

# Metadata use. Do we understand?

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WAGENINGEN **UR**

# Usability...



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# Background

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- Metadata purpose
  - To describe content, quality and use
  - To provide links to the data
- Discovery portal purpose
  - To find data
  - To explore the data
    - By description
    - In a map



# Background

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- Disclose data
  - Create metadata
  - Collect in registries
  - Create metadata services
  - Provide clients to the users
  
- Discovery portals
  - Currently many discovery portals are built
  - INSPIRE accelerates this process





# Examples

Firefox Wageningen UR - Home x GEO Nationaal Georegister x +

GEO www.nationaalgeoregister.nl/geonetwork/srv/nl/main.home ☆ ↻ samsung sur40

**NATIONAAL GEOREGISTER.nl** 52°09'N 05°23'E INSPIRE toegangspunt

Deutsch - English - Français

**Welkom op het Nationaal Georegister**

Welkom op het Nationaal Georegister. Dit is een catalogus van de online geo-informatie in Nederland. Bronhouders registreren hier hun gegevens. Gebruikers ontdekken hier wat er beschikbaar is.

> Snel beginnen!  
> Help  
> Disclaimer  
> Sitemap  
GeoRSS.nl

**Zoeken** Kaart Organisaties Publiceren Feedback Informatie Help

**Wat?**

natura 2000


Nauwkeurigheid  
tolerant ———— precies

► INSPIRE zoekopties

► Thema

Bezoeken per pagina  
10 20 50 100 200

**Waar?**




Kaartgegevens: © CBS, Kadaster, OpenStreetMap-auteurs (CC-BY-SA).

Uitgebreid Zoeken > Reset > Zoek >

**Nieuws**

- > Tips en tricks voor zoeken in het NGR
- > Nationaal Georegister release 1.9.0 live
- > Nationaal Georegister release 1.8.1 live
- > Nationaal Georegister release 1.8.0 live
- > Nationaal Georegister release 1.7.2 live
- > Nationaal Georegister release 1.7 live
- > Symbolen
- > Lijst van ondersteunde browsers

**Populaire datasets**



Aantal gepubliceerde metadata van datasets in het NGR: 4725

Aantal gepubliceerde metadata van services in het NGR: 223

# Examples



## INSPIRE GEOPORTAL

Enhancing access to European spatial data

[Contact](#) | [Search](#) | [Legal notice](#)

[English \(en\)](#)

### Welcome to the INSPIRE geoportal

The INSPIRE Directive requires the Commission to establish a community geo-portal and the Member States shall provide access to their infrastructures through the geo-portal as well as through any access points they themselves decide to operate.

[More...](#)

#### Discovery / Viewer

Search, discover and access geographic information provided by European governmental, commercial, and non-commercial organizations.

[More ...](#)



#### Validator

The purpose of the INSPIRE Metadata Validator is to test the compliance of INSPIRE metadata with the INSPIRE Metadata Regulation.

[More ...](#)

