what way does the use of administrative data instead of survey data affect the processes of compiling NA?*
– What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
– Are these main products balanced separately or simultaneously? How is consistency managed?

See the text ‘Outline of the NA process’ in section 4.3. Answers are provided inside.

[1)] French NA use the so-called indirect approach of QA. This has nothing to do with the ‘economic studies’ orientations.

c. Globalisation

How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

As explained above, our information system on enterprises relies on legal units. A multinational group will provide as many answers as they include as legal units.

So, we have not yet faced too many problems in this field. Our problem is certainly not the well-known problem of a multinational group, resident in France, which provides a statistical answer without allocating its activities among countries.

A problem that we have faced deals with some other aspects. For instance, a car industry producer may declare, in its sales, cars produced abroad, in Portugal for instance, and sold abroad (in Portugal, too), although none of these cars have never entered and left the French trade territory. In the same time, the car producer records the involved cars inside its purchases for resale. In this context, its value added and profit are not affected by this recording of its output. However, for the aspects of the circulation of products, we have to make adjustments on its data (on purchases and sales).

4.1.6 Software

a. R & D

How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)

IT department is in charge of the development, maintenance and evolution of the main applications of the Institute.

b. IT systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

National Accounts are elaborated using 2 dedicated software's.

Quarterly National Accounts use a SAS application (ARIEGE) and Annual National Accounts use a multidimensional data warehouse based on the ORACLE software (PELICAN). Both products have been developed by the IT department which is also in charge of the maintenance, support and evolution of the applications. Both products provide the users with some tools allowing the development of specific programs: each user is in charge of the development of its own programs.

4.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

The INSEE's NA department is only involved in the compilation process and dissemination of NA. There is no collection of data source implied.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

Advantages are obvious: unicity of goals and profession, time synergy, etc.

Disadvantages:

– a risk that NA needs be insufficiently taken into account in the upper stages of data collection: this implies that relations with statistical services have to be organised according to a service provider / customer relationship, and their content regularly updated;
– a risk of loss of knowledge, for instance with economic evolution (knowledge of the economic structure, enterprise organisations, accounting systems, ..)

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?

The NA department is subdivided in 5 divisions and one unit:

– Goods and services synthesis division (annual accounts): compilation of annual SUT, employment, PPPs;
– General synthesis of accounts (annual accounts): compilation of the institutional sectors accounts, integration of financial accounts, balance sheets;
– Rest of the world accounts (annual and quarterly accounts)
– Concepts and methodology
– Quarterly accounts
– Unit of dissemination

d. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

– Department: 3
– Goods and services synthesis division: 17
– General synthesis of accounts (annual accounts): 15;
– Rest of the world accounts (annual and quarterly accounts): 8
– Concepts and methodology:5
– Quarterly accounts: 13
– Unit of dissemination:3

Also have to be mentioned outside the NA department:

– Inside INSEE: people integrated in the Directorate on business statistics, involved in quite full time in the preparatory work of the SUT compilation: check of business data prior to NA integration, compilation of the products balances (rows of the SUT): 25 people
– Outside INSEE
  – Ministry of finances: people in charge of the NA for the general government (15 people)
  – Various ministerial departments: people in charge of some satellite accounts involved in the compilation of the central framework (housing, health, education, transports): about 5 full time equivalent
  – Bank of France: financial accounts (14 people)
  – Ministry of finances: people in charge of the provisional accounts for the general government (7 full-time equivalent people)

4.2 Report of study visit to INSEE – France, June 2006

4.2.1 Main observations

As a part of the re-engineering of the Dutch national accounts, the Institut Nationale de la Statistique et des Études Économique (INSEE) was visited to compare practices. Main subject of discussion were the non-financial corporations. The eye catching features of the French system are:

– Fiscal data forms a backbone in business statistics, surveys are complementary.
– All work on micro data and a part of the integration of the NA lies within the responsibility of the directorate of business statistics.
– In a central system all changes in concepts and definitions are performed in a uniform and recoverable manner.
– The French SUT is based on product groups in the columns, whereas the Dutch SUT is based on establishments in the columns.
– Extensive data for the intermediate consumption is only compiled once every five years

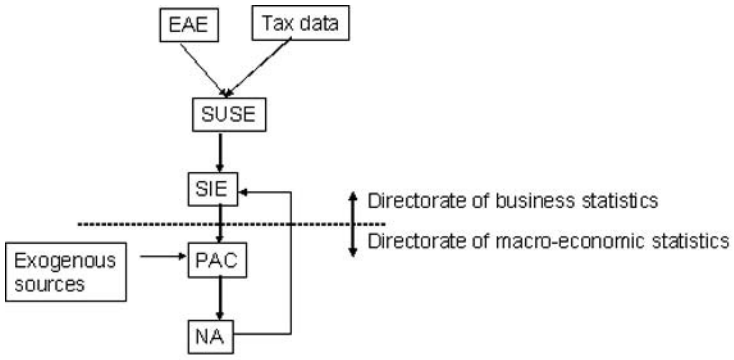
– The sector accounts for the non-financial institutions are made simultaneously with the SUT
– There are two levels of detail used to compile the SUT.
– There is one central, flexible database for all data in the national accounts ranging from the NA- sources to the published data.

Due to the possibility of storing different versions of data in the central database, it is uncomplicated to make process tables.

4.2.2 Outline of this report

This report is made based upon a visit of Marleen Verbruggen, Jan Willem Altena and Ria Okkerse to INSEE. INSEE was selected and visited because of their extensive use of administrative data sources, their system of micro integration and their close connection to the tax authorities. In particular the statistical process for the non-financial enterprises was given attention during the visit.
The statistical process that leads from the sources to the national accounts is drawn in diagram 2. The financial accounts are not made by INSEE but by the French central bank.

Diagram 2
Schematic representation of the statistical process leading to the national accounts for the non-financial institutions



The visit to INSEE largely followed this statistical process. It contained the following subjects:
– The first level of transformation of individual data from private accounting to national accounts concepts in the ‘système intermédiaire d’entreprise’ and its sources (Dominique Francoz).
– the second level of transformation of accounting systems from private to national accounts in the PAC (Luc Sauvadet)
– the supply and use table (Michel Braibant)
– software and computation organisation (Marie-Elisabeth Le Goff)

These subjects will be described below. Every chapter contains a section with a general description of the subject and a discussion where a comparison with Statistics Netherlands is made.

4.2.3 Sources of data for non financial and non agricultural corporations General *description*

The main sources of data for non financial corporations are the tax declarations by non-financial corporations and a structural business survey (*enquête annuelle d’enterprises*, EAE) that is held once per year.

The tax data consists of all applications of companies. A company has to report for every legal unit separately. Depending on the size of the company, there are three different systems according to which companies have to report, differing in their degree of detail. The largest companies (28% of the total number of companies and 94% of total turnover) have to answer an extensive questionnaire consisting of 1,000 variables, called the normal system. The smallest companies (11% of the total number of companies and 0,1% of total turnover) report only 5 variables; the ultra simplified system. The companies report their profit and loss account, balance sheet and other complementary information to the tax authority. The amount of export is also reported in the profit and loss account, but the amount of import isn't.

INSEE is a part of the ministry of financial and economic affairs, and therefore has easy access to tax information. They do not give this a lot of publicity, because it not appreciated by all companies.

Each company that communicates with the tax authority, for example for hiring personnel or applying for subsidy, has to have a registration number. In practice a company often also needs this number for opening a bank account. Since several years this registration number comes from the central business register of INSEE. This system solved the problem experienced by INSEE of following a company through time. When a company cannot be followed through successive years, it is not certain whether a population of one year corresponds to the population of the previous year. This was a problem for calculating year-to-year mutations in national accounts.

The structural annual survey (EAE) is a survey that asks information, in principle, additional to the tax declaration. It closely connects to the tax information concerning units and concepts. In the EAE the profit and loss accounts of the largest companies is collected integrally. The response rate of this compulsory survey is approximately 90%. Data includes:
– The number of employees,
– The main activity of a company,
– The amount of capital invested.

This data is already known from the tax data, although the EAE uses a different definition of the accounting period. Extra information is collected in the EAE on:
– The breakdown of turnover in product groups,
– The breakdown of turnover in sales of products and services and production,
– The distribution of investment by nature.
No data is collected on intermediary consumption of companies in the EAE.

Discussion
The French system has fiscal data as a backbone to the system of business statistics. The fiscal unity, which is in practice equal to the legal unit, is used in the INSEE. This is different in statistics Netherlands where data is collected for various types of units, dependent on the data source.
The business register of France is maintained by INSEE and INSEE is part of the ministry of finance and economy, which also contains the tax authority. Because of this, INSEE has fast and easy access to tax data.

4.2.4 SUSE

In the *système unifié de statistiques d'entreprises* (SUSE) the EAE data is integrated with the tax data. The SUSE data and checks are all performed at the level of the individual company. Both automatic checks and manual checks are conducted. The manual checks concern the largest companies. Per company the internal coherence of the data is checked and the coherence over time. Furthermore the main activity code of a company is checked if the data allows it, as well as the distribution of sales and employees by industry. When discrepancies occur, fiscal information is perceived as leading.

4.2.5 SIE

General description

The s*ystème intermédiaire d'entreprises* (SIE) forms a bridge between the SUSE data and the non-financial part of the sector accounts. Not just SUSE data is used in the system, but also exogenous data. It forms the first level of transformation of individual data from private accounting to national accounts concepts.

In the SIE checks are made both on the level of the individual company, and on the aggregated level. For the large companies data is treated on individual level. Small companies are treated on an aggregate level. All data is checked for homogeneity (in the Netherlands the word 'plausibility' is used) and continuity and part of the transformation of data to NA concepts and definitions is made. For large companies the next correction steps are also made:

– completion and substitution from SUSE data with data from other sources
– correction of misclassification
– correction of the length of the accounting period (correcting the fiscal data to the period 1/1–31/12).

The data for small companies are incremented for missing companies and variables. The population totals from the business register of INSEE are not used for this purpose. The reason for this is that a new company is registered in the business register quite soon after its creation, but the registration of its ending may take 2 years. Therefore, the population totals from a special fiscal register (subpopulation of the INSSE-register, namely: all the units which should have filled in their tax forms) is used to increment data of small firms for missing values.

The SIE produces data for the sector non-financial corporations excluding agriculture. It fills the current accounts. It also produces the 'output table' for the non-financial, non-agricultural corporations. This table gives the production by product category in each industry. These industries are classified by the 'main activity'. This table is important for the supply and use table.

The SIE gets feedback from the National Accounts on the accuracy of the figures when compared to the other sources NA uses (on export and import for example). In the SIE figures are adjusted on the basis of this feedback. Also, part of the integration over rows (product groups) in the supply and use tables is made within the SIE.

This system is located within the department of business statistics. There is a small coordination group for the SIE. However, the responsibility for completing and checking SIE data is spread over the groups that are charged with the business statistics on the various subjects. Since the coordinating SIE group has no authority over the staff involved in this process, they cannot instruct them to change the data but can merely make suggestions.

The Resane project, which will be conducted over the next few years, will merge the three processes (structural annual surveys, Suse and SIE). The aim of this is:

– To get only one team
– To avoid collection of information already available to the INSEE
– To use more administrative data
– To improve some methodological aspects
– Global analysis before micro analysis
– To shorten the delay of data dissemination
– To provide final data to the NA department in December n+1

Discussion

The SUSE and the SIE together form a system that resembles the ideas for the future ESB in the Netherlands. A difference is that, thus far, in the Netherlands less use is made of data from the tax authority, yet more different surveys are used. Due to this there are more different types of sources that will be integrated in the ESB. The

emphasis is, more than in SUSE and SIE, on the problems that occur in the integration of information from different sources, caused by different demarcations of units.

A second difference between the French and the Dutch system is that all the work on micro data and a greater part of integration in INSEE lies within the responsibility of the directorate of business statistics than it is the case of Statistics Netherlands. Even in the current plans for the ESB there is less emphasis on integration for the national accounts than in the SIE. Although there are plans of giving the division of business statistics more responsibility in supplying the data in a column of the supply and use table (the data by economic activity), integration by row is not foreseen for the ESB. It is still being discussed to what extend adjustment to NA definitions and concepts should be performed within the ESB.

A third difference is that the calculation of data from the SUT and the calculation of data for the sector accounts are done simultaneously, so that these figures are consistent. In the Dutch national accounts there is, as yet, a lower degree of integration between the sector accounts and the SUT than in the French national accounts.

A fourth difference is that the supply and use table that INSEE produces is based on fiscal units.

4.2.6 PAC

General description
The *passage aux comptes* (PAC) is a system that uses the SIE and other exogenous sources (on, for example, financial corporations, government, etc.) as inputs, and produces a complete set of data for the non financial institutions for both the sector accounts and the SUT. The PAC forms the second level of transformation of accounting systems from private accounting to national accounts.

The PAC converts the definitions and concepts on an aggregate level. The most detailed level is that of the product group (called branche). The PAC is the starting point of the integration process.

The PAC makes changes in data on production and intermediate consumption. The PAC starts from the SIE and the corrections on it (the magnitude of which is registered in the PAC). It corrects:
– Underreporting of activity
– Conceptual adjustment (for example for: taxes, subsidies, transportation costs, resell of services, double counting of export and import, FISIM, and research and software on own account)
– Residual discrepancy on subsidies
– Appreciation on changes in inventory
– Impact of reconciliation (this comes from the confrontation of the value of the output from the PAC and from the demand approach)

The PAC consists of a set of scripts that is used in the national accounts database (Pelican). One member of staff is responsible for maintaining and executing the system. All national accountants enter the data in Pelican. This data is used by the PAC to convert the SIE data to NA concepts and definitions.

Discussion
Because of the central system of transition to national accounts concepts in the PAC, all changes in concepts and definitions are performed in a uniform and recoverable way over all product groups. This differs from the Dutch system in which all industry specialists and sector specialists are responsible for the methods by which the sources are adjusted to the national accounts concepts. The data and the adjustments are not centrally accessible.

4.2.7 The supply and use table

General description

There is one important difference between the French and Dutch supply and use table: in France the ‘branches’ in the columns of the supply and use table represent product groups, whereas in the Netherlands the columns represent industries. Because of this, the data in the supply table is on the diagonal. As a result of this, the matrix of supply in branch x product is not published.

gives a representation of the French supply and use table. The intermediate consumption is in the central part. This is not derived from annual data, and only compiled more extensively, using several sources, once every five years.

Table 1
Representation of the French supply and use table. In this table, branches represent product groups.
The grey area corresponds to the Dutch use table. The striped area corresponds to the transposed right part of the supply table.

Branch	Agri-culture	Goods	Con-struction	Market services	Non-market s.	Total IC		Final cons househ. APU	GFCF	Change prod.	Invent. users	Export	Total uses
product													
agriculture													
goods													
construction													
market services													
non-market services													
total IC													
value added													
PROD branch													
transfers													
incidental sales													
PROD product													
imports													
duties, taxes													
trade margins													
– on IC													
– on HFC													
– on GFCF													
– on exports													
taxes on products													
Total supplies													

The first step in the integration process is the composition of the so-called ‘commodity flow’ table. This contains data of one product group. The data in this commodity flow table corresponds to the data shown in a row of the Dutch SUT, except there is only a total for intermediate consumption.

The data in the commodity flow table originates from the SIE, the retail trade statistics (household consumption), Intrastat (import/export) and sources on agriculture. The SIE data is based on sector of activity. This is converted into data by product group by using the ‘output matrix’ (see page).

The supply in the commodity flow table is made equal to the use, both in constant and in current prices. This integration step is performed mainly within the directorate of business statistics.

The values of the commodity flow table are transferred to the supply and use table. The rest of the integration process takes place within the directorate of macro-economic statistics.

After calculation of the output of the trade, all areas in the SUT as represented in are completed, except those for the intermediate consumption and the value added in the centre. The rest of the process concerns adding those.

For intermediate consumption per product group, there are several data sources available. These are added to the SUT. They are called the ‘fixed cells’. The rest of intermediate consumption is estimated temporarily based on technical coefficients from the previous year and the production of this year. The SUT is now completely filled. The

total of intermediate consumption based on the technical coefficients is however not equal to the intermediate consumption from the SIE.

The adjustment of the two different figures for intermediate consumption are adjusted to each other by spreading the difference over the intermediate consumption matrix and changing the final uses. A rearrangement is often made between intermediate consumption and investments or household consumption. The column totals are not adjusted here. This step involves, firstly, transferring the intermediate consumption data to data by sector of activity with the aid of the output matrix, compare the data to the SIE data and transferring the correction back to data by product group. This way the sector accounts are consistent with the SUT.

Discussion
The French SUT is based on product groups in the columns, whereas the Dutch SUT is based on establishments in the columns. These are parts of institutional units that are more homogeneous than institutional units. Since in the French case only information on institutional units exist, and in the Dutch case the data on establishments becomes increasingly poor, a choice has to be made concerning what the columns represent. The units in the columns of the SUT can, to a varying extend, be split up according to the products of the unit. The following arguments came up for discussion:
– economic analyses on of the inputs per product group is more valuable than per sector of activity.
– intermediate consumption is more stable in time for a homogeneous unit. Therefore, in case of a lack of data, intermediate consumption can be estimated more easily.
– for the composition of a SUT based on units close to the reporting unit, less assumptions are necessary.

At INSEE only once every five years detailed information is made available about intermediate consumption by product group. In the years between a strategy is developed to estimate this information based on the totals. Statistics Netherlands does collect the information on the intermediate consumption every year, but the quality of the data is not as good as for the production.

The sector accounts for the non-financial institutions are made simultaneously with the SUT and there is one data source for both products. The SUT is during the reconciliation process consistent with the sector accounts.

The financial accounts are not made by INSEE, but by the national bank of France.
The sector accounts for the non-financial sector is made in much more detail at INSEE compared to Statistics Netherlands. INSEE distinguishes about 60 branches, whereas at Statistics Netherlands the non-financial sector is not divided.

There are two levels of detail used to compile the SUT. The commodity flow tables are made for 486 product groups. The SUT is made with 118 product groups. The Dutch annual accounts are made with 800 product groups throughout the reconciliation procedure.

4.2.8 Pelican

General description
INSEE uses a new database for the storage of data of the national accounts called Pelican since one year. This database is accessible through an interface, the ‘oracle financial analyser’ (OFA) to access and process the data. The INSEE informatics team have developed particular extensions to OFA, necessary to the treatments of national accounting.

Data ranging from the output of the source statistics to the published data are stored within Pelican. This applies to the data for both sector accounts and supply and use table, although they are in two different areas.

The database is organised in such a way, that there exists a central area where the complete dataset is stored, and a private area for each national accounts specialist. This private area has the same structure as the central area and is intended as a work area for specialists. Everyone working on the national accounts has access to the central area, but only has the authority to change their own data.

Pelican is a multi dimensional database. All data of the national accounts can be described by 14 dimensions:

OP:	transaction
DA:	year
ET:	step
VO:	mode of valuation (including or not including deductible VAT)
VM:	kind of valuation (current prices, previous years' prices, constant chained prices, indices…)
PC:	position in account (supply or use, asset or liability)
PR:	product
BR:	industry
AE:	kind-of-activity units
SI:	institutional sector
SD:	debtor sector (only in 'who to whom' tables)
PA:	flow or stock
CC:	changes from sources to accounts
VC:	version of account (provisional, semi-final, final)

Each dimension has values described in classifications, for example the CPA for the dimension 'product'. The values in each dimension can be aggregated according to 'hierarchies' that are registered in the classification.

There are two dimension that state the position of data in the statistical process: the dimension CC (changes from sources to accounts) and the dimension ET (step). The dimension CC contains predefined values and it is used to make process tables. The dimension ET can be defined by the specialists that work on the data according to their needs.

Discussion
The Pelican database has a greater span than each of the national accounts databases at Statistics Netherlands. It contains data for both sector accounts and supply and use table and it ranges from the input from the directorate of business statistics to the publication data. It combines the data which at Statistics Netherlands is contained in ISR, Airbag, IAGT and the publication database, plus the spreadsheets and Access databases that specialists manage.
Because of the possibility of storing different versions of the data in Pelican, it is simple to make process tables. Process tables can already be created during the compilation of the national accounts.
In practice, not all 14 dimensions of the Pelican database are filled for all tables. If a dimension is missing, a default value is assigned. Usually, only 3 or 4 dimensions are filled. This carries the risk that identical values may be stored in different tables in the database.

4.3 Outline of the NA process of INSEE – France [2)]

The following description deals with the annual versions of the accounts, more precisely the methodology used for the benchmark year and, with some light amendments, for the final versions of the annual accounts.

[2)] By Jacques Magniez – INSEE – France.

As in most countries, the main part of the compilation process is devoted to the estimate of the GDP. This is made inside an input-output framework (supply and use tables-SUT). Given the characteristics of the information system, GDP and the SUT on one hand, and the institutional sector accounts on the other hand are compiled in a quasi integrated manner.
We use the following vocabulary:
– institutional refers to institutional units: an institutional approach is an approach where the starting point relies on the availability of data on institutional units;
– functional (may be a misuse of language) refers to industries and products.

4.3.1 Main types of data sources

As already said, the data sources are mainly of an institutional nature, and provide accounting data (i.e. data organised along an accounting structure). More precisely, given the fact that the relations with the Rest of the world are organised in the relevant account (derived from the balance of payments data), it is possible to classify the data (on resident producers and units) in three subsystems of unequal importance.

a. Data of an institutional nature

The following sectors and sub sectors are concerned:
– general government
– financial corporations
– non financial corporations and unincorporated enterprises owned by households, altogether described in the following as: non financial enterprises; this subset does not include enterprises engaged in the agricultural, fishing and forestry activities (sections A and B of NACE-Rev1)

b. Data of an functional nature

The following activities/products are known from specific sources which do not refer directly to the institutional units which produce them:
– housing (based on a 4-yearly specific survey at households)
– activities belonging to sections A and B of NACE-Rev1
– domestic services, understood as services produced on own account by households employing paid domestic staff

In the following, these activities/products are described as ‘exogenous’

c. Missing data

For the time being, there is no direct and systematic source available to follow units belonging to the NPISH sector. All the variables concerning this sector, which nevertheless is not negligible, are estimated using data on transactions with other sectors (financing transfers), various sources, and estimated ratios. An extensive estimation work was carried out for the benchmark year, allowing a compilation of the full non financial accounts of the sector, and the depending industries.
This work is extrapolated for the current final accounts, using various indices.

4.3.2 The information provided by data sources

The information which is provided depends on the kind of data sources:

a. Data of an institutional nature

The available information allows the compilation to be made of a first draft of the full sequence of the non financial accounts for the corresponding institutional sectors, including the capital account (in particular, GFCF and changes in inventories by ownership sector).

b. Data of an functional nature

What is aimed at at least is to get a complete Production and Generation of Income (P&GoI) accounts. In fact, for agriculture and the like, more information is provided, for instance GFCF and other elements.

Housing (10% of GDP) gives rise to the compilation of a satellite account, based on many external information. In addition to the P&GoI accounts, GFCF is available, and some information by type of owner, allowing an easy bridge towards institutional sectors. The content of domestic services accounts is by nature very limited.

c. Missing data

In fact, a complete sequence of accounts is estimated for the NPISH sector. In practice, this account is very simplified, including over the P&GoI accounts, some transfers, interest paid and estimated capital formation.

d. Additional data sources

In order to be able to compile the full set of non-financial accounts, use is made of many other data sources, of which it is possible to mention the following ones:

– detailed information on imports and exports of goods
– local estimates of final consumption, compiled in some kind of sub-systems, such as: energy consumption products, expenditures on motor vehicles, etc.
– additional data on construction activity
– specific surveys and calculation modules (GFCF on software for instance)

Parallel to the information on values, an as far as possible complete systems of prices is also used: PCI, prices on production, unit values of external trade.

4.3.3 The NA compilation process

Given the existing data information system, as described above, and the aim to compile in an integrated way the SUT and the institutional sector accounts (in an integrated economic accounts format), it is necessary to carry out some preliminary tasks in order to:

– put the institutional information into a functional shape
– put the functional information into a format which could be integrated in an institutional approach

This necessitates, first, to transform the variables stemming from the institutional approach into a set of variables which may be imported into a SUT:

– it is necessary to compile an output for the institutional units
– it is necessary to transform the value added of the institutional sectors into value added by industry: this is made by the way of sub sectors of main activity x industries matrices, which are part of the basic data
– in fact, all the content of the P&GoI accounts of institutional sectors is broken down by industries
– the output of an industry is more or less equal to the output of the corresponding product
– additional work on institutional data allows the calculation of detailed sales of the retail trade industry, in order to estimate the final consumption on traded goods
– a similar work is carried out in order to get trade margins by products
– changes in inventories are broken down by type of inventory and by products
– by contrast, GFCF is not broken down by products
– in this process, other more common tasks are carried out: calculation of the final consumption expenditure of government from their output, calculation of the uses of insurance products, etc.

At this point, the reader will understand that the SUT is not of a traditional format. Contrary to the SUT as understood in the SNA manual for instance, the French NA SUT

does not show in columns industries grouping observable units [3]. On the contrary, industries are 'imputed'; the resulting SUT is more of a commodity x commodity nature, except that the classification used refers to industries rather than to products. However, in the compilation process, this table plays the role usually attributed to SUTs.

In parallel, data stemming from the functional approach are integrated in the institutional approach, which raises mainly problems of consistency:
- housing industry is allocated by institutional sector: the main issue being to avoid double-counting with corporations carrying out this kind of industry as principal or secondary activity
- the same for agriculture, forestry, fishing: the aim here is to compile a full set of institutional accounts, since the basic data excludes enterprises carrying out these activities

The full process is described in the table below.

Functional approach	Institutional approach
1. Compilation of functional NA variables for the exogeneous industries: – calculation of output by industry/product – compilation of the P & GoI accounts for the relevant industries	1. Preliminary work on institutional data – transformation into NA variables – compilation of the P & GoI accounts for the relevant sectors 2 Completion: estimation of a NPISH account
2. Derivation of functional NA variables from the institutional approach: – compilation of a sectors x industries matrix on output – compilation of the P & GoI accounts by industry, starting from the relevant accounts of the institutional approach (use of the above-mentionned and supplementary sectors x industries matrices – compilation of variables by products starting from the institutional approach: – changes in inventories by products (use of various matrices) – estimation of households final consumption expenditure on traded goods, through the retail trade industry sales	3. Completion: transformation of functional data into institutional variables – allocation by sectors of the P & GoI accounts of the exogeneous industries – completion of the non-financial sector accounts in respect of the exogeneous industries
3. Starting of the SUT compilation process: – introduction of the above elements in the SUT framework – introduction of imports and exports in the products balances (rows of the SUT) – introduction of autonomous provisional estimates of final consumption expenditures of households in the products balances for non traded goods and most services (rows of the SUT) – introduction of trade and transport margins – etc.	4. Compilation of a first version of the sectors' non-financial accounts (current and capital accounts): shaping into an integrated economic accounts format
4. Balancing process of the SUT: – in the present system, the total value added is unchanged during the balancing process – as far as possible, total GFCF of some sectors (government, financial corporations, NPISH) and total changes in inventories are not affected during the balancing process – this implies that the items GFCG of the non financial enterprises and households final consumption expenditure bear the counterpart of the balancing process – the balancing process applies also to the volume-price breakdown	5. Balancing of the distributive transactions among sectors – this process implies a hierarchy between sectors: general government, RoW, financial corporations, non financial corporations – the households sector accounts are compiled according to a 'mirror' approach
Final synthesis	
The results of the balanced SUT, ie mainly final consumption expenditure of households and GFCF of the non financial corporations and households sectors are introduced in the institutional sector accounts	

4.3.4 Assessment on the calculation of GDP

As a whole, it may be said that the calculation of GDP relies mainly on an approach which calculates value added starting with an institutional approach. It is something which is both a production and an income approach.

However, this estimate is checked against a quite autonomous demand approach, which in the same time allows the compilation of a GDP by kind of final uses, and provides a full detailed picture of the economy through a SUT. This way of working ensures in the same time a good quality of volume x price breakdown.

[3] This would be the case if, for instance, the industries of the SUT grouped complete institutional units classified by the main type of activities they were carrying out. On the contrary, in the present system, one single institutional unit is divided into as many industries it declares to carry out, through the breakdown of its turnover/output.

The drawback is the absence of a systematic information on the intermediate consumption of industries by products. This gives rise only to benchmark calculations, extrapolated for the current years.

4.3.5 Complementary work

The compilation process as described above leads to the production of the following output:
- GDP, and counterpart transactions
- a balanced SUT, with the volume x price breakdown
- a complete of institutional sectors non financial accounts, in an integrated economic accounts framework

In addition, a full set of financial accounts by sectors is compiled. It is not compiled in an integrated manner, that is, for instance, financial data from the balance sheet of corporations are not used; on the contrary, banking and financial data gathered by the central bank from the financial agents are used. Only financial accounts of the general government sector and sub sectors are compiled in an integrated way.
Balance sheets by sectors are compiled according to the same time-schedule. Stocks of financial assets/liabilities shown in the balance sheets are fully consistent with the flows shown in the financial accounts (together with the other changes of assets accounts).
NA data on employment and labour volume by industry are compiled independently, using data sources which are not the same as the ones described above. Consistency tests are carried out. However, there is no procedure of feedback towards monetary accounts.

5. Contribution of ONS – United Kingdom

5.1 Questionnaire on National Accounts

5.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

The existing system produces a wide range of National Accounts products:

– Monthly Retail sales index
– Monthly index of production and monthly index of services based on Monthly Sales Inquiries.
– Monthly estimates of trade in goods based on Intrastat
– Quarterly GDP system
– Quarterly estimates of household expenditure based mainly on retail sales estimates and quarterly budget survey on expenditure
– Quarterly estimates of government final expenditure based on government accounts data
– Quarterly gross fixed capital formation based on quarterly capital expenditure inquiry
– Quarterly estimates of changes in inventories based on quarterly stocks inquiry
– Quarterly estimates of trade in services based mainly on quarterly trade in services inquiry
– Quarterly estimates of compensation of employees based on labour market data on earnings and employment
– Quarterly estimates of gross operating surplus based on Quarterly Profits Inquiry
– Quarterly Indicator of GDP in Wales
– Annual & Quarterly sector accounts including Allocation of Income Accounts, Capital Accounts, Financial Accounts and Financial Balance Sheets incorporating integrated balance of payments and general government accounts
– Annual Non-Financial Balance Sheets including estimates of capital stock
– Annual current price supply-use tables
– Annual current price input-output tables produced every 5 years
– Annual Regional Accounts data at NUTS1, NUTS2 & NUTS3 level
– Annual Environmental Accounts publication

The supply-use tables are compiled at 123 industry * 123 Products. Every quarter around 20,000 variables are published. The future system is being expanded to cover quarterly and constant price supply-use tables. The initial assumption is that these will be compiled at around 400 * 400 level but detailed testing to refine these figures is expected. Another aim is to include some of the missing parts of our portfolio as required for the ESA95 transmission programme, such as Quarterly Production and Generation of Income Accounts and Consolidated Financial Accounts.

b. Timeliness

What is the timeliness of the different NA products?

Preliminary quarterly GDP estimates are published between 3 and 4 weeks after the quarter to which they refer. A further estimate with additional production, expenditure and income components of GDP/GVA is published inside 8 weeks. A third estimate for the quarter is made inside 12 weeks alongside a full quarterly breakdown of the sector accounts.

Annual Supply-Use tables are published for the first time around 18 months after the period to which they relate.

Regional Accounts estimates are published for the first time around 24 months after the period to which they first relate.

5.1.2 Input

a. Description of Input

There is a wide range of source data available for National Accounts. For annual accounts the main data sources are our Annual Business Inquiry, which provides detailed information on sales, capital expenditure, labour costs and purchases. Other data sources are the Family Expenditure approach, a Charity Survey, a Quarterly Capital Expenditure Inquiry, a Quarterly Stock Inquiry, IntraStat, an International Passenger Survey, an Inland Revenue National, Income Survey (PAYE) and a Quarterly Profits Inquiry.

There are a wide range of quarterly sources as listed above.

b. Which registrations are available and in what way is the information used?

Another major source of annual data is data from the UK tax authority which provides information on wages & salaries, self-employment income and corporate profits. Other registrations are: HM Customs and Excise, Government Expenditure Monitoring System of HM Treasury (GEMS), Ministry of Defence records, data from British Telecommunications (BT), data from the Office for Telecommunications (OFTEL) and data from the National Health Service.

c. What are the complications?

The main complications experienced in NA compilation are:

– Bias in early estimates which are persistently revised upwards
– Incoherence between alternative measures of GDP
– Incoherence between sector and financial accounts
– Quality of data inputs and consistency over time
– Rotation effects in short-term inquiries
– Managing revisions

d. Obtaining input

How does data delivery from source statistics to the NA take place?

Most data inputs are managed through a Service Level Agreement which sets out the process.

5.1.3 Transformation of administrative data

In which part of the compilation process of the NA are administrative data transformed to the NA concepts?

Government data transformed inside NA. Tax data transformed to required industry breakdown outside NA but added to other NA series inside.

5.1.4 Quality

a. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

– Wide range of timely NA products
– Robust production systems
– Integration
– Meet users' needs
– International reputation
– Innovative

b. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

Tax data are not available until around 18 months after the period to which they relate.

5.1.5 Methodology

a. Methodology of compilation

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

Quarterly GDP growth estimates are based on production measure of GDP based mainly on monthly deflated sales data. Volume estimates are weighted together using value added weights from the most recent supply-use tables. Expenditure and Income components are combined in one estimate of quarterly GDP using a simple adjustment process to quarterly changes in inventories and operating surplus of non-financial corporations.

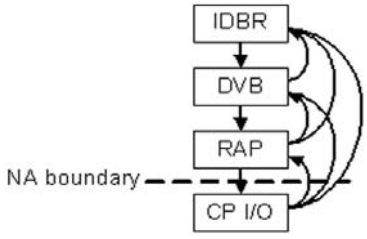
Quarterly Sector Accounts data are derived from a wide range of sources: tax data, banking data, financial inquiries, direct investment inquiries, securities ownership survey. These accounts are balanced manually although a significant statistical discrepancy is published.

Annual GDP is derived from the two main sources: Annual Business Inquiry and Tax data.

Data for small companies are integrated automatically. For large companies see section 5.1.5 b.. In case that for one variable for a small company, more data sources have an estimated value, the best estimate is chosen by an automatic priority system.
The companies are registered in IDBR, the Integrated Business Register. It is assumed that 99 % of the companies is covered in this Business Register. This register is set up in five dimensions: size, kind of industry, sector, time (updates, month, quarter, year) and details (if a business has local units).

We elaborate on the process of making annual supply and use tables. Globally the process is performed as shown in diagram 3.

Diagram 3
Global process to come to supply and use tables



Forms are sent out to samples taken from the IDBR. These forms are sent out by Forms Processing Units (not depicted in the figure). The returned forms are validated by the Data Validation Branches. In case of errors, feedback is given to the IDBR. The validated data is analyzed by RAP (Reporting, Analysis and Publication of source data). RAP also grosses results to the total population and publishes results. RAP delivers data to CP

I/O. Within CP I/O extra quality checks are performed. CP I/O, which is within the boundaries of National Accounts, has an SLA with RAP. In this SLA is mentioned that every change with respect to the previous year of more than 20 % or more than 100 million should be explained in an additional report. In this SLA is also written down that the amount of intermediate consumption that is characterized as 'other' may not be more than 10 % of the total amount. Also if for example a company reports 10 % of the intermediate use as 'other' while in a previous year this amount was only 5 %, contact should be made with the company in order to find out where this difference comes from. A second activity on basic data that is performed within CP I/O is that coverage adjustments are made. Also conceptual adjustments are made to fulfil the ESA prescriptions. After the conceptual adjustments, the supply and use tables are balanced in current prices. During this balancing process, new questions about the basic data can arise. Feedback is given to RAP, DVB and/ or to IDBR.

The total process from initial questionnaire to final publication for one year takes about three years. For example for publication of the 2004 Blue Book, in November 2003 is started with the preparation of questionnaires. During 2004, these questionnaires are finalised, samples are drawn from IDBR and questionnaires are printed and enveloped. In 2005, the questionnaires are sent in January. From January till September 2005, questionnaires are returned and validated by DVB. From September to November, RAP is analysing the data. From November to December, CP I/O can analyse the data for the first time. Feedback is given for the first time. In January 2006 improved data is provided by RAP to CP I/O. Until February, CP I/O analyses the data again, and feedback is given for the second time. In April/ May 2006, data is finalized. In June, Balanced supply and use tables are finished. In July additional accounts are made. In August 2006 the results are published, together with an Input-Output analysis, which is a book with additional information on the data (rather similar to the publication The Dutch Economy).

Annual benchmarks are then taken into the quarterly systems and volume estimates derived from the expenditure components.

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?
The use of administrative data does not significantly affects the process apart from the delay in the supply of tax records.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
In the annual accounts, supply-use is balanced first followed by the sector accounts. The UK does not compile labour accounts. In the quarterly accounts GDP is balanced as described above using estimates from the three approaches. Sector accounts are balanced after GDP estimates.

Are these main products balanced separately or simultaneously? How is consistency managed?
The accounts are balanced consecutively so that supply-use or GDP is balanced first and provides a set of inputs into later accounts. Constant price data are derived differently between the production and expenditure measure.

On the production side, volume estimates are compiled for each branch of industry using mostly either deflated monthly/quarterly turnover and volume indicators. The deflators used tend to be PPIs for the manufacturing sector, services are increasingly based on corporate service price indices, elsewhere in services sources such as earning deflators or general inflation measures are used for deflation. These are weighted together using the latest structures from the most recent supply-use table.

On the expenditure side, a wide range of deflators are generally applied to current price data. For instance, household expenditure data are deflated by consumer price indices, GFCF is deflated by appropriate PPIs, trade data are deflated by mixture of PPIs and

import/export deflators, government expenditure/output is increasingly derived using output indicators.

There is no detailed balancing of the volume estimates. A broad benchmark of the production measure data is carried out if it is more than 0.2% adrift in terms of annual growth. Adjustments tend to be made to the services components of the production data.

As mentioned in the summary, the ONS will implement a simultaneous balancing procedure for estimates in current and previous years' prices. One of the ideas that was mentioned in a conversation with Sanjiv Mahajan was that, in order to come to the best constant price estimates, one should first subtract taxes and subsidies, margins, and imports before deflation. In that way deflation would be performed on the most 'clear' prices. After deflation, taxes and subsidies, margins and imports can be added in a balanced way.

b. Globalisation

How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

ONS has a special group that deals with large companies. A separate team consisting of 5 senior profilers and 10 desk researchers work on the data about approximately 5,000 large companies. Units are separately identified in the survey process. The special treatment basically involves:

– An annual review of their group structure based on the information available at ONS Company Houses and the information from the Dun and Bradstreet Worldbase database.
– Business profiling, at a minimum of once every 4 years, to make sure that reporting within enterprises is based on correct structures, ensuring coverage is complete without duplication. A review is done more frequently if changes to structures or problems are reported.
– ONS asks the large complex companies whether their reporting to the ONS is structured in the best way for them and create survey specific structures where they request it.

Apart from the special treatment, research is done to improve the observations of multinational enterprises. One of the initiatives is the cooperation in a multinational working group. This multinational working group has the objective to come to a European register of multinational companies.

5.1.6 Software

a. R & D

How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)

IT is separately organised in ONS. However, the main time series database used in the ONS has been developed by National Accounts staff and considerable IT expertise exists within the National Accounts Group. ONS is undergoing a large scale systems modernisation programme. The IT department are responsible for delivering tools which National Accounts staff put together into processes.

b. IT systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

The existing IT system used in NA is based on an Ingres database augmented with systems based on Excel spreadsheets. The existing supply-use system is based on SAS. The new systems will be based on a mixture of Oracle, Java and SAS software.

5.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

National Accounts in ONS is only responsible for a small amount of data collection: public corporations, share ownership. The National Accounts group encompasses GDP and all its components, sector accounts including government accounts and balance of payments, regional accounts, environmental accounts, short-term indicators such as index of production and services and retail sales. National Accounts is not responsible for labour market data, productivity analysis or development of new output indicators for government output. The National Accounts Group is responsible for preparing outputs for dissemination on website, GESMES and paper publications.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

- It is not easy to get NA priorities reflected in sources collection.
- Large amount of validation takes place with NA as there are concerns about quality of source data
- Inconsistency between NA and labour market data
- Consistency between short-term indicators, GDP components and main aggregates

c. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

The National Accounts Group Director is Robin Lynch. National Accounts Group consists of around 192 staff.

A small team of 3 works directly to the Director.

The other divisions are:

- **Short-Term Output Indicators** (around 52 staff) led by Robin Youll (plus Personal Assistant) in Newport. This division is responsible for Index of Production (6), Index of Services Development (6), Index of Services Production (12), GDP production measure (5), Monthly GDP development project (5), Retail Sales Index (9), GDP for Wales (8).
- **National Expenditure and Income Division** (around 43 staff) led by Fenella Maitland-Smith in London. This division is responsible for HH Expenditure and Income (9), Gross Capital Formation (6), Non-financial Corporations and Balance Sheets (9), Government Final Consumption Expenditure (1) and Public Sector Accounts (18).
- **Balance of Payments and Financial Corporations Division** (around 22 staff) led by Stuart Brown in London. This Division is responsible for Balance of Payments Investment Income and Co-ordination (5), Trade in Goods (3) Trade in Services (7) and Financial Corporations (7).
- **NA Coordination Division** (around 33 staff) led by David Caplan in London. This division is responsible for Quarterly GDP and Sector and Financial accounts (10), Input-Output & Supply-Use tables (9), Regional Accounts (8), NA Training (3), Environmental Accounts (2),
- **Business Change Division** (around 34 staff) led Jon Beadle in both London and Newport. This division is responsible for NA systems including operations (8), Systems and Technical Support (19), this includes maintenance, NA methodology (5) and Co-ordination (2).

6. Contribution of DST – Denmark

6.1 Questionnaire on National Accounts

6.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

SUT

– Level of calculation (final year): 2.450 products (there is at least one NA-good for each 4-digit HS-group), 130 industries, 70 groups of household final consumption, one group of consumption of NPISH's, 22 groups of individual consumption of government, 10 groups of collective consumption. GFFC is shown as 8 main categories of investment, but a separate system distributes GFCF by 56 industries. In the detailed system all entries on the uses side are calculated as basic prises, wholesale and retail trade margins, net taxes on products, VAT and purchaser's prices. Length of production period: 9 months. Publication: 36 months after the end of the year.
– Level of calculation (preliminary years): 66 industries, 59 groups of household final consumption, a group of consumption of NPISH's, a group of individual consumption of government and a group of collective consumption. GFFC is shown as 17 series for main categories of investment with a few subdivisions by product. However preliminary investment matrices showing GFCF by product and industry are calculated for the year immediately following the most recent year with final accounts. Length of production period of first preliminary estimate: 3 weeks; publication: 12 months after the end of the year. Length of production period of second preliminary estimate: 2 months; publication: 24 months after the end of the year.
– Level of calculations (quarters): main accounts plus 12 industries (6 in the flash version), 13 groups of household final consumption (8 in the flash version), GFFC is shown as 7 categories of investment. A system of supply and use tables is used as basis for decisions on the magnitude of the main aggregates of the national accounts, but these product balances are left unbalanced and they are never published. Length of production period: 3 weeks. Publication: 60 days after the end of the quarter.

Sector accounts

– Annual sector accounts data are composed for the five main sectors and the sub sectors of the government and financial corporations. Annual non financial accounts are published with about 50 different variables. In the financial accounts and balance sheets approximately 10 financial transactions are distinguished. No who-to-whom matrices are available. Publication: 12 months (preliminary), 24 months (preliminary) and 36 months (final) after the end of the year.
– For the time being non financial quarterly sector accounts are only compiled for the government sector. Financial quarterly sector accounts are composed by the Danish Central Bank.

Other products

– DST also compiles labour accounts, but this does not take place within the NA-department.
– Besides sector accounts also regional accounts (by county, region), I/O-tables and environmental accounts (air emissions accounts, water accounts, environmental taxes, public sector environmental accounts) are composed.

b. Timeliness

What is the timeliness of the different NA products?

– First quarterly estimates (flash): t+60 days.
– Second (revised) quarterly estimate: t+95 days
– First annual estimate as sum of quarters: t+2 months
– Second annual estimate as sum of revised quarters: t+3 months
– Third annual estimate as sum of revised quarters: t+6 months
– First preliminary annual calculation: t+12 months
– Second preliminary annual calculation: t+24 months
– Final annual calculation: t+36 months.

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Quarterly data

– The first (flash-) version of the accounts for a new quarter is produced as extrapolations from the accounts for the previous quarter. Revisions to previously published quarters are usually avoided in this version.
– The first (flash) estimate is always revised about one month later. In this 'revised' version of the national accounts, the last three or four quarters are usually also subject to revisions.
– When the final accounts for a new year are available, all following (preliminary annual and) quarterly figures are recalculated to take into account the levels from the final accounts.

Annual data

– There are three annual estimates that are calculated as the sum of the quarterly figures: end February year t+1, beginning of April year t+1 and beginning of July year t+1.
– When the final accounts for a new year are available, all following preliminary annual (and quarterly) figures are recalculated to take into account the levels from the final accounts. So there are three annual calculations for each year: two preliminary calculations and a final one.

6.1.2 Input

a. What can be said about the environment in which the NA are compiled?:

How is the quality and availability of source data?

– The data sources of the national accounts consist primarily of all statistics on economics, business structure, employment and prices. Where such sources are insufficient, data is supplemented by any other available information for instance published accounts of enterprises.
– Among the statistics used the following can be mentioned:
  – Accounting statistics (for private urban industries)
  – Enterprise statistics
  – Accounting statistics for publicly controlled enterprises
  – Statistics on general government
  – Agricultural statistics
  – Statistics on manufacturing sales
  – Statistics on the use of raw materials in manufacturing
  – Household budget surveys
  – Retail turnover statistics
  – External trade statistics
  – Balance of payments statistics
  – Register-based labour force statistics
  – Employment statistics
  – Wholesale, consumer and net consumer price indices

– With a few exceptions detailed data is received from other departments of DST as data files. Before the data from primary statistics can be used they must however be converted into a form that complies with the concepts and classifications used in national accounts. Preparation of input data amounts to a considerable part of our work in the national accounts division. We have experienced problems in certain areas, but in general we consider most data sources to be of a high quality; nevertheless we find that confronting data from different sources often reveal errors or inconsistencies that could not be detected at the time when the primary statistics were published. Our experience is that errors are detected during all stages of the preparation of national accounts including the manual balancing of supply and use tables. This may in fact be the most important argument in favour of a system with detailed product balances.

Which registrations are available and in what way is the information used?

