

Make your statistics work

-The first results with Open Data in Amsterdam-

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Abstract

Data about Amsterdam are widely available. Two important sources are the website of the Bureau for Research and Statistics and the Open Data platform which contained 138 datasets at the start of 2012.ⁱ This paper examines which policy goals are met with the available products based on statistics provided by the city of Amsterdam. We also conduct a survey among the people living in Amsterdam to see if they use these apps and internet sites. At the end we compare the first products that use Open Data with the, until now mostly theoretical, results the open data movement in Amsterdam aims for, that is economic growth, internal efficiency and external transparency.

Keywords: Amsterdam, government, open data policy

Introduction

Open Data are supposed to be the crown jewels of the state and the goldmine of the 21st century. Good reason for the city of Amsterdam to start working and experimenting with Open Data a couple of years ago. Data is considered open when everyone is allowed to use, reuse, link or spread the data, for all purposes.ⁱⁱ Although Open Data are as yet not self-evident in Amsterdam, the number of open datasets increases rapidly and Application Programming Interfaces (API's) are by default included in the schedule of requirements for new applications.ⁱⁱⁱ By opening up data Amsterdam aims to improve economic growth, internal efficiency and external transparency.^{iv} However, the path to these goals has many uncertainties. Literature states that the only given fact is that the results of Open Data for the short term are probably overrated and for the long term underrated; the end results, the users, societal questions and effects of open data all have to shape themselves in the future.^v In this paper we stay close to the present and observe where the city of Amsterdam stands today with regards to supplying and using Open Data. We are especially interested in the focus of the first experiments with Open Data within the established framework of objectives: economic growth, internal efficiency and external transparency.

Opening strategy Amsterdam

Cities are correct in assuming they own data interesting to the public. Almost every member of the online citizens panel of the city of Amsterdam^{vi} (94%) at one point searches the internet to find information about opening hours or rates of local government services. Also practical information on traffic or permits for instance is interesting to many (64% and 60%). Figures are lower for political subjects like local policy results (38%) and municipal expenditures (17%). Nearly half the people in Amsterdam (45%) say they would download and use apps containing government information.^{vii}

Open Data in Amsterdam

Goal	Economic growth	Internal efficiency	External transparency
Policy	Open Data Portal		Open Data Portal
	Contest Apps4Amsterdam		API's standard part of new applications
	Project Open cities		
Results	67 apps developed in contest	Sharing information between departments	Digital information for the public
	138 open datasets	Digital information for the public	Experiments with new websites
			Start with shift in mindset from "closed unless" to "open unless"

To stimulate the supply and use of Open Data Amsterdam started with the creation of a platform to supply Open Data and facilitated app-contests in order to stimulate the use of the data. Within these experiments Amsterdam chose to focus on the goal of economic growth. Until now all Open Data projects have been initiated by the Department of Economic Affairs. In 2013 the city is to formulate a general policy and strategy for Open Data. From then on Open Data projects are no longer experiments, but will be incorporated in the organization.^{viii} This

will very likely increase the attention for the possibilities of raising internal efficiency through the use of Open Data. At some point it is expected to lead to radical innovations and new business models, especially for those departments that manage information.^{ix}

Internal efficiency

Open Data contributes to an effective and efficient government by diminishing the costs of services and prevention of waste, fraud and poorly chosen investments. Furthermore Open Data stimulates innovations like e-services.^x

In Amsterdam one of the first Open Data Projects meant to increase internal efficiency was the website of the Bureau for Research and Statistics (O+S). By opening up her statistics the bureau reduced the number of requests for data-output, which left more time for data-analysis. Other city departments profit from the easy accessible information and shared frame of reference for describing Amsterdam in statistics. In 2012 the O+S-site has more than 14.000 unique visitors per month. In 2013 the bureau will increase the level of openness of the website by starting to share information in a machine readable format. The pilot consists of a dataset that contains key figures for all geographical classifications that are used within the city. This will not only enable policymakers to have easy access to data about the area of their choice, but organizations can also make digital dashboards for using and sharing this information.

The need to cut back costs can stimulate the opening of datasets. An example is the current reorganization in the Netherlands of the social services that provide youth care and home care for the long-term ill. With the help of a neutral third party, in this case the Central Bureau of Statistics, municipalities can, without violating privacy rules, connect client data of different social services. This makes it possible to see how many clients are using more than one social service. The information will be used to organize social services more efficiently, because of the believe many services cater the same client group.^{xi}

Open Data that increase internal efficiency

- Online statistics and research about Amsterdam (www.os.amsterdam.nl)
- The Fire Department has access to construction information of the Water Department
- The Police Department knows which cars were when and where on the motor way around Amsterdam. The Environmental Department collects this data to maintain special rules for old cars and trucks.
- The app VaarWater informs the public about boating rules and regulations.

External transparency

In 2006 the use of data for external transparency took a flight in Amsterdam when the city council decided to publicize the results of their policy on the internet. For this purpose the website Stadstat, in Dutch short for city statistics, was built in 2008. The difficulty in creating the website was not the availability of data, but making politicians and civil servants use the available data to formulate SMART policy goals. This illustrates the claim that using Open Data is not only a technical issue, but also a mindset. Although information about the progress of policy goals is not always available Stadstat still provides the information that is, together with indicators for the quality of life of all neighbourhoods in Amsterdam. Not many people visit the Stadstat website (5% of the panel members), but when the website is shown 43% says to be (very) interested. The consumer interest is confirmed by user statistics; the average visitor of the website stays for more than 6 minutes.^{xii}

An example of a very open project is Wijkaanpak, Dutch for neighbourhood development. The project management decided to publicize the progress of the project on the internet. This includes the civilian initiatives: yearly more than a thousand small community projects. The information on the website includes the amount of the subsidy and the number of participants. Every now and then the information leads to negative publicity about money spent on barbecues or excursions for instance. However, the site also makes clear that these kinds of projects only take up a very small part of the entire budget for these projects. Moreover, most project leaders think it is positive the website forces them to stay in touch with all the projects. The information however is not very interesting to the public: only 4% has taken a look.

Open Data that increase transparency

- Policy goals and their progress (<http://stadstat.osmasterdam.nl>)
- Statistics about crime and safety (www.eenveiligamsterdam.nl)
- The quality of primary schools (www.kwaliteitswijzer.amsterdam.nl)
- Progress of neighbourhood development projects (www.uitvoeringsmonitor.nl)
- Open Data Map uses different open sources to show information about neighbourhoods (www.kaartvanwest.nl)

Economic growth

Different studies at the economic effects of Open Data conclude that opening up government data has a positive effect on economic growth. Local government revenues will initially diminish, because the data can no longer be sold. However, according to all studies, this loss of income is much lower than the economic benefits for society.^{xiii} Estimates on the scale of these benefits vary widely. The range in the estimated value of new jobs, products and services as a result of Open Data varies from 3 to 200 billion euro for the EU as a whole.^{xiv} There are no estimates available for Amsterdam.

Economic development through Open Data is a goal for the long run. Research by Deloitte shows that in the years to come the biggest trend in data analysis will be the advanced analysis of one's own business data. Using or supplying Open Data ranks at number 6 with 19% of the Dutch CIOs using or examining the technique in 2012. According to the same study it will take years for companies to fully exploit the potential of all current trends and new technologies. Besides that, only 5% of the CIOs regard the business impact of the technology developments as transformational. Even with the latest technology, radical innovation remains difficult to realize.^{xv}

Apps

Innovation or economic possibilities of Open Data are most visible in apps. The fact that one in every ten citizens has already downloaded an app about Amsterdam shows there's a market for local information. Free apps with local news or information about cultural activities are the most popular ones. Apps based on Open Data of the municipality are not very well known to the public. The brand awareness of two prize winning apps (Omgevingsalert and ParkShark) is only 2%. In 2013 we found no apps based on Open Data owned by Amsterdam that were downloaded by more than 1% of the public. The table below shows all apps that were mentioned by the panel.

Apps using data of the city of Amsterdam, march 2013

Name	Description	Issued by third party	Rating in app-store (0-5)	Number of ratings
Omgevingsalert*	Informs about permit applications in the neighbourhood	x	4,0	75
VaarWater	Boating routes and opening times bridges in Amsterdam canals		4,0	31
Vistory**	Historical videos of the location that you are at	x	3,0	5
I Amsterdam	Tourist board information (points of interest and map)		2,5	504
GVB	Time schedule public transport		1,5	60
Opgeruimd!	Send the municipality a picture of public space that needs fixing		1,5	6
Bike like a local	Biking rules, parking options and where did you park your bike	x	1,0	1
ParkShark***	Parking spot sharing and rates for public parking	x	-	-

*Winner National App 2013 **Winner National App 2012 ***Winner Apps 4 Amsterdam 2012

Apps based on Open Data contribute to the Amsterdam economy in three different ways.

- The first and most apparent way to stimulate the economy is new business. Of the eight above mentioned apps four are issued by non-municipal organizations that use Open Data in their business model. All four external apps offer information that is connected to the location of the user: where can you park your car cheaper, how did the location look like in the past, what permits are issued and where in the neighbourhood did you park your bike.
- Secondly apps improve the accessibility of the city: four of the eight apps are about transportation. Whether you come by boat, public transport, bike or car to Amsterdam, you can find information on your mobile phone to help you. This kind of Open Data not only informs customers, but also changes their behaviour. In the near

future these kinds of apps will contain more real time information about for instance traffic jams or open parking spots and will enhance easy access to the city even more.

- Thirdly apps are a part of city promotion: six of the eight apps provide fun facts about Amsterdam that are interesting and inviting to tourists and other visitors.

Open Data of the city of Amsterdam used by other parties

- 138 datasets are open for use and reuse
- 47 apps were made in the contest Apps 4 Amsterdam 2011 and 20 in 2012^{xvi}
- Most successful third party app is the national app Surroundings Alert

Not all apps meet the expectations of the public. Four of the eight apps are rated with 2,5 stars or less out of five stars. For instance the attractive app of the Amsterdam Tourist Board -I Amsterdam- contains a lot of information about the city. However, the advertorials about 75 restaurants annoy people who want to make a critical selection from the more than 2.000 restaurants in the city. And when you invite the public to send in complaints about the public space, as the app Opperuimd! does, people expect the city to act on this information.

Two apps have a four-star rating in the Apple app-store. One of them is Omgevingsalert, Dutch for Surroundings Alert. This app sends a notification when an application is handed in for a permit in the proximity of your home, for instance for taking down a tree or starting a pub. Although only 2% of the public knows about the existence of this app, 44% says to be interested in the application. The app does not only use data about Amsterdam, but combines Open Data of all participating municipalities in the Netherlands. The app won the national app contest in 2013. The other four-star rated app is VaarWater (boating water) and is all about Amsterdam. The app informs people with a boat about the rules on the canals, which bridges are too low for the size of their boat, opening times of bridges, and points of interest. The app is issued by the Water Department itself but uses Open Data of other departments, for instance about the location of public toilets in the city center.

Cooperation

Open Data projects often intensify contacts with other organizations. In international network projects, like Open Cities, this is expected. Regional projects that combine information of different municipalities often demand face-to-face meetings to synchronize data(collection) and definitions. In other cases the data creates new unexpected contacts with (re)users of the data. This happened for instance to the Rijksmuseum that put a API online that leads to a dataset with more than 100.000 descriptions and pictures of their art collection. The trigger to offer high-resolution images was the discovery that people didn't believe the postcards in the museum shop were showing the original painting, because they were used to the low-quality copies on the web.^{xvii} Within 5 months the API resulted in 17 apps. Also important institutions like ARTStore and the Getty Institute made use of the API. This resulted into valuable contacts that reinforced the strategic position of the Museum.^{xviii}

Open Data that increase cooperation

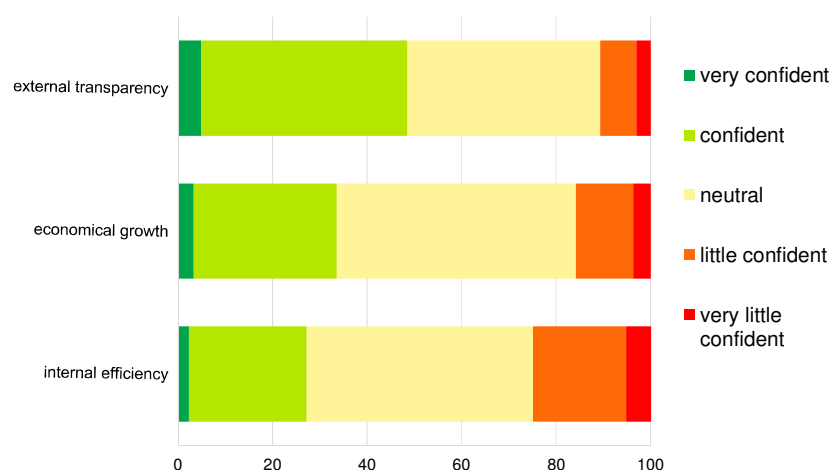
- Regiomonitor combines demographic statistics of municipalities in the Amsterdam area (<http://mapinfoserver.fmg.uva.nl>)
- Regional safety index
- The collection of the Rijksmuseum (<https://www.rijksmuseum.nl/nl/api>)

Near future

This paper started with the notion that the outcome of embracing the concept of Open Data as yet is not clear. Amsterdam started its Open Data policy in the only possible way: by experimenting. There are too many insecurities and too little information for a systematical approach, too little time for incremental innovation and too much data to open all at once.^{xix} After a few years of experimenting with opening datasets, Amsterdam has made important steps, but is still very much at the beginning of becoming an open city. The 138 datasets on the platform don't really touch the core business of the organization. Also the external goals - economic growth and external transparency- are both meant for the long run. The first results however are promising. The majority of the people in Amsterdam are confident to neutral about the statement that Open Data will contribute to these goals. The public

also noticed the biggest hurdle to take; almost a quarter of the population doesn't feel that Open Data will increase internal efficiency.