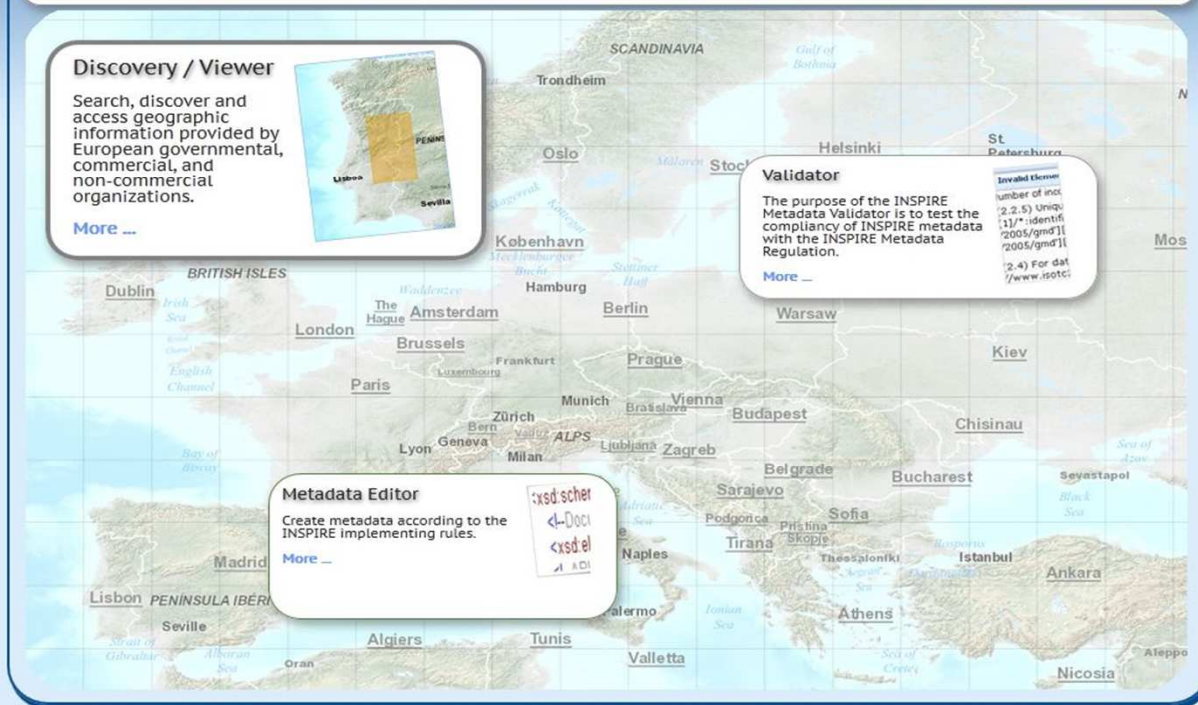
Invalid theme  
Number of inst  
(2.2.5) Uniqu  
(11\*) identifi  
(2005/gmd)11  
(2005/gmd)11  
(2.4) For dat  
/www.iso/

#### Metadata Editor

Create metadata according to the INSPIRE implementing rules.

[More ...](#)

xsd:schema  
xsd:document  
xsd:element  
xsd:attribute



# Examples

Firefox | Wageningen UR - Home | Geo Nationaal Georegister | INSPIRE Geoportal: Discovery / Viewer | GoGeo - The portal to spatial data an... | +

www.gogeo.ac.uk/gogeo/ | Google



## GoGeo

Log in

Home | GIS Resources | Learn about Metadata | Discover Data | Contribute your Data | Describe your Data | Help

Latest News | [Over-reliance on GPS?](#)

The place to discover geospatial information and services for those in education and research



 **GIS Resources**

 **Learn about Metadata**

 **Discover Data**

 **Contribute your Data**

 **Describe your Data**

**Simple Search**

What?  **Go**

☒ Restrict search to UK

Where?  **Go**

Powered by  **Unlock**

**Advanced Search**

Define your area of interest on a map, select a date, target your search against specific catalogues and more

**International Gateway**

Visit other countries' geospatial portals  
Discover data beyond the UK

**Metadata Sources**

Find out which catalogues GoGeo harvests metadata from

**News** | **Events** | **@go\_geo**

**Research post in PPGIS - University of Manchester**

Applicants are invited for a 12 month post (in the first instance) to work with Richard Kingston in the PPGIS research group  
[more details ...](#)

**Funded PhD Studentship in Data Capture and Visualisation for Citizen Science for non-literate users**

Citizen Science is a rapidly growing field, with applications ranging from [astronom](#)  
[more details ...](#)

**Public Health Information Analyst**

A Public Health Information Analyst is required who has worked in a public health setting, and who has a thorough knowledge of public health data  
[more details ...](#)

**Putting places on the map**

 **Unlock**

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**EDINA**

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**JISC**

images copyright © iStockphoto 2010

<http://www.gogeo.ac.uk/geonetwork/>



# Problem statement

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- Do we understand?
  - What to put into the metadata?
  - Who are the users?
  - How do they search?
  - What are the user requirements?



