Collaborative custodianship of the BAG

Basisregistratie Adressen en Gebouwen in the Netherlands
Base Register Addresses and Buildings in the Netherlands

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Ministry of the Interior and
Kingdom Relations - The Netherlands
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Facts & Figures NL

› Kingdom of the Netherlands
› 41.500 km² (Compare RSA: 1.221.000 km²)
› Population density 400/km²
› Population 17.000.000+
› 380 municipalities + 3 overseas
› Western part with biggest cities below sealevel (until -6,5m)
› Capital: Amsterdam, political centre: The Hague, harbour: Rotterdam
› Economy: agriculture, knowledge, international trade

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SDI developments in the Netherlands are strongly related to the base registers of e-government policy (interrelated system)

Spatial Base Registers with Legal Acts for:
- BRK – Cadastre
- BRT – Topography
- BGT – Large scale Topography
- BAG – Addresses and Buildings
- BRO – Soil and Geology
- WOZ – Real estate value

Non-spatial Base Registers, like population, trade register, car license plates, income
The goal of the system of base registers

- A modern and dynamic government that:
  1. does not ask twice (relief of administrative burden)
  2. is demand driven and pro-active
  3. is not to be fooled around with (fraud fighting)
  4. is well informed about its targets (effective)
  5. Is properly organized and cost effective (efficient)
What is the BAG?
Movie the BAG in 1,5 minute
What is the BAG: Base register on addresses and buildings

Timeline:
- Law into force for registration: 2009 (completed 2011)
- Law into force for mandatory use government: 2011
- Start linking other base registers: 2011
- Evaluation: 2014
- Improved law: 2018

Goals:
Contribute to effective and efficient government:
- Better service
- Better public order and safety
- Prevent and fight fraud
- Better policy preparations
- More efficient government processes
- Prevent government from doing things twice

Open data: the BAG can be used by everybody!
Social benefits by use of the BAG!
Information in the BAG

High quality dataset of buildings and addresses

Contents of the BAG

- Buildings and addresses on a map (not only administrative data)
- Historical data, current data and monitoring developments (life cycle)
- Exchanging data Using ID’s
- 1 national source for address data
Spatial information

Administrative information

BAG viewer: http://bagviewer.kadaster.nl
International address systems

1. Lot, parcel
2. Building
3. Functional unit (premises)

for instance: the Netherlands
BAG is not primarily about addresses: ID’s functional units!
Case when two units are merged: bigger pharmacy

New object: new FU-ID!
Old objects (with ID’s): stay in BAG
Same housenumber possible (label)
Data in the BAG: objects and attributes

**Building (= object)**
- Building ID
- Year
- Geometry (polygon)
- Status

**Functional units / premises (= object)**
- FU-ID
- Coordinate (x, y)
- Purpose of use
- Surface (m2)
- Address
- Status

**Address (= attribute)**
- Town
- Name public space/street name
- House number
- House letter
- Number addition
- Postal code

**Public space**
- Name of the public space

**Community**
- Name community
- Geometry

Woning = house
Winkel = shop
Data in the BAG: object types

Buildings
- Building > 1 mln

Addressable objects
- Func. Unit (premises) > 9 mln
- Permanent Stand > 20,000
- Mooring Place > 10,000

Addresses > 9 mln
- Settlement (town) > 2,500
- Public space > 275,000
- House Number > 9 mln

Yearly mutations:
2017: > 1.7 mln
The use of the BAG
Direct and indirect users BAG (= open data)

- Base Register Personal Records
- Trade Register
- TAX-office
- Land/houses owners registry
- Student register
- Police, Fire Brigade, Ambulance
- Child/family allowance
- Pension funds
- Insurance companies
- Car navigation
Quiz:

How many times is the BAG (= open data) being used in the society in 2017?
A. 0 – 1 mln hits
B. 1 mln – 100 mln hits
C. 100 mln – 1 bln hits
D. > 1 bln hits
ANSWER 2017:

D:
1,6 bln (direct use)
> 5 bln (indirect use)
Are the users satisfied?

