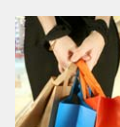
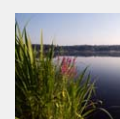


Positioning for the future:

Getting statistics and geography together

Marie Haldorson
Director, Statistics Sweden





Statistiska centralbyