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Administrative Data/Agencies/Units

Dutch System of Basic Registers

Abstract

Ministries and some other governmental agencies are used to store similar information about their civilians and companies and keep them in databases for their own use. This often leads to multiple registration, discrepancies and inefficient procedures to maintain these administrative data-sources. By developing ICT-systems, defining concepts or prescribing legal instruments, it is possible to maintain administrative information about civilians and enterprises in order to improve the quality of administrative data, save maintenance costs, reduce administrative burden and prevent fraud.

In order to avoid double registration, the Dutch government initiated the project "Streamlining Administrative Data" about 15 years ago. In this project, an infrastructure was developed to store administrative information in a network of basic registers. Nowadays, this network is part of the Generic Digital Infrastructure (GDI) of the Dutch government and aims to provide better governmental service to the public and the business sector, reduction of administrative costs (and burden), surveillance and fighting fraud, efficient public funding and more administrative coherence. Each basic register is implemented in a separate law, under the responsibility of a cabinet minister. The basic idea is that citizens and businesses only once provide their 'personal' information to a governmental body. This information is stored in one basic register. Each basic register keeps its own 'authentic' data to fulfill its primary tasks and is supposed to share this with the other registers in a network (re-use of authentic data). The network plays an important role to provide high quality information on the right moment for policy purposes, to support the emergence services of the police, the ambulance or the fire-department and so on. For this reason, strict rules are imposed on both the keepers and the users of the registers. The information from the basic registers in the network is also (re-)used for statistical production.

The Trade Register of the Chambers of Commerce is the basic register in the administrative network which play a key role in business statistics, since it forms the main input for delineating legal units in the Dutch SBR. Besides the organization of the administrative network of Basic Administrations in the Netherlands, this paper will also focus on the use of the network in statistics.

The 'Danish Government Basic Data program' promises that 'good basic data of everyone' will be a 'driver for growth and efficiency'. The objectives of this program show a lot of similarities with the

Dutch ‘Digital Agenda’ in this respect. The authors of the papers of Statistics Netherlands (Rico Konen) and Statistics Denmark (Steen Eiberg-Jørgensen) describe the e-Government activities in their countries to achieve rather similar objectives.

1. Introduction

About 15 years ago, the Dutch government initiated the project “Streamlining Administrative Data”. During this period administrative information was transformed from ‘stove pipe’ registrations into a coherent system of basic registers. Therefore an infrastructure was developed to store administrative information in a network of basic registers. Each basic register is implemented in a separate law, under the responsibility of a cabinet minister. The basic idea is that citizens and businesses only once provide their ‘personal’ information to a governmental body in order to avoid double registration. This information is stored in one basic register. Each basic register keeps its own ‘authentic’ data to fulfil its primary tasks and is supposed to share this with the other register in a network (re-use of authentic data). The network plays an important role to provide high quality information on the right moment for policy purposes, to support the emergence services of the police, the ambulance or the fire-department. For this reason, strict rules are imposed on both the keepers and the users of the registers.

Many national initiatives in this field of interest all over the world are joined in a platform called ‘Joinup’. This collaborative platform is funded by the European Union via the ISA-programme (Interoperability Solutions for European Public Administrations). The e-Government Factsheets for each European state can be consulted on the ‘Joinup’-website[1].

This paper describes the aim, advantages and some legal aspects the Dutch government had to prepare before the network of Basic Registers was realized. In the last paragraph the ‘Danish Government Basic Data program’ of Statistics Denmark is discussed. There are a lot of similarities in this program with the Dutch approach in this field of interest.