– DST is in a very fortunate position concerning utilization of administrative registers as the Act on Statistics Denmark from 1966 explicitly mentions the right of DST to access and utilize for statistical purposes any central public register. Furthermore the Act instructs a public authority or institution who contemplates to collect and process statistical information to inform DST with a view to negotiation on co-ordination. DST Denmark has more than 30 years of experience with utilising administrative information. The use of administrative data is an integrated part of the production process in Statistics Denmark, both concerning business and social statistics. In general, our experiences are very good and we have been able to reduce the respondent burden on especially the small enterprises in many statistics and the administrative information is also crucial as a source of information for the Business registers.
– Registers/registration are being used for the compilation of primary statistics, especially the accounts statistics. So the national accounts department is only indirectly involved.
– When enumerating registers/registrations, in the first place the Statistical Business Register should be mentioned. The Statistical Business Register contains all the units and all the data needed in the production of business statistics plus all the units and data kept in the administrative register (CVR). The central administrative business register called CVR started up in October 1999. The set up and use of the register is regulated by the Danish Act on the Central Business Register. According to this act the Ministry of Taxation, Central Customs and Tax Administration is responsible for the operation of the register and Central Customs and Tax Administration is responsible for the administration of the register in co-operation with the Ministry of Labour, the Danish Commerce and Companies Agency and Statistics Denmark. The object of the register is to store primary data on legal entities and associated LKAUs, to undertake an unambiguous numbering of these units and to provide primary data for public authorities, institutions and private individuals. The Danish Statistical Business Register assumes a central part in the production of business statistics in Statistics Denmark. This is a prerequisite for the production of co-ordinated comparable business statistics, and a prerequisite for the establishment of the basis for compiling the register-based statistics. The register also includes statistical information such as employment and turnover.
– In the second place DST uses information reported to the Companies Register. All Danish companies are under an obligation to submit a copy of their annual report to the Companies Register. The annual report consists of the profit and loss statement, the balance sheet and the report of the directors. The contents of the annual report must satisfy the minimum requirements of the Danish Law on Annual Reports, which mainly builds on the Fourth Directive of the European Communities. Apart from these requirements the companies are free to present their annual report any way they prefer, and consequently these reports vary considerably as they are not being prepared in a uniform way. It is the job of the Companies Register to make sure that the reports are actually received and that they observe the minimum requirements. The annual reports are made available to anyone who wishes to read them, including shareholders, prospective investors, public authorities, journalists and students. The annual reports do not contain sufficient information for the accounts statistics, but as an alternative to filling in Statistics Denmark's questionnaire, the respondents may provide their annual

report plus some detailed specifications (internal accounts), in which case Statistics Denmark's staff fills in the questionnaires on the basis of this material
– In the third place DST uses information reported to the Danish Tax Authorities. In the same way as employees and economically inactive persons, all legal units in the business sphere must submit an income tax return to the tax authorities. In the case of companies this is mostly done by submitting the above-mentioned annual report plus some adjustments and additions required by the tax authorities. In the case of sole traders, partnerships, etc., the income tax return may or may not build on a similar type of annual report. So the tax returns too may be prepared in diverse ways. However, most of the legal units are also required to send the tax authorities a summary version of their income tax return. This is done by filling in and submitting a special form (called an SLS-E return), whose numbered items are highlights of the profit and loss statement and balance sheet. The tax authorities use the SLS-E returns to single out some of the business enterprises that they want to scrutinise. Moreover this tax register is also utilized by Statistics Denmark because it contains uniform data.

What are the complications?
– The definitions of the available variables can constitute a problem. The administrative registers have been established to pursue certain administrative purposes – not statistical ones. The consequence can be that the definitions are not identical with the definitions of statistical variables covered by EU regulations or other user demands. Often the available information can be used as an indicator of the statistical variable (example: information on sales as an indicator of turnover).
– Another more delicate issue can be the units used in the administrative registers. Often they are not identical with the statistical units and links need to be established in the Business Register between the reporting administrative units and the statistical units to be observed.
– The quality of the information in the administrative register in terms of updating of the information can also constitute a problem for the direct use of administrative registers. If the authority in question has no direct use of updating some of the information contained in the register (example: activity classification), the statistical institute need to be cautious utilising the information directly without a supplementary treatment. Also the question of validation of the information received by the authority is crucial. The statistical office has to scrutinise carefully the revision process of the authority of the received information in order to decide which version of the register is the optimal as input for statistical production.
– The issue of which version to use can also highlight the problem of timeliness. In a normal statistical data collection, the timing of the survey is determined by the deadline for publication of the results and is decided by the statistical office. The availability of administrative data is based on the needs of the authority – not of the statistical office – and can therefore collide with the needs and deadlines of the statistical office.
– Finally, the vulnerability to external factors can be mentioned. In Denmark, we have experienced that the legal conditions have been changed also affecting the reporting of information to for instance the fiscal authorities. The consequence can be that previously available information in the administrative source used might cease to be collected, influencing the entire statistical production. This has been the case with the accounting statistics in Denmark.

b. Obtaining input
How does data delivery from source statistics to the NA take place?
See question 2.1.1.: with a few exceptions detailed data is received from other departments of Statistics Denmark as data files.

6.1.3 Transformation of administrative data

a. Process
In which part of the compilation process of the NA are administrative data transformed to the NA concepts?

See our answer below c.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

See our answer below c.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

It is impossible to give a simple answer to the questions 6.1.3 a to 6.1.3 c. We can find examples of all the possibilities mentioned in your questions.

– In principle the data from government accounts are compiled in a form that complies with national accounts concepts and classifications. In practice national accounts data for general government is based on files in which the accounts of state and local government are broken down by a number of criteria including COFOG groups and detailed NACE industries. These files are converted into the form used as input to supply and use tables, institutional accounts etc. in the national accounts office. Typically some problematic data are revealed during this process.
– The data on output in manufacturing and foreign trade use classifications that are more detailed than needed for national accounts purposes and need to be aggregated to our classifications. However some grossing up still has to be done before the data covers the economy. The data received on input structures are often less detailed than needed for national accounts. Here we need to 'blow up' the data to our classifications.
– Data received from accounts statistics are already grossed up to the whole economy except for enterprises below the threshold for turnover. For enterprises the level of detail exceeds our needs; however the information on establishments is insufficient and does not fully comply with the definitions used in national accounts. As a consequence we need to make a number of adjustments to the files received before input to our supply and use matrices is available.
– The statistics mentioned above are all adjusted on the most detailed level, that is adjustments are made to the data for individual units, before the data is aggregated to national accounts classifications. This is only possible when the national accounts division receive data from primary statistics as files with detailed information on all economic units.
– In several other areas adjustments are made to the aggregates by industry and/or products. It should be mentioned that even where adjustments were made on the unit level, we will often need to introduce further adjustments to aggregated figures later in the process, for instance when we detect errors during the manual balancing process.

6.1.4 Quality aspects

a Ambitions

What are the ambitions of your NSI regarding the National Accounts?

See our answer below b.

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

– One goal is to comply with the requirements of EU; on the other hand it is quite common to seek derogations when possible to keep down the cost and strain on respondents. Other goals are to avoid errors and to limit the magnitude of revisions. And it is very clear that timeliness is very important. These goals are of course to some

extent contradictory. More general, it is extremely important that the national accounts should show a realistic version of what is actually taking place in the real world. We should avoid misleading the public. We should be honest when we detect errors of a significant size. This will necessarily happen now and then when we have a comprehensive system of supply and use table as the Danish system. Small revisions are not necessarily a sign of high quality. Recently we have also seen some indications that our users prefer reliable figures to rapidly produced but uncertain figures.

– The Danish system of supply and use tables is very detailed compared to similar systems in other countries. There is a strong belief in the division that balancing at this level of detail is the best method for detection of errors in source data that would otherwise be hidden in the aggregates. Our experience is that even though it can be done, it is usually hard work to produce a balanced system based on erroneous data.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

The use of administrative data is not without problems, especially when the concepts behind the figures differ from the concepts needed for our purpose. Our experience is however that it is possible to adjust for such differences. Similar problems often turn up in survey-based statistics because respondents are more familiar with the concepts used in administrative data than the concepts we would prefer to use in questionnaires. To the extent that business accounting and national accounts moves in the direction of using similar definitions these problems will be smaller. Also see question 4c.

6.1.5 Methodology

a. Methodology of compilation

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

SUT, general

A comprehensive description of the methodology used in the final version of Danish national accounts can be found in our GNI inventory. The present methodology is essentially the same as described in the inventory, but in some areas the methods have changed, often as a result of changes in the available statistical sources. Of such changes the most important may be, that only a few industries are now based on what was referred to as ‘tax accounting statistics’ because since 1999 the ‘questionnaire-based accounting statistics’ covers most of the service industries. (The latter, usually referred to as ‘accounting statistics’, is however compiled by bringing together data from questionnaires, published business accounts, tax accounting statistics and information on VAT-turnover.

SUT, description of preparation of data inputs

– Files with detailed data from primary statistics are processed to produce input to the national accounts system. This includes:
  – Imports and exports in goods by product
  – Imports and exports in services by product
  – Production in manufacturing and specific service industries by industry and products
  – Accounts statistics is used to calculate the initial targets for total production, intermediate consumption, changes in inventories and GFCF by industry and sector.
– For a number of industries calculation of targets for the totals mentioned above is done in the national accounts division itself as spreadsheet-calculations. Some of these spreadsheets also contain the distribution of production by products for their respective industries.

– Data on targets for total production, intermediate consumption, changes in inventories and GFCF for all (source data-) industries are put together in the 'intermediate system', that is a file with a standardised format showing industry, sector and a standardised accounting plan. A number of adjustments from the concepts used in source data to national accounts concepts are introduced here.
– Changes in inventories are compiled in a special subsystem. The starting point is the values of opening and closing stocks by industry for inventories according to the values entered into the intermediate system. Inventories are subdivided in raw materials, wholesale trade, retail trade, finished goods /work in progress. Each type of inventory in each of the (source data-) industries is broken down by product using assumptions based on either input structures, output structures or groups of final consumption as it can be found in the supply and use tables for the previous year. In a few cases other kinds of information or pure assumptions are used for the breakdown. Closing and opening stocks are then de-/inflated to average prices for the actual year, and (national accounts-) changes in inventories are estimated as the differences and are added to the intermediate system, where they replace the inventory changes from business accounts. These calculations provide targets for total changes in inventories as well as initial distributions by product for each of the types of inventory mentioned above.
– A number of other subsystems are used to calculate production and distribution of use by industry of specific products such as energy, other motor vehicle related expenses, construction, financial services (including FISIM), insurance, repair and maintenance, fringe benefits and hidden economy.
– As already mentioned, a special subsystem is used to produce an initial version of GFCF by product and industry for each main category of investment.
– Taxes and subsidies on products are distributed by product and in special cases a full distribution by industry / consumption group / other category of use is calculated in a subsystem. (Other taxes and subsidies on production are distributed in another subsystem, but they are kept outside the system used for balancing).
– Targets for household final consumption are compiled in a subsystem based on information from retail sales indices, grossed up household budget survey and for some specific COICOP groups estimates based on supply side information or other subsystems.

SUT, description of balancing process [4)]

– The first step is to gather all the available data on the actual year on target totals and other values that can be entered directly into the system as predetermined. A complete supply matrix at basic prises is always made available. On the uses side targets [5)] are available for all 'column-totals' (intermediate consumption, household final consumption, consumption of NPISH's and general government etc. ...) at purchaser's prices. Furthermore for some areas of the economy the subsystems have produced figures for use by product and industry that can be entered directly into the SUT as predetermined values. A number of categories of use are entered into the SUT as predetermined at purchaser's prices, among those are collective consumption, changes in inventories, some types of GFCF end exports.
– The next step is to create a complete initial version of the SUT. Before any balancing or distributive procedures can begin we have to have some plausible figures in all relevant cells on the use side. Where no better information is available on the actual year, the default solution is to use structures and relations found in the SUT for the previous year inflated into prices of the actual year. The initial version of the SUT is compiled using automatic processes, but at this stage a number of unsolved problems will remain: for some products supply will not equal uses. For most categories of use the totals will usually differ from their targets. Total trade and transport margins and

[4)] An impression of the procedures used for balancing the Danish supply and use tables can be obtained from what was written as chapter 8 of the EU manual of Input Output, 'Balancing of Supply and Use' even though the description here is of a more general nature.

[5)] We use the word 'targets' to show that these values are usually not the actual column-totals of the initial version of the SUT, nor are these totals in the final balanced version of the SUT necessarily equal to the targets.

total VAT may also differ from their respective targets. This step will be referred to as ‘automatic balancing’.

– Then follows a step, where the initial version of the product-balances is adjusted manually. The unsolved problems are examined closely. In many cases such problems will reveal errors in the calculations that produce data-input to the product-balances or to the primary statistics itself. Solutions to such problems may be found in co-operation with the relevant sections of the statistical bureau and may involve changes in supply, predetermined uses or target-totals. A number of products are redistributed between uses to bring the distance between totals and targets within an acceptable range for each category of use. Corrections to the initial balances are entered into the system to create a new – but not yet final – version. Manual balancing is conducted by 4 to 6 persons (balancers). It is usually finished within a month. The ‘balancers’ use spreadsheets as an interface to a shared master file containing the SUT-tables. Procedures for extracting data from master-file to spreadsheet and transferring corrections from spreadsheet to the updated master-file are available as macros in the spreadsheet environment. The program that is used to update the master file will check the corrections for invalid values and will as default carry out recalculations to preserve trade margin and VAT percentages. The spreadsheet environment provides the ‘balancers’ with access to updated information on the state of the system like remaining differences between supply and uses at basic prices by product and the actual distances between column-totals and their targets. It is also possible to extract information from the master-files of previous years for comparison purposes and data for several years can be extracted as time series. The ‘manual balancing’ is carried out so far that remaining differences between targets and actual totals are within an acceptable range.
– When all manual corrections have been made, there will be small differences between the sums of the margin matrices and the values of supply of trade margins and the sum of the VAT matrix will show a difference from the target for total VAT. In a last step – the final balancing – all trade and transport margins are adjusted to their targets, all remaining differences from targets are removed except where such differences are considered acceptable and finally VAT is adjusted to its target.
– Supply and use tables in constant prices and in prises of the previous year are compiled using the full detail of the tables in current prices. GFCF by type, product and 56 industries is compiled in a separate subsystem in constant prises and prices of the previous year. The technique used is similar to the system used for balancing of SUT. These investment matrices are used for compilation of Stocks of fixed capital and consumption of fixed capital.
– The Danish SUT-system in connection with the annual final accounts has been working for almost 30 years. During those years new developments have taken place but the basic principles of the system are unchanged. And although we still have a lot of ideas for improvements we have no plans for fundamental changes. An area that has changed considerably is the EDP-tools available. Big efforts have over the years been made in order to develop programs and software applicable to the system. And at the other hand many of the improvements have only been possible due to the development of EDP-tools. The calculation of the final annual national accounts in current prices as described in this paper – including the preparation of available data – involves approximately 5 man-years on an annual basis.

Sector accounts

– The National Accounts Department receives input of other departments within DST. In fact the composition of the non financial sector accounts for the government (sub)sector(s), the financial sub sectors and the rest of the world for a very large part takes place outside the NA-department. Annual financial accounts are also predominantly composed outside the NA-department. In principle this data is not adjusted in the integration process within NA.
– The main tasks carried out within the NA-department are the following. Firstly, the production accounts and generation of income accounts for all sectors are compiled on the basis of sector-industry matrices. Secondly the full accounts of the households sector and the sector of non financial corporations are composed. For this purpose additional sources are explored, but also the transaction identity is used to allocate

residuals to the households sector or the non financial corporations sector. Statistical discrepancies are not allowed. If they turn up they are normally corrected in 'other accounts payable/receivable' assuming that they are related to cash-accrual differences.

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?
See questions 6.1.2 a and 6.1.4 c. It should be noted that registers/registrations predominantly are being used for the compilation of primary statistics, especially the accounts statistics. So the national accounts department is only indirectly involved.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
The supply and use tables have a central position in the final accounts. Sector accounts rely on the results of the balancing. It follows that sector accounts are always compiled after the SUTs. Labour accounts are to some extent compiled from data sources that are independent from those used in SUTs, but they cannot be finished until they can be compared with the balanced SUTs.

Are these main products balanced separately or simultaneously? How is consistency managed?
From the answer to previous question it can be concluded that the main products are balanced separately. There are no consistency problems between SUT and sector accounts, because the results of the SUT are used in the sector accounts without making adjustments on them.

b. Globalisation
How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?
– This is a big issue that could need a comprehensive description in a paper of its own. These problems should in principle have been solved, when we receive data from our suppliers of primary statistics. Our experience is, however, that problems related to outsourcing of production processes abroad is one of the main reasons for inconsistencies between data from different statistical sources. During the balancing process we often need to make further inquiries into whether reported production does or does not take place on the Danish territory and whether related expenses should be considered purchases of raw materials, services or should not be included in Danish intermediate consumption at all.
– As far as we know there are no cases where the sections responsible for primary statistics obtain information from other statistical bureaus on such matters.

6.1.6 Software

a. R & D
How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)
Statistics Denmark has a central IT-unit, but development of application programs usually takes place within the sections responsible for each type of statistics.

b. IT systems
What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?
– Much of the work is done using the SAS-package that is available to programmers as well as all other employees in Statistics Denmark. A recent development is that collection of data from respondents is being centralised in a newly created division. Another recent development is that our mainframe is being phased out.

– The national accounts division has (like the division responsible for economic models) a somewhat special status. We have a tradition of using different languages for different types of work. The 'GAUSS'-package is used for work with symmetrical I-O tables and the 'Aremos'-package is used for processing of time series. Programming is often done by economists and clerical personnel. Our systems for compilation of quarterly accounts use a combination of spreadsheets, and Aremos time series banks.
– Historically programs used in the final accounts have been written in 3.generation languages as Cobol, Fortran or Pascal as well as some in-house products used on the mainframe. The programs that are used for preparation of data inputs to SUTs have now been rewritten in SAS. Programs that need to make many 'intelligent' decisions are still written in 3.generation languages, mostly Pascal, but today such programs are compiled using a Delphi compiler. Such programs are used for setting up the initial version of the SUT and for any kind of automatic balancing used during the final balancing step.
– As mentioned above the system used for manual balancing uses Excel as the user interface. Visual basic macros are here used to find the relevant filenames, to export and import data, to format imported data and to call the (very fast) Pascal (Delphi-) programs that do most of the calculation work. As a typical Danish SUT file has approximately 50,000 records, the speed of calculation is not without importance when a program has to be performed hundreds of times a day.

6.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

See the answers to questions 6.1.2 and 6.1.3.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

See the answers to questions 6.1.2 and 6.1.3.

c. Organisation of responsibilities

How is the department of National Accounts organised and in what way are responsibilities distributed

See the answer below e.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

See the answer below e.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

The national accounts division is organised in sections for Final accounts (4 persons), Constant price calculations, including calculations in previous years prices and chained values (5 persons), Quarterly accounts (5 persons), Input output, capital and environmental accounts (8 persons) and Sector accounts (1 person). With the head of division and two programmers the total personnel is 26 at the moment. The division of labour between the sections is not as strict as it could seem. Each person will often have responsibilities that belong to more than one of these sections. Manual balancing of SUT for the final accounts is usually performed by people from various sections and may even involve people outside the national accounts division.

Balance of payments statistics has been separated from national accounts since the transfer of statistics on foreign trade in services from the central bank to Statistics Denmark. The division for statistics on government finances is on the other hand responsible for national accounts data related to general government and is also producing the data used for financial services, insurance and financial accounts. Almost 10 people of this department work on the compilation of national accounts, especially the sector accounts. GNI reports and documentation to Eurostat is also a responsibility of this division. As it has already been said, the national accounts division is not a producer of primary statistics. Data collection and preparation of data takes place in other divisions of Statistics Denmark, but data is often received as files containing information at the unit-level. The borderline between primary statistics and national accounts is not entirely clear and problems frequently are solved in cooperation with the divisions that have supplied the data.

6.2 Report of study visit to DST – Denmark, July 2006

6.2.1 Main observations

As a part of the re-engineering of the national accounts, the Danish Statistical Office (DST) was visited to compare practices. The most eye catching features of the DST-system:

– DST uses a very sophisticated process (and system) for the compilation of Supply and Use tables for the final year. SUT is partly balanced automatically in a kind of iterative process to gain consistency. This concerns the balancing of supply and demand per commodity. A manual balancing takes places in order to reach the 'targets' on intermediate consumption and detailed final expenditure. The results form the cornerstone of the Danish National Accounts.
– 'Targets' on a meso level are used in the balancing process in order to judge the intermediary results.
– The goods and services dimension of the SUT-tables is very detailed (around 2,500 entries). This facilitates the balancing process as the number of uses for each product is limited so that discrepancies can be easily allocated.
– Information on stocks is used during this balancing process. This information is also used for the provisional years and quarterly accounts.
– Balanced SUT-tables are only compiled for the final annual National Accounts. For provisional and quarterly accounts, unbalanced SUT tables are used as a tool for estimation.
– The division of National Accounts heavily uses micro-data of enterprises to check these data and to transform them to data suitable for the National Accounts. Consistent source statistics (accounts statistics) form a sound starting point for the compilation of National Accounts. If necessary NA compiles consistent data on a unit level up to LKAU.
– Eurostat obligations are fully met, but maximal use is made of the possibilities of derogations.
– The publication program is hardly bigger than the Eurostat requirements. Especially sector accounts are compiled and published in less detail in comparison with The Netherlands, both in terms of transactions and (sub)sectors. Matrices are not compiled either.
– For the time being non-financial quarterly sector accounts are only compiled for the government sector. Financial quarterly sector accounts are compiled by the Danish Central Bank.
– Part of the work of the compilation of the sector accounts that in The Netherlands is carried out in the National Accounts Department, in Denmark is done in other departments.
– It is the opinion of DST that a re-design of source statistics (business statistics) should not be combined with the re-engineering project of the National Accounts.

6.2.2 Outline of this report

This report was made on the basis of a visit of Piet Verbiest, Hans Wouters en Jan Willem Altena to Danmark Statistik (DST). DST was selected because of its intensive use of administrative data, its experience with the compilation of supply and use tables and because of the fact it compiles National Accounts with relatively few staff.

The following subjects were discussed during the two days visit:
- Organisation, staff and tasks of the National Accounts division
- Main outline of the system for calculating final, preliminary and quarterly accounts
- The re-engineering project of Statistics Netherlands
- Use of administrative data: General government
- Use of administrative data in combination with questionnaires
- Structure of intermediate consumption
- The compilation of quarterly accounts
- Transformation of primary statistics into National Accounts
- The Danish system of supply and use tables
- Calculation of I-O-tables
- Compilation of sector accounts

These subjects are described below. Every chapter contains a section with a general description of the subject and a part that compares DST with Statistics Netherlands.
DST was asked – and agreed – if the final version of this report could be distributed together with the reports of the other countries, to interested statistical offices.

6.2.3 Organisation, staff and tasks of the National Accounts division

Discussion with Ole Berner (head of division of National Accounts)

The division of National Accounts is one of the divisions of the directorate of Economic Statistics. Some other relevant divisions in that directorate are: Balance of Payments, Government finances, Prices and consumption and External Trade.

Division of labour for the different parts of the National Accounts

	Responsible in Denmark	Number of staff	Responsible in the Netherlands	Number of staff
Annual accounts	Department of NA	12,9	Department of NA	20
Quarterly accounts	Department of NA	4,8	Department of NA	14
Annual sector accounts Total integration and Households and non-financial sector	Department of NA	1	Department of NA	18
Annual sector accounts (government)	Department of Government Finance	3–3,5	Department of NA	Included in 18 above
Annual sector accounts ROW	Department of Balance of Payments	0.5	Department of NA	Idem
Annual sector accounts Financial sector	Department of Government Finance	2–2,5	Department of NA	Idem
Quarterly non financial sector accounts	To be developed (except for the government)	2 [6)]	Department of NA	–
Quarterly sector accounts (government)	Department of Government Finance	1–1,5	Department of NA	–
Quarterly financial sector accounts	Central Bank	–	Department of NA	–
Balance of payments	Department of Balance of Payments	–	Central Bank	–
International trade of goods	Department of External trade	–	Department of External trade	–
International trade of services	Department of Balance of Payments	–	Central Bank	–
GNI-inventory	Department of Government Finance	–	Department of NA	–

Based on the information in this table one can make the following table on the comparison of the number of staff for three comparable parts of the National Accounts.
The Eurostat obligations comprise the most of the published output of the Danish National accounts. DST does not publish many National Accounts data for which no Eurostat obligation exists. Its position within Europe is that it always tries to get maximum derogations [7)]. No modules are made, except one on environment.

[6)] DST expects to need 2 vte to compile the Quarterly Sector Accounts.
[7)] Of course on the long term all the obligations will be met by DST.

