


UNIVERSITY OF TWENTE.



USING THE OPEN WEB PLATFORM FOR THEMATIC MAPPING IN A WEBSERVICE ENVIRONMENT

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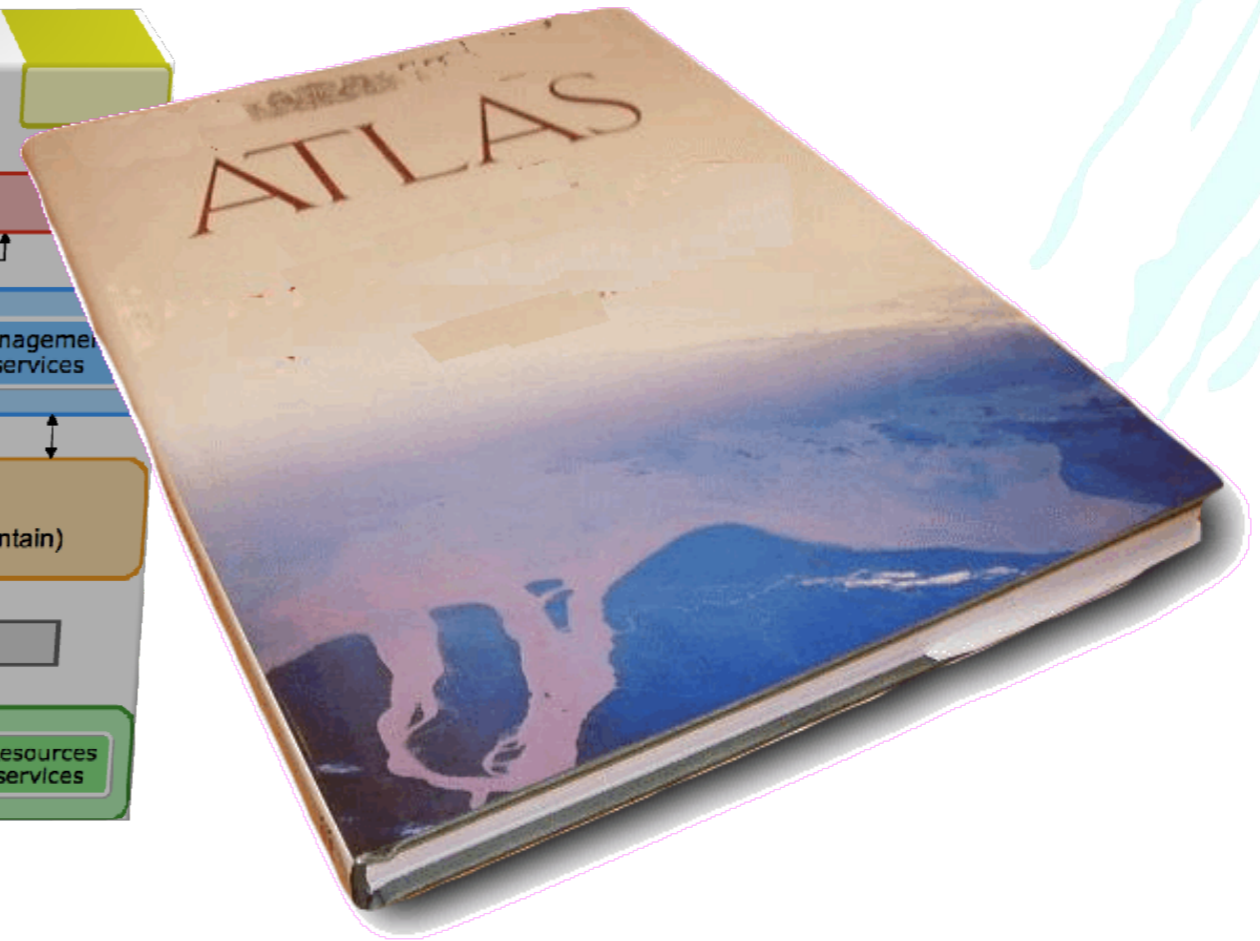
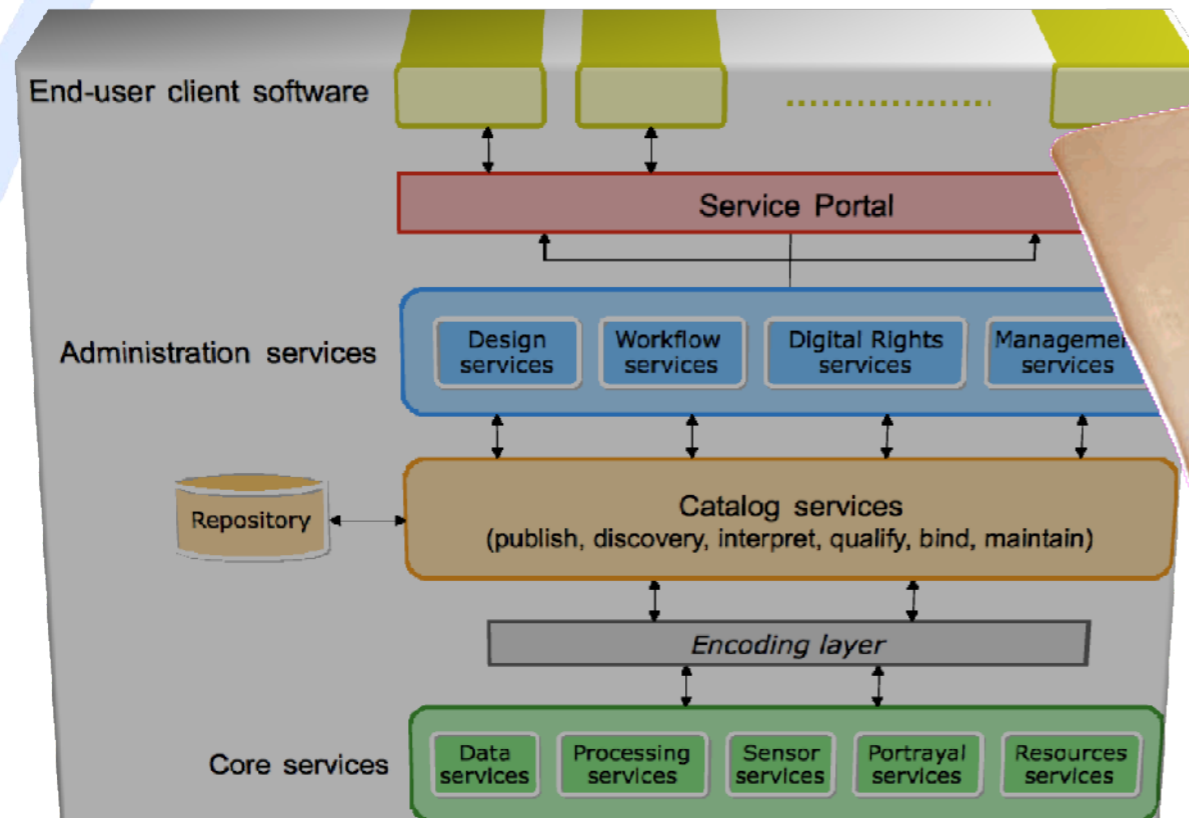


FACULTY OF GEO-INFORMATION SCIENCE AND EARTH OBSERVATION



a story about different worlds...