RESULTATEN AFNEMERSONDERZOEK BAG 2018

1. DOELSTELLINGEN

Inzicht verkrijgen in:
- Tevredenheid van gebruikers;
- Het gebruik en de doeltreffendheid van de BAG in de praktijk;
- De toetsing en voortgang van de plannen en activiteiten voortvloeiend uit de wettelijke evaluatie.

2. DOELGROEP & RESPONS

Doelgroep:
- Gebruikers van de BAG

Uitgenodigd via:
- E-mail/popup BAG-viewer/koepelorganisaties

Aantal respondenten:
- 555

3. Rapportcijfer totaal

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td>8 of hoger</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>5 tot 7</td>
<td>40%</td>
<td>44%</td>
</tr>
<tr>
<td>Lager dan 6</td>
<td>55%</td>
<td>50%</td>
</tr>
</tbody>
</table>

Rapportcijfer publiek/privaat per sector

<table>
<thead>
<tr>
<th></th>
<th>Public</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 of hoger</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>5 tot 7</td>
<td>20%</td>
<td>22%</td>
</tr>
<tr>
<td>Lager dan 6</td>
<td>20%</td>
<td>18%</td>
</tr>
</tbody>
</table>

Wist je dat...

...de BAG jaarlijks ruim 1,6 miljard keer wordt afgenomen van het kadaster?
...de BAG ook heel vaak wordt doorgeleverd aan derden?

Beoordeling kwaliteit gegevens

- Adresgegevens (n=1536)
- Postcode (n=526)
- Pand- en/of objectgeometrie (n=655)
- Gebruikersroepveld (n=397)
- Status van een object (n=482)
- Bouwwijze (n=479)
- Gebruikersopvalijke verlichting (n=456)

87% vindt de BAG belangrijk voor zijn of haar organisatie
74% verwacht dat het gebruik van de BAG in zijn of haar organisatie zal toenemen

Top 3 meest genoemde voordelen van de BAG

1. Betere dienstverlening naar de klant/burger
2. Efficiënter werken
3. Tendertijds communicatie met andere partijen

Quotes verbetersuggesties

"Het kan nog veel beter, maar van een afstand bekeken is het erg goed."
"Het zou fijn zijn als de geometrie van gebouwen enz. duidelijk is. Vooral in de hoogte."
"Het zou fijn zijn als de geometrie van gebouwen enz. duidelijk is. Vooral in de hoogte."
Collaborative custodianship:
Building up and Maintaining the BAG
Collaboration through central facilities

Registration: Municipalities
Local BAG (= source)

Management Central Facility (LV BAG = copy):
Cadastre by order of
Ministry of the Interior

Supply to Users
(by LV BAG in different products)

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### Governance: roles and responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>Organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies &amp; legislation</td>
<td>Ministry of the Interior and Kingdom Relations</td>
</tr>
<tr>
<td>Supervision &amp; control</td>
<td>Ministry of the Interior and Kingdom Relations</td>
</tr>
<tr>
<td>Quality management (Dashboard, account management)</td>
<td>Kadaster</td>
</tr>
<tr>
<td>Support</td>
<td>Kadaster</td>
</tr>
<tr>
<td>Steering &amp; advice to the minister</td>
<td>BAG BAO (board with municipalities and users) &amp; Agenda committee</td>
</tr>
<tr>
<td>Custodians (operations and data entry)</td>
<td>Municipalities (2018: 380)</td>
</tr>
<tr>
<td>Functional management &amp; IT LV BAG</td>
<td>Kadaster</td>
</tr>
<tr>
<td>Local BAG software</td>
<td>Suppliers (market)</td>
</tr>
</tbody>
</table>
Governance and user influence

Minister of the Interior: political responsible for the BAG

3 levels of user involvement:

1. **BAG BAO** BAG Custodians and Users Committee (2 times/year):
   - Strategic steering committee
   - Advice to the minister
   - Board of municipalities / custodians (big and small!) and obligatory users (public parties), incl ministry and Kadaster

2. **Agendaoverleg BAG BAO** (3 a 4 times/year)
   - Tactical steering committee
   - Preparation of the BAG BAO
   - Same parties as BAG BAO, members have roles like information-managers

3. **BAG User Council** (3 a 4 times/year)
   - Operational feedback and advise between registrants and users, may lead to advise/requests to BAG BAO
   - All parties, including private parties that are operationally involved in the BAG
Governance and stakeholder influence

New article on the relation between local SDI and national SDI and user influence of the BAG

To be published in IJDE

Article by Serena Coetzee, Martijn Odijk, Jantien Stoter, Bastiaan van Loenen, and Janette Storm

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Governance and stakeholder influence
Original approach building up the BAG 2007-2011

How do you realise 1 national dataset with 400+ suppliers?