Number of staff of Danmarks Statistik and Statistics Netherlands for comparable systems (rounded)

	Danmarks Statistik	Statistics Netherlands
Annual accounts	13	20
Quarterly accounts	5	14
Annual sector accounts	6,5–7,5	18
Total	24,5–25,5	52

DST has no explicit norms for the quality of the output of NA, the users need to be satisfied (or differently stated: the NA-figures should not be responsible for wrong decisions).

6.2.4 Main outline of the system of final, preliminary and quarterly accounts

Discussion with Ole Berner (head of division of National Accounts) and Søren Larsen (Head of section of Annual Accounts).

DST publishes 60 days after a quarter the first estimate ('flash'). At that time earlier quarters are not revised. After 105 days DST publishes the first regular estimate of a quarter. At that time also at least 3 or 4 earlier quarters are revised. When a new final version of the annual accounts is published, all quarterly figures – starting with the first quarter of the finalized year- are revised.
Together with the flash estimate of the fourth quarter a flash estimate of the year is published (February). At the moment of publication of the first regular estimate of the fourth quarter, the first regular estimate of the year is published (April). In July a second regular annual estimate is published (together with the first regular estimate of the first quarter of t+1). The main difference between this estimate and the estimate of April is new data on government (sector accounts), Quarterly Labour Accounts and revisions of monthly indicators (see for the use of this indicators section 6.2.11). All these different versions of the year are calculated as the sum of four quarters.

In December t+1 the first 'autonomous' preliminary annual calculation is published. In January t+2 all the quarters of t are benchmarked to this new preliminary year[8)].
The same procedure is followed again a year later:
– December t+2: second preliminary estimate of the year t and
– January t+3: benchmarking of the t-quarters to this new estimate.

At December t+3 the final estimate of the year t is published and in January t+4 the final estimates of the quarters of t.
The supply and use table is only fully balanced for the final year, a – non-balanced – supply and use table is used as an estimating tool for the provisional years and all the quarters.

For the final year there is a full consistency between the SUT and the sector accounts. For the provisional years and the quarters DST realizes consistency between:
– Accounts and Balance of payments
– Accounts and Government sector accounts
– Government sector accounts and Balance of payments
– Net lending/borrowing from the financial sector accounts and the non-financial sector accounts[9)]

There is no explicit consistency between National Accounts and Labour Accounts but process tables are made to explain the (mainly conceptual) differences.

[8)] It is too time consuming to publish the benchmarked quarterly figures at the same moment as the year figure. Postponing the year figure is not appreciated by the users. So for a month there is an inconsistency between de year and quarterly figures.
[9)] In the Netherlands there is no difference for the government sector and the sector of financial institutes. There is a difference for the sector households, non-finanancial enterprises and the ROW

There is no consistency between quarterly (non governmental) financial sector accounts (made by the Danish central bank) and the annual financial sector accounts (compiled by DST)

Sources
The figures for the government compiled by the division of Government Finance in principle are not changed in the balancing process at NA (although some conceptual changes are made, see section 6.2.6).
The figures of the business structure statistics need to be heavily processed in order to make them suitable for the National Accounts (see for details section 6.2.10).
Labour Accounts is a source but an explicit confrontation is carried out afterwards. The figures of LA are made final when the NA figures are final (NA suggests corrections and most of the time these are accepted by the LA).

Relation between sectors and supply and use tables
There exists a direct, clear relationship between the financial sector on the one hand and a number of (financial) industries in the SUT on the other. For the government sector this relationship is not so clear-cut, there are some activities of the government sector that do not form part of the government industry in the SUT. Normally this causes no problem.
During the balancing process the results of the SUT are leading (but for the government and some other parts, the information of the sector is kept unchanged, ('targets').

6.2.5 The re-engineering project of Statistics Netherlands

Discussion with Søren Larsen and Michael Osterwald-Lenum.

After a short description of the Dutch re-engineering project by Jan Willem Altena, the followings observations were made:
- DST remarks that DST uses a lot of administrative data, but this data is not directly used by the NA-department. These data are input for the Department of Business Structure for the compilation of their accounting statistics (see section 6.2.7)
- DST finds the time schedule of the re-engineering very ambitious (implementing form 2008 on). DST says that also a lot of effort is needed for the NACE conversion and the update of the ESA/SNA
- DST advises Statistics Netherlands not to change business statistics (e.g. other treatment of big companies, more use of administrative data) and at the same time the process of compiling the NA. DST foresees a lot of problems with continuity of the figures. The experience of DST is that after the change in the business statistics in 1995, it lasted more than 2 years before the results were acceptable. DST suggests starting with the re-design of the business statistics and subsequently commencing the re-design of the NA. On the other hand it could be argued that the re-design of the NA has also an influence on the re-design of the business statistics (chicken-egg problem).
- DST and Statistics Netherlands have a same kind of strategy for correcting published errors: a persistent significant error (published more than one or two years) will not be corrected and will only be corrected at a total revision of the whole system.
- DST points at the problem that often source statistics are published before NA finds errors.
- DST finds it very useful that during the balancing process information is available of grossed up and non-grossed up data. This can be helpful to determine the margins of the corrections.

6.2.6 Use of administrative data: General government

Discussion with Martin Rasmussen (division of Government Finances)

The information for the quarterly and annual sector accounts (both non-financial and financial) for the government are compiled within the division of Government Finances.

During the balancing process of the sector accounts within the division of NA, these figures are regarded – after reclassification of some units – as reliable [10] and they will not be adjusted. The department of Government Finances is also responsible for the EDP-notification. The annual accounts are published for the different sub sectors of the general government sector and the quarterly accounts only for general government as a whole. ('Eurostat does not ask for it, so we do not publish it').

Most information is collected in electronic format. For 'non integrated central government institutions' and social security funds also business like accounts on paper are used. For the central government the information comes from the Ministry of Finance. For other parts of the government sector (mainly municipalities and counties) the information is sent by the units themselves (municipality and county accounts, electronic transfers from municipalities). All electronic information is transmitted in the form of records with identification keys. These keys are used to determine the sector, the COFOG, the (detailed) account, etc. If DST gets new data, the first step is to link the keys to the keys of the period before. There is a match of about 80%. Next step is the automatic coding of trivial non-matched keys (15%) and the resulting 5% is coded manually. This method guarantees a good consistency between years. For central government DST receives translation tables from the Ministry of Finance for changed keys (a change of a key takes place when e.g. a part of a Ministry is transferred to another Ministry). Sometimes it is necessary to add units to the population. In this case these units get a different code so that the original (administrative) population can always be traced. During the process of coding, records relevant for the consolidation are coded using consolidation codes. Consolidated tables then can easily be made by ignoring records with these codes.

The transformation from cash to transaction valuation is made as a correction on the original record and not by substituting the original record by the adjusted one.

After the coding the data is validated and the sector accounts of the government are compiled. For quarterly data less detail is available.

6.2.7 Use of administrative data in combination with questionnaires

Discussion with Søren Larsen (presentation made by Bjarne Moesgard of the division of Business Structure)

In the year 1995 a new system for the so called accounts statistics was implemented. The aim was the maximal use of administrative data. The coverage is:
- 10–14 Mining and quarrying
- 15–37 Manufacturing
- 45 Construction
- 50–52 Distributive trade
- 55 Hotels and Restaurants
- 60–64 Transport, Post van Telecommunication
- 70–74 Business services and real estate

Heavily use is made of the business register, e.g. to ensure that each unit is included in the statistics only once.. The business register also contains a code for the ownership. This code is used for determining the correct sector.
There are 4 sources of the accounts statistics:
- Questionnaire (9,000 units, 90 items, 70% of total of turnover)
- Tax authorities (70,000, about 20 items, 20% of total of turnover)
- Other sources (1,000, retail trade, 90 items, turnover included in first group)
- Residual group (103,000, 10% of total of turnover)

[10] Large discrepancies with other sources are reported back by the department of NA to the department of GF. If necessary this last department corrects their figures

Units belonging to the first group may also choose to send their normal financial reports to DST if these reports follow certain law based rules. This is done by about 60% of this group. In these cases the translation to answers of the questionnaire is carried out by DST.

For the fourth group ('residual group') DST only has information from administrative registers (available information: activity, ownership, full-time units, VAT-turnover)

For the first group the sample size is dependent on the size class of a unit (e.g. units with more than 50 employees are 100% covered, also all units with a vat turnover of more than 110 million DKK are selected all). For the smaller size classes the sample rotates: enterprises are surveyed for three consecutive years. After that they have a survey holiday of the same period.

The grossing up goes stepwise. Firstly, the results of the questionnaire are used for calculating averages for strata. Secondly, these averages in combination with the fiscal data (second source) are used for imputing data for which only fiscal data is present. Thirdly, the VAT-information is used – together with the already calculated data – to calculate the data for all other units.

All information is available at the enterprise level. If an enterprise consists of more than one local kind of activities (LKAU), additional questionnaires are sent out (with only items about turnover, consumptions of goods and services, stocks of goods and material investments) in order to be able to make the split into the different LKAU's. If this is not possible, labour information is used for this split up.

The division of National accounts uses its own database with data on the unit level up to LKAU. NA processes unit level data to their own needs an makes adjustments for the sake of consistency between enterprise en (l)KAU-data.

Because the NA department often experienced problems with differences in sources due to differences in units (caused by using business registers of different periods) it is decided that from 2005 onwards the business statistics and the Labour Accounts will be based on the register of November of year t+1.

6.2.8 Structure of intermediate consumption

Discussion with Søren Larsen and Annette Thomsen (division of Government Finances)

Manufacturing
There is a survey on raw materials used (Industriens køb af råvarer og tjenester). The codes which are used are the same as those in the prodcom statistics, so the respondents are familiar with these codes. As an aid to the respondent, the specification (goods and quantities) of the last year is printed on the questionnaire. This survey was carried out once every five years, but now every year. The first time there were a lot of complaints by the respondents, but now – because every form has the codes used in previous questionnaires printed on it – the complaints are less. At first branch organisations were reluctant, but when the results became available they were eager to get the results.

Services
Because the GNI-committee made some reservations on the calculation of the GNI by DST, new surveys for measuring the structure of intermediate consumption will be developed. These surveys are especially needed for the government. This year DST started a questionnaire for schools. The schools can choose to fill in the absolute amounts of the different costs items or to submit breakdowns into the different costs items in term of percentages. DST gets positive reactions from school for designing this option. Within five years all the government bodies will be surveyed.

The same kind of surveys will be developed for the service sector. The whole process of setting up new questionnaires is guided by the National Accounts department.

6.2.9 The compilation of quarterly accounts

Discussion with Ole Berner.

For the quarterly accounts the VAT-data is a very important source. Because there is a flat rate of 25%, this – monthly – data is very useful. Other sources are:
– indicators from commodity statistics
– indicators for industrial turnover statistics,
– indicators for retail trade
– General government accounts
– Foreign trade statistics and balance of payments
– Producers an consumer price indices
– Employment statistics

As a fist step indices are calculated and all the sources are transformed into a uniform format. The result is stored in an indicator databank. With the help of this indicator databank the initial estimates are calculated (using assumptions like v=q*p if one of the parts is missing, fixed input coefficients at constant prices, correlations between production and consumption).

Some series are predetermined (e.g. BOP, General government, changes in inventories, taxes and subsidies). For the changes in inventories an explicit estimation is made.

The supply side of the SUT can then be filled in, just like the totals of the use columns. For the use columns there is some data (e.g. export). Then these totals are vertically distributed using the structure of the last final year. Subsequently the rows are automatically balanced by adjusting domestic use.

Next step is to calculate new totals of the use columns. These new totals are ‘averaged’ with the old ones. A weighted average is based on economic activity; for some activities the result is the old estimate,, for some others the result is the new figure, for some others the result is an arithmetical average, etc). After carrying out these steps the SUT is not fully consistent, but this is not necessary. As a last step the estimates are calculated at constant prices. When the indicators databank is available, it only takes 1 hour to carry out these steps. This procedure is performed only once.

Now the final estimates are ready for manual error checking and evaluation. This part of the process takes about one week. Corrections that are made on the final estimates are not put back on the source data.

The provisional annual data are more or less compiled in the same manner.

Because the quarterly dataset is not fully consistent, it is not possible to publish all details. Users have to wait for that until the publication of the final annual data, but they don’t seem to have problems with that.

6.2.10 Transformation of primary statistics into National accounts values

Discussion with Søren Larsen.

The department of NA receives micro-data of the so called accounts statistics from the business statistics department. Within the NA department a lot of checks and calculations are carried out. These checks are necessary because the source material contains a lot of ‘inappropriate’ data. Also some reclassification of units is done because some industry groups within NA are functional (e.g. agriculture, trade). Also some

information at the enterprise level is divided between the relevant LKAU's. The translation of account statistics concepts into NA concepts is carried out at an aggregate level. All corrections (at an individual or aggregated level) are stored so that the relationship with the original data is preserved.

6.2.11 The Danish system of supply and use tables

Discussion with Søren Larsen and Camilla Heurlen (head of section of Caculation of constant prices of the devision of National Accounts)

Major observations:
- Balancing is at basic prices. The use table is transformed from purchasers' prices to basic prices. NB customs duties are included in the supply table
- Column classification:
- 130 industries
- 72 columns household consumption (coicop-like)
- 1 column consumption of NPISH
- 31 column consumption of government
- 10 columns gross fixed capital formation (types of assets)
- 6 columns on inventories
- 2 columns export: export of domestic products and re-exports

NB on the (domestic) use side for these columns 'targets' (column (sub) totals) are estimated:
- Data on the detailed structure of domestic use (intermediate, consumption, GFCF) are derived for surveys, expert knowledge and T-1-data
- With the vertical balancing, the structure data are reconciled with the 'targets'
- With horizontal balancing the difference between demand and supply is cleared by proportional distribution over domestic users. Supply (output and imports) is not adjusted. This also holds for exports and changes in inventories
- Predetermined entries (e.g. some governments data) are not adjusted during automated balancing
- When horizontal balancing leads to unacceptable results, manual adjustments are made (also on output and foreign trade if necessary) and the horizontal balancing starts again.
- Manual balancing is carried out in order to meet the targets. One is not allowed to disturb the equality between demand en supply. The balancing process ends when the targets are met within a predetermined range
- Deflation of the supply use tables is done afterwards. However, feed back can lead tot adjustments in current price data.

6.2.12 Calculation of I-O-tables

Discussion with Tim Folke (senior advisor of the division of National Accounts)

From the balancing process supply and use tables at basic process are available. A number of producer – user relations are fixed. For example: exports from domestic output and re-exports form imports. The remainder is distributed proportionally.
One has to remember that parts of the industries in the supply use tables are on a functional basis. Examples are trade and agriculture.
The I/O-table is separately published including I/O-coefficients and I/O-analysis for example on data on pollution

6.2.13 Sector accounts in Denmark

DST fully complies with European regulations on the area of annual sector accounts. Both non financial and financial sector accounts are compiled and published. Compared

to Statistics Netherlands the level of detail is less, both in terms of transactions and in sub sectors. Who-to-whom-matrices are not being compiled in Denmark.

The National Accounts Department receives input of other departments within DST. In fact the composition of the non financial sector accounts for the government (sub)sector(s), the financial sub sectors and the rest of the world for a very large part takes place outside the NA-department. Annual financial accounts are also predominantly composed outside the NA-department. In principle this data is not adjusted in the integration process within NA.

The main tasks carried out within the NA-department are the following. Firstly, the production accounts and generation of income accounts for all sectors are compiled on the basis of sector-industry matrices. Secondly the full accounts of the households sector and the sector of non financial corporations are composed. For this purpose additional sources are explored, but also the transaction identity is used to allocate residuals to the households sector or the non financial corporations sector. Statistical discrepancies are now allowed. If they turn up they are normally corrected in 'other accounts payable/receivable' assuming that they are related to cash-accrual differences.

For the time being DST does not compile quarterly sector accounts, apart from quarterly government sector accounts. DST has a derogation for the composition of non financial quarterly sector accounts until 2008. Financial quarterly sector accounts are already being composed, but this is carried out by the Danish Central Bank.

From the organisation schemes it could be concluded that only one person is working on sector accounts. (By way of comparison: in Statistics Netherlands about 25 people are working on sector accounts). However, this picture should be modified [11)]. Much work is carried out outside the NA-department: about 3.5 fte is working on the composition of annual government sector accounts, 2.5 fte on sector accounts of financial institutions and 0.5 fte on the rest of the world accounts, all in other departments than NA. Furthermore about 3 persons outside the NA-department are working on the annual financial accounts. Finally, as already has been concluded, for the time being non financial quarterly sector accounts are not being composed at all (with the exception of government) and the financial quarterly sector accounts are being produced by the Central Bank.

[11)] See also the tables in section 6.2.3.

7. Contribution of StatCan – Canada

7.1 Questionnaire on National Accounts

7.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

– Monthly GDP by industry at constant prices for 215 industries, seasonally adjusted
– Quarterly GDP by industry at constant prices for 215 industries, seasonally adjusted
– Annual GDP by industry and provinces in constant prices, for 286 industries
– Annual S/U tables for all but the most recent two years at current prices (provincially) and constant prices (nationally), 303 industries, 727 goods and services. First I/O tables are compiled in current prices, afterwards in constant prices, not simultaneously. There is no feedback to current prices anymore.
– Annual and quarterly Income and Expenditure Accounts (IEA), 4 institutional sectors (households and non-profit institutions serving households; corporations; governments; and non-residents), 170 final demand categories. The estimates are not fully consistent.
– Annual and quarterly balance sheets

At this address you will find all products released by the Canadian System of National Accounts: http://www.statcan.ca/english/nea-cen/rel/index.htm#li

b. Timeliness

What is the timeliness of the different NA products?

– Monthly and quarterly GDP, quarterly IEA: t + 60 days
– Quarterly balance sheets: t+75 days
– Annual National GDP, most current year February T+1: flash or preliminary provincial GDP in April T+1; Final provincial GDP in November (for most current year and previous 3 years)
– Annual and national S/U tables: in May of year T: year T-4 is final, year T-3 is preliminary
– Provincial S/U tables: in November of year T: year T-4 is final, year T-3 is preliminary
– The input-output tables 2002P-F (final) and 2003P (provisional) are, together with the provincial ones, published in November 2006. In May they are already finished and used for the monthly data (projected). Then the I/O tables on provincial basis are made between May and November and then projected forward, only annual.
– The annual GDP (industry and income and expenditure accounts are released with quarter 4 in February, the flash year (provincial) in April, and the provisional year is ready in May, but published in November. In the future this might become a release in May.

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Every month, the monthly by industry GDP (raw) is revised back to January of the current year. Seasonally adjusted, the data are revised back to January of the previous year in order to incorporate revisions to seasonal factors as quickly as possible. The quarterly GDP income and expenditure-based are revised back to the first quarter in Q1, Q3 and Q4 in both raw and seasonal.
Example of the sequence of releases using 2001 and 2002:

January 31, 2002	Real monthly GDP for 215 industry groups was released for reference period November 2001 – national only.
February 28, 2002	Real GDP for 215 industry groups was released for reference period December 2001 simultaneously with the income- and expenditure-based GDP estimates for the fourth quarter of 2001 – national only.
March 28, 2002	Real monthly GDP for 215 industry groups was released for reference period January 2002 – national only
April 22, 2002	Income-, expenditure- and value-added-by-industry-based estimates of GDP were released simultaneously for thirteen provinces and territories for reference period 2001 (Flash) (the calendar year). The expenditure-based estimates of GDP were available at current and at constant prices; the income-based estimates were available at current prices only; and the value-added by industry estimates were available at constant prices only.
April 30, 2002	Real monthly GDP for 215 industry groups was released for reference period February 2002 – national only.
May 31, 2002	Real monthly GDP for 215 industry groups was released for reference period March 2002 simultaneously with the income- and expenditure-based GDP estimates for the first quarter of 2002 – national only. At that point, the quarterly income and expenditure are released with revisions for the last 4 years.
June 28, 2002	Real monthly GDP for 215 industry groups was released for reference period April 2002 – national only.
July 31, 2002	Real monthly GDP for 215 industry groups was released for reference period May 2002 – national only.
August 30, 2002	Real monthly GDP for 215 industry groups was released for reference period June 2002 simultaneously with the income- and expenditure-based GDP estimates for the second quarter of 2002 – national only.
September 30, 2002	Real monthly GDP for 215 industry groups was released for reference period July 2002 – national only. Revisions to the monthly time series for previous 4 years were released at the same time.
October 31, 2002	Real monthly GDP for 300 industry groups was released for reference period August 2002 – national only.
November 7, 2002	Preliminary national and provincial/territorial input-output tables for reference year 1999 were released, along with revised estimates for reference year 1998. At the same time, revised estimates of the income-, expenditure- and value-added-by-industry-based estimates of GDP were released for all provinces and territories for reference periods 1998–2001, in current and constant prices. Provincial GDP in constant prices are released or 300 industries for the years t-4 and t-3, and for 286 for the most current two years.
November 29, 2002	Real monthly GDP for 215 industry groups was released for reference period September 2002 simultaneously with the income- and expenditure-based GDP estimates for the third quarter of 2002 – national only.
December 24, 2002	Real monthly GDP for 215 industry groups was released for reference period October 2002 – national only.

As you can see from this example, StatCan produces preliminary provincial estimates four months after the reference period and we revise those estimates about 10 months after the reference period and annually thereafter until they become ‘final’ not quite four years after the reference period.

7.1.2 Input

a. Input

What can be said about the environment in which the NA are compiled:
How is the quality and availability of source data?
Which registrations are available and in what way is the information used?
What are the complications?

Statistics Canada's approach to gathering and disseminating economic data has developed over several decades into a highly integrated system for collection and estimation that feeds the framework of the Canadian System of National Accounts.
The key to this approach was creation of the Unified Enterprise Survey (UES), the goal of which was to improve the consistency, coherence, breadth and depth of business survey data.

The Unified Enterprise Survey (UES) did so by bringing many of Statistics Canada's individual annual business surveys under a common framework. This framework included a single survey frame, a sample design framework, conceptual harmonisation of survey content, means of using relevant administrative data, common data collection, processing and analysis tools, and a common data warehouse.

The UES has been implemented gradually since 1997 when a limited number of industries participated in a pilot test. The first full UES, conducted for the reference year 1998, involved an expanded number of industries, including the wholesale industry.
Currently, the program provides detailed annual financial and other data (such as commodities) for about three-quarters of the Canadian economy, including many service industries, wholesale, retail, manufacturing, some transportation industries and aquaculture.

The UES has a number of core underlying principles. These include:
– use of a central frame developed and maintained at Statistics Canada called the Business Register;
– a common sample design and an approach centred on enterprises to ensure full unduplicated coverage;
– common generic processing systems and methods;
– a centralized warehouse for processing and analytical purposes;
– maximum use of tax data;
– an integrated questionnaire using simple language and harmonised concepts and variables; the implementation of a Chart of Accounts (COA) making links between business accounting, questionnaires and SNA statistical needs has helped developing a more coherent statistical environment. This chart of accounts has been established to map SNA variables to standard business accounting variables. It enables the survey system to collect the appropriate variables to measure economic aggregates of output, value-added, factor and proprietors' income and investment and consumption expenditures. The chart of accounts also enables the use of other administrative data, such as income tax data, also derived from business accounting systems to minimize response burden.
– provision of timely, detailed and reliable economic data, while imposing minimal burden on respondents.

In 2004, the UES comprised 42 establishment surveys, covering 68,000 establishments. Just over one-half of the 42 surveys were annual survey of manufactures. In addition, the UES program instituted a Survey of Head Offices, which covers about 85% of head offices.

The backbone of the UES is the Business Register, which was developed during the 1980s as part of a larger initiative to create generic tools and frameworks for conducting business surveys. It is a structured list of businesses engaged in the production of goods and services in Canada.

The register covers all sectors of the economy: commercial, non-profit, religious, government or institutional. It includes all incorporated businesses, with or without employees. For unincorporated businesses, the register includes all employer businesses, as well as businesses with no employees, with sales resulting in GST payments greater than $30,000. The structure is legal, operational and statistical (enterprise and establishment). It will be updated with administrative data.

The sample is managed by a sample control file. It is a stratified random sample on industry, province and size. Large and complex businesses are taken all. From simple businesses they take a sample, of which 50% is replaced by tax data. Then there are businesses which are taken completely from the tax data.

During the past three years, a great deal has been accomplished to improve the UES. Among its achievements:

– Timeliness: As of reference year 2003, all surveys have released results within 12 to 15 months of the end of the reference year, shaving as much as nine months off the previous norm.
– Centralized processing systems: A principal goal was to create a suite of centralized tools that could be used to both process and analyze data. During the last two years, a major accomplishment has been to incorporate the UES processing system and data bases into an integrated suite of tools that have a common look and feel and a shared methodology.
– Use of tax data: Survey data are being replaced with tax data in many cases, both as planned tax replacement and to compensate for a lack of response to surveys. This initiative has reduced the response burden for smaller enterprises. More than one-half of simple businesses previously surveyed are no longer receiving a UES questionnaire.
– Response burden: The UES has taken major steps to reduce the response burden on enterprises. Starting in 2001, divisions at Statistics Canada slashed the size of their questionnaire, typically from a range of 12 to 14 pages to only four or five. Between 2000 and 2004, the number of hours required to complete surveys has been cut 40% through a combination of using tax data and cutbacks in the size of questionnaires.

As for the future, the UES is still undergoing transformation. More work is needed in areas such as the details available for the System of National Accounts, coverage of the UES, more use of tax data, an approach to data collection centred on enterprises, and a better understanding of large enterprises and their data.
The biggest threat to the business statistics program is the growing reluctance among respondents to provide data through traditional survey questionnaires. Respondents are now less willing to complete the many separate survey requests sent them each year.

They expect a more coordinated, integrated and unduplicated approach to data collection, with the option of responding electronically in a user-friendly environment. The UES must change the way in which it interacts with these businesses.

The challenge is to coordinate surveys, collection activities and respondent relations program so the UES asks for data only once. This will require an understanding of total data needs, and a way of dealing with companies in an integrated fashion, instead of one survey at a time.

b. Obtaining input

How does data delivery from source statistics to the NA take place?

The annual IO program gets a significant amount of data directly from a data warehouse called USTART, basically a server where all data from the UES programme are stored.
A fair amount of data in the infra annual program and some annual program are still transferred by using SAS, Text other files. The CSNA is currently building its own warehouse. Analysts will not only have access to source data but the warehouse will have functionalities that will allow an analyst to compare series or databases from

various sources. For example, manufacturing data obtained from administrative sources and manufacturing data obtained from a survey. When micro records are exchanged, permissions must be obtained first.

7.1.3 Administrative data

a. Use

Do you use administrative data for the compilation of the NA?

- Tax data from the Canadian Revenue Agency (CRA): wages and salaries and supplementary labour income, income tax, VAT, i.e. T1 (unincorporated businesses), T2 (incorporated businesses), T4 (pay slips), GST (goods and service tax), PD7 (payroll deduction accounts).
- All businesses, incorporated and unincorporated, receive a Business Number and this is the link to the tax files:
  - identify remittances of Goods and Services Tax (GST) per business.
  - identify remittances of payroll deductions, such as EI, CPP, and income tax per individual.
  - identify remittances of corporate tax per business.

The incorporated and unincorporated employers must file monthly/quarterly remittance forms of employer and employee contributions and employee federal and provincial income tax (one per business), a reconciliation summary form at year end (one per employee) and give each employee a copy of the latter for individual tax purposes. These (uncorrected) data are provided to Statistics Canada. The businesses are identified by the Business Number, the individuals on Social Insurance number. These data are used for the wages and salaries.

For the net mixed income of unincorporated businesses, the individual income tax form is used. All Canadian residents must complete this form; the key identifier is the Social Insurance number. Unincorporated businesses have to fill in more. Adjustments are made for under coverage (non-reporting).

For the corporate profits before taxes, annual data are derived from three sources:
- Quarterly survey of Financial Enterprises
- Government Businesses Enterprises from Public Institutions Division
- Tax data (corporate profits)

These files are processed within Statistics Canada and create preliminary corporate profits estimates. The quarterly survey is then used to project corporate profits.

b. Process

If so, in which part of the compilation process of the NA are administrative data transformed to the NA concepts?

- On a macro level tax data are used as a check, except for T4 which are used as benchmark to determine wages and salaries by province. This holds for all kinds of taxes on products. Important examples are the federal (GST) and provincial (PST) VAT-type taxes. This check plays also an important role in balancing/allocating the provincial data.
- For all expenditure at purchasers' prices an estimate is made for the 'tax contents'. If total tax does not meet the taxes received by the government, further analysis of the estimates is necessary

c. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

– Statistics Canada is a process organised office. Collection of data and analysis of data are located in separate divisions at the Agency. The output (publication) is the result of a close cooperation between the divisions 'Collection' and 'Analysis'.
– A lot of the analysis starts at the time of compilation in subject matter divisions. Micro records are often checked against other data sources. Shipments vs. exports for example. Analysis is, of course, also done at the industry level. During the processing of data there is a continuous feed back to improve the micro data.
– Statistics Canada has a separate group dealing with 'complex enterprises' and important enterprises. This group produces consistent data for the enterprises and unit levels below as the establishment and possibly the local unit. This includes production related data. If no observed data are available, Statistics Canada constructs the data on a low level using labour data, revenue and depreciation to allocate high level data to the establishments.

  Feedback
  Clean record ➔ reconciliation ➔ analysis (other department) ➔
  Feedback
  allocation tot establishments ➔ > analysis
– In case of annual estimates, tax data and sub-annual statistics are also used during the process. Important in this matter is the Chart of Accounts which describes the links between tax data and national accounts variables.
  NB: So far, comparability in time for tax data is not seen as a problem at Statistics Canada. Survey data are necessary for characteristic information (a.o. structure of output and input), tax data provides good control totals but detail is often missing and of lower quality.

d. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

Even though the CSNA has access to micro records, production of SNA estimates are prepared industry statistics or other aggregates. The one exception is the processing of the T4 which is used to provincial control for wages and salaries by province for a certain number of industries.

7.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

– Wish: subject matter departments adjust the data to NA-requirements. The job of NA is then limited to balancing and macro economic analysis and studies.
– A very clear link between business accounting and national accounting in order to minimize response burden of respondents.

b. Criteria

– What are, according to you, the criteria that make a country an outstanding National Accounts producer?
– Providing coherent (story matter) statistics in a timely manner. Data revisions are inevitable but the story should not change.
– Good metadata to users and easy access to the data
– Good analytical tools to SNA analysts, capacity to view data from various sources using a consistent set of classifications and concepts.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

– Timeliness has definitely improved the release of our annual surveys.

– In terms of detail, the SNA has not seen the benefit yet. However, a series of report (schedules) that accompany tax records provided by enterprises/establishments looks very promising, notably wages and salaries and depreciation. Other schedules containing data on expenditures related to tax credit seems to have a lot of potential.

In survey divisions, tax data are used for imputation or to replace survey data.

7.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

Every month, a certain number of surveys are conducted in order to monitor the health of the Canadian economy. Among the most important surveys, the monthly survey of manufacturers, the retail and wholesale trade surveys. This information combined with other statistics such as those on volume of production in the primary sector, transportation sector, employment/wages and salaries, exports and imports and financial indicators on assets and liabilities, is used to produce a first estimates of the GDP for Canada. At the time of the quarter, when information such as on profits or the public sector becomes available, the quarterly income and expenditure growth are compiled and reconciled with the monthly industry GDP statistics in terms of growth rates and trends. In both cases the methodology are essentially projections of benchmarks that are produced annually in the Input-Output Accounts. For the most current years, projections methods are also used to derive the GDP of each of the provinces, industry, income and expenditure approaches.

IO production cycle

The production cycle is annual, and is completed in the late summer to early fall (data are published in early November). In the production of annual Input Output tables, a sequence of steps is followed as shown below.

– Initial estimation of industry inputs and outputs by province, and initial estimation of final demand by province. During the initial estimation step, each industry and final demand category is assigned to a particular analyst. The analysts are responsible for estimating the commodity inputs and outputs of their assigned industries, or for estimating the commodity detail of their assigned final demand categories. The outputs are akin to revenues from the businesses' profit and loss statements, and the inputs are akin to expenses and profits. The analysts ensure that input to output ratios and year over year growth rates are reasonable.
  Analysts work quite independently of each other during this stage. For example, the estimate of unprocessed fluid milk produced by livestock farms is not reconciled with the estimate the output of processed fluid milk by dairies.
  At the end of this step, for each industry, total inputs are equal to total outputs. For each commodity, however, total supply is not equal to total use.
  This step is completed in January 2004 for year 2001 data.
– Estimation of margins by province (wholesale, retail, transport, storage, gas, pipeline, tax). The price of a good is marked up one or more times as it passes from the original producer (who receives the 'producer's price') to the final consumer (who pays the 'purchaser's price'), even though the good remains in exactly the same physical condition. In the input output system, these mark-ups are called margins. There are seven kinds of margins delineated in the Input Output system, as shown in parentheses above. During the initial estimation (step 1 above), estimates in the output table are made in producer's prices, whereas estimates in both the input table and the final demand table are in purchaser's prices. Before doing a commodity

balance (step 3) it is necessary to estimate margins so that outputs at producer's prices can be reconciled with demand at purchaser's prices.

– Reconciliation of commodity supply and use (i.e. commodity balancing).
  During the commodity balancing step, each good and service in the Input Output commodity classification is assigned to a particular analyst. The analysts are responsible for adjusting estimates of output, margins, input (also known as intermediate demand), and final demand for their assigned goods and services.
  At the end of this step, for each commodity, total supply is equal to total use. You can think of this as a way of ensuring that everything that was produced by someone was purchased by someone else. For each industry, however, total inputs are not equal to total outputs.

The processing of the I/O accounts involve 4 to 5 cycle of industry and commodity balancing.

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?
Administrative data are essentially used to improve the coherence of the statistics. They are sometimes used to construct industry control totals, output, input, wages and salaries and surplus but in general they are used as indicators.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
Sector accounts are compiled on a quarterly basis and revised annually to include the most up to date statistics from the I/O accounts (final demand) that are also part of the sector accounts. Labour income statistics follow a similar process. However, some control totals (T4) are available well before the I/O accounts are prepared and are incorporated in the Income and expenditure accounts as well as in the sector accounts.

Are these main products balanced separately or simultaneously? How is consistency managed?
They are balanced separately. There is no consistency between the three GDP estimates. The statistical discrepancy between income based GDP and expenditure based GDP is equally distributed, the discrepancy with output based GDP should stay within 0.2%. But the output-based GDP is in basic prices and the other are in market prices, so there may exist a difference. Also in the sector accounts there is for all sectors a statistical discrepancy.

b. Globalisation

How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

Since in Canada also provincial S/U tables are compiled, the problem of globalisation already starts between the provinces. As part of the UES program (Unified Enterprise Survey), the Head Office and Other Business Support Survey was instituted for reference year 1998. For this purpose, there exists a separate department. The UES program conducts business establishment-based surveys, except for the Head Office Survey, which measures business support or ancillary activity by geographic location. Its unique nature is grounded in its importance for the SNA in estimating GDP.

Examples of business support activities are head offices that could be international, national or regional; captive or own-account transportation distribution centres; and other services directly internal to the enterprise and supporting the production activity. Head offices can provide central functions that are important to the enterprise and include sales, purchasing, accounts, computing, investment and maintenance.

Also, they may provide management of the technical activity, purchasing services on behalf of technical units, determining corporate strategy, buying and selling of legal entities and financial management, that is, investment and portfolio management. Head

offices activity is common in large complex business enterprises, but less so in simple, small enterprises.

The sample selection of units for the Head Office Survey, like all other UES surveys, is done from the Business Register. It identifies support activity units at the location level, and technical activity at the establishment level, of the statistical hierarchy of the enterprise.

If the business enterprise has at least one technical establishment unit that is in-sample for a UES survey, then that support unit (or units, since enterprises can have multiple head offices) of the enterprise is sampled for the Head Office Survey. The NAICS code assigned at the location level for the support will reflect the actual industrial activity of the unit.

Once the financial data are collected through the Head Office Survey, they are checked manually for coherence with all other establishment-based UES data for each individual enterprise. This ensures that it is complete and that there is no duplication between the technical units and the support units in the given enterprise.
Then, revenues and expenditures are allocated from the support units to the technical units of the enterprise. The allocation of these financial variables is based on the ratio of wages and salaries of each technical unit to the aggregate of wages and salaries for the enterprise.

7.1.6 Software

a. R & D

How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)
IT development is centralised. The advantage of centralization is that common tools can be developed from similar software. However, the developers must often understand subject matter and work closely with clients i.e. being located close to clients. In order to continue to benefit from the advantages of centralization while making sure developers and clients are located in the same place, STC is thinking of assigning IT development resources to the Branches (9) in the coming years Corporate committees would still be involved in the allocation of these resources via long term planning.

b. IT systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

The SNA went from mainframe and a multitude of platforms to basically two, Oracle and SQL servers. More and more work is done around SQL servers. The trend is to develop system in parts so that they can be redeveloped in portion instead of in their totality. The SNA warehouse was build around an SQL server using Visual basic and other off the shelf products. In order to make the warehouse more user friendly (more WEB look and feel) we decided to use EzWeb. The warehouse is an analytical warehouse portal. It includes documentation on all information you need about subjects involved. All years and releases are included and can easily be compared. It looks like StatLine. It is only used for analysis. It is an n-dimensional cube with figures including all source data. There is another system in which you can balance the supply and use table (I/O table), INDCOM. The product was developed separately but in a SQL environment using Visual Basic.

In building data warehouses, the problem is which (detail of) classification to use and what aggregation do you use. Do you include micro data? For example individual schools are included, since these are not in the Business Register.

A drawback is that if a new cube has to be inserted, this takes a long time, since the IT is centralized. It is developed by the development division SDD. This issue will disappear when the development is over and the maintenance becomes the responsibility of the Branch.

7.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

See question 3.3.
Collection, tax data and subject matter divisions are responsible for gathering economic statistics according to some standards, classifications, definitions, etc. This information is all released independently by subject matter divisions. The same information is used by the SNA to produce SNA statistics. Potential problem with the data the SNA received are discussed with subject matter divisions. Often the data are revised. In subject matter divisions analytical work focus on micro records even though aggregates are reviewed and also analyzed. In the SNA the focus is much more on aggregates even though analysts often go back to micro records to better understand results. Often, analysts from subject matter division, SNA and the Enterprise Portfolio Management (EPM) will discuss an issue related with a specific firm. The EPM will contact the firm and based on the finding source data will be adjusted or not in both subject matter division and the SNA. The work in the SNA is very linked to the reconciliation/coherence of the different set of SNA accounts.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?
Not too sure how to respond to this question. STC tends to prefer centralization compared to decentralization. We were able to reduce costs significantly over the years. It also helped creating pocket of expertise in the Agency. On the other, it is often difficult to modify processes since they have a lot of repercussions.

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?
See chart.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

The Branch of National Accounts and Analytical Studies is currently allocated 339 FTE yearly for its operation. Excluding Assistant Chief Statistician Office, Director General Offices (National Accounts and Analytical Studies) as well as some centralized IT resources (LAN and Data Warehouse development) 304 FTE are allocated to SNA and Analytical Fields. The SNA Field operates with a budget of 276 FTE.
– Income and Expenditure Accounts Division (IEAD): 62
– Environment Accounts and Statistics Division: 31
– Balance of Payments: 37
– Public Institutions Division: 52
– Industry Accounts Division (IAD): 94

IEAD
The 62 FTE are distributed among 7 sections:
– Consumer expenditure and profits; 8

– Capital expenditures, inventories and trade: 7
– Government expenditures, labour income (about 4 FTE) and unincorporated businesses: 9
– Automation and production: 8
– Financial Wealth Accounts: 11
– Non-profit sector and unpaid work analysis: 4
– R&D projects, analysis and tourism statistics: 6
– The remaining 7 FTE reflects divisional management costs and special projects. Sections 1, 2 and 3 are involved the production of national and provincial estimates, quarterly and annual income and expenditures data including sector accounts. Section 4 is involved in maintaining IT systems and look after dissemination. Sections 6 and 7 are essentially resources related to satellite accounting.

IAD
In the case of Industry Accounts Division, 94 FTE are allocated to operations. About 8 FTE are allocated to management and the content development of the SNA data warehouse. The remaining costs are allocated to the following programs:
– Input-Output Accounts in current prices: 41
– Input-Output Accounts in constant prices: 8
– Monthly GDP by industry program, national: 14
– Annual GDP by industry program, provincial: 9
– IT Systems: 6
– Dissemination: 8

d. People
What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?
S/U tables: industry accounts division: 90 staff. Among which 41 for I/O accounts. In the Income and Expenditure accounts division there are some 90 employees, about 60 working on the quarterly accounts: balance sheet and income and expenditure accounts (including the sector accounts).

7.2 The Canadian Unified Survey System [12)]

7.2.1 Introduction

Using the Canadian system of national accounts as a framework, Statistics Canada has developed a unified survey system, which covers the entire economy on an annual basis. The survey collection and use of administrative data are based on common definitions of variables and a well-developed single frame of businesses with varying degrees of structural complexity.
The survey system consists of a set of 200 annual surveys designed to measure all the revenue and operating expense variables associated with the production account for each of the 300 industries in the supply and use tables.
These surveys also collect data on production, revenue and intermediate use of goods and services statistics by commodity group, and are aimed at the production unit or establishment level. They are complemented by an economy-wide survey of investment expenditures, which is used to build the investment flows and capital stock estimates of the CSNA.

[12)] The information in this section of the report is derived form the report 'The integrated approach to economic surveys in Canada' , February 2006, written by Marie Brodeur, Peter Koumanakos, Jean Leduc, Éric Rancourt, Karen Wilson and Arthur Berger – Statistics Canada.

7.2.2 The Unified Enterprise Survey

Statistics Canada's integrated approach to economic surveys was established in the late 1990s. During that period, the Agency redesigned its entire framework for conducting annual business surveys. The goal was to incorporate all business surveys into a single master survey programme called the Unified Enterprise Survey (UES).

The UES was created to achieve a number of objectives as part of the Project to Improve Provincial Economic Statistics (PIPES) (Statistics Canada 1997). Its general aim was to improve the consistency, coherence, breadth and depth of the business survey data.

The UES was designed to collect more industry and commodity details at the provincial level than was previously possible, while simultaneously trying to avoid overlap among different survey questionnaires. The UES covers all the major industries in Canada: manufacturing, wholesale, retail and services. Some small industries, such as aquaculture and couriers, are surveyed as well.

The unified survey covers more than two-thirds of gross business income. Statistics Canada's business surveys are the responsibility of different programme areas, such as distributive trades, services, transportation and manufacturing. They are dispersed in more than a dozen subject matter divisions.

A vast program, the UES, includes the collection of both enterprise-based and establishment-based statistics. The establishment part is described later on in this section and in Sections 4 and 5. The enterprise part is described in Section 5.

Enterprise Statistics Division (ESD) was created as a central area charged with managing and co-ordinating all establishment-based UES activities. It is a highly integrated and interdependent approach to conducting business surveys, involving many service area partners. This division co-ordinates the work of these partner divisions, including the business register, centralized collection services, operations research and development, methodology services, tax data and standards. The ESD is part of the Industry Statistics (within Business and Trade statistics). It provides functional support and coordination. A number of committees is in charge of process clarification and decision making. The most important committee is the Project Management Team, in which directors devise the strategy. The subsequent team is the Operations Management Committee, for operations discussions. Then five more teams follow: Frame Operations, Sampling, Tax Data Operations, Content/ Collection, and Processing Operations.

The UES strategy emphasizes a centralized approach that integrates many operational activities within Enterprise Statistics Division. This allows subject matter areas to focus on data validation, analysis and subject matter specific research. The UES has allowed Statistics Canada to achieve a much more robust annual statistics programme compared to what existed previous to PIPES.

Nevertheless, the constantly changing environment of business surveys dictates a need for further improvements in our survey programmes. These must take into account the new ways in which businesses are organising and operating in the global economy (new business models); financial pressures within Statistics Canada; and increased reliance and response burden on large businesses. An integrated (unified) approach to business surveys is becoming more essential to help understand and resolve these issues.

The UES principles include:

– Frame/sampling and coverage: Using a single unduplicated frame, a common sample design and an enterprise-centric approach to ensure full unduplicated coverage of all establishments; focusing on large complex enterprises for profiling and survey samples; using tax data for smaller simple enterprises; expanding coverage of business surveys to include all sectors of the economy; and obtaining sample sizes appropriate for the production of provincial estimates by industry.

– Content and collection: Using common concepts, terminology and classifications (standards); eliminating duplicate data requests through a strategy centred on enterprises and questionnaires with a common look and feel; using the Enterprise Portfolio Manager programme for the most important businesses; and using electronic data collection and integrated data collection options.
– Processing and post-collection: Using common generic processing systems and methods (common edit and imputation methodologies); using centralized UES warehouse for processing and analytical purposes; and allocating head office expenditures and enterprise level survey responses to accurately measure value-added by industry using the North American Industrial Classification System (NAICS) and by province.
– Outputs: Providing timely, detailed and reliable economic data; allowing the production of provincial input-output tables, while imposing minimal burden on respondents; eliminating incoherence between the establishment data and enterprise data; and providing more analysis facilitated through the centralized UES warehouse.

7.2.3 The Business Register: 'Backbone' of more than 90 surveys

The Canadian approach to economic surveys is based on a central frame developed and maintained at Statistics Canada called the Business Register. The register (Cuthill 1990) was developed in the 1980s as part of a larger initiative to create generic tools and frameworks for conducting business surveys.
The register is now the backbone of more than 90 surveys. It is managed by the Business Register Division, a central division that provides services to survey programmes areas. The register consists of a suite of files, programmes and processes that interact with businesses through direct profiling, survey responses and feedback and, indirectly, through administrative files such as taxation files.
The register is a list of businesses engaged in the production of goods and services. Among them are both incorporated and unincorporated businesses, except some smaller entities. It covers all sectors of the Canadian economy: commercial, non-profit, religious, government and institutional activities.
Since businesses vary in structure and complexity, there is a need to define a standard set of rules to adequately measure production units. Once the structure is established, various pieces of information can be maintained. The register includes identification, location, contact information, organisation, classification (NAICS) and basic information, such as the number of employees and gross business income.

Structure
Enterprise and establishment levels are the main concepts used for conducting business surveys. Based on these, enterprises are categorized as complex or simple in structure. Complex enterprises are comprised of multiple establishments operating in different industries (NAICS 4).
Conversely, simple enterprises are those with a single establishment or with multiple establishments all involved in the same activities (NAICS 4).

Legal structure
To be created, a business needs a legal status, which implies a legal structure. Such a structure enables the business to communicate with government organisations such as Canada Revenue Agency (CRA), the national taxation agency.
Each year, businesses must communicate with the CRA using a unique business number to report their income tax statement, to declare taxes collected as well as payroll deductions.
These reports from the CRA are transferred to Statistics Canada under certain agreements, and form the basis of the updating signals for the Business Register. The legal structure is maintained on the register.

Updating mechanisms
The Business Register is updated continuously using three mechanisms. For large and complex enterprises, updating is achieved through direct profiling, which consists of

contacting the enterprise and establishing its structure and contact points. This is a manual process conducted and maintained in the Business Register Division.

For most enterprises, sources of updates are administrative files produced by the CRA. Among their legal obligations, enterprises must submit three sets of information to the CRA: Goods and Services Tax collected (GST), payroll deduction retained from employees, and annual income tax forms.

The GST and payroll deduction files are obtained monthly, and constitute of prime information to determine the presence of activity as well as to detect new enterprises. Enterprises also provide information, such as number of employees (payroll deduction) or taxable sales (GST), on the size of the enterprise. The annual income tax files provide a more detailed picture of each enterprise. In this case, two files are available: one for incorporated businesses (T2) and one for unincorporated businesses (T1).