National GeoData Infrastructure National Atlas



...and how we tried to join them

Background (I)

changing role of cartography in a changing world:

- information disseminated in digital ways
- all about sharing, interoperability, web services, SDIs and the modern two-way Web 2.0
- this has consequences on the design of (web)cartography solutions in this environment
- subject of research projects in our group at ITC

Background (2)

Webcartography projects at ITC

- share the larger aim of improving mapping within the framework of ***loosely coupled, distributed webservices***
- fit within our ***SDI^{light}*** approach

Background (2)

Webcartography projects at ITC

- share the larger aim of imprc framework of *loosely coupled*
- fit within our *SD/light* approach

SD/light



Background (2)

Webcartography projects at ITC

- share the larger aim of imprc framework of *loosely coupled*
- fit within our *SDI^{light}* approach

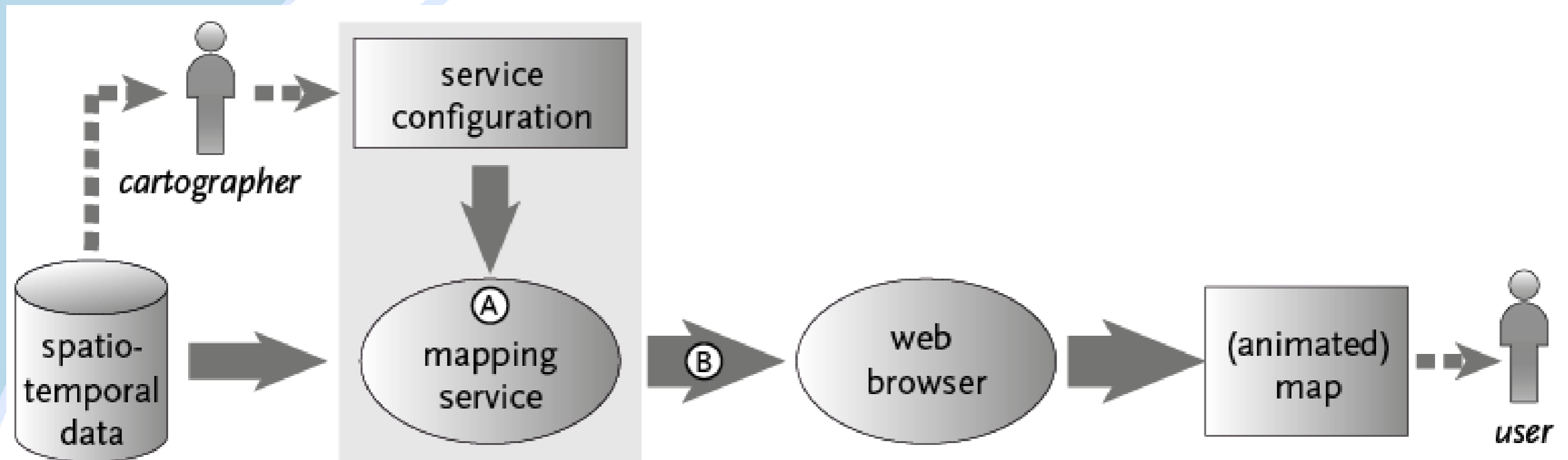
SDI



SDI^{light} approach

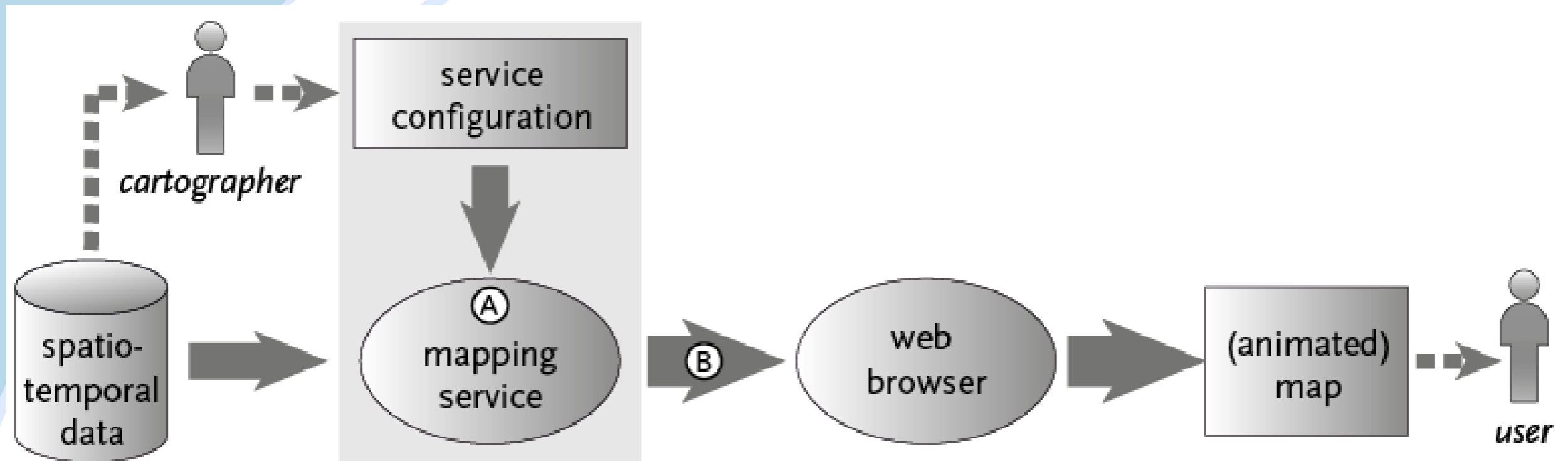
- a down-to-earth approach towards SDI
- Open Standards whenever available
- Open Source where possible
- used in teaching, projects and research
- provides researchers, students and partners with a platform for relatively simple, low-cost, yet powerful ways of sharing data amongst various stakeholders

Mapping in a webservices environment



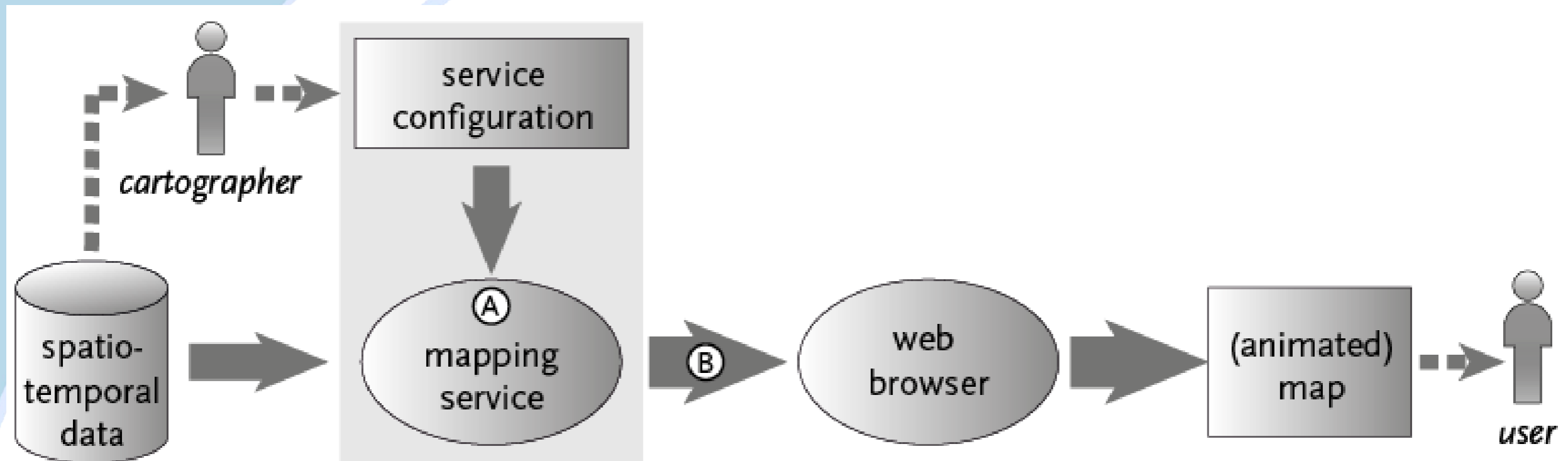
- possibilities for **direct** and *automatic* production of maps
- where ‘direct’ means:
 - generated case–by–case and on–the–fly from the data, no conversion or pre-processing needed for purpose of visualisation only
 - important for system to be an SDI node
 - able to consume data from any other SDI node

Mapping in a webservices environment



- possibilities for *direct* and **automatic** production of maps
- where ‘automatic’ means:
maps will be generated from the spatio-temporal data by the system “*working by itself with little or no direct human control*” (Concise Oxford Dictionary of Current English)

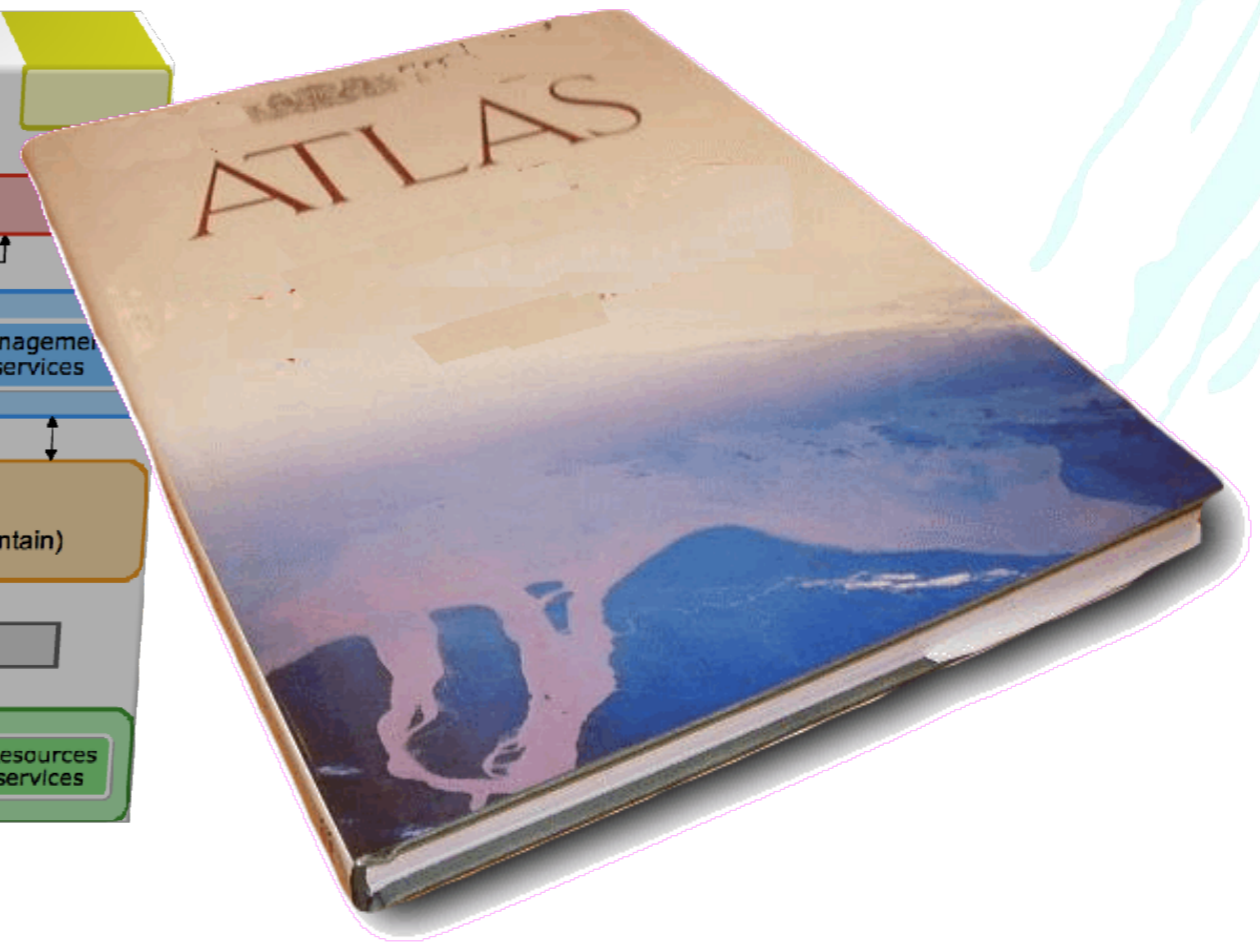
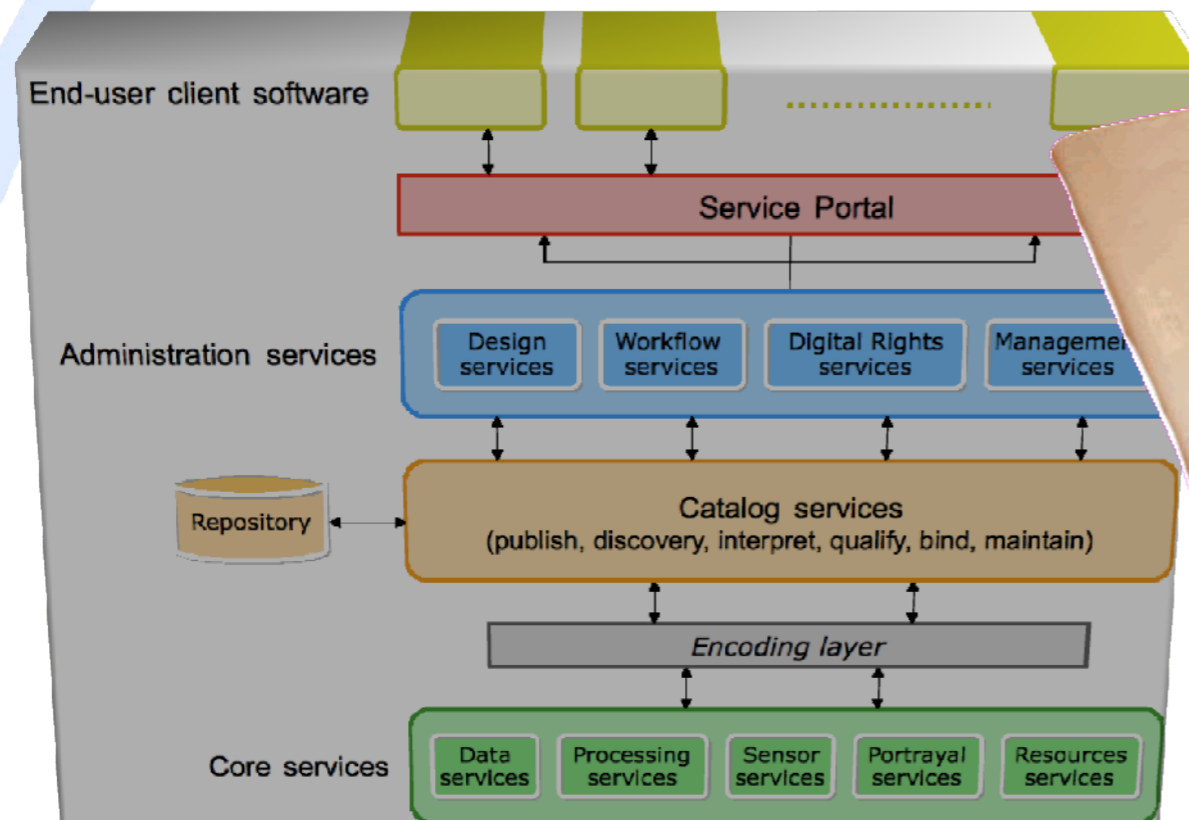
Mapping in a webservices environment



- nowadays a very important dissemination channel
- but partly takes us back to “the old days”:
 - “pre-cooked” maps in a one–way process
 - little user influence on design and content
 - little interactivity and exploration possibilities
 - “cartographer” (map–maker) \neq user
determines most of the map design and usability

a story about different worlds...

National GeoData Infrastructure National Atlas



...and how we tried to join them

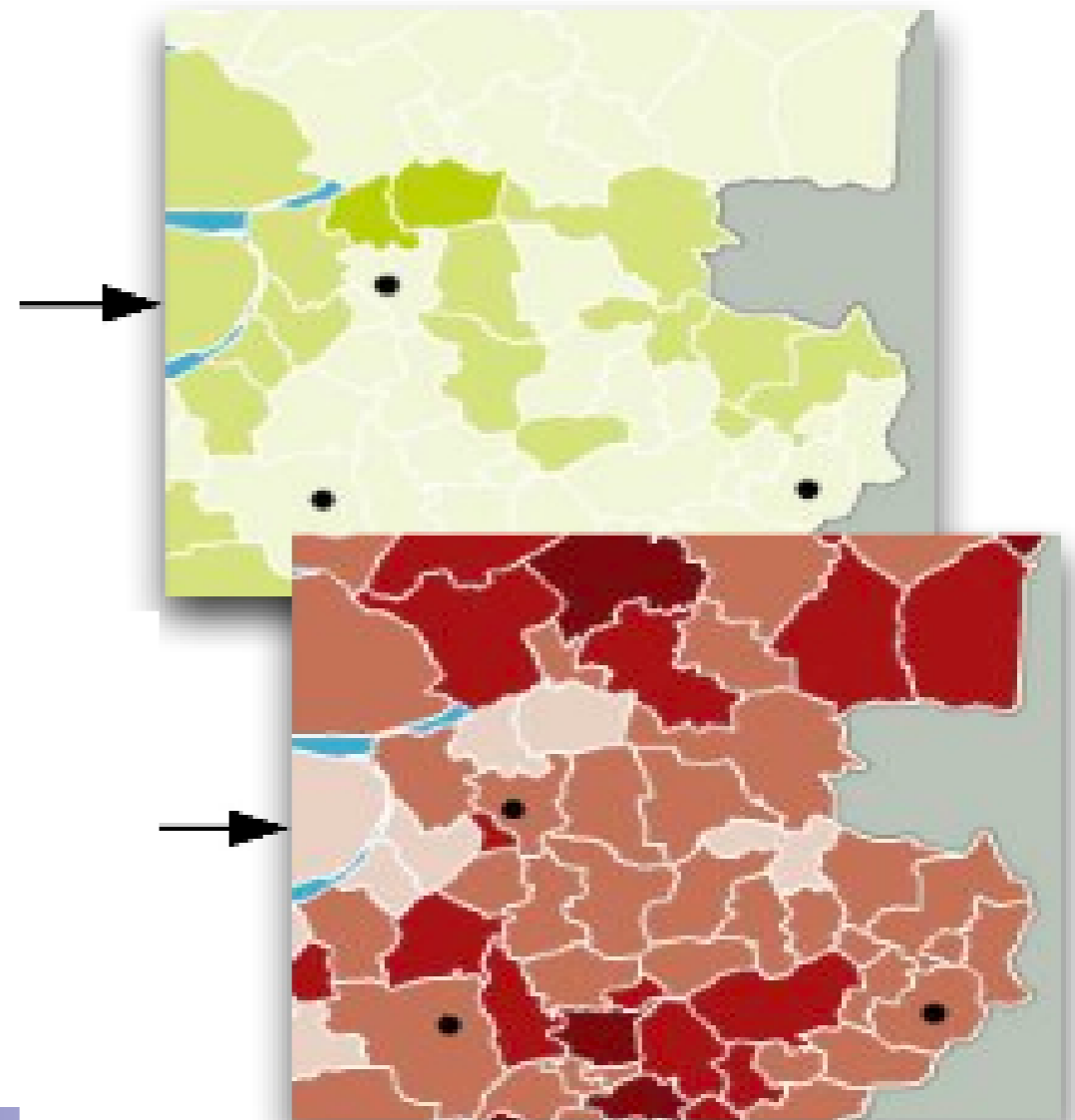
(National) Atlas

atlases present a synthesis:

- comprehensive combinations of spatial datasets represented by maps

information is optimised for visualisation

- comparable
- of uniform scale (resolution)
- generalised (uniformly)
- comparable times / time series
- having uniform classifications, semantics, colour schemes, etc..



Atlas in (National) GeoData Infrastructure

Cartographic challenges in (N)GDI:

Producers of information

- traditionally worked in isolation, therefore their products were never meant to be combined with other producers' product

Users of information

- have very different data needs
- for many different purposes

an (N)GDI is not an atlas!