2. Network of Basic Registers

Public organisations used to collect administrative data with their civilians and companies and stored this information in registrations for their own use. Each time a respondent was supposed to report on his characteristics, like name, address, date of birth, etc. requested by public laws. Apart from the fact that this information was provided more than once, it also gave respondents the opportunity to provide different information to different public authorities. Hence double registration and discrepancies in administrative information were rather common and hampered the quality and maintenance of the distinctive administrative data-sources. Since the beginning of the millennium, the Dutch Government developed a new infrastructure to store administrative data as an administrative Network of Basis Registers. Reasons to establish a Network were related to:

- Better governmental service to the public and the business sector
- Reduction of administrative costs
- Transparency
- Maintenance, surveillance and fighting fraud
- High level governmental information service
- Efficient public funding
- Administrative coherence

[1] https://joinup.ec.europa.eu/

Working in a Network of Basic Registers implies that all parties involved, have an certain impact on each other. Hence close cooperation between the register holders and the public users is required. First steps in the developing process were

- to develop a legal framework
- to determine the intended registers
- to streamline the content of each register in the Network

At this moment, the following registers are part of the Network of Basis Registers[2]:

NL	Content in English	Owner	Management Organization	Cabinet Ministry
BAG	Addresses and Buildings	Municipalities	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Ministry of Infrastructure and the Environment
BRP	Population data (Resident NPs & Non-Resident NPs)	Municipalities	Govermental Agency for Identity Data (RvIG)	Ministry of the interior and Kingdom Relations
BRK	Real Estates	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Ministry of Infrastructure and the Environment
BRI	Income	Dutch Tax and Customs Administration	Dutch Tax and Customs Administration	Ministry of Finance
BGT	Large Scale Topography	Municipalities	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Ministry of Infrastructure and the Environment
WOZ	Property Value	Municipalities	Council for Real Estate Assesment (Waarderingskamer)	Ministry of Finance
BLAU	Salaries, Labour Relations and Benefits	Dutch Institute for Employee Benefits (UWV)	Dutch Institute for Employee Benefits (UWV)	Ministry of Social Affairs and Employment
BRT	Topography	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Netherlands' Cadastre, Land registry and Mapping Agency (Kadaster)	Ministry of Infrastructure and the Environment
HR	Trade Register	Chamber Of Commerce (Kamer van Koophandel)	Chamber Of Commerce (Kamer van Koophandel)	Ministry of Economic Affairs
BRO	Underground	Municipalities, Provinces, Waterboards, Ministry Of Economic Affairs, Ministry Of Infrastructure and the Environment	TNO Research Organisation	Ministry of Infrastructure and the Environment
BRV	Vehicle	Netherlands' Vehicle Register Agency (RDW)	Netherlands' Vehicle Register Agency (RDW)	Ministry of Infrastructure and the Environment

[2] https://www.digitaleoverheid.nl/onderwerpen/stelselinformatiepunt/stelsel-van-basisregistraties/basisregistratie-ondergrond

2.1 Connections in the network

The basic idea behind the Network of basic registers is to have the government collect data only once and keep them in one register. Every time a governmental agency needs those data, that agency is obliged to collect them from the appropriate basic register. To give an example, if the Dutch Tax and Customs Administration needs someone's address, this department is not permitted to ask the person involved, but the department should collect it from the Basic Register for Population data (BRP). In this way the public is relieved of supplying the same data over and over again, and all governmental agencies make use of the same data. Hence data is re-used for different purposes, but only once collected. A big advantage of re-using data is that one 'truth' is used for public services. The idea is that each register is storing its own 'authentic' variables and that it is mandatory that other registers re-use exactly this information. A complete list of each variable that is qualified as 'authentic' is available in Dutch[3].

This way of 'working' implies that all basic registers are connected and that each Basic Register provide (transport) information on objects they are responsible for, to another basic register in the network. This means that the identifications and the meaning of the objects should be clear in advance for all parties in the network, and that the methodology and the objects of information should match the definitions established. It is obvious that this demands strong cooperation between the owners, management organisations, ministries and the users.

In the network each object is identified by a unique key. Each time a unit is 'born', an official unique key is assigned together with its registration date. On the opposite, whenever a unit 'dies', the identification key will be made 'historic'.

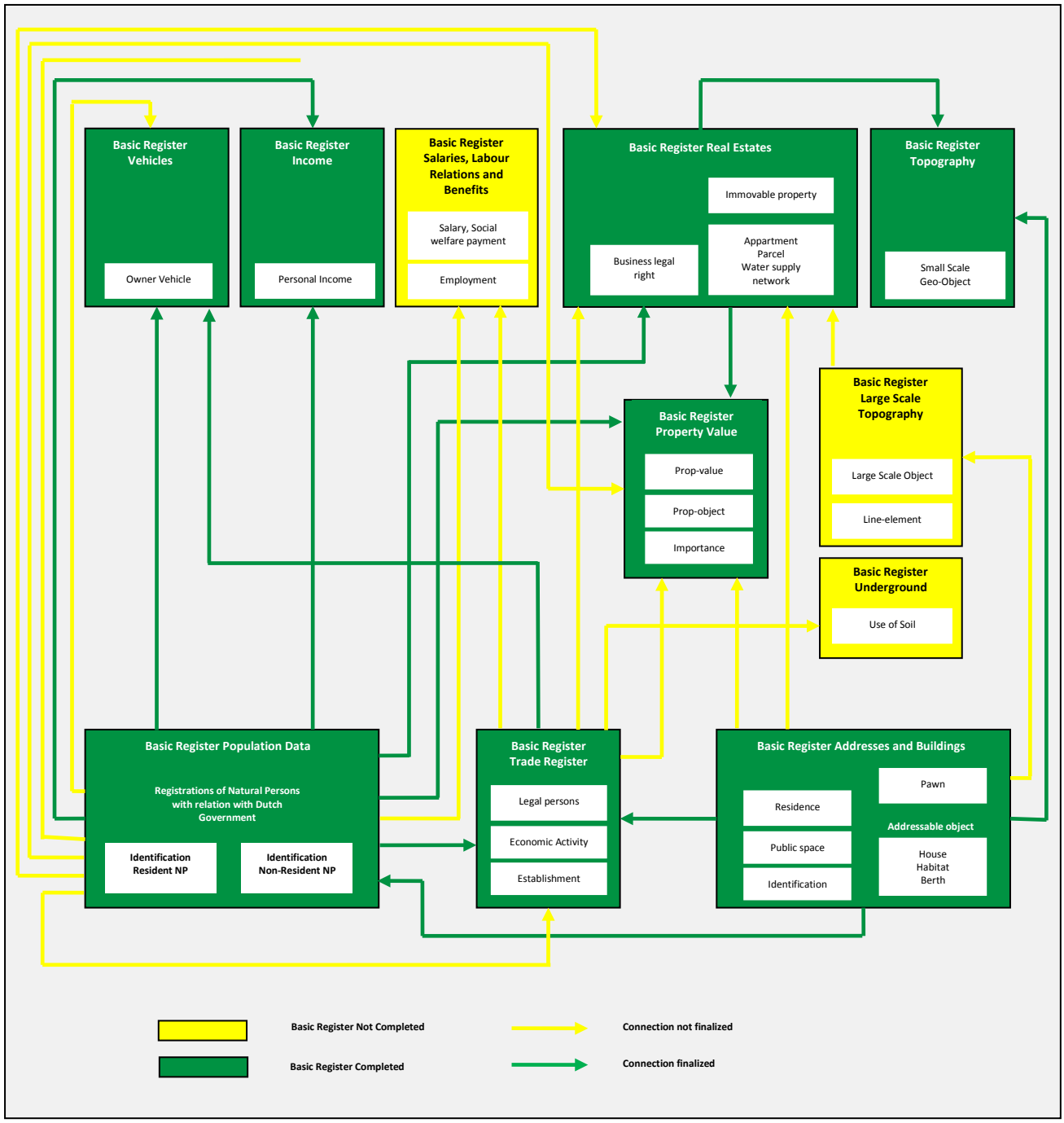
All registers in the network are connected on a real time bases. This means that a change in the characteristics of an authentic variable in one register is updated real time in all registers of the network that keep this information.

The figure on the next page describes the situation of the network in 2014. The basic registers coloured yellow are not yet implemented in the network. This means that these registers do not fulfil the legislation and the principles to be an official Basic Register yet. However these registers are of good quality and still part of the network.

From the figure, it is obvious that it is not self-evident to make a connection between the registers in the network (see yellow connections), but we have to realize that each connection should fulfil the legislation, principles, agreements and adapt to the valid network-services. However a lot of important connections are finalised (see green connections).

[3] https://www.digitaleoverheid.nl/onderwerpen/stelselinformatiepunt/stelsel-van-basisregistraties/stelselvoorzieningen/stelselcatalogus/authentieke-gegevens

Figure: Situation Network of Basic Registers (2014)[4]



Unique Identification-keys in the network:

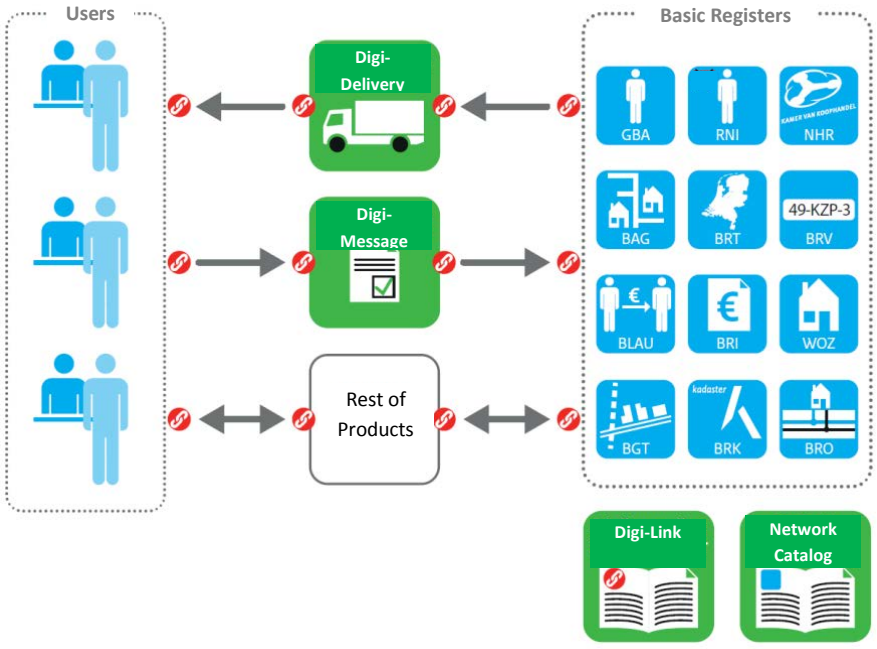
Object	Identification key	Remark
Single Business	Chamber Of Commerce ID (KVK-Nummer)	The Chamber Of Commerce is a non-profit organisation which is supported by the "Trade Register Law" from 2007. The Trade Register stores information on the economic activities of a single business and its concern-relations (e.g. directors, single-shareholders, partners, etc.)

[4] http://wiki.stelselvanoverheidsgegevens.nl/images/stelsel/3/38/20141114ICT_Stelselplaat_Totaal_2014_versie6.pdf

Legal Local Unit	Establishment Number (Vestigingsnummer)	This ID is stored and maintained in the Trade Register.
Natural person	Citizen Service Number (BSN=Burgerservicenummer)	Each Dutch citizen is assigned an ID when he or she is born. This ID is stored in the Basic Register of Population Data. This ID also used by the tax office to collect income- or Value Added Tax (VAT)
Legal person	Corporation-Partnership-Institution-Number (RSIN=Rechtspersoon-Samenwerkingsverband-Instelingen-Nummer)	This ID is assigned by the Chamber Of Commerce and stored in the Trade Register. This ID is also used by the tax office to collect VAT or corporate tax.
Immovable property	Property-ID	This ID identifies each commercial building, dwelling, Parcel, Water Supply network and stores information on the borders of a Parcel, detailed maps of the property objects, information about the owners, rental values, pictures of dwellings, energy-lable.
Addressable object	Addressable object ID (VBO =Verblijfsobject)	This ID is stored and maintained in the Basic Register of buildings and addresses. It identifies a house, a berth or a habitat. Each addressable object has a unique address. This address is identified by an address-ID, which is a combination of the ID of the addressable object and a unique numeric-ID. The street name, postal code and house-number are characteristics in this respect.
Vehicle	License plate ID (Kenteken)	This ID is stored and maintained by the Basic Register Vehicles. Each license plate is owned by a 'holder'. This is either a natural person (identified by his BSN) or a legal person (identified by its RSIN).
Geo object	Geographical object ID	This ID is stored and maintained by the Basic Register Topography.

2.2 Network-services

Four network-services have been developed to support the basic registers in the network to provide products and services to about 900 governmental bodies as potential user of the information available in the network. In this respect the individual basic register that keeps the link with another party in the network is also considered as a user.



1.	*Digi-Link (Digikoppeling)*	Digi-Link is the 'postman' of the government. It holds a set of standards for digital communications between governmental agencies. A public organization that has implemented 'Digi-Link' can easily exchange digital messages with fellow governmental organizations.
2.	*Digi-Message (Digimelding)*	Digi-Message is a generic service to report anomalies on 'authentic' variables.
3.	*Digi-Delivery (Digilevering)*	Digi-Delivery is a service which provides event-information. Changes in an object of a Basic Register is stored as an 'event' (E.g. the birth of a child or the birth of a new business). A public organisation can subscribe for its service.
4.	*Network-Catalogue (Stelsel-catalogus)*	The Network-Catalogue is an online catalogue, which describes the structure and information stored in the Basic Registers, like definition of variables and relationships between objects. It coordinates the terminology of all concepts and can be used for all topics concerning the Network.

2.3 GDI

The network of Basis Registers is part of the Generic Digital Infrastructure (GDI)[5] of the Dutch government. It consists of standardized protocols, products and services, jointly used by public and private authorities and aims to provide better governmental service to the public and the business sector, reduction of administrative costs (and burden), surveillance and fighting fraud, efficient public funding and more administrative coherence.

The GDI facilitates the topics in the table below. Each topic proves several products and services to be used by citizens, businesses and organisations.

Identification and authentication	Online identification and authentication to provide authorized access to civilians and businesses to do online transactions with the government.
Online services	People, businesses and other organisations should easily have access to their own private information stored by the government. To realize this, the government developed some online websites and portals.
Network of Basic Registers and its services	The network consists of 11 basic registers and the network-services.
Interconnectivity	Interconnectivity is the basis of the digital government. It consists of physical networks, standardized protocols, architecture to exchange private information between people, businesses and the government.

[5] https://www.digitaleoverheid.nl/gdi

3. Preparation of the network

3.1 Legislation

Legislation on Basic Registers should fulfil twelve basic requirements.

1.	*The information stored in a basic register is 'authentic'*	This means that the owner of a basic register is responsible for the 'authentic' information (see 2.1) stored in the register and that it is complete, correct and secured.
2.	*The users of a Basic Register are obliged to report 'anomalies'. This is called 'compulsory feedback'*	There is a joint responsibility for all partners in the network to keep the quality of the data as high as possible. By means to raise the quality of the 'authentic' information, each user of a basic register is obliged to report errors on authentic variables or other anomalies they detect during their work. Statistics Netherlands is the only user who is exempted from this obligation, because of their independent status. SN is not supposed to be involved in any juridical procedure regarding the registration of a respondent in an official Basic Register.
3.	*Use of 'authentic' information is mandatory for all governmental bodies. This is called 'compulsory use'.*	All public and private organisations are obliged to use the information stored in a Basic Register as the 'truth' for carrying out public tasks.
4.	*There is clarity regarding the liability*	The legal responsibilities for each owner of a basic register in the network are clear.
5.	*The costs to realize and maintain a Basic Register should be clear and unequivocally on its distribution.*	It is supposed that the owner of the basic register and the responsible ministry make agreements about the costs regarding the services provided.
6.	*Clarity on content and reach of the Basic Register*	Each owner of a Basic Register keeps a data dictionary on the objects and the definitions of the elements stored in their database (domain model).
7.	*Closing agreements and procedures between the registrar on the one hand and suppliers and consumers of information on the other.*	E.g. agreements on change management and formats to exchange information between different parties.
8.	*Clear procedures regarding the accessibility of the basic register*	The procedures depend on whether the information stored in the Basic Register is privacy-sensitive. If so, then authorization to access could be an important procedure.
9.	*Quality assurance procedures are transparent*	The information stored in a Basic Register is supposed to be correct, actual and complete, more than in other types of registrations. The procedures to guarantee the quality of the information is clear for all users.
10.	*It is stipulated how users are involved in decision-processes regarding the registration*	Users are obliged to be engaged in the content or the organisation of a Basic Register, so they can influence decision-making processes.

11.	*The network of Basic Registers is 'internally consistent'.*	When a new Basic Register is added to the network, then the objects of this register should be relatable to the objects of all other existing Basic Registers in the network.
12.	*A Basic Register is ruled by an administrative body, but the realisation of it and the way it functions is the responsibility of a cabinet minister.*	Basic Registers are important for the governments to accomplish their tasks and may have great impact on citizens and businesses. Therefore it is obvious that the government keep control over its functionalities. However the maintenance of the basic register and the operational control may be the responsibility of another administrative organisation.

3.2 Agreements and principles

By fulfilling these requirements, a Basic Register can be distinguished from another administrative registration. Besides these requirements, a set of 'network-agreements' or 'principles' are valid.

1.	*List of open standards*[6]	Standardized classifications, formats, protocols, meta data, etc.
2.	*Linkage*	The basic register who keeps information from another basic register is responsible for the linkage of the objects.
3.	*Anomalies*	Anomalies in relations between the objects in different Basic Register are clarified by the Basic Register that maintains the linkage.
4.	*Identifications*	A Basic Register that keeps the identification from an object in another Basic Register always provides this key to its users.
5.	*Security*	It is up to the Basic Register to develop rules to secure the information. The rules depend whether the digital infrastructure on which the information is exchanged, is closed (intranet) or open (internet).

3.3 Ground rules

Each Basic Register has its own law and each law describes the following three obligations for their users:

1.	*No extra data collection*	Governmental bodies with a public task are not allowed to collect 'authentic data', which are already available. Citizens and businesses are obliged to provide this information only once, to reduce administrative burden.
2.	*Compulsory Use*	Public organisations use administrative data to fulfil their task or provide their services. If this data consists of variables that are classified as 'authentic' (see 2.1), then it is mandatory for the public organisation to extract this information from a Basis Register in the Network. In this way it is legally guaranteed that all public organisation work with the same data.
3.	*Back*	In case a public authority detects an anomaly in an 'authentic' characteristic during the

[6] https://www.forumstandaardisatie.nl/lijst-open-standaarden/in_lijst/verplicht-pas-toe-leg-uitopen-standaard/digikoppeling

	Reporting	execution of its task, then this user is obliged to report this. The source-holder will research this error or anomaly and if necessary correct in the appropriate basic register. In this way the quality of data is improved.
4.	*Governance*	The governance of the Network has become the responsibility of a ' digital commissioner'. It is his task to develop, control and improve policies and generic services for e-Government[7]
5.	*Privacy*	There are a lot of discussions[8] about privacy in this respect. In summary, the general privacy rules should be respected by law. It depends strongly on the public organisation and the way privacy-sensitive data is used in the services provided.

4. Use of the administrative data in Dutch Statistics

External drivers to organize basic administrative data in a network of Basic Registers were to raise the quality of administrative information and reduce administrative burden and costs. These aspects were also considered in the Dutch Statistic Act that was redesigned in 2003. Two conditions were applicable on the data-collection methodology by Statistics Netherlands. First the administrative burden for businesses should be reduced to an absolute minimum. A second condition was that data on individuals should be secured and were only intended for statistical production. In order to accomplish its Statistical Tasks, SN was granted access to all administrative registrations. This includes also registrations of other governmental bodies (e.g. tax-authorities) which are not part of the Network.

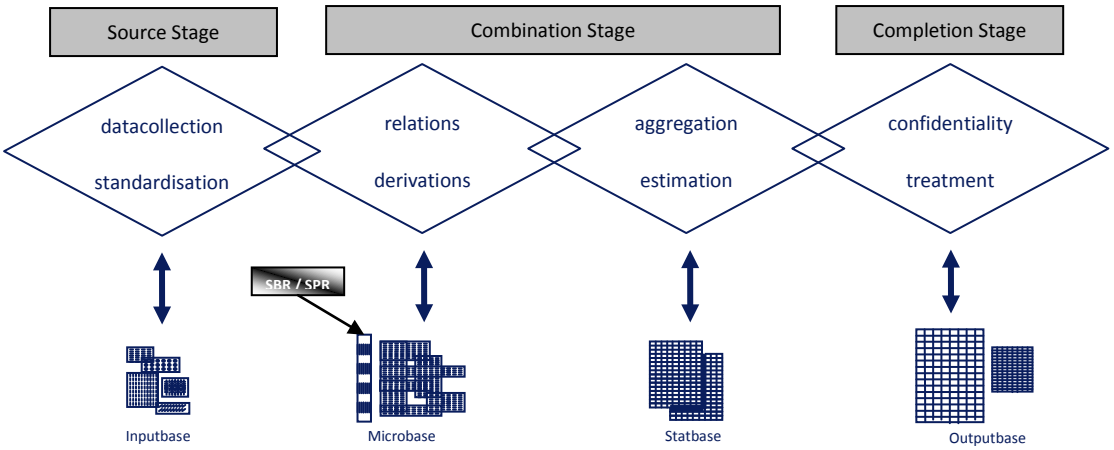
This implied that SN started linking administrative registers in order to derive variables that used to be surveyed with respondents. As a consequence not only less questionnaires were supposed to send out by SN, also the number of questions could be reduced. This way administrative burden by SN was reduced drastically. However the biggest contribution of the network to reduce administrative burden were realised in other governmental bodies (e.g. tax-administration for VAT, income).

In 2006, SN developed a Business Architecture (= Dutch Generic Statistical Business Process Model), where the use of administrative data could be combined with data that is collected by primary data collection by response.

Implementation Phase of the Dutch Business Architecture for Statistics (BA)

[7] https://en.wikipedia.org/wiki/E-government

[8] https://www.digitaleoverheid.nl/onderwerpen/stelselinformatiepunt/stelselthemas/privacy



In the implementation phase of the Dutch BA, business processes are modelled as coherent sub-processes operating between steady states. The steady states contain data in a well-defined state of processing and of well-defined quality. This facilitates efficient re-use of data. The steady states are grouped into four types of product bases: the *inputbase* for the standardized inputdata, the *microbase* to derive extra information and link data to a backbone, the *statbase* for the intermediate products and the *outputbase* for the final products.

In the Dutch BA, administrative and response data are combined in the 'Microbase'. In this particular stage, the information is linked to a backbone. In official statistics the general backbones are:

- *Statistical Population Register (SPR)*
  The SPR is based on the natural persons registered in the Basic Register for population data. The statistical units are the natural person or the household.

- *Statistical Business Register (SBR)*
  The central statistical unit in the SBR of SN is the (Dutch) enterprise. This statistical unit is composed by one legal unit (LU) or more legal units in case there exist ownership relations between them. In the Dutch SBR the (national) legal unit (and the 100% ownership-relations between two legal units) are derived from the information about domestic administrative units registered in the Trade Register (TR). [9]

By construction, each backbone consists of statistical units that are linked to administrative units, which are part of the objects in the Network of Basic Registers. Hence data of administrative sources is integrated in statistical processes at SN. However it is still a necessity to survey information on respondents, because

- administrative information of the largest and complex enterprises may present a 'distorted' or less detailed view to base statistics on (e.g. caused by global influences or consolidation effects).

[9] The characteristics of a LU and the ownership relations in the Dutch SBR are also derived from other sources than the TR: E.g. Profiling, Tax Register, Tax Administration, Social Security Register, National Bank, Survey of Large Enterprise Groups.

- social statistics may observe the behaviour of people or the choices made by them. This kind of information often is underrepresented in the network.

4.1 Quality of Statistics

Quality and methodological topics regarding Statistics are an important item for SN. Therefore SN maintains and finances several chairs at Dutch Universities. Each chair is chaired by a professor who is also working at SN. In this way, the CBS fulfils a bridging function between official Statistics and the 'scientific world'. In this respect the Network of Basic Registers is becoming more and more a central instrument to collect data to produce social and business statistics in general. Especially the methodologies regarding the combination of using registers with survey technics, the usability and quality aspects of registers and other sources are studied and researched by the students in the professors' chairs.

	Name	**Chair**	**University**
1.	*Prof. dr. Jan Latten*	Demographical and spatial aspects in the formation of Families and Relationships	University of Amsterdam: Faculty Social and Behavioural Sciences
2.	*Prof. dr. Ruben van Gaalen*	Register Analysis in Dynamics in Life Cycle	University of Amsterdam: Faculty Social and Behavioural Sciences
3.	*Prof. dr. Jan Kardaun*	Registration and Statistics to describe 'Causes of Death'	University of Amsterdam: Academic Medical Centre Amsterdam
4.	*Prof. dr. Jan de Haan*	Statistical Methods to in the 'Dwelling market'	Technical University Delft: Faculty of Architecture
5.	*Prof. dr. Ton de Waal*	Integration Of Data Sources	Tilburg University: Tilburg School of Social and Behavioural Sciences
6.	*Prof. dr. Bart Bakker*	Methodology of Register Data for Social Scientific Research	Free University: Social Sciences
7.	*Prof. dr. Hans Schmeets*	Social Statistics to Study Social Coherence	Maastricht University: Faculty of Arts and Social Sciences
8.	*Prof. dr. Jan van den Brakel*	Survey Methodology	Maastricht University: School of Business and Economics

5. Basic Data Program of Denmark

In Denmark a rather similar program as in the Netherlands has been launched by the Danish government to improve governmental services for its citizens and its businesses. The Danish program is called the "Basic Data Program". Detailed information about this program is described in the Danish paper of Steen Eiberg Jørgensen from the business register department at statistics Denmark. His paper can be consulted as part of the 25th Meeting of the Wiesbaden Group on Business Registers, Session 3 Administrative Data/Agencies/Units.

Topic	Denmark	Netherlands
Strategy on e-Government	http://www.digst.dk/	https://www.digitaleoverheid.nl/
Basic Registers	http://www.digst.dk/Servicemenu/English/Digitisation/Basic-Data http://grunddata.dk/	https://www.digitaleoverheid.nl/onderwerpen/stelselinformatiepunt/stelsel-van-basisregistraties\
Portal for citizens	https://www.borger.dk/Sider/default.aspx	MijnOverheid.nl
Digital signature	http://www.digst.dk/Servicemenu/English/Digitisation/Digital-Signature/Next-Generation-Digital-Signature	https://www.digid.nl/ https://www.eherkenning.nl/