Finally, any new information or change to the structure and classification of enterprises is fed back to the Business Register and used to update it. This occurs when enterprises are contacted during the course of a survey, regardless of whether it is to make collection arrangements or whether it is at the actual collection time.

7.2.4 UES advantages and achievements

Over the last few years, Enterprise Statistics Division has implemented a fully redesigned systems infrastructure, which integrates tax data in the UES process and ensures that all tax data is available in a systematic way for business surveys.

Timeliness
In June 2001, a UES task force was instituted to deal with the timeliness issue, with Enterprise Statistics Division taking leadership and coordination upon them. The task force devised a plan for improving the timeliness of all survey processes within the UES. It set a target of 15 months after the reference period to be applied to reference year 2001.
The 15-month target would be maintained for all future reference years and, where possible, a 12-month target would be sought. As of the reference year 2003, all surveys have been released within 12 to 15 months.

Use of administrative data in business surveys
Significant progress has been achieved in making greater use of tax data. In the UES, survey data is being replaced with tax data in many cases, both as planned tax replacement and for survey non-response. In the reference year 2003 alone, 17,000 tax records were used from a sample of 55,000. More importantly, this initiative has cut the response burden for smaller enterprises.

Over 50% of simple businesses previously in the sample no longer receive a UES questionnaire. Enterprise Statistics Division has also implemented a fully redesigned systems infrastructure. It integrates tax data in the process and ensures that all tax data is available in a systematic way for business surveys.

The UES tax strategy consists of two separate initiatives. The first is the use of tax data to estimate for the smallest businesses within the population, those cumulatively representing the lowest percentage of total revenue.

The second initiative involves obtaining data for a subset of businesses from administrative records rather than through the survey process. This initiative incorporates both a ‘pre-identified’ component and replacement for non-response.

The enterprise portfolio management (EPM) program has been effective in improving response, timeliness and quality of survey data. A great deal of this success has achieved by decreasing the burden imposed on EPM enterprises.

The objectives are to extend the coverage of EPM treatment without additional resources, and to give subject matter managers experience in dealing with large, complex businesses. The subject matter programmes will be responsible for a small number of companies, and will focus on maintaining, rather than building, the relationships. The EPM programme will continue to provide coordination and support.

7.2.5 UES establishment sample design

The starting point for the UES design is the production of a survey universe file from the Business Register at the time of sampling. First, the frame is stratified by four-digit NAICS classifications and by province. Based on this frame, small establishments accounting for a total of 10% or less of the revenue in each stratum are not considered for sampling. These are called ‘take-none’ units. Not surveying these small units has the double advantage of reducing response burden for small firms and making the design more efficient.

For the rest of the units, the population, though truncated, is still skewed. The stratum is essentially divided into a census portion for large units (take-all) and a survey portion (take-some) for the other ones.

The ‘take-all’ portion is also supplemented by some important units identified by subject matter specialists. Finally, the ‘take-some’ portion is further divided into two strata by size. For the take-some portion, sampling is achieved by a simple random selection, without replacement, within each stratum.

Currently, the ‘take-none’ portion is estimated using tax data. The ‘take-some’ portion is partly obtained from surveyed establishments and partly from tax data. Indeed, about 50% of each ‘take-some’ stratum is surveyed. For the other half, tax data is used in lieu of surveyed information for financial variables. Estimation of the ‘take-all’ portion comes entirely from surveyed information.

8. Contribution of SSB – Norway

8.1 Questionnaire on National Accounts

8.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?
See the answer below c.

b. Timeliness

What is the timeliness of the different NA-products?
See the answer below c.

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

National accounts are compiled in different versions (or vintages). There are versions according to present status – final or provisional – detailed or less detailed, adjusted or unadjusted. Annual aggregated accounts are compiled in three consecutive provisional versions and a final one, and occasionally main revisions later on.

Referring to versions compiled, including the periodicity, the Norwegian situation is indicated in the box below. Time lag in number of months is indicated. In 2003, the very two first dates (1 1/2 and 4) were replaced by the one date of 2 1/2 months lag. It should also be noted that third provisional annual version has been followed a quarterly based

Versions of National Accounts compiled by SSB and time lag

Versions compiled	*Time lag in number of months*
Aggregated annual accounts	
First provisional annual version, quarterly-based	+ 2 ½ (from 2003)
Second provisional annual version, quarterly-based	+ 5 ½ (from 2003)
Third provisional annual version, quarterly-based with some adjustments based on annual data	+ 11 ½ (from 2004)
Final annual version, detailed basis	+ 23 ½ (from 2004)
Aggregated quarterly accounts	
Provisional first version	+ 2 ½
Final unadjusted version	+ 5 ½
Final adjusted version	+ 11 1/2 (once a year)
Supply and use tables	
Final detailed version	+ 23 ½
Input-output tables	
Final detailed version	+ 23 ½
Institutional sector accounts	
Provisional aggregated version	+ 5 ½
Provisional detailed version	+ 11 ½
Final detailed version	+ 23 ½
Regional accounts	
Final detailed version	28
Labour accounts	
First provisional annual version	+ 2 ½ (from 2003)
Second provisional annual version	+ 5 ½ (from 2003)
Third provisional annual version	+ 11 ½
Final annual version	+ 23 ½
Balance of payments	
First quarterly version	+ 2 ½ (from 2005)
Final adjusted quarterly version	+ 11 ½
First provisional annual version	+ 2 ½ (from 2003)
Second provisional annual version	+ 5 ½ (from 2003)
Third provisional annual version	+ 11 ½
Final annual version	+ 23 ½
Satellite accounts	
Tourism	Like aggregated annual accounts, final versions after 23 ½
System of Health Accounts	Like aggregated annual accounts, final version after 26 months (from 2005)
Other areas	Ad hoc versions Environment accounts– Unpaid work in households

approach since the 1995 revision. Furthermore, from 2004, the third provisional annual version and the final annual version, have been released more than three months earlier than before, in December after less than one year and two years, respectively. Lastly, there has been a main change from 2005 as well, i.e. the balance of payments became quarterly (monthly earlier) and very much aligned with the quarterly national accounts timetable.

Level of detail:

Final annual SUT:
- 149 activities specified in terms of NACE specifications, totalling 178 activities when cross-classified by categories of production (market, government, NPISH etc).
- 1,250 products, of which almost 700 are goods, about 300 are services, while the remaining products are of a supporting nature introduced for technical reasons.
- 93 Household consumption (COICOP) groups
- 55 Government consumption (COFOG) groups
- 57 asset types for GFCF

Quarterly accounts and provisional annual accounts:
- 47 activities specified in terms of NACE specifications, totalling 65 activities when cross-classified by categories of production (market, government, NPISH etc).
- Around 70 products

8.1.2 Input

a. Input

What can be said about the environment in which the NA are compiled:
- *How is the quality and availability of source data?*
- *Which registrations are available and in what way is the information used?*
- *What are the complications?*

Statistics Norway (SN) publishes annual structural statistics $1^{1}/_{2}$–2 years after the end of the statistical year in the following areas (some from 1995, others beginning later): Manufacturing and mining and quarrying; Construction, Wholesale and retail trade; Hotels and restaurants; Transport (not including ocean transport); Post and telecommunications; Real estate, renting and business activities, and Personal services. There are efforts made to improve timeliness of the SBS; one example is manufacturing SBS data for 2004 released after 14 months. It remains to be seen if such improvement in timeliness could also be made for other industries.

Recent developments in compiling the NA production accounts – and other parts of NA as well – involve more use of accounting data in the business statistics. This is evidenced by a strong move towards structural business statistics adapting to the EU regulations on Structural Business Statistics (SBS). The annual accounts of multinational enterprises separate activity in Norway from activity abroad. Nationally, the statistics are based on Directorate of Taxes' General Trading Statements – for short NO (In Norwegian: NæringsOppgave), with supplementary data from Business Register and VAT register. The items from the NO have conceptually been selected for direct use in compiling the various NA items. There is also a supplementary scheme – for short: TS and local KAU-based – that supports the NA compilation by industry based on enterprise-based NO. For NA compilation in Norway supplementary data based on local KAUs are vitally needed for the detailed SUT and are actually provided.
The NA division converts data from SBS variables to NA variables, and distributes them by NA products.

b. Obtaining input

How does data delivery from source statistics to the NA take place?

For the most part, the NA division access source data files over the UNIX network. Access is controlled by the network administrators in our central IT department, and we have to apply to get access by a specific procedure. The files can be of various kinds, SAS datasets, ASCII files, Oracle database tables. We also get some data as Excel spreadsheets by e-mail.

8.1.3 Transformation of administrative data

a. Process

In which part of the compilation process of the NA are administrative data transformed to the NA concepts?

See the answer below b.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

This takes place in two steps, first in the divisions that are responsible for SBS, and then the final step in the NA division.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

The SBS divisions work mainly at unit level, the NA division at industry level.

8.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

It is fair to say that ever since the work on the Norwegian NA started immediately after the Second World War, a high priority has been given by Statistics Norway to this statistical product. In fact a separate research department was established within SN quite early on (1950) with one main dedicated task; to establish and develop the Norwegian NA system. The spoken ambition then, as well as today, is to have a Norwegian NA system in accordance with the most up to date international recommendations at any time and in favourable comparison with other NA's around the world.

The NA work was an integrated part of the Research department until 1990, when the NA was moved to the Economic statistics department. This reorganisation reflects that the NA, as a more or less fully developed system, in addition to serve users with high quality data, has one very important task: to continuously work as tool for evaluating consistency and quality in all economic primary statistics.

Such ambitions are explicit expressed in planning documents, annual reports and long-term strategic plans. To quote from the official plans for 2005–2006: ' The needs of NA shall be given high priority in all statistics'.

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

– Adapt to international recommendations (ESA/SNA)
– Adapt to general international quality criteria in economic statistics
– Keeping sufficient level of details for price- volume measurement
– Serving users with early timely good quality NA aggregates

– Serving users with long consistent time-series
– Serving users with good and easily accessible documentations of all aspects of the NA compilation and revision process

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

There is probably not one unambiguous answer to this question.
In very general terms administrative data might be said give better coverage, but less details; and less costs/lower response burden, but poorer timeliness. If this is true the trade-off must be carefully assessed.
One example is short term information on turn-over, which uses VAT registers as a administrative data source of high coverage, but with a time-lag of 2 quarters, versus survey based direct data collection from enterprises, giving higher actuality, but also higher costs and higher uncertainty.

The use of administrative data is most often discussed as an aspect of the issue of reducing report burden. For NA however, the question is just as much a question of how to find the best way to transform business accounts information into NA concept: is it better to present a NA based questionnaire to the respondents and let them do the transformation into NA concepts, or is it better to have the NSI collect the available accounting information and do the transformation themselves? Certainly over time there has been a development towards the latter solution and the argument is that it is better to have good knowledge of what we get (what is reported) and do the interpretation ourselves, than to rely on the respondents to fully understand the NA concepts.

8.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:
Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

Normally, the source data are transferred from the other departments' databases into the NA environment by use of computerized procedures. The procedures for coding and transformation into NA concepts and categories vary across the various NA categories
For information used in the Institutional sector accounts the coding and estimations to adapt to the NA definitions are at a large extent computerized. These estimations try to achieve internal consistency in each sector. The external balancing across sector is however today a more manual operation. We hope in the future to have at least part of the external balancing procedures more computerized.
Information (short term indicators etc) used in Quarterly NA (SUT) are also transferred and processed electronically. The balancing of the quarterly SUT tables is completely computerized. Quarterly Institutional sector accounts are at the moment not fully established. Formal meetings are held with the other departments through the QNA process to ensure that the short-term information is correctly used in the QNA.
Information to be used in the annual SUT is on the other hand partly processed more 'manually' by use of excel spread-sheet estimations. The balancing process starts with a rather manual set of operations, but ends with some completely computerized balancing procedures (RAS-methods). However, all procedures are carried out in a special constructed IT-menu (see 8.1.6).

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?

Not very much, since the use of administrative data is mainly the task of the divisions producing SBS.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
The SUT and labour accounts are compiled first, then the sector accounts.

Are these main products balanced separately or simultaneously? How is consistency managed?
The sector accounts are balanced after the other two, and usually take the results of the SUT and labour accounts as given. We do, however, in our plans state the need of a more interactive system where data and results in the sector accounts can give feedback to the results in SUT, and not only the other way round.

b. Globalisation
How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?
An important effort that was initiated a few years back, is to map the interrelationship between enterprises in big Norwegian and international concerns and make this information an integrated part of the Business Register. The annual accounts of multinational enterprises in general separate activity in Norway from activity abroad. However in some cases, especially for Norwegian oil companies, their activities abroad are carried out through affiliates and not formal enterprises. Close discussions with these companies enable us to make a sensible distinction between activities that belong to the Norwegian GDP and activities that falls outside.
We can point at only one case of exchange of information with other countries. This applies to the trans Scandinavian airlines company (SAS). Their accounting data are collected by SCB and forwarded to the NSIs in Denmark and Norway.

8.1.6 Software

a. R & D
How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)

b. IT systems
What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

Our IT systems are split in an annual and a quarterly system.
The quarterly system is based on FAME time-series database and TROLL modelling software. It was developed in the NA division with some assistance from our Research Department in the first part of the 1980s, and it is related to the systems used for macroeconomic models.

During the years 1994 to 2000 we developed an integrated system for annual accounts, both supply-use and sector accounts. It is a client-server system based on the Oracle database management system, with client applications programmed in Visual C++. It was developed by an outside consultant (a former employee of Statistics Norway), based on specifications by the NA staff. Some time ago, it was decided to move the development in-house and convert the system to SAS, which is used a lot in Statistics Norway. The NA division is part of the department for economic statistics, and the department has a separate IT group. One person in the IT group works more or less full time on the conversion and further improvement of the system. The SUT module has been converted, while work is ongoing on the sector accounts module. The same IT

person also works on a SAS based system for labour accounts, which is almost ready. (Labour accounts are produced by the NA division.)

Both annual and quarterly time-series are stored in FAME, and FAME is also used to prepare tables for publication and international reporting. Aggregation, chaining, etc are also done using FAME systems.

In the NA division we have two IT support staff who also do some development, mainly in FAME. A few of the economists do some programming in SAS and FAME, but most stick to Excel.

8.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

Normally, the NA-department (a separate division within the department of economic statistics) receives source data collected, checked, controlled and processed by other departments of SN. The various responsible units will also normally publish their data. The NA department collect to a very little degree source data on it's own.

The procedures carried out by the NA division comprise coding and estimations to adapt to NA definitions and principles, and balancing and processing of NA tables, evaluation, quality control of NA results and finally, presentation and dissemination of NA results.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

Advantages: Having no responsibility in collecting source data, means more concentration of genuine NA work, i.e. transformation to NA principles, balancing procedures, economic interpretation of results etc.

Disadvantages: No or minor knowledge of how data are collected and processed increases the possibilities for misinterpretation and drawing the wrong conclusions. We try to make up for this by keeping in close contact with the relevant departments and participate in relevant data collection projects.

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?

The Division for NA has one head and one deputy head of division. Otherwise a rather flat structure, although the most experienced NA persons will have more and broader responsibilities than the younger more inexperienced persons.

We perform what could be called a kind of matrix organisation. The division of labour is organised according to NA category in such a way that the same person will be responsible for a category (e.g. general government, households, export/imports, manufacturing industries etc. etc.), and the responsibility will apply to all versions or vintages of the NA. For example the same person is responsible for exports/imports in both quarterly NA, annual NA and in Balance of payments. Or the same person is responsible for manufacturing industries in quarterly NA, annual NA and regional NA. Still another example is that one and same person works on the financial sector in the institutional sector accounts, the financial sector in Balance of payments and the financial industries in the supply and use table system.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

About 85 per cent of the staff will have their tasks and responsibilities connected to the whole process of coding and transforming input data into NA items, and evaluating and

commenting upon the NA results for their respective areas of responsibility. The remaining 15 per cent have, in addition to leadership and administration, tasks and responsibilities in connected to operating the IT-infrastructure etc.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

In recent years the NA unit has employed about 28 staff members, of which more than 20 are graduates, mainly economists. The allocation of the staff resources to the main fields of national accounts is indicated below.

NA areas and staff members of SSB, 2005

	Staff members (man years)
NA areas	
Central annual accounts work	6
Institutional sector accounts	5
Quarterly accounts, included quarterly sector accounts	6
General administration	2
Balance of payments	3–4
Labour accounts	3
Regional accounts	1
Satellite accounts	1–2
Development work	2

The NA unit is supported by other units, such as specialised divisions on administrative tasks and computer processing. The NA unit collaborates closely with the Divisions for Public Finance and Credit Market Statistics on government data and institutional sector accounts. In fact, the latter is also responsible for compiling and publishing annual Financial Balance sheets for institutional sectors.

9. Contribution of SCB – Sweden

9.1 Questionnaire on National Accounts

9.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

We produce GDP by expenditure and by production.
Annual accounts: We use S/U tables, 400 product groups
Household consumption: 140 purposes
Gov. cons: About 50 functions
GFCF: 80 industries, 20 functions
Production: 135 industries
Quarterly: Quarterly figures are less detailed: about 40 industries. We publish household consumption on durability and on 10 purposes (but the calculations are more detailed).
And we do income and outlay accounts, financial accounts, ESSPROS, employment, regional accounts, tourism satellite accounts and a lot of other things!

b. Timeliness

What is the timeliness of the different NA-products?

Preliminary annual accounts are made after 11 month, annual accounts with 'complete' annual sources are made after 23 month, quarterly accounts are made after 70 days. The exception is the second quarter, it is produced twice, after 35–37 days and after 85 days.
During 2006 we will successively shorten the time to 60 days after the end of the quarter.

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Of course we have to do adjustments in order to show consistent results. We adjust surveyed data when we found them inconsistent with other information and we make adjustments in the S/U tables when balancing the system. We show only one GDP figure so we have to adjust the expenditure and/or the production so they give the same level and growth. In the quarterly accounts we revise the old quarters when a new one is calculated according to a special revision policy: Earlier calculated quarters for the year in question can be revised when a new quarter is calculated, and the quarters the year before can be revised when the first quarter is calculated for the next year.

We are testing a system including a 45 day calculation of GDP (by expenditure and production) followed by a 60 day calculation. However, we have not yet received resources to do this continuously.

The annual calculations are final after 23 month, but as you know, also these figures are revised now and then.

9.1.2 Input

a. Input

What can be said about the environment in which the NA are compiled: How is the quality and availability of source data?

This is really a complicated question. We have a lot of good statistics to rely on but as a national accountant you are never satisfied! For the quarterly_information the sources cover all fields of expenditure (including GFCF and inventories) and production. The production figures show output figures, not value added. Both goods and services are covered, but for services we have problems with price indexes though they have improved a lot during the past five years.

Which registrations are available and in what way is the information used?
Administrative registers used are:
SRU ('standardiserade räkenskapsutdrag', standardised extracts of accounts). All enterprises have to report special current accounts and balance sheets to tax authorities annually. Used for calculating production for almost all industries, see 9.1.3 a.
VAT information. Used for turnover information in retail trade (household consumption) and for many service industries (quarterly output)
Employers' payments of wages and salaries (separate for each employee), annual information reported to tax authorities. Used for estimation of total wages and salaries
Employers' payments for wages and salaries (all staff together), monthly information to tax authorities. Used for quarterly wages and salaries.
Central government expenditures (Complete reporting from central government economic system to the Finance Management Authority, adjusted to NA needs) Quarterly information. Main source for central government consumption and income and outlay.
Export and import of goods by the customs (extrastat).
Reporting to tax authorities from banks about dividends, interest payments etc.

What are the complications?
We think these are very good sources with almost total coverage. SRU are delivered to Statistics Sweden in August/September, we do not have control of the details included, changes may occur. VAT can be problematic for some large companies if the report on different organisation numbers. This happens now and then.

b. Obtaining input
How does data delivery from source statistics to the NA take place?
All data are delivered in electronic form more or less adjusted to the NA data systems. Some data must be entered by hand into the NA data systems (example: SBS) and other information goes directly into the NA systems (example: exports and imports of goods). When data are delivered we have a meeting together with the producers of the statistics, or we can just receive the data and put questions later.

9.1.3 Transformation of administrative data

a. Process
In which part of the compilation process of the NA are administrative data transformed to the NA concepts?
Statistics Sweden uses the principle to adjust the figures to NA concepts at Statistics Sweden rather than directly ask for data according to NA concepts. So we ask for data in the form the respondent have them and adjust into NA concepts either at the producer of the primary statistics or at the NA unit.

One important administrative source is the SRU (standardiserade räkenskapsutdrag, standardised extracts of accounts), which are collected by the taxation authorities from all enterprises in Sweden. For the largest companies we use special surveys and for smaller enterprises we can use very small surveys and to the main part rely on the SRU data. This will reduce the response burden a lot and make the statistical production cheaper. SRU are used in the Structural Business Statistics, SBS The same technique is used on turnover statistics where the large companies answers surveys but for all other companies turnover from VAT is used.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

If we use surveys or administrative data, we must in both cases adjust them to NA concepts. The NA unit does not use the administrative sources directly, they are converted into statistics by the source statisticians at Statistics Sweden. As an example, the SBS uses SRU which are bookkeeping figures in the same way as the surveys made by the SBS statisticians. The SBS statisticians then make some adjustments so the bookkeeping figures will fit better to NA concepts but an important part of the adjustments are made at the NA unit. As examples, for insurance or own produced software or other taxes on production national accountants have the best information of the total levels and can make the best adjustments.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

The adjustments are made on an aggregated level, but more detailed than for publication level.

9.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

NA has gradually been more and more put in the centre of Statistics Sweden. A special commission investigated the user needs, sources, methods and resources of the NA in year 200–2001 and found that more resources were needed in order to be in the front of the best NA departments in the world. Direct after the commission was finished no resources were achieved but slowly an increase of resources has started.

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

The NA producer shall use good sources, cover the whole system, produce consistent and reliable results. Timeliness is also important.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

Quality is in many cases improved since administrative data often cover the whole population. One problem is that in some administrative data systems corrected figures is not introduced in the database. The authority responsible for the register is maybe not interested in a correction in the database of the new information since they do not use the database themselves in that aspect.

The level of detail is of course a problem since the NSI can not add questions. Statistics Sweden has solved that problem for the SRU (earlier mentioned) and uses the administrative data for estimation of the head information, which will be very reliable, and add structure questions in a small sample.

Timeliness can also be a problem. You are deemed to follow the timetable of the administrative data and sometimes they are so out of time that you can't use the data in the first calculations. This differ of course between different administrative data.

9.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

This differs a lot between different sources. If we take the SBS, data are delivered in electronic form. A huge process starts to check the figures and to compare with other sources. Discussions take place between NA staff and SBS producers. Changes in the business register are examined if you see something strange etc. For the manufacturing industry output on product level is determined from another source and here we need full correspondence with the SBS. This is not the case when the NA receives the figures. The data are after these first checks corrected for NA definitions. After this data are introduced in the S/U framework and the balancing starts. At the same time the output and input figures are compared to employment and compensation of employees and labour productivity and earnings are estimated and valued for each industry.

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?
Administrative data do not affect the process so much since in most cases the administrative data is incorporated in the figures received from the producer of the source statistics.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?
Labour accounts are made separately from the S/U accounts. During the balancing of the SUT labour data are compared to the value added received from SBS and adjustments are made if figures do not fit together. The sector accounts are produced after the SUT is ready and value added is finally determined.

Are these main products balanced separately or simultaneously? How is consistency managed?
As described at the previous question, the balancing is made simultaneously for SUT and labour accounts. The sector accounts receive operating surplus from the product accounts and balancing of the sector accounts do not affect SUT.

b. Globalisation
How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?
No arrangements is made with NSI in other countries. Statistics Sweden try to have good contacts with the multinational enterprises which are based in Sweden in order to correctly separate domestic production from the global figures. (This has been a problem, some companies have problems to separate domestic production from the global one.)

