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Session 1: Emerging data system opportunities and issues

Future cities and data driven governance

Note by Statistics Netherlands

Summary

Cities worldwide show a fast-growing need and ambition to develop data driven, knowledge and evidence based policy making. Therefore Statistics Netherlands, in close interaction with Dutch cities, developed and implemented the concept of the Urban Data Centers supporting Dutch cities in their data-driven ambitions. Since the summer of 2016, a total of 11 of these urban data centres have been created. This document describes the background, current practice and results and future development of the concept of Urban Data Centres.

This document is presented to the 2019 Conference of European Statisticians seminar on “Emerging role of national statistical offices as offices for statistics and data”, session 1 “Emerging data system opportunities and issues” for discussion.



I. Introduction

1. Cities worldwide show a fast-growing need and ambition to develop data driven, knowledge and evidence-based policy making. Cities also are looking for tools and guidelines to benchmark themselves against other cities to identify innovations and new ideas to serve their citizens in the best, most efficient and effective way. In addition, a fast-growing number of cities is linking their benchmarking efforts to the UN Sustainable Development Goals (SDGs) due to the fact that cities and human settlements will be key in achieving the global SDGs. SDGs come into effect in a world that is increasingly urban, with a little over half the global population now living in urban areas. All cities aim at increasing prosperity, promoting social inclusion and enhancing resilience and environmental sustainability. In this perspective, SDGs capture large parts of the existing political agenda in virtually every city. This indicates the necessity of working together with local authorities.
2. On the global level there is a strong united focus on developing a global, people-based definition of cities and settlements for statistical purposes linked to the fact that SDGs contain many indicators with a focus on rural or urban areas and a specific goal dedicated to cities and settlements.
3. Furthermore, many universities, research groups, think-tanks, networks of local governments, businesses etc. on various levels (national, European, global) report and produce data and indicators on cities, and support cities in their ambitions to become data driven and benchmark their activities to SDGs.
4. This all leads to the conclusion that statistics and data on cities are of a fast-growing importance. National Statistical Institutes are rapidly developing thoughts, strategies and ways of working in connecting to the growing importance of statistics and data on cities and on ways to support cities in their ambition to develop data driven, knowledge and evidence-based policy making. This document focusses on how Statistics Netherlands supports Dutch cities in realizing these ambitions through the creation and implementation of the concept of “CBS Urban Data Centers”.
5. The background, current practice and results, and future development of the concept of Urban Data Centers will be described in the following pages.

II. Background

6. Statistics Netherlands produces 100% of official national statistics in The Netherlands. The Netherlands has statistics on a broad array of relevant subjects. These are published on Statline (the open data source and through open data portal). A lot of data is also visualised using www.cbsinuwbuurt.nl where a lot of statistical data is mapped geospatially. Furthermore, there is a department which focuses on helping with answering statistical questions from many organizations including cities. They provide and focus on delivering a tailor-made solution. Under strict conditions cities can be granted access to our remote access environment to work on CBS microdata. In general, only municipalities with their own research department are able to get such a clearance.
7. Statistics Netherlands uses three major data sources. First source: around 20 national surveys. Second source: 200 national administrative (register) data sources coming from (semi-)governmental organizations. Under the Dutch statistics law all these organizations are obliged to provide Statistics Netherlands with their administrative data (register) data sources. Third source, and of fast-growing importance, is Big Data. One of the major innovation objectives at Statistics Netherlands is to create official statistics by using more and more sensor data sources. The enormous amount of data created daily by companies, governments and citizens is a potentially rich source of information that, when needed and possible in combination with survey data and administrative data can create a vast and solid basis for evidence-based policy making. It is the vision of CBS that in the future Big Data will become more and more important for all NSIs worldwide as well as for the international statistical community as a whole. For this reason in September 2016 Statistics Netherlands initiated the “CBS Center for Big Data Statistics (CBDS)”.