How confident are you that Open Data will contribute to the following goals? 2013 (n=703)



source: O+S

Open data will change the way the government operates and cooperates. The next table shows the expected trends for Open Data in different countries in 2011. In the upcoming years Amsterdam will focus on the supply of Open Data (improve the platform and provide more API's) and the needed shift in culture (policy and guideline for civil servants). According to the CIO-office of Amsterdam the shift from "a closed unless" to "an open unless-government" is the most visible change at the moment. More and more the city views society as a partner in selecting problems and finding solutions.^{xx} This does not only include societal partners within the city. Open Data also stimulates cooperation outside the city borders to connect data on a regional, national and even international level. Cooperation also effects the data itself through standardization, benchmarking and best practices. This harmonization implies that choices about Open Data will less and less be made within one organization.^{xxi}

International trends in Open Government policy in 2011, Amsterdam 2013

	USA	UK	Australia	Denmark	Estland	Amsterdam
Open Data guideline		x	x	x	x	x
focus on participation and cooperation	x	x			x	
platform				x	x	x
harmonization /removal of legal barriers	x		x			
connect to the question of (re) users / user assessment	x			x		
publicize output-statistics of the municipality	x	x				
mobile apps	x					
removal of technical barriers		x				x
Open Linked Data		x				
steering committee Government 2.0 / community / weblog			x			
bottom-up initiatives				x		
stock-taking of available data					x	
incorporate Open Data in strategy and policy						x

Source: TNO (2011) , except Amsterdam: O+S (2013)

Technical developments will improve the usability of Open Data. For instance real time information can increase the service level of the municipality greatly. One of the ideas is an app that shows the actual waiting time at the service desk of city hall. Alderman Wiebes of ICT envisions one app with all multimodal travel information: a route planner will avoid traffic jams, public transport information is real time, car drivers know which garages have vacant parking spots, when it snows the app informs you which roads are sprinkled etc. etc. Deloitte not only foresees an increase in using real time information, but also in information about the future by using predictive analytics to forecast the results of policy decisions.^{xxii}

In 2014 Amsterdam will try to leave the experimental phase of Open Data by formulating policy and strategy. Although this might be the starting point for big changes in the organization, this more structured approach will probably fit the organization better. Government statistics need to be solid and reliable. Also privacy rules have to be followed strictly. These preconditions need time and money, two things most experiments don't have.

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- i www.os.amsterdam.nl and www.amsterdamopendata.nl
 - ii Definition Open data exchange, 2011.
 - iii City of Amsterdam. Open Data. Beleidskader en uitgangspunten. December 2012.
 - iv Ministry of internal affairs. De waarde van Open Data, 26 April 2012 .
 - v Nederlandse School voor Openbaar Bestuur. Open data, Open gevolgen. 2012
 - vi www.onderzoekenstatistiek.nl. 703 Inhabitants of Amsterdam completed the questionnaire on Open Data, January 2013.
 - vii City of Amsterdam. O+S Omnibus, March 2013.
 - viii Alderman ICT E. Wiebes and Alderman of economic affairs E. Gehrels, 25-2-2013.
 - ix Zenc. De waarde van open data. 2012.
 - x TNO. Open overheid, 2011.
 - xi Landelijke monitor stapelingeffecten, 2012.
 - xii O+S: Evaluation Stadstat, november 2009.
 - xiii TNO. Open overheid, 2011.
 - xiv Ministry of internal affairs. De waarde van Open Data, 26 April 2012.
 - xv Deloitte and CIO. Business innovation and IT trends. If you just follow, you will never lead, 2012.
 - xvi City of Amsterdam. Evaluatie 'Apps4Amsterdam', November 2011.
 - xvii E. Verbruggen. Business Models for Open Data. <http://www.beeldengeluid.nl/en/node/4878>. December 2011.
 - xviii Amsterdam economic board. Open data testimonial. 2012.
 - xix Nederlandse School voor Openbaar Bestuur. Open data, Open gevolgen. 2012
 - xx City of Amsterdam. Open Data. Beleidskader en uitgangspunten. december 2012.
 - xxi Zenc. De waarde van open data. 2012.
 - xxii Deloitte and CIO. Business innovation and IT trends. If you just follow, you will never lead, 2012.