# Method

---

- Assess discovery portals on their performance
- The best way to go forward

## Use it!

- Carry out a usability test to receive real input on how users use the discovery portal
- Note: This experiment was carried out with limited resources



# Method

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- Usability testing

- Usability testing measures 'usability' or 'ease of use'

- Usability testing can assess:

- Performance → how many steps
  - Accuracy → how many mistakes
  - Recall → what is remembered after a while
  - Stickiness → how much time spend
  - Emotional response → how does one feel

- We used performance, accuracy and emotional response

# Method

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- Method used is the Thinking Aloud Protocol (TAP)
  - Users say whatever they are looking at, thinking, doing, and feeling, as they go about their task.
  - Observers see first-hand the process of task completion
    - Observers take notes of everything that users say
    - Observers counts clicks, mistakes, etc.





# The experiment

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- To set up the usability test:
  - Select discovery portals
  - Select a user group
  - Define an assignment
  - Describe the tasks by a user script
  - Select test users
  - Carry out the usability test



# The experiment

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- Select discovery portals

- Dutch national discovery portal  
NGR → <http://www.nationaalgeoregister.nl/>
- EU INSPIRE discovery portal  
INSPIRE → <http://inspire-geoportal.ec.europa.eu/>
- UK discovery portal  
Gogeo → <http://www.gogeo.ac.uk/gogeo/>

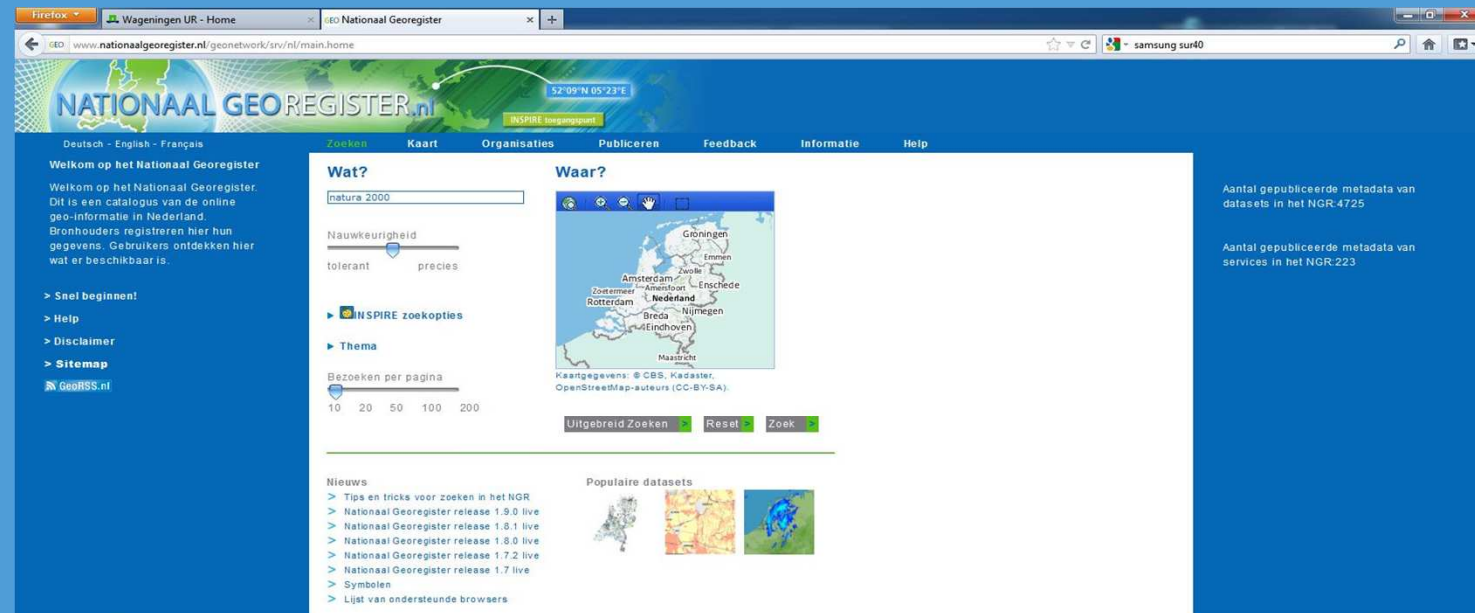
- Criteria:

- To be used by Dutch/English speaking people
- At least one with an 'google' alike interface



# NGR

- Based on GeoNetwork/Lucene
  - Lucene is an open-source Java full-text search library which makes it easy to add search functionality to an application or website



# INSPIRE

- Based on Degree/SOLR

→ Apache Solr is a web application built around Lucene with all kinds of goodies.

*“The results should aim towards enhancement of the end user experience and workflow, while still implementing the same underlying functionality, and must provide an integrated way to access INSPIRE metadata, spatial data sets and services. The overall user interface design must be intuitive to occasional users with no experience in spatial data infrastructures.”*



Active Layers: 0

français English latviešu čeština Deutsch Nederlands dansk português svenska suomi  
slovenčina română slovenščina eesti Dataset Dataset Series Network Service  
Buildings Cadastral Parcels Coordinate Reference Systems  
Geographical Names Geology Protected Sites Hydrography Transport Networks Land Use Land Cover  
Administrative Units Environmental Monitoring Facilities Orthoimagery Elevation Soil  
Habitats and Biotopes Species Distribution Utility and Governmental Services Addresses  
Area management/restriction/regulation zones and reporting units



# GoGeo

- Based on GeoNetwork/Lucene



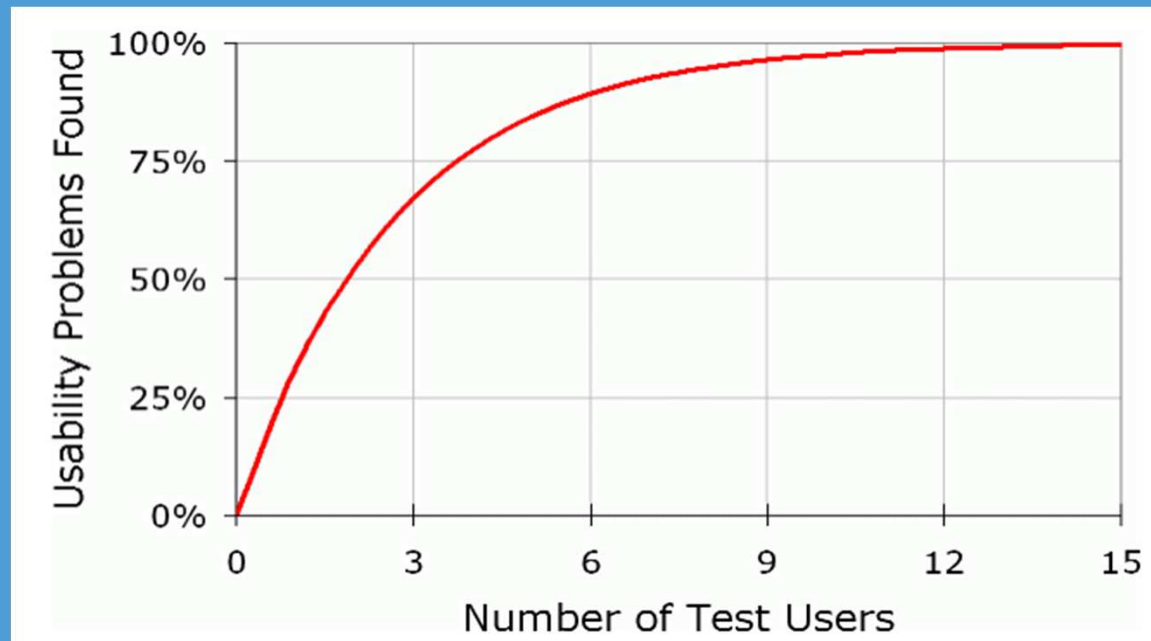
# The experiment

- Select a user group
  - GIS professionals
- Define an assignment
  - Find Natura2000 areas
  - Show a map of the result
- Describe the tasks by a user script



# The experiment

- Select users
  - GIS specialists from my department
- How many users?
  - "Five users is enough" → Nielsen 1990 – 2000
- Carry out the test



# Results

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- Personal user profiles
  - Number of participants: 5
  - All male (sorry ☹)
  - Age: 56, 40, 51, 48, 59
    - Average 51
  - GIS years of experience: 28, 12, 20, 22, 30+
    - Average 20
  
- → user group: experienced senior GIS-professionals





# Context related profile

do you use GIS software?

daily	5
weekly	
regular	
sometimes	
seldom	

Do you search spatial data sets on web?

Yes	4
No	1

How often?

Often	1
Now and then	3
Seldom to never	

What do you use?

Google or alike	2
Discovery portals	
Both	2

Are you familiar with Metadata?

Yes	
A bit	5
No	

Which discovery portals have you seen before

NGR	2
INSPIRE	1
GoGeo	0



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# Aggregated results

- Performance
- Accuracy

	Average no. of steps needed to complete tasks	Average no. of errors during completion of tasks	Percentage of tasks completed successfully
NGR	15.6	4	0.8
INSPIRE	17.4	2.8	0.6
GoGeo	17.4	2.8	0