8. In The Netherlands national statistics are standardized and harmonized according to international (European and UN) standards. More and more this process of standardization and harmonization is linked to SDGs. Statistics Netherlands is a member of the UN IAEG-SDGs (Inter Agency and Expert Group) and has been one of the first NSIs to publish a national report on SDGs (October 2016). In May 2018 a second report has been published.

9. In addition, there is a growing need and desire amongst Dutch municipalities and provinces to standardize and harmonize their data with national and international standards. This is also an important reason why Dutch municipalities and provinces seek intensive collaboration with Statistics Netherlands as “Bureau of Standards”. It is the ambition of Statistics Netherlands to standardize and harmonize international, national, and subnational (local and regional) statistics and SDGs. Some Dutch municipalities and provinces are, supported and advised by Statistics Netherlands in a process of “strategic data-redesign” as a result of which all municipal or provincial data are standardized and harmonized with national and international (SDG related) standards. CBS feels that NSIs could play a role in this process of standardizing and harmonizing their data with national and international standards.

10. Following up on the growing need and desire amongst Dutch municipalities and provinces to standardize and harmonize their data with national and international standards, CBS has searched for international organizations that could, in collaboration with CBS, support this process. To monitor the progress of cities on SDGs and support the global benchmarking of cities on this topic Statistics Netherlands in 2016 started working with WCCD (World Council on City Data) based in Toronto, Canada which uses the ISO37120 standard. In addition, in 2018 CBS started working with UN global initiative United for Smart Sustainable Cities (U4SSC) which currently involves 16 UN bodies. This is a UNECE and OiER (Organisation for International Economic Relations) activity working under the umbrella of the United Smart Cities Program (USC) which uses ITU supported key Performance Indicators (KPIs). If Dutch cities have a desire to use either the WCCD or USC KPIs CBS can support them since CBS can customize roughly 50 to 60% of the KPIs from national to city level.

11. There is no official definition of cities in The Netherlands. Therefore, most city statistics are in fact municipal statistics. Municipalities can vary from being predominantly urban to rural and a large variety of hybrid situations in between. On a larger, global scale The Netherlands as a whole could be seen as one big urbanized region, linking to and with large urbanized regions in the bordering countries of Belgium and Germany.

12. In the Netherlands a distinction is made between data *on* and *for municipalities*.

13. Statistics *on* or *about* municipalities are used for official, predominantly obligated, national and international statistical purposes. CBS publishes many data on small areas such as municipalities and provinces. Other common aggregations are: neighbourhood level, 500 by 500 meter and 100 by 100 meter grids and postal/zip codes.

14. In addition to these (official) data on or about municipalities (and provinces), Statistics Netherlands also produces data with and for municipalities (and provinces). In the Netherlands there is the tendency of the national government to delegate more and more tasks to local and regional governments. This has increased the need of these governments for factual data-driven information (statistics) for real evidence-based policy making. Therefore, and to intensify its interaction with society and adapt its services to users' needs Statistics Netherlands is looking at ways of translating national data to data at regional and local levels. The underlying idea is that this will result in a broader and better basis for decision-making at municipal level and provide a solid basis for municipal forecasts. For this reason, in the summer of 2016 the concept of the Urban Data Centers has been created and implemented.

III. Current practice and results

15. Since the summer of 2016 a total of 11 Urban Data Centers have been created all over the country.

Figure 1
Data centres in The Netherlands



16. The practice of Urban Data Centers connects national data and expertise available at Statistics Netherlands to cities to create smart(er), more data driven and more sustainable cities. In all 11 Urban Data Centers Statistics Netherlands and a city created a joint physical and digital workspace where researchers from Statistics Netherlands are being located on site in a specific city and collaborate directly with their city counterparts in creating data driven inputs for policy making, policy monitoring, policy evaluation as well as data driven input for urban investment decisions.

17. Since the start in 2016 the Urban Data Centers have proven to lead to: a better understanding of a city; to better (facts-based and data driven) city decisions; to better city finances and to harmonized, standardized and benchmarked local, regional, national and international data. On each of these results a selection of examples (some still in progress) is being highlighted below.

A. A better understanding of a city

- Supporting a city in creating a better understanding of the local internet economy
- Creating a better understanding of the movement of people within and between cities using mobile phone data
- Creating a better understanding by using a variety of Big Data sources to create a data driven input for crowd management in a big Dutch city.
- A better understanding of the housing market using Big Data sources
- Better understanding and management by creating a “housing vacancy dashboard” for cities.

B. Better (facts-based and data driven) city decisions

- Data driven decisions using Big Data to solve road / traffic congestions
- Data driven decisions to put solar panels on the most suitable locations
- Data driven – investment – decisions to install charging stations for electrical cars in cities to reduce CO2 emissions.

C. Better city finances

- Combining and integrating data to reduce energy consumption creating a more sustainable city at a lower cost
- Combining and integrating data to fight city poverty and realize savings in social welfare budgets of cities.

D. Harmonized, standardized and benchmarked local, regional, national and international data

- Statistics Netherlands supports Dutch cities that want to measure local progress on SDGs
- Currently there are 2 global standards that can do this: the USC (United Smart Cities) ITU standard which is a joint UNECE – OiER (Organization of International Economic Relations) initiative and the WCCD (World Council on City Data) ISO37120 standard
- Statistics Netherlands can support cities on both standards by supplying them with almost 60% of required data
- By working in this way harmonization and standardization of data creates the opportunity to benchmark progress on SDGs at all geographical scales: local, regional, national and international.

III. Future developments

18. In the next 2 years, more Dutch cities are expected to collaborate with Statistics Netherlands in creating Urban Data Centers. In addition to urban municipalities also a growing number of rural Dutch municipalities and provinces (the regional governments in The Netherlands) have formulated an ambition to develop data driven, knowledge and evidence-based policy making. Therefore, it can be expected that in addition to Dutch cities also a growing number of rural municipalities and provinces will seek to collaborate with Statistics Netherlands in supporting their data-ambitions in creating joint ‘data centers’ that can be urban, rural or provincial. Also, a mixture of these concepts is being expected where Statistics Netherlands creates ‘regional data centers’ where multiple municipalities, a province and other organizations such as universities or other data and or research related organizations will participate.

19. In addition to the urban and rural municipalities and provinces that are creating joint ‘data-centers’ also other Dutch municipalities could potentially benefit from Statistics Netherlands’ data and expertise. It is expected that Statistics Netherlands in collaboration with other organizations like VNG (Dutch Association of Municipalities) create more or less standardized data products and / or services to support all 355 Dutch municipalities in their data driven ambitions.

20. A relatively new development is that a few of the bigger Dutch cities are seeking the support of Statistics Netherlands to create so called an Urban Smart Solution Center. This aims at connecting a growing number of Big Data sources to more traditional data sources as a result of which the level of “actionable intelligence” is expected to grow leading to a higher chance of being able to create genuine solutions to urban problems and challenges.

21. A part of the data-driven ambition of Dutch cities cannot be supported by Statistics Netherlands. Cities are also looking for support in for example policy-advice or forecasting. This falls outside the mandate of Statistics Netherlands. Therefore, Statistics Netherlands has recently started the initiative to create a data ecosystem consisting of private companies, universities and other data- and research related organizations. The creation of a well-functioning data ecosystem to support cities in all aspects of their data driven ambitions is expected to become one of the main focal points in the future development deriving from the concept of the Urban Data Centers.

22. A final future development is that the experience of Statistics Netherlands based on the Urban Data Centers can potentially also be applied to the other countries within the Kingdom of The Netherlands: Aruba, Curacao and St. Maarten. First projects with Curacao are already being prepared.