- Supply of information (started in 2006)
- Working with pilots (5% municipalities)
- Other municipalities follow (95% own planning)
- Deadline: 1st july 2009 (law in force)
Approach building up: “BAG Project 2007 - 2011”
Approach building up: “BAG Project 2007 - 2011”

✓ On deadline (July 2009, law in force) only 10 municipalities were ready

✓ Without different approach it would take years to finish

✓ For national users (like tax office) only a complete filled dataset is usefull

✓ In 2009 a different approach was chosen: 4 stages model
Approach building up: “BAG Project 2007 - 2011”

4 stages model by the BAG Project: “carrot and stick”

1. Information, communication, creating commitment
2. Helping, facilitation
3. Monitoring, planning
4. Make arrangements, and... enforce
Approach building up: “BAG Project 2007 - 2011”

**Stage 1: information**

- Campaining: personal meetings, accountmanagement, communication, flyers, website (and repeating it all)
- Segmentational approach: communication and information per segment
- What is in it for the municipality itself (not only for higher goals)?
Approach building up: “BAG Project 2007 - 2011”

Stage 2: facilitation and helping

- Guidelines, implementation approaches, helping hand advisors, pilots
- Clear and realistic agreements about planning
Approach building up: “BAG Project 2007 - 2011”

Stage 3: monitoring

- Check on progress and milestones
- Check on agreements (custom solutions, f.e. temporary quality demands)
- Detailed monitoringsdatabase
Approach building up: “BAG Project 2007 - 2011”

**Stage 4: arrangements (management) and enforcing**

- Neccessary part of the approach
- Naming and shaming (in case of failure)
- Formal letters and meetings (management)
- Naming and praising (in case of successes)
- Financial penalties (project costs)
Approach building up: “BAG Project 2007 - 2011”

› **Failure factors:**

- High focus on the operation, low focus on management
- Non binding planning
- No enforcement, managerial pressure
- High believe in legislation (“it is written in the law, so..”)

› **Success factors:**

- Commitment on planning, management expectations
- Predictive monitoring and building up pressure
- Support and backing from the management
- Account management in different roles (communication, helping, planner, pressure)
- Working together and show trust
- Administrative focus within the municipalities
- Risk based approach
- Supplier management
Investments in building up the BAG

› **Costs:**
  - Building up (& using) the BAG:
    - 84 mln euros local government (municipalities, 2008-2011)
  - Maintenance:
    - 3 to 4 mln euros a year national government
    - 50 mln euros a year local government (municipalities)

› **Benefits:**
  - 2014: costs and benefits for local governments in balance
  - But: enormous benefits in society (> 10 mln hits a day)
  - Challenge: managing the cost of use... (central facilities)
Approach using the BAG: 2010 - 2013

› The use of the BAG (by governments and in society) is essential for the success and return of investments

› Legislation (mandatory use) nog enough, good examples of the benefits of use are important

› Credo: “**Use the BAG**, not because you **have** to, but because you **need** it”

› Segmentational approach:
  - Municipalities
  - National government bodies
  - System of base registers
  - Private parties
Multiplier approach:
- Indirect use
- System of base registers (BRP, HR)
- Resellers

BAG = open data (no or low costs depending on product)

Multi channel approach in products:
- Database dump
- Mutation subscriptions
- Webservices (administration and geo)
- Online viewing
- Linked Data (API’s) (since 2017)
Approach maintenance of the BAG: instruments for multiple custodians

- Legislation (ministry)
- Standards (Geonovum, Cadastre) for registration and exchanging data
- Documentation (Cadastre)
- Quality assurance (local and central checks)
- Governance (BAG BAO)
Approach maintenance of the BAG: Central organization of the maintenance instruments

BAG (Adresses and Buildings)

Support municipalities and users (project and Kadaster)
   - Facilitate, Inform, Helpdesk: Technical and functional
   - Investigate needs and features and implement, maintain and publish documentation

Registration
   - Municipalities Local BAG

Management
   - Central facility LV BAG Kadaster

Supply
   - Files, Webservices, Viewer

Quality control
   - Technical checks
   - Quality dashboard
   - User feedback
   - Initial audit
   - Maintenance audit

Governance
   - Ministry BZK BAG BAO
   - Agendaoverleg
   - User council
   - Supplier meetings

Regulations, standards
   - Law BAG, bylaw BAG
   - Webservice standards
   - NEN 5825, NEN2580, NEN3610, RD, XML, GML
Maintainance BAG: Legislation, standards and documentation
Maintainance BAG: Quality assurance

› 2009 – 2016: **audits**
  - Audit companies
  - Supervision by ministry

› Governmental users report back

› Since 2016: **new quality approach**
  - Internal quality assurance communities
  - Quality monitoring and dashboards
  - Quality management and peer pressure
  - Supervision and control

› Users and crowd report back
Maintainance BAG: Quality assurance - 4 steps

**Step 1: Internal QA**
Responsibility of municipality

**Step 2: Information gathering**
- Quality dashboard
- Questionnaire / self-assessment
- Other sources

**Step 3: Quality management**
- Assessment based on step 2
- Talks with municipality (help, stimulate, call to account) through account management
- 1st three steps (informal) escalation ladder
- Transfer file to National Supervisor

**Step 4: Supervision (and enforcement)**
The escalation ladder includes three more steps. The last one is the ministry taking over BAG administration from the municipality

Ministry BZK (National Supervisor)
Maintainance BAG: Quality assurance: dashboard
Maintainance BAG: Results Quality Dashboard

Results Quality Dashboard BAG 2016 – 2017

Reduction of 44% in measured errors
Maintainance BAG: Quality assurance Using the crowd

• Users exchange information on the quality of the data:
  ✓ Any doubt about correctness: report back to data owner
  ✓ Data owner looks into it and decides within 2 days whether or not to change the data
  ✓ If decision can’t be made within that period, data owner puts the data “in examination”
  ✓ Within 6 months data “in examination” need to be examined and a decision needs to be made
It is compulsory for government users of Base Registers to provide feedback on errors and changes in the data or maps.

But now anyone can give feedback at

1. [www.verbeterdekaart.nl](http://www.verbeterdekaart.nl) (BRT and BGT) or
2. [bagviewer.kadaster.nl](http://bagviewer.kadaster.nl) (BAG)
Maintainance BAG: Quality assurance
Using the crowd
Collaborative custiodianship of the BAG:

**Opportunities**
- Local knowledge needed for good registration
- Local custodians have more possibilities for keeping the dataset accurate and current
- Efficient proces – collective effort
- Registration and using on a local scale
- But also using local information on a national scale
- Shared responsibilities over the country
- Large benefits in society (for citizens, companies and government)

**Challenges**
- Uniformity: all parties should use same rules and standards (but there is always interpretation of regulations)
- Keeping quality equal all over the country: balance between ‘carrot and stick’
- Good governance is needed: balance in user demands and efforts municipalities (small and big)
- Knowledge level and capacity in small municipalities
- National developments to fast for smaller municipalities
- National developments to slow for large municipalities (f.e. 3D)
- Usage by mandatory users
- Costs and benefits on different places
Future developments
Future developments: from single islands
Future developments: ... to connecting
Future developments: ... to integration
Future developments: Integrated registration of objects
Future developments: 3D

› Integrated development demands 3D

› Starting with 3D registration of buildings (and functional units / premises)

› Pilots in Rotterdam:
  www.3DRotterdam.nl
www.3drotterdam.nl
Questions?
Questions?
Thank you for your attention.
Contact?

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