9.1.6 Software

a. R & D
How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)
R&D of NA questions are made in the NA unit with the ordinary staff. We do not have a special department for R&D as you have in the Netherlands. Special staff for statistical methods exist on the department level and can help us in methodological questions.
We have nowadays separate IT units within each department. Earlier IT experts were spread out on each unit. In NA we had 3-4 IT experts but they are now working in close contact with the NA unit from an own unit within the Macroeconomic and Price Department.

b. IT systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

You can say that there are separate IT systems but they are built in the same way using SQL. The different systems are linked together so data can easily be transmitted between the systems.

9.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

Organisation terminology: National accounts in Sweden is a *unit* within the *department* of Macroeconomics and prices (see also 9.1.7 f). The NA unit does not collect data, source data is produced within other parts of Statistics Sweden. NA receives data more or less adjusted to NA definitions. Most of the adjustments to the ESA definitions are made at the NA unit. During 2005 and 2006 the calculation routines of government sector has been changed. Earlier received the NA unit the source statistics from municipalities, county councils and central government and produced government statistics according to ESA. In 2005 started a process where the Public Finance statistics unit begun to do the input of government statistics into the NA framework. Earlier this unit despite its name had only been working with the municipality statistics. The Pubic Finance Statistics Unit makes both annual and quarterly input to the NA but only in current prices.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

We believe that we have an efficient organisation and has been quite happy about the division of work. The change concerning government statistics was forced upon the NA unit and we are not so happy about the change. The Public Finance Statistics Unit is located in Örebro, 200 kilometres away from Stockholm and the NA unit and we have communication problems in the quarterly calculations when everything must happen very fast.

c. Organisation of responsibilities

How is the department of National Accounts organised and in what way are responsibilities distributed?

There has been a reorganisation of the NA unit from beginning of March. The financial accounts has now been incorporated in the NA unit, earlier it belonged to the Financial Market Statistics. We have a head and a deputy head of the NA unit. It is a matrix organisation. The unit is divided in groups mainly according to the sector classification and added to these groups there is one coordination group and one group dealing with publishing. There is a group leader for each group and 6-9 members in each group. In the coordination group persons responsible for different subjects are included. They are leading the work with annual S/U tables, the quarterly calculations, the financial accounts, the coordination of financial and non-financial accounts, the sector accounts.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

See question c.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

Total number employed in the NA unit is about 50 persons. Since the organisation is quite new it is not settled in all respects yet, but the staff in one group, for example the group of no-financial corporations will work with production accounts, GFCF, sector accounts and in the future also financial accounts, but this has not bee implemented yet. All persons that work with financial accounts belongs at the moment to the group of financial corporations and foreign trade. So people will work in more than just one area. For employment and wages we have special persons appointed and they do the calculations for all industries.

f. Organisation of SCB – Sweden

Population and Welfare Department (BV)
- Management
- IT Unit
- Population and Income Databases Unit
- Population Statistics Unit
- Democracy Statistics Unit
- Economic Welfare Statistics Unit
- Higher Education Statistics Unit
- Methods Unit
- Forecasting Institute
- Primary and Secondary Education Statistics Unit
- Social Welfare Statistics Unit
- Education and Labour Market Follow-Up

Data Collection from Enterprises and Organisations Department (DFO)
- Management
- IT Unit
- Business Surveys Unit
- Business Register Unit
- Methods Unit
- Public Sector Surveys Unit

Data Collection from Individuals and Households Department (DIH)
- Management
- IT Unit
- CATI Unit
- Questionnaire Surveys Unit
- Field Work Unit
- Survey Planning Unit

Macroeconomics and Prices Department (MP)
- Management
- IT Unit
- Economic Analysis Unit
- Financial Market Statistics Unit
- National Accounts Unit
- Public Finance Statistics Unit
- Price Statistics Unit
- Economic Micro simulations Unit

Business and Labour Market Department (NA)
- Management
- IT Unit
- Analysis Unit
- Labour Force and Work Environment Surveys
- Enterprise- and Register based Employment Statistics Unit
- Investments, F&D and IT Unit
- Salaries and Labour Cost Statistics Unit

– Methods Unit
– Business Structure Unit
– Foreign Trade and Industry Indicators Unit

Regions and Environment Department (RM)
– Management
– IT Unit
– Construction and Real Estate Statistics Unit
– Energy Statistics Unit
– Agricultural Statistics Unit
– Methods Unit
– Environment and Tourism Statistics Unit
– Regional Planning and Natural Resources Unit
– Regional Services Unit
– Transport Statistics Unit

10. Contribution of Tilastokeskus – Finland

10.1 Questionnaire on National Accounts

10.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

– annual supply and use tables (final accounts)
– production accounts and generation of income accounts by industries. Main approach: GDP as a sum of value added of industries
– employment and hours worked by industries
– GDP from expenditure side
– non-financial accounts by sectors (annual)
– financial accounts by sectors (annual)
– quarterly government non-financial and financial accounts
– supply and use tables
– financial balance sheets
– capital stock by industries

b. Timeliness

What is the timeliness of the different NA-products?

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Several versions of the national accounts are prepared for each statistical year. All data available to date are utilised so that the national accounts become progressively more exact. Definitive figures are produced two years after the end of the statistical year.

The first preliminary data for year t will be ready at the end of February in year t+1. This first version is less comprehensive than the national accounts proper. While the contents of the first version will correspond to the quarterly national accounts, it will also contain the first version of sector accounts for all sectors. The data for the fourth quarter of the previous year will be published at the same time.
A second version will be produced in the first half of July in year t+1. At that time, the national accounts for year t will be compiled in their entirety (including all sectors and industries) for the first time.

The third, revised, version will be ready in January of year t+2 and the final version in December of year t+2 as the result of the balancing of supply and use tables.
When the different versions of the national accounts are prepared, all available data are utilised. Only some data are altered at each version, for example all accounts for production and generation of income are initially produced in July of year t+1 (Version 2). After this, one or other of the production and generation-of-income accounts of a particular industry will be revised in January of Year t+2, when nearly all of the final information becomes available. Version 4 (final version) is based on supply and use tables and, consequently, on the balancing of the product level. Before compiling the product level accounts the data at industry level are altered if needed, for example taking into account new information or correcting errors that have turned up. In addition, the balancing of supply and use tables usually causes alterations in industry level data.

10.1.2 Input

a. Input

What can be said about the environment in which the NA are compiled: How is the quality and availability of source data? Which registrations are available and in what way is the information used? What are the complications?

In line with the Statistics Law of Finland and Statistics Finland policy, SF extensively uses administrative data. Where necessary, the administrative sources are supplemented with information gathered through surveys.

One of the most important data sources is the Structural Business Statistics (SBS), which is compiled using direct inquiry and tax data combined with Business Register's classifications. This data (the SAS database) is compiled in Business Structures Unit in Statistics Finland. Direct data treatment involves around 15 persons working on manual data collection, editing and imputation. Tax data is treated automatically using mass editing and imputation techniques. These automated routines require 1–2 persons working on the maintenance and development of the system.

SBS survey consist of two main sources (or sub-surveys) the administrative tax data and direct inquiry. That is the survey frame is defined step by step. All units included in SBS survey are drawn from the Business Register.
The preparatory frame consist of all active enterprises including following legal forms natural persons, decedent's estates, corporations subject to taxation, general partnerships, bankrupt's estates, limited partnerships, shipping companies under joint ownership, limited companies, cooperative societies, economic associations and government enterprises. That is, housing corporations are excluded from the survey frame.

Furthermore, the frame is limited via direct inquiry. Frame for direct inquiry is drawn from the Business Register. The frame includes enterprises having main activity within NACE 1.1 activities C–O excluding J and L. This implies that for the enterprises outside of these activity boundaries exists only administrative data and variables beyond this data are not estimated.

Finally, the smallest enterprises are excluded from the frame. The enterprise is excluded if none of three minimum constraints is full filled.

The SBS in Finland is a census survey. That is the data for all units included in the frame is collected either directly or using administrative sources. This is paramount for the precision, cost efficiency and response burden of the data. Good precision guarantees better data for the entrepreneurs, micro and small enterprises. Otherwise the reliability for the estimates would be low including relatively high variation error. Also the cost efficiency can be improved and the response burden can be reduced using administrative data. Especially the response burden for the micro and small enterprises is rather low because only enterprise employing more than 20 persons are included in the direct inquiry.

The threshold is applied in the direct data collection. Data is collected for the units employing more than 20 persons for activities C–F (NACE 1.1). For the activities G, H, I and K, all enterprises employing more than 50 persons are included and the largest units from the group employing 10–50 persons according to turnover size. For the activities M, N and O only the enterprises employing more than 50 persons are included.

The direct inquiry is collected using unique questionnaire for all activities. The questionnaire has 120 questions concerning details on income, expenses investments and personnel.

Tax authority data includes information on profit and loss account, balance sheet and investments. The data is received for all the enterprises paying income taxes in Finland and having ended their accounting period during the statistical year.

Even the ROSC auditors had to admit that the available sources are broadly sufficient to prepare accurate and reliable national accounts statistics.

The SBS data is mainly enterprise level data, so the greatest problem is how to divide the enterprise data of an individual firm among the establishments of that firm. Other problems are classification problems.

b. Obtaining input

How does data delivery from source statistics to the NA take place?

The databases of source statistics are mostly either Sybase or SAS databases in the UNIX environment. Each NA researcher has rights to directly read these databases. In addition, one researcher is specialised in producing SAS databases and Excel tables in cases where the original source statistics database needs extra processing. Our IT specialist gives support and makes conversion programs if needed.

All the researchers have also rights to read/look at the online applications of source statistics if they want to investigate the data of an individual firm in detail.

10.1.3 Transformation of administrative data

a. Process

In which part of the compilation process of the NA are administrative data transformed to the NA concepts?

See answer to question c below.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

See answer to question c below.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

Each sector researcher in NA compilation units reads directly the source statistics databases and transforms the data to the NA concepts for further processing. In most cases source data is first aggregated to the kind of activity level (usually 3- or 5-digit level). If problems arise, the data is investigated and transformations made at unit level.

10.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

See answer to question c below.

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

See answer to question c below.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

Statistics Finland appreciates very highly the national accounts, because they form the framework of all economic statistics. Well, in our opinion this could be taken better into account when Statistics Finland decides about our resources.

There are many criteria that make a country an outstanding national accounts producer. First, the data contents of SNA/ESA, how well it is completed. Secondly, how well national accounts system concepts, definitions and classifications are taken into account in source statistics. Thirdly, what is the accuracy of preliminary figures compared to final figures. Fourthly, what is the correctness of final figures.

Besides that Statistics Finland also has general quality criteria for the official statistics of Finland which are followed when compiling national accounts.
– Relevance of statistical information;
– Correctness and accuracy of data;
– Timeliness and promptness, of data, punctuality, or delivery on schedule;
– Accessibility and transparency / clarity of data;
– Comparability of statistics;
– Coherence and consistency / uniformity of data;
– Documentation.

Administrative data has a positive effect on quality, because it is exhaustive and we have the access to unit level data. The problem is that the transactions in administrative data are not always detailed enough for our purposes (for example intermediate consumption). In addition, the concepts of administrative data (e.g. business accounting) often differ from those of national accounting. Also, the type of unit, valuations, and timing may not correspond to those sought by the NA statistician. The effects on timeliness are mostly positive.

10.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products? In what way does the use of administrative data instead of survey data affect the processes of compiling NA?

The NA calculations can in many cases be made at more detailed level. For example the NA calculations for manufacturing were made at the 2-digit level of activity before the utilisation of administrative data, now they are made at the 5-digit level.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)? Are these main products balanced separately or simultaneously? How is consistency managed?

In our first preliminary estimates (two months after the statistical year) we produce balance of supply and use (on the national economy level) and value added by industry (about 10 industries) and non-financial sector accounts. These are, in practice, compiled simultaneously, but in principle the sequence is: value added, balance of supply and use, sector accounts. Compiling of sector accounts can give feedback to other accounts. The sum of sectors is consistent with supply and use, in practice the non-financial corporations sector is residual.
In other preliminary estimates (published 7 and 13 months after the year) the sequence is, in principle: gross fixed capital formation (by industry and by sector), production and generation of income accounts and labour accounts (employment and hours worked by industry and by sector), balance of supply and use (national economy level), other non-financial sector accounts and after that the constant price figures. All phases may have feedback to former accounts. The financial sector accounts are compiled

separately 9 months after the statistical year and they are not balanced with other sector accounts (net lending). In the near future the financial accounts will be produced in six or seven months and then they can be better compared to non-financial accounts.
In final estimates (published 24 months after the statistical year) first are compiled the supply and use tables by product and after that non-financial sector accounts. Only in final estimates there is no statistical discrepancy between supply and use.

b. Globalisation

How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

Globalisation has been a big problem when compiling economic statistics in Finland. We have started several projects for trying to improve observation and processing of multinational enterprises but until now we have not found a good general solution. Instead we have investigated multinational enterprises on case by case basis between units which produce and process the data. Now we have started to plan the strategy for all economic statistics where we have planned several programmes for problems in measuring multinational enterprises (e.g. price and volume measures, globalisation in general, data collection). These programmes should be started this year.

As for arrangements with other NSI's we have sometimes some special cases with Sweden (e.g. treatment of ships) and Estonia (at the moment we try to investigate labour recruitment from Estonia to Finland). Foreign trade statistics (compiled in Board of Customs) have made mirror studies with neighbouring countries.

10.1.6 Software

a. R & D

How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)

b. T systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

There is a separate IT and Statistical Methods department in Statistics Finland. This supporting department produces e.g. application, network and workstation services for statistical departments. Each statistical unit (e.g. national accounts) has its 'own' IT specialist (1–2 persons), who maintains and develops the software of the statistical system in question. So our annual accounts database ('SKT95') as well as the separate systems of quarterly and financial accounts is technically supervised by our IT specialist. Each sector researcher uses Excel and increasingly UNIX-SAS in the compilation process of industry/sector level data. The product level accounts and the final supply and use tables are compiled separately in the SAS system.

Although quarterly and financial accounts as well as supply and use tables are calculated in their own systems, the final figures are transferred to annual accounts system for dissemination.

Our IT systems go back to the middle of 1990's. We are just starting a renewal project of our systems. This project has two main purposes. We are going to replace the existing APL programming language, with which is not decided yet. The other purpose is the integration of accounts, at least the annual accounts and supply and use tables. We will also search for possibilities to link source data and researcher's calculations better to each other.

10.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

The collection of source data is done outside National accounts unit. In NA unit the source data are validated and some corrective measures are being done as a part of compilation. In final adjustment sessions there could be attendants from source statistics, too. Dissemination of NA is done largely by NA itself. Public Relation department supports the dissemination e.g. organising once year a press conference. The layout-work for annual printed publications is done by specialists outside NA unit, quarterly publications are done by NA unit. Public Relation department is responsible for all translation work.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?

In some former times NA has been organised in a way where certain compilers has been worked in other units dealing with source statistics. The advances has been quite limited, it has been found out to be more effective if the compilers has all been centralised to the same NA unit. But we have found some disadvantages in the centralised model, too. It is quite often when all data needs of national accounts has not been incorporated in the surveys. On the other hand, EU regulations has been improved the data coverage of source statistics according to national accounts needs.

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?

See answer to question e below.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

See answer to question e below.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

Organisation of the national accounts in Finland

National accounts source statistics are not compiled in the Economic Statistics Unit, except for local government financial statistics, economic statistics of agriculture and financial market statistics. Source statistics are produced either in other statistics units of Statistics Finland or in part externally.

Finland's national accounts are compiled in their entirety at Statistics Finland. The national accounts are among the key tasks of the Economic Statistics Unit, which is responsible for macroeconomic statistics. The unit is divided into three statistics sections. The national accounts section is responsible for compiling the annual accounts, the quarterly accounts and the monthly output-indicator. The national accounts section is also responsible for keeping the accounts for agriculture. The Regional Economic Statistics section produces regional accounts according to the levels of the annual national accounts. The Financial Accounts section is responsible for financial accounts and calculating general government accounts in the national accounts, as well as for insurance and financial institutions.

At the end of 2005, roughly 22 persons were involved in compiling the annual national accounts and in the reform of ESA 95. There are 3 fulltime staff compiling quarterly

accounts and monthly output-indicators. Some annual accounts compilers also produce quarterly data. Additionally, three persons produce and develop quarterly sector accounts. Six persons compile Financial Accounts statistics. At the end of 2005, around forty of more than 70 staff in the Economic Statistics Unit were involved in compiling the national accounts. The majority of these compilers have been educated to degree level.

Compilation of the national accounts is organised in work units according to specific areas for which individual sector researchers take responsibility. One of the sector researchers is responsible for wholesale and retail trade and for hotels and restaurants, another for transport, a third for the final consumption expenditure of households. A team of about four persons makes summaries of calculations in various phenomenon areas for the aggregate national accounts. Group projects involving just a few staff were set up for a given length of time to reform accounting. In principle, nearly everyone in the annual accounts staff is involved on an ongoing basis, since reform principles are best disseminated among the staff in this way.

A team of 3–4 persons is responsible for compiling the supply and use tables. Each sector researcher, however, produces product data on her/his specific area. Changes are being planned regarding how compiling is organised, allowing for better integration of supply and use tables into the annual accounts.

11. Contribution of ABS – Australia

11.1 Questionnaire on National Accounts

11.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

- Annual Supply/Use tables (note these are not published but can me made available)
- GDP(E) and components HFCE, GFCE, public and private investment, stocks, X-M
  - Annual – current price/chain volume
  - Quarterly – current price/chain volume/trend/seasonally adjusted
- GDP(P) and components – gross value added at BP, other net taxes on products by industry
  - Annual – current price/chain volume (we could do gross output and intermediate consumption)
  - Quarterly – chain volume/trend/seasonally adjusted
- GDP(I) and components – employee compensation, GOS/GMI, net taxes on products by industry
  - Annual – current price
  - Quarterly – current price/trend/seasonally adjusted
- GSP (I) and components by industry
  - Annual
- GSP state final demand and components
  - Annual
  - Quarterly
- Input-output tables (including multipliers)
  - Periodic
- National and Sector income and use of income accounts
  - Annual
  - Quarterly (some of low quality)
- National and Sector capital accounts
  - Annual
  - Quarterly (some of low quality)
- National and Sector Financial accounts
  - Annual
  - Quarterly
- Financial Markets stocks and flows
  - Annual
  - Quarterly
- Analytical Measure of Credit Stocks and Flows
  - Annual
  - Quarterly
- HFCE by COICOP
  - Annual – current price/chain volume
  - Quarterly – current price/chain volume/trend/seasonally adjusted
- Farm income and gross product
  - Annual – current price/chain volume
  - Quarterly – current price/chain volume/trend/seasonally adjusted
- Analytical measures of income
  - Annual
  - Quarterly
- Capital stock and COFC/capital services by sector and by industry
  - Annual – current prices/volume
- National and sector balance sheets (incl. reconciliation between opening and closing)

  - Annual – current prices/volume
  - Quarterly (Planned)
- Productivity indexes for 'market sector'
  - Annual
- Satellite accounts
  - Annual – TSA, NPI (planned)
  - Periodic – ICT, unpaid household work
- Chain Volume Measures for other areas of ABS, e.g. 725 series adjusted for Balance of payments goods and services

b. Timeliness

What is the timeliness of the different NA-products?

Three hard copy publications 5204.0 (Annual publication, released November each year), 5220.0 (Annual publication released November each year) and 5206.0 (Quarterly publication released every 3 months).

Annual about 140 days after the end of the reference period, quarterly about 60 days

c. Adjustments

How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Quarterly adjustments are made as required in the post reference period, until a new annual benchmark is available once a year. There is no preliminary publication. Historical revisions going back to Sep 1959 (start period of the quarterly data) in some cases are done about every two years and the past revised then.

11.1.2 Input

a. Input

What can be said about the environment in which the NA are compiled:How is the quality and availability of source data?

The input data are collected from a range of ABS (e.g. statistical survey) and non-ABS sources (e.g. tax data) in a range of formats. The input data range from one or two estimates obtained manually from a website to hundreds of time series obtained electronically from various sources. Stakeholder agreements are generally in place to ensure timeliness and quality.

The quality of inputs can vary significantly however key elements are quite good.

Availability of data differs depending on statistics being compiled. Where data are available they are generally sourced 2 to 3 weeks prior to the publication date for the quarterly publication and 3 to 4 weeks prior to the annual publication.

Where required date are not available, it is derived from related data e.g.. some quarterly estimates of GOS are allocation of annual estimates based on quarterly indicators, quarterly data in some cases must be derived from monthly data (by summing) or from annual data (by splitting).

Where date are not available at the required time, estimates are made and revised when the date are available. Preliminary date are also used and revised where firm or final date are unavailable.

Which registrations are available and in what way is the information used?

Business register for collections is Australian Tax Office based.

What are the complications?

Suitability of units and quality of classifications on the register.

b. Obtaining input

How does data delivery from source statistics to the NA take place?

In house central corporate database ‘ABSDB’, Oracle server, spreadsheets/files, and other manual techniques. Most data from ABS collections are retrieved from ABSDB. Some date are also supplied directly to NAB via e.g.. spreadsheets or hardcopy. Data from non-ABS sources are usually obtained in non-electronic media e.g.. fax, paper, forms or by phone and therefore require manual data entry.

11.1.3 Transformation of administrative data

a. Process

In which part of the compilation process of the NA are administrative data transformed to the NA concepts?
Initial processing stages.

b. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?
Efforts are made to ensure data collections are SNA compatible as far as practical before receipt in NA department, where final transformation takes place.

c. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?
Transformations are usually at the aggregate level.

11.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

Reducing risk and promoting best practice
NAB work practices support a dynamic environment that copes well with risk and change.
– Resourcing strategies support peak periods of activity.
– A managed Knowledge Base supporting people particularly in new or when changing roles.
– Analysts regularly move between roles within NAB or the wider Economic Statistics group.
– Supplier relationships are strong and actively managed.

National Accounts systems follow best practice for management and change.
– National Accounts systems and programs are managed by a centralised team.
– Changes to National Accounts systems and programs are controlled and documented.
– There is an ongoing programme of process and systems improvements which are well documented.

Reduce processing focus and increase the time spent on analysis
National Accounts staff are focused on analysis and the quality of outputs.
– National Accounts staff are recruited, trained and supported as Analysts.
– Clients are provided with timely and relevant National Accounts statistics, information, and support.
– There is an ongoing National Accounts programme of statistical review and improvement.

Economic Statistics Group processes and systems support the timely compilation of quality National Accounts statistics.

– Data are provided to NAB in an edited format that feeds easily into the compilation process.
– The concepts, sources and methods followed in compiling the accounts are well documented and understood by those supplying data to NAB.

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

Credibility of outputs in the opinions of users. The following contributes to credibility: Methodological soundness (follow SNA93 fairly closely, using supply-use annual benchmarks, accepted methodology e.g. chain volume estimates), reasonable data sources, corporate support for NA effort, partnership with users.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

NAB has in place a number of systems to ensure administrative date are adjusted or rearranged so that they meet SNA93 requirements and are of the highest possible quality. Timeliness of NA outputs can be slowed depending on the systems in place. The data itself may need considerable re-formatting to fit into processing systems NA use.

11.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:

Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

See Australian System of National Accounts – Concepts, Sources and Methods Cat no. 5216.0.

Shortcut to:

http://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/8AC0D9921051E17BCA2570B300807D36?OpenDocument

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?

Where administrative date are used NAB has less control over the application of standards and the possible existence of gaps and overlaps between the various sources whereas survey questions are generally designed to comply with national accounting concepts. As stated above NAB has in place a number of systems to ensure administrative date are adjusted or rearranged to that they meet SNA93 requirements and national account concepts.

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?

In principle we prefer supply/use compilation first. In practice this is not achieved quarterly.

Are these main products balanced separately or simultaneously? How is consistency managed?

Through supply-use, a quarterly supply-use model is used for editing but not balancing.

b. Globalisation

How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

Survey areas by arrangement with the enterprises in question. No bilateral arrangements with other NSI's.

11.1.6 Software

a. R & D

How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)

Each NAB workgroup is responsible for developing and maintaining their own FAME programs and spreadsheets. We plan to move to a more central model.
The NAB systems group is responsible for setting up and maintaining the FAME processing environment in which NAB staff operate including controlling access to NAB code and data, managing development and production environments, managing backup and recovery. They develop and maintain all programs, mainly FAME, used in the publication process. They provide general technical assistance and FAME support for all NAB staff.

The corporate IT support department Technology Services Division is more directly involved with the systems in Supply/Use than in National Income and Production and Consumption Production and Deflators.

b. IT systems

What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

Several systems are used in the production of National Accounts and Input Output tables. These systems range from spreadsheet-based systems e.g.. Supply-Use system (in Supply Use Benchmarks team), Gross Operating Surplus system (in National Income), to FAME processes (across NAB), FAME-based system e.g.. Capital Stock, to mainframe-based systems e.g.. Input Output system, Company Tax system. There are also adhoc SAS programs, spreadsheets etc that are set up for analysing data.

11.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?

National Accounts receive aggregates and transform them into NA concepts. NA also undertake dissemination.

Each NAB workgroup is responsible for collection of their own input data mostly from collection areas, for processing the data and for compiling the appropriate estimates. They are all responsible for supplying relevant intermediate estimates to other workgroups for them to compile their respective final estimates and for making data available to the NIP dissemination group for them to produce the National Accounts publications.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?
National Accountants concentrate on accounts compilation, not survey administration. A disadvantage is in not having detailed knowledge of inputs.

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?

See answer to question e below.

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

See answer to question e below.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

CURRENT STRUCTURE

National Accounts is split into four sections (soon to be five) and is made up of approximately 68 staff all located in Central office.

Capital, Consumption and Deflators section

The Capital, Consumption and Deflators section has a staff of 17 ranging from APS3 to EXEC1 (middle manager).

a Deflators

This group is responsible for

- stage 1 and stage 2 processing of deflator construction, where stage 2 involves the use of contemporary current price information then the work would be done in conjunction with the relevant compilation team,
- providing advice to compilation teams on deflation issues, for ensuring that there is a consistency of approach to deflation across both annual and quarterly estimates and for assessing and introducing new sources of price information.

b Fixed capital and international trade

This group is responsible for

- quarterly current price, volume estimates and chain price indexes for fixed capital and international trade components, and
- for capital stocks.

c Consumption

This group is responsible for

- quarterly current price, volume estimates and chain price indexes for both government and household final consumption expenditure; and
- balance sheet estimates of non-produced assets.

National Income and Production section

The National Income and Production section has a staff of 19 ranging from APS4 to EXEC1.

a Income

This group is responsible for

- the quarterly current price estimates of the income components of GDP,
- the annual current price estimates of compensation of employees and GOS dwelling, and
- the annual estimates of activity of the financial sector to feed into the annual SU tables, and
- miscellaneous items for the sectorial income and capital accounts.

b Production

This group is responsible for

- quarterly GDP(P) estimates;
- all farm estimates (including annual estimates to feed into the annual SU tables);
- current price and volume estimates of inventories; and MFP estimates.

c Dissemination and Coordination
This group is responsible for:
- derivation of estimates of GDP (including chain-price index), using components compiled by the various compilation teams,
- obtaining non-NAB data to feed into NA publications,
- performing the editor role for all publications other than the Input-Output publications,
- preparation of camera ready copy for all publications other than the I-O publications,
- assisting the compilation teams in generating editing tables
- maintenance of quarterly systems
- data management
- completion of international questionnaires.

Supply/Use benchmarks section

The Supply/Use benchmarks section has a staff of 18 ranging from APS3 to EXEC1. They are responsible for:
- compiling annual Input Output tables,
- compiling annual Supply Use tables,
- producing all Input Output publications and outputs for Ausstats,
- maintaining all Input Output classifications,
- maintaining all systems (other than the Input Output system), programs and spreadsheets used in the section,
- collecting input data from ABS and non-ABS sources, and
- fulfilling all relevant data requests (from ABS and non-ABS users).

National Accounts Research section

The NAR section has a staff of 14 ranging from APS3 to EXEC1. They are responsible for
- NAB research-type work,
- advising and working closely with the teams most likely to be affected by its work, and
- coordinating NAB input into reviews into classifications/standards affecting NAB.
- compiling quarterly supply use tables.

STRUCTURE ABS WILL BE MOVING TO SHORTLY

Section 1: National Income and Production – NIP (021)

Responsibilities: GDP(I)
- Quarterly GDP(P)
- QSU
- State accounts
- GSP(P) development
- Inventories
- Agriculture
- Sector income accounts
- GDP aggregation
- Dissemination
- Client service co-ordination

Section 2: Capital, Consumption and Deflators – CCD (022)

Responsibilities: Consumption
- Capital formation
- Capital stock

– Trade
– Capital accounts
– Deflators
– State final demand

Section 3: Supply-Use Benchmarks section – SUBS (023)

Responsibilities: SU tables – current prices
– SU tables – constant prices
– I-O tables
– ANZSIC co-ordination

Section 4: National Accounts Research section – NARS (024)

Responsibilities: SNA update co-ordination
– Productivity
– Satellite accounts (TSA / NPI)
– Training and technical assistance
– QESTRC
– Methodological development and review

Section 5: Financial accounts, balance sheets and process improvement – XXXX (025)

Responsibilities: Financial accounts
– Finance sector estimates
– Balance sheets
– Process improvement (NAPI)

12. Contribution of CBS – Netherlands

12.1 Questionnaire on National Accounts

12.1.1 Output

a. Products

Which NA-products are being compiled and what is the level of detail, for example in terms of numbers of variables?

Supply and use tables

– Supply and use tables in current prices and prices of the preceding year describing 250 industries broken down with reference to 800 products (in the final year). Application of the Dutch confidentiality rules has resulted in the publication of a supply and use table listing some 150 activities and 600 product groups. The provisional estimates relate to 118 industries and 220 product groups, which correlates closely with the published supply and use and I/O tables;
– For the supply and use tables, a database is composed that contains the key fields producing industry or import, consuming industry, final expenditure, valuation layer, and data field current prices/constant prices. With this database, all publication tables are compiled.
– I/O tables (industry-by-industry) in current prices and prices of the preceding year -producers' prices and basic value. The I/O table covers approximately 150 activities;
– Quarterly accounts: The supply and use tables are compiled at a detail of 118 industries and 220 product groups. For publication the three GDP-estimates are broken down into a limited number of variables. The expenditure estimate is broken down into import and export, consumption of government and households, investments by government and by industries and changes in stock. The income account is broken down to wages, taxes and depreciation. These results are published in current prices, prices of the preceding year, and changes in volume. The income account is not published in constant prices.

Sector accounts

– Annual sector accounts, including financial accounts and balance sheets for five main sectors: non-financial corporations, financial corporations, government, households and non-profit institutions serving households (NPISH). The financial corporations and the government are divided into several sub sectors. In total 16 (sub)sectors or groups are distinguished. For each of them integrated data are composed for about 60 current transactions and about 30 financial titles (both transactions and balance sheets). For 13 current transactions and for nearly all 30 financial titles full who-to-whom-matrices are available. About 25 tables with additional breakdowns with respect to sub sectors and/or transactions are composed on an annual basis as well.
– Quarterly sector accounts, since 2005 first quarter, including financial accounts and balance sheets for five main sectors: non-financial corporations, financial corporations, government, households and NPISH. The financial corporations and the government are divided into several sub sectors. In total 16 (sub)sectors or groups are distinguished. For each of them integrated data are composed for about 60 current transactions and about 30 financial titles (both transactions and balance sheets). For 13 current transactions and for nearly all 30 financial titles full who-to-whom-matrices are available. Backdate are only composed on a somewhat more aggregated level.

Labour accounts

– Labour accounts. From the reporting year 1995 onwards, national accounts and labour accounts have shown the same figures on employment and compensation of employees. Since the LA and SUT are simultaneously linked, the quality of both

systems has improved. There exists a strong link for the compensation of employees and the constituting variables and a weak link for labour productivity.
– The labour accounts process is currently being re-engineered. In the current system, transformations from source statistics to ESA-classifications consist of a number of operations that need to be executed sequentially. This is time-consuming and error prone. In the new system, which is expected to be operational by the end of this year, this sequence of transformations is performed automatically.
– Manual transformations from source statistics to ESA-classifications will be enabled by a new software system near the end of this year.

Other products
Social Accounting Matrices (SAM), National Accounting Matrices including Environmental Accounts (NAMEA), regional accounts and tourism satellite accounts.

b. Timeliness
What is the timeliness of the different NA-products?
– Quarter + 45 days: flash quarterly accounts;
– Quarter + 90 days: regular quarterly accounts and quarterly sector accounts;
– Year + 7 months: first estimate ('provisional');
– Year + 16 months: second estimate ('improved provisional');
– Year + 26 months: third estimate ('final').

c. Adjustments
How do you deal with adjustments? Are multiple releases published (e.g. preliminary and final results) or just one?

Annual SUT, annual sector accounts, annual labour accounts:
– For each reporting year, three releases are published (see question 2). Furthermore, the NA are subjected to a benchmark revision on a regular basis (at present approximately every five years)

Quarterly SUT, quarterly sector accounts, quarterly labour accounts
– Quarterly non-financial accounts and quarterly sector accounts that have been composed for the quarters 1, 2, 3 of the current year are updated in January/February (the following year).
– The quarterly non financial accounts are rebased to annual data at the moment the annual figures are available. This implies that in June of year t the quarterly data of the years t-1 and t-2 are rebased.
– The quarterly sector accounts are rebased to the annual figures at the moment the annual figures are available. This implies that in August of year t the quarterly data of the years t-1, t-2 and t-3 are rebased
– When a benchmark revision of the annual data takes place (approximately every five years) all quarterly data are adjusted in order to be consistent with the revised annual data.
– For the SUT and LA, see question 1.2.

12.1.2 Input

a. Input
What can be said about the environment in which the NA are compiled:How is the quality and availability of source data?

SUT
– Business statistics used to be of relatively good quality. Since last year (revision of NA, base year 2001) data have been used from IMPECT (the new harmonised system for business statistics). The results are still not of the quality we used to have.

Generally speaking, there is always room for improvement… Furthermore, registers are being used increasingly, but this implies a loss of detail.
– Other input: budget survey, foreign trade, fixed capital formation. For constant prices CPI and PPI are available.
– For quarterly SUT, short term business statistics are available, as are monthly production indices. For the government, income information is used. Import and export data is available as well. Quality of data regarding provision of services industries needs to be improved.

Sector accounts
– For annual sector accounts high quality sources for the sectors financial corporations and government are available. In principle the 'sector' rest of the world (ROW) is fully covered by the balance of payments. However, for the latter quality leaves to be desired and sometimes large adjustments have to be made. For the compilation of the sectors non-financial corporations and households a number of sources are used, such as the Statistic Finance of Non-financial Corporations and the income tax statistics. However, there is no full coverage and some parts of these sectors have to be estimated as residuals. For the parts that are covered by sources sometimes large adjustments have to be made.
– For quarterly sector accounts the quality and availability of source data is relatively more or less comparable to the annual situation, although in general quarterly sources are weaker. Because the production of quarterly sector accounts is relatively new, a lot of quarterly sources are still being developed, for example for non-financial corporations, monetary financial institutions and insurance corporations and pension funds. Therefore, it can be expected that quality of the quarterly sources will gradually improve.

Labour accounts
Most data for labour accounts are currently derived from a questionnaire. In the near future, a register called WALVIS (see 2.1.2) will become available. This register is the result of cooperation between the tax authorities and the social security institute.
Which registrations are available and in what way is the information used?

General Business Register (GBR). At the moment the GBR is being revised. It contains all business units in the Netherlands that are relevant for the economic process, and as such constitutes the population for national accounts. In the GBR, which is used for statistical purposes only, the units are classified by activity (SIC) and size class (based on the number of employees). The latter is used for the set up of business surveys: large units are completely enumerated using a detailed questionnaire, while the smaller units are sampled and get a less detailed questionnaire. Although statistical information is derived from the GBR, the main purpose is the use as an instrument of coordination for business statistics. It creates checks to avoid double counting, points at white spots in the data sources and, last but not least, it provides a sampling framework for survey statistics. For all so called institutional statistics of Statistics Netherlands, like business statistics, PRODCOM, and so on, the GBR is the basis for survey populations (and samples).

Fiscal data are being used increasingly in the compilation of business statistics. These data, which are collected on the basis of VAT declarations, corporation tax and income tax, are used to verify and improve the estimates and in some cases to replace surveys. The income tax is used for the sector households in the sector accounts.

WALVIS: based on new legislation, aiming to reduce administrative burden, new registrations are being setup by the tax authorities and other government bodies. In the nearby future, these registrations will be used, especially for the labour accounts. This new administrative system contains a lot of variables that are currently derived from model estimations. The introduction of this system will increase the quality of the labour accounts.

Data from supervising authorities are used for the compilation of parts of both annual and quarterly sector accounts. Data on monetary financial institutions and on insurance

corporations and pension funds are provided by the central bank. Moreover, the central bank also compiles the balance of payments, which 'registration' is used for the composition of the rest of the world account. Finally, in cooperation with the Ministry of Internal Affairs that supervises municipalities, a database with financial data on municipalities has been set up. This registration serves both supervising and statistical purposes. This registration will be used for the compilation of the local government sector.

What are the complications?
In general, the use of administrative sources increases the dependency of a national statistical institute. Firstly, there is often hardly any influence on (definition of) variables. Secondly, timeliness is not always as desired. Thirdly, administrative data is collected for a specific purpose, not being the use as a source for statistics. This might lead to data quality problems. On the other hand, the use of administrative sources has advantages too!
Another complication is globalisation, see question 12.1.5. b

b. Obtaining input
How does data delivery from source statistics to the NA take place?

SUT
In some cases, specialists have access to the source statistics itself, in other cases it is sent to the branch specialists. In general the sources for the SUT are adapted to national accounts definitions and are processed in the system called AIRBAG (which stands for 'general read in and computation system for SUT'). For the most part, delivery of data takes place via Microlab (an output database for business statistics), but direct inputs in Excel- and Access-formats occurs as well.

Sector accounts
In most cases source statistics are composed by departments outside the National Accounts department. For the sectors financial institutions and government, transformation into National Accounts definitions takes place in departments outside NA as well. For the ROW account and the sector non-financial corporations, the conversion into NA-concepts takes place within the National Accounts department. The households sector is more or less fully compiled within the National Accounts department. This is also the case for a number of 'white spots' that are not covered by sources, such as other non-profit institutions serving government or financial auxiliaries.
Delivery of sources from other Departments to National Accounts takes place in a wide variety of formats, predominantly electronic formats.

Labour accounts
The source statistics for labour accounts are available at a system from another department. The staff of the group that is responsible for the labour accounts have access to this system (the system is called the Social Statistics Register, SSB in Dutch).

12.1.3 Transformation of administrative data

a. Use
Do you use administrative data for the compilation of the NA?
An important source for NA is business statistics. They are partly based on fiscal data, especially for smaller companies. Labour accounts are mainly based on a register which integrates data from surveys and external administrative sources. See also question 2.1.2.

b. Process
If so, in which part of the compilation process of the NA are administrative data transformed to the NA concepts?

c. Organisation

Does this transformation take place within the NA department or at the department where the source data are collected?

SUT

Currently, this transformation is one of the first steps in the process of compiling NA in the NA-department. However, our redesign project explores ideas for a different approach which could lead to a transformation at (or closer to) the source statistics. Most administrative data are indirectly used in the sources for NA.

Sector accounts

In general, the administrative source data are converted into NA-definitions within the NA department as part of the processing work. For monetary financial institutions, insurance corporations and pension funds and local government this work is done by the Department of Financial Institutions and Government. However, transformation of balance of payments information into the ROW account is carried out within the NA department.

Labour accounts

Transformations to NR-concepts are made by the specialists of National Accounts. In the current situation, a series of variables needs to be modelled by the specialists of National Accounts, since no basic data is available. With WALVIS, more variables will become available such that less modelling is necessary.

d. Level

Are transformations made at unit level or is source data first aggregated / weighed to publication level and then transformed to NA concepts?

Generally speaking, the NA uses aggregated data, on publication level or more detailed, delivered by the departments where source statistics are made. However, there are exceptions. Processing and transformation into NA-concepts for local government (municipalities) predominantly takes place on the level of the individual municipalities.

12.1.4 Quality aspects

a. Ambitions

What are the ambitions of your NSI regarding the National Accounts?

Statistics Netherlands aims to improve timeliness, while at least maintaining reliability and usefulness of National Accounts and reducing response burden. Therefore, we initiated a redesign project with the following points of interest:

– Consequences of the increasing use of register data
– Implications of globalisation (complications with registration of data).
– Efficiency;
– Flexibility and timeliness
– Standardization of production processes

b. Criteria

What are, according to you, the criteria that make a country an outstanding National Accounts producer?

We think key words are reliability, timeliness, level of detail, compliance with international (quality) standards, transparency (regarding both results and processes), innovation and efficiency.

c. Administrative data

What are the effects of the use of administrative data on quality, level of detail and timeliness of the NA?

In the Dutch national accounts, administrative data are used indirectly (via source statistics). So far, the level of detail and timeliness of the NA is not influenced by administrative data; but in some cases administrative data can only be used for final estimates and/or combined with survey data. Quality of NA is closely monitored to make sure it is at the same level or better; some administrative source data (for example for monetary financial institutions) are of high quality and contribute to a good NA-quality.

12.1.5 Methodology

a. Methodology of compilation

Which methodologies are being used to compile the accounts:Can you give a brief outline of the NA processes, starting with the source data for the NA as provided by the statistical departments and ending with the balancing of the different NA-products?

SUT

Firstly, plausibility checks are carried out on input data. Then, in most cases the source data is adapted to national accounts definitions. After that, estimations for parts of the population that are not covered by source data are made (if needed). Then for the SUT the data for the industries is read in into the balancing system that has been especially developed for this purpose. Data of the preceding year (including prices) is included, after which the balancing takes place in order to get consistency between supply and use per product group while maintaining P = IC + VA per industry. The balancing is carried out simultaneously: in values at current prices and at prices of the preceding year.

Sector accounts

For sector accounts, the processes are more or less comparable with the ones for the SUT, with of course different identities and using a separate balancing system. In principle sector accounts are being compiled according to a 5 step approach. In the first step source data are collected and processed, mostly outside the NA-department. Data are also transformed into NA-definitions. In the second step for each (sub)sector/group a full and standardised dataset on all ESA-variables (covering current account, financial account and financial balance sheet) is composed. In the third step all transactions are harmonised and balanced (so that the transaction identity is fulfilled). In the fourth step the full picture of all results is judged. If necessary some final adjustments are made. In the fifth step data output forms are filled with the information from the database. Sector accounts are made at current prices exclusively.

In what way does the use of administrative data instead of survey data affect the processes of compiling NA?

In the compilation processes of NA, aggregated data is used (see also question 3.4). Some aggregates may be based on administrative data, but that does not influence the NA processes much. In some cases, plausibility checks on input data may differ depending on the source (survey or administrative).

What is the sequence of production of the main products (sector accounts, labour accounts, supply and use tables)?

The production of the main products starts approximately at the same time. The wages and social contributions (part of the labour accounts) are finished together with the SUT. Sector accounts, both annual and quarterly can only be finished after (largely automatically) inserting the SUT-results into the sector accounts

Are these main products balanced separately or simultaneously? How is consistency managed?

See the previous question: in principle SUT is balanced first. Next, the results from the SUT are integrated with the Labour Accounts. If LA and SUT are consistent, relevant SUT-results are inserted in the sector accounts, after which the sector accounts are fully balanced.

Labour accounts
In the current situation, the data for labour accounts that is available in the Social Statistics Register is derived from different questionnaires. Therefore, this data needs to be integrated. This applies to the following variables: annual wages, number of jobs, hourly wage, average earnings, working hours, social contributions and manpower. The expectation is that in the future, when WALVIS will be used as the main data source, these variables will already be consistent.

If consistency is obtained, a series of transformations is performed in order to obtain data corresponding to ESA classifications.
The results are compared with the corresponding estimates in the SUT. Depending on the quality of the different estimates, adaptations are made. After integration, the so-called 'labour-cost-index' is computed.

At current, there is a difference between the processes for short term estimates, the first yearly estimates and the final yearly estimate. In the early estimates, less data is available such that more modelling techniques need to be used. In the intended situation, data about employees becomes available each month. Data on self-employed becomes available for the yearly estimates only.

b. Globalisation
How is observation and processing of multinational enterprises dealt with? Are arrangements made with NSI's of other countries involved?

In the Company finance statistics (SFO) the companies are asked to split their transactions into domestic and foreign. In business statistics this question is asked as well. Often the companies will not or can not split these transactions, causing quite a problem for the NA. Therefore a working group has been formed (called Mothers and Daughters) to examine this and to search for a possible solution. Cooperation between Office for National Statistics (ONS, Great Britain) and the Dutch Central Bank exists to deal with registration of Shell.

Apart from this working group, a project group within the department of Business Statistics is working on a structural analysis of a couple of data sources. For a list of variables, values are compared from different data sources (questionnaires and registers). In this manner, data quality for large enterprises has been improved.

12.1.6 Software

a. R & D
How are IT-support and research facilities organised (Is there a separate R & D department, or are specialists themselves developing dedicated software?)
There is a separate R&D department, but in our NA department there are also specialists involved in the development of dedicated software.

b IT systems
What (kind of) IT systems are being used? Are there separate systems or are there systems that incorporate a number of National Accounts products (such as quarterly and annual sector accounts and/or quarterly and annual supply and use tables)?

There is a single IT system called iAGT(integration system for SUT) that incorporates both the quarterly and annual SUT. A similar situation exists for both quarterly and annual sector accounts; the IT system is called iSR (integration system for sector accounts) in this case. Both systems are based on Access. In addition, specialists use self-made applications to carry out their own calculations. For labour accounts, a new system is currently being developed.

12.1.7 Organisation

a. Boundaries of NA-department

Which part of the whole process (starting with collection of source data and ending with dissemination of NA) takes place in the NA department?
Source data is collected and processed outside the NA department; weighed aggregates are delivered to the NA department. The whole process of compiling NA, ending with tables ready for dissemination, takes place at the NA department. Part of the dissemination is taken care of by a central department at Statistics Netherlands.

b. Consequences of boundaries

What are the advantages and disadvantages of the chosen distribution of work?
An advantage is that NA staff using source data has a lot of knowledge of the NA system and its requirements. A disadvantage is however that the 'gap' with source statistics is sometimes considerable.

c. Organisation of responsibilities

How is the department of National Account organised and in what way are responsibilities distributed?

d. Organisation of tasks

How are tasks and responsibilities organised in the applied processes?

The NA have a head and a deputy head of department. There are 6 sub departments within the NA department:
– Consumption, households and labour (15 staff)
– Input and coordination of integration (13 staff)
– Integration of goods (17 staff)
– Integration of services, gross fixed capital formation and non-financial enterprises (19 staff)
– Public sector, financial institutions and rest of the world (22 staff)
– Regional accounts and publication (15 staff)

The total staff for head and management support is 5. In addition, every sub department has a head. In the input and coordination group, persons responsible for different subjects are included. They are leading the work within the quarterly and annual SUT and the quarterly and annual sector accounts.

e. People

What is the number of staff involved? Do you have for example different groups of people that compile Supply and Use tables, sector accounts or labour accounts?

Most of the staff only work for a single product, but there is some overlap, for example in the public sector and the financial institutions.
The annual and quarterly (sector) accounts are taken together. The number of staff is approximately:

Management etc.:	11 fte
Supply and use tables:	34 fte
Sector accounts:	27 fte
Labour accounts:	10 fte
Satellite accounts:	13 fte
Publication:	6 fte

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