- if does offer visualisation of separate data sets, but not optimised for combinations:

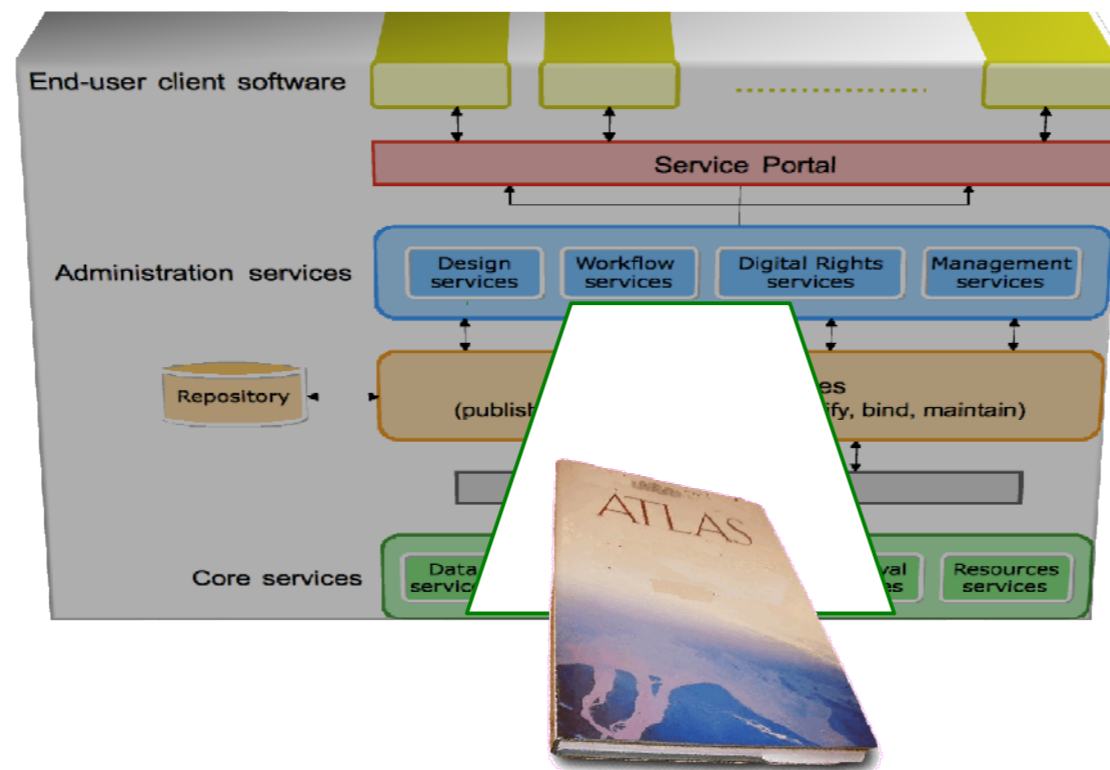
the whole is never more than the sum of the parts...



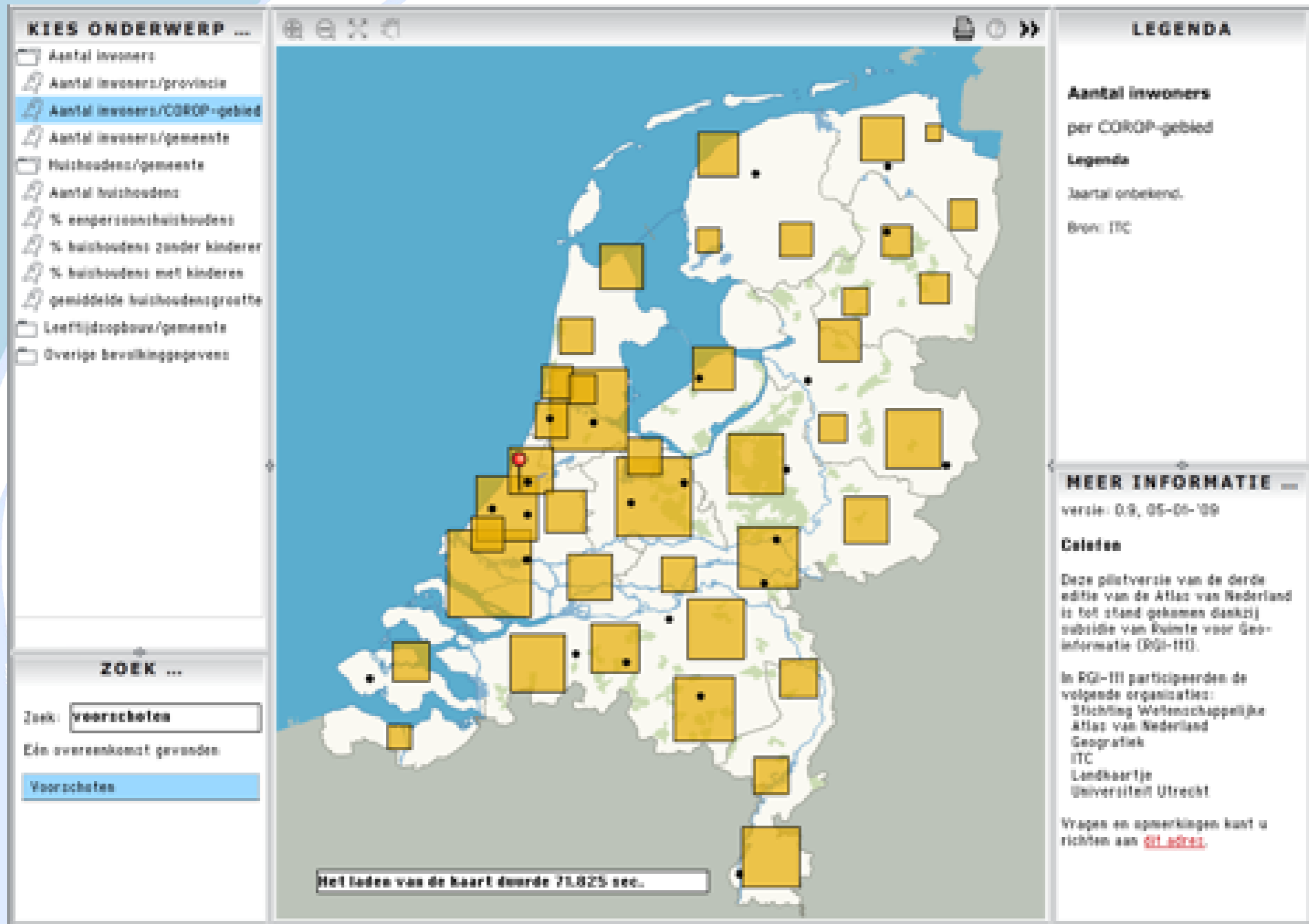
...and how we tried to join them

In framework of (RGI-III) project:
National Atlas as gateway to GeoData Infrastructure
in GDI an atlas can act as:

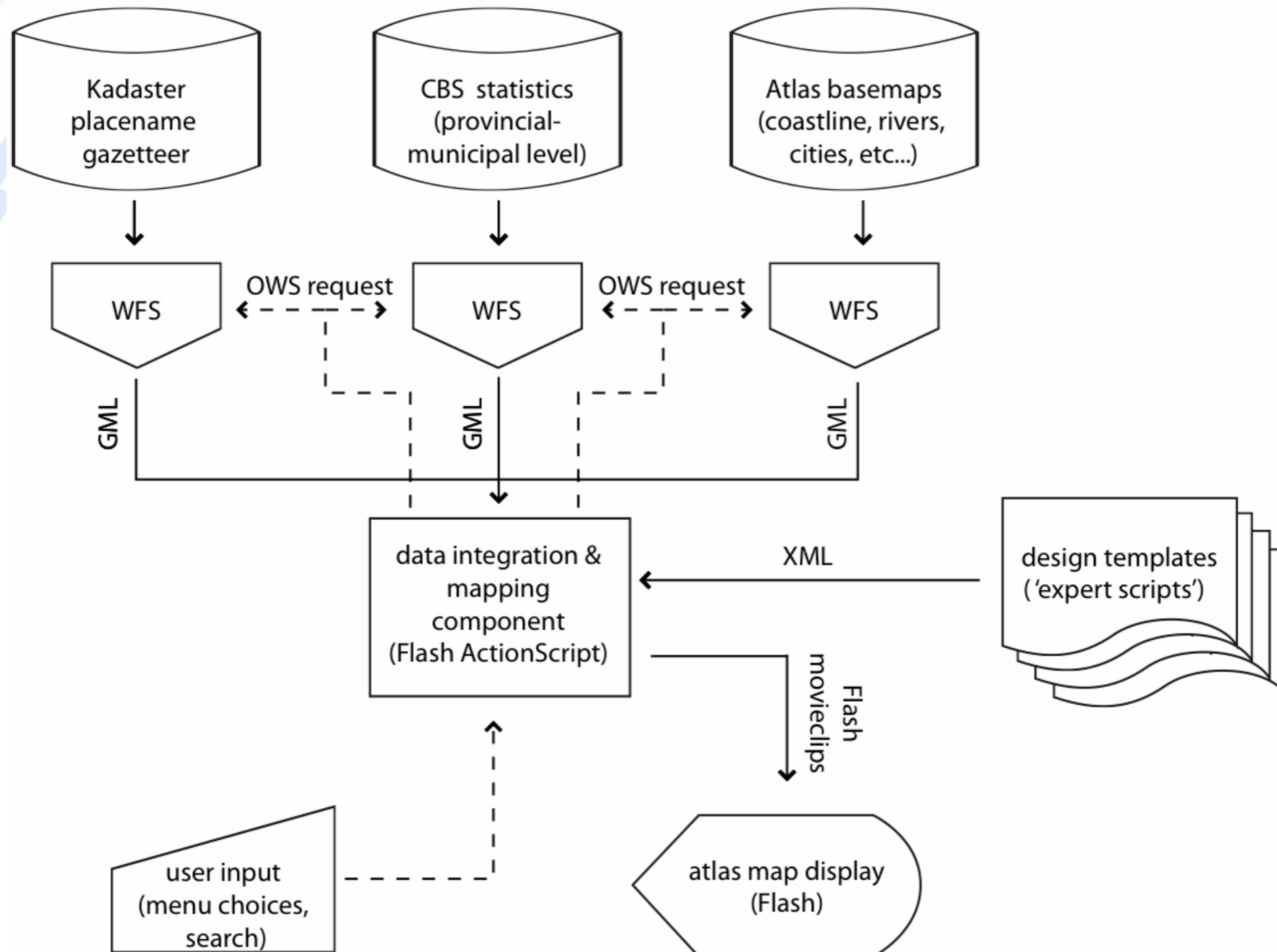
- interactive & dynamic gateway
- integrated (visual) summary of available geo-data & –services
- data-provision through spatial search– and comparison



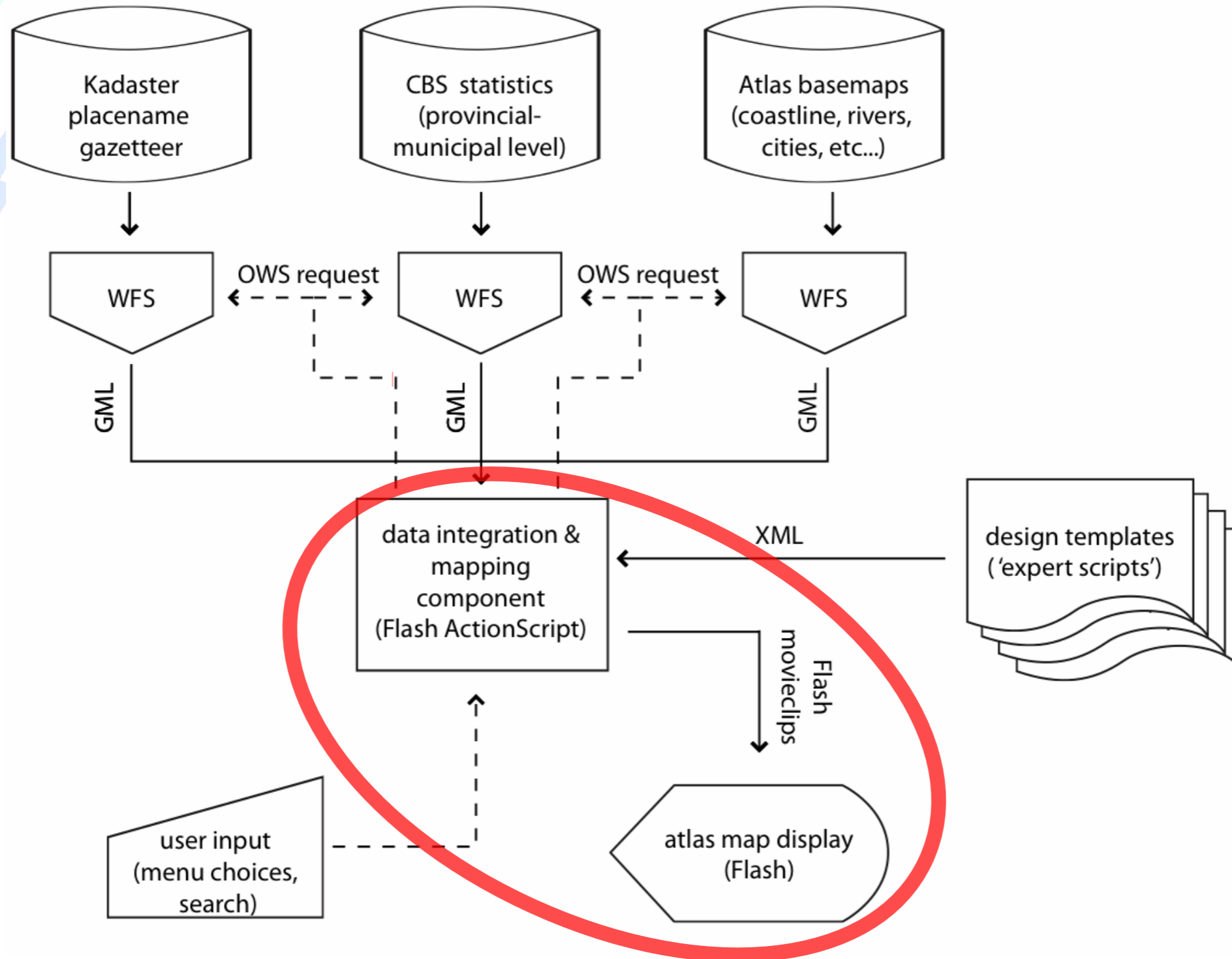
The 1st prototype



The 1st prototype



The 1st prototype



Using the Open Web Platform

The Open Web Platform is the collection of open (royalty-free) technologies which enables the Web

–enabling you to create web applications without the need for proprietary technology

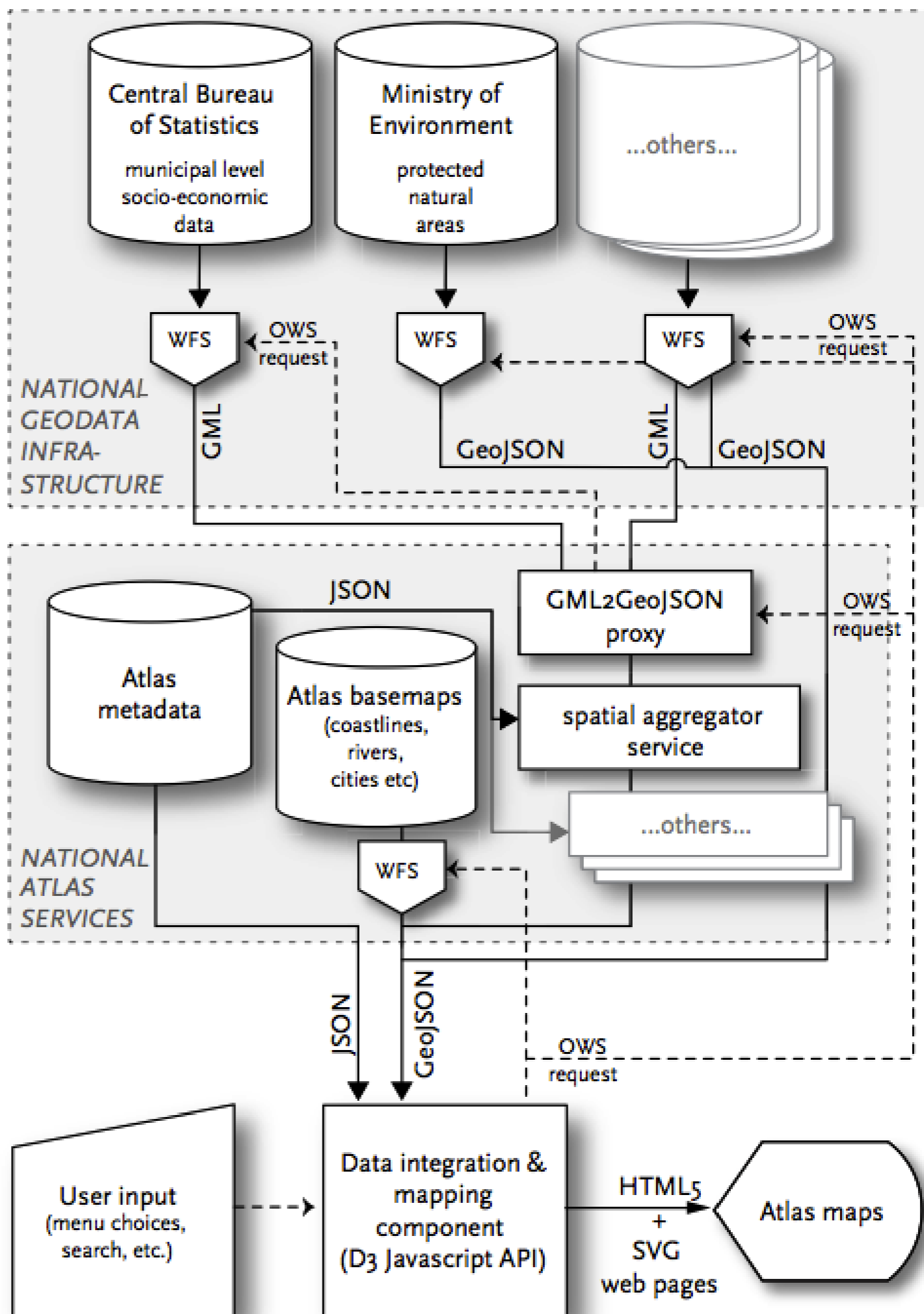
–in our case:

Flash \Rightarrow HTML + SVG + CSS + JS

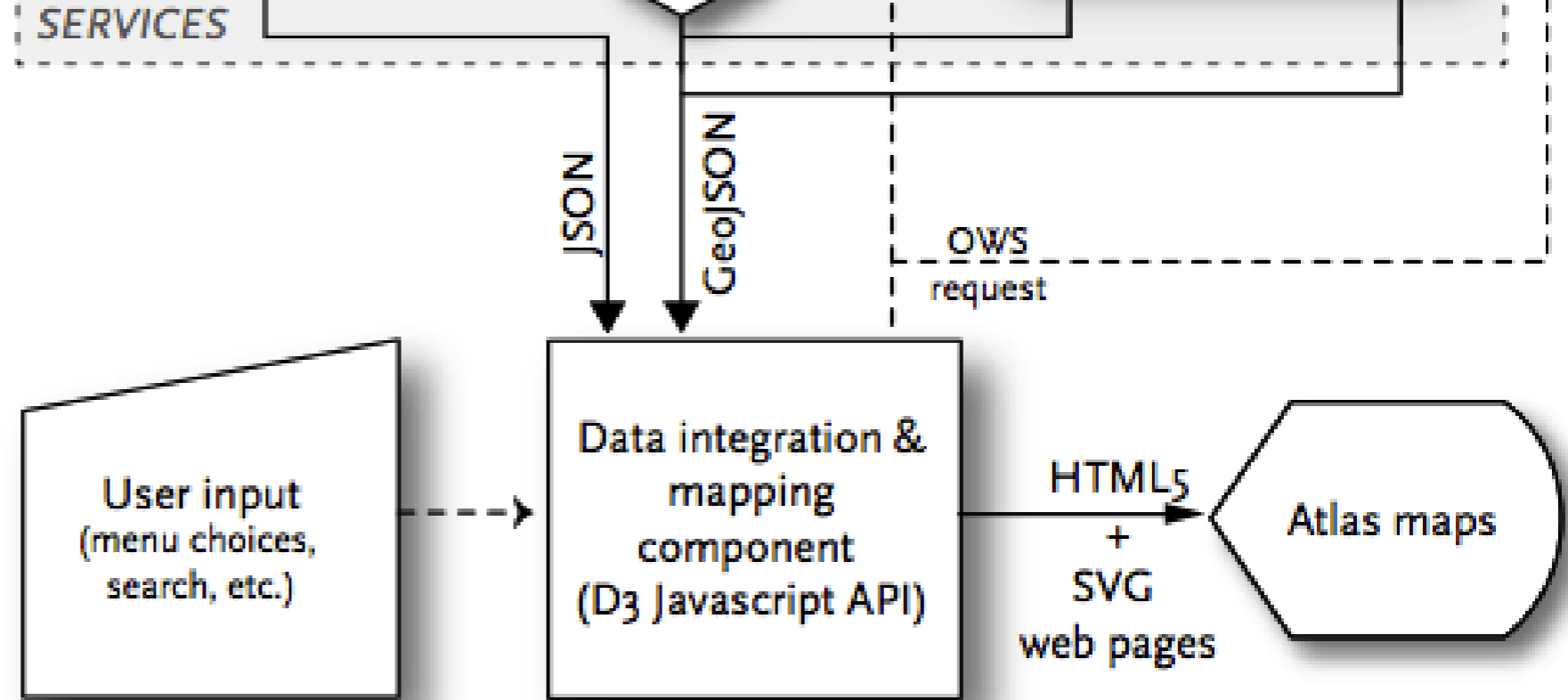
HTML



Architecture



Architecture



Uses D3.js

- bind arbitrary data to the DOM
 - then apply data-driven transformations to it
- very suitable for our project

<http://d3js.org>

<http://mbostock.github.com/d3/tutorial/circle.html>

User interface: demo time!

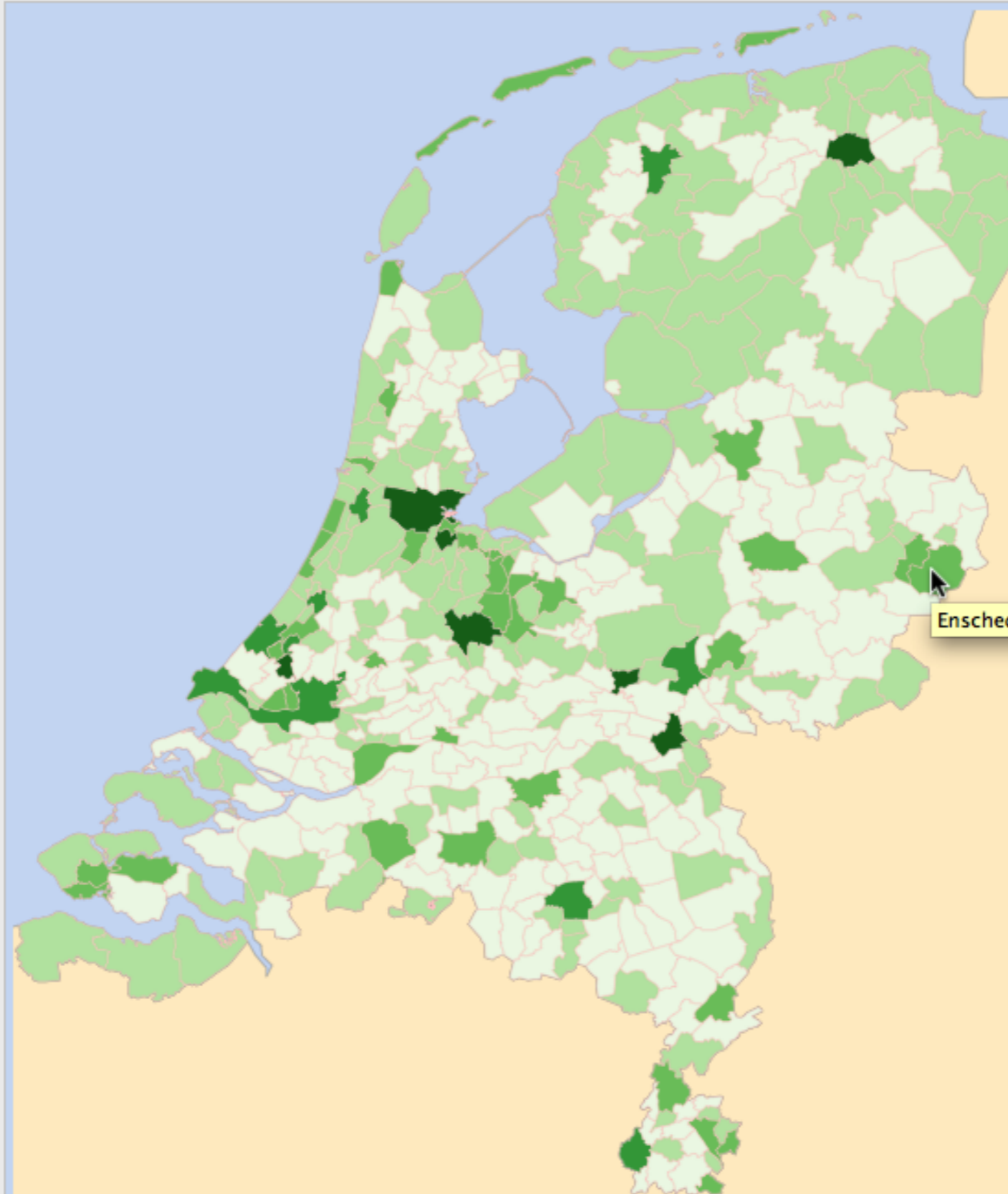
KIES ONDERWERP...

Statistische Kerncijfers per gemeente

- Gemeente code
- Gemeente naam
- Aantal inwoners
- Aantal mannen
- Aantal vrouwen
- % 0-14 jaar
- % 15-24 jaar
- % 25-44 jaar
- % 45-64 jaar
- % 65 jaar en ouder
- Aantal huishoudens
- Bevolkingsdichtheid
- % eenpersoons-huishoudens
- % huishoudens zonder kinderen
- % huishoudens met kinderen
- Gemiddelde huishoudensgrootte
- % westerse allochtonen
- % niet-westerse allochtonen
- % Marokkanen
- % Antillianen en Arubanen
- % Surinamers
- % Turken
- % overige niet-westerse allochtonen
- Oppervlakte totaal
- Oppervlakte land
- Oppervlakte water

Natura2000 Beschermde gebieden

- Naam beschermd gebied
- Status beschermd gebied
- Oppervlakte beschermd gebied



Statistische Kerncijfers per gemeente

% eenpersoons-huishoudens

Bron: Centraal Bureau voor de Statistiek (2011)

Gemeentedata uit het gegeneraliseerde Bestand Wijken en Buurten bevat gegeneraliseerde geometrie van alle gemeenten, wijken en buurten in Nederland met als attribuut een aantal statistische kerncijfers. De begrenzingen van wijken en buurten zijn voor een groot deel gebaseerd op wat de gemeenten aan het CBS doorgeven. De gemeentegrens is afkomstig uit de BRK van het Kadaster.

Enschede: 44% van de huishoudens

CONCLUSIONS ON THE VIEWER PART

- work in (slow) progress
- core is implemented, some missing parts:
 - better menu tree
 - full legends
 - non-polygon maps (nominal line maps, flow maps)
 - testing on IE and other non-MacOS browsers
- some wishes for the future:
 - compare maps in situ (side-by-side, transparency slider)
 - other interactivity
 - ...and soooo much more...
- see it at:
www.nationaleatlas.nl (follow the english)