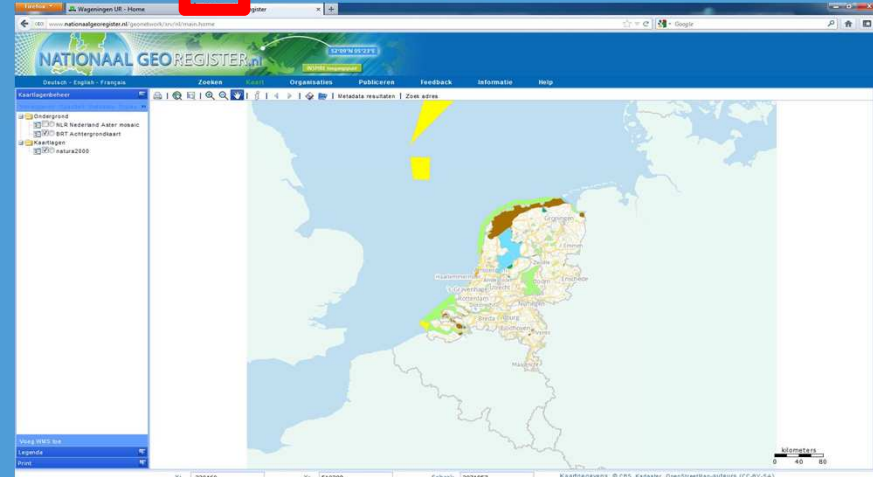
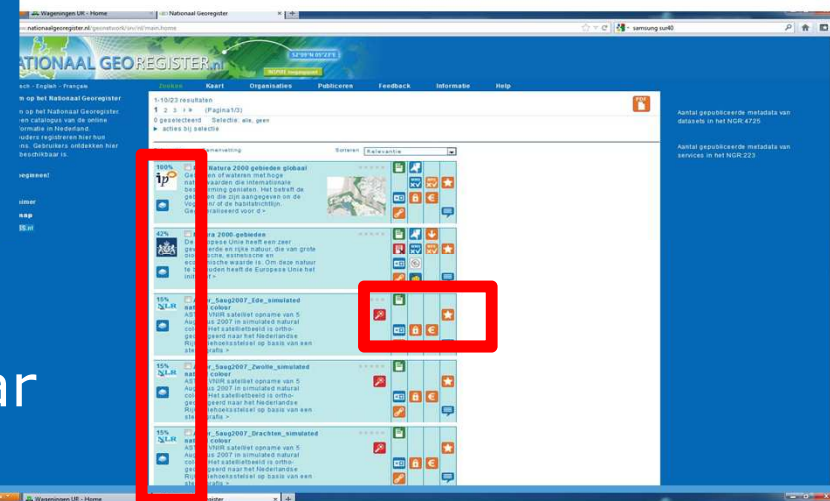
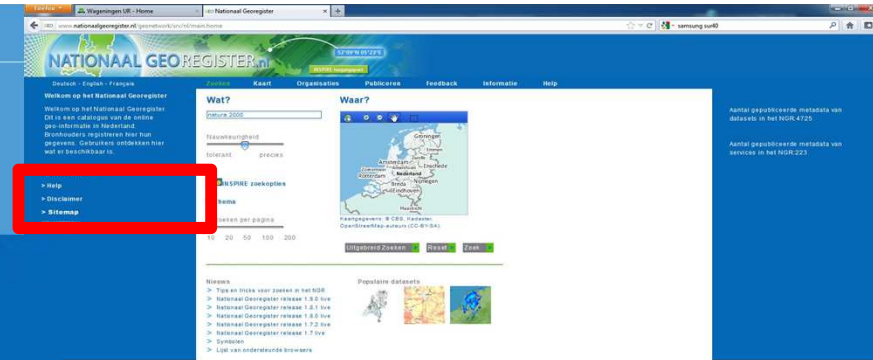
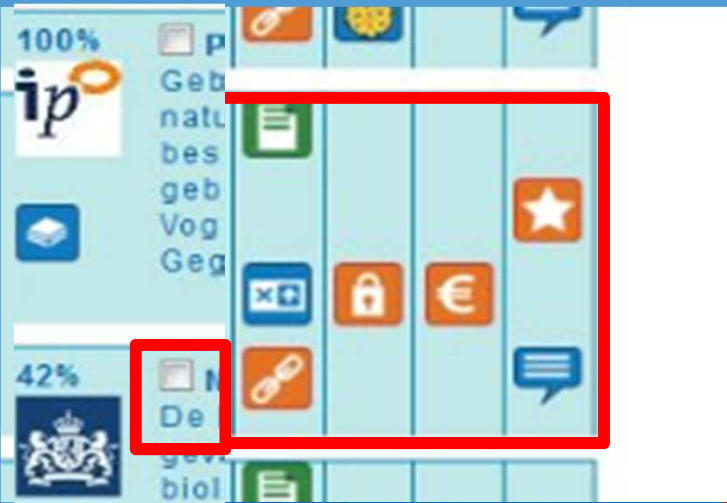
# Results

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- Emotional responses
- A short overview.....



# ister NL



ck start!" text causes confusion  
e number of buttons with unclear  
tion for each record found  
check box without a clear function  
for each record



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Find a place in: Europe

Powered by GeoNames

Search:



Data Sources and Credits



Firefox Wageningen UR - Home GEO Nationaal Georegister INSPIRE Geoportal: Discovery / Viewer



inspire-geoportal.ec.europa.eu/discovery/

Google



Contact | Search | Legal notice

English (en)



## INSPIRE GEOPORTAL

Enhancing access to European spatial data

The place has been marked on the map, but you have to draw the bounding box manually.

OK

500 km  
200 mi  
11.73443, 55.28799

Active Layers: 0



Log in

Home | GIS Resources | Learn about Metadata | **Discover Data** | Contribute your Data | Describe your Data | Help

Shib Login | Login (for private metadata): Username Password Login

Search for...

What?

natura2000

Netherlands

Search

Reset Advanced Options

- Austria
- BADC
- BGS
- BODC
- Belgium - National Geoportals
- Data.gov.uk
- Finland Geoportal
- GeoData - Denmark
- GoGeo
- MIMAS
- NSRI
- Netherlands - Georegister
- Portugal - Geoportal
- SALDA
- ScotGov
- ShareGeo
- Slovakia - EnviroGeoportal
- Southampton University
- Sweden - Geodata

GeoRSS

Map viewer

Layer tree

- Base Layer
- Overlays
  - Borders
  - OS UK

Print

Legend

GoGeo: The place to discover geospatial information and services

Aggregate Results matching search criteria : 1-2/2 (page 1/1), 0 selected

☐ **Natura 2000-gebieden**

Abstract De Europese Unie heeft een zeer gevarieerde en rijke natuur, die van grote biologische, esthetische en economische waarde is. Om deze natuur te behouden he

Keywords Beschermde gebieden

Metadata

☐ **INSPIRE View Service PDOK voor Administratieve eenheden, Adressen, Beschermde gebieden, Bodemgebruik, Geografische namen, Hoogte, Hydrografie, Kadastrale percelen en Vervoersnetwerken**

Abstract De INSPIRE View Service PDOK is een overkoepelende View Service die voor de volgende INSPIRE thema's datasets ontsluit: Administratieve eenheden, Adre

Keywords Beschermde gebieden, Hydrografie, Vervoersnetwerken, Geografische namen, Adressen, Bodemgebruik, Kadastrale percelen, Hoogte, Administratieve eenheden

# Results

## ■ Overall evaluation

		NGR	INSPIRE	GoGeo
Was the site clear in what to do?				
	Yes	3	1	0
	No	2	4	4
Did you like using the site?				
	Rate the design (1-10)	7,2	6,4	6,2*
	Rate the speed (1-10)	8,2	8,2	6,8*
How would you rate the portal? (1-10)		7	5,4	5

\*) only 3 people gave a rating

# To conclude

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- Keep the search page simple and clear
- Be instructive and clear
- Autocomplete really helps
- Take advantage of current developments in search engines for built your discovery portals
- Support showing in map viewer, but easy & intuitive



# To conclude

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- Focus on the use
  - Also the less experienced GIS-user
  - Usability testing is a powerful tool to assess your discovery portal
- The next variables should meet the user requirements
  - Contents of the catalogue
  - Indexing of the contents of the catalogue
- As a data provider, realise that what you do not put inside, cannot be used to be found
- Metadata can do that, so use the metadata well!





# End

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Metadata can do all that, so use the metadata well!



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# ... for comparison in future experiments

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- For further analysis there are tools
- One is SUS → The System Usability Scale [1986; Brooke]
- SUS is intended to measure 'perceived ease-of-use'
- Advantage
  - It is harmonised and used commonly
  - Suitable for comparison
- Disadvantage
  - Not very specific (general purpose)
  - Mostly single dimensional (usability/Learnability)
  - A bit superficial

# The System Usability Scale

- The SUS is a 10 item questionnaire with 5 response options.
  - I think that I would like to use this system frequently.
  - I found the system unnecessarily complex.
  - I thought the system was easy to use.
  - I think that I would need the support of a technical person to be able to use this system.
  - I found the various functions in this system were well integrated.
  - I thought there was too much inconsistency in this system.
  - I would imagine that most people would learn to use this system very quickly.
  - I found the system very cumbersome to use.
  - I felt very confident using the system.
  - I needed to learn a lot of things before I could get going with this system.

Strongly Disagree 1	2	3	4	Strongly Agree 5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

# Comparing outcomes

- The result is a count converted to a number ranging from 0-100
- Average score would be 68
  - based on 500 studies
  - It is not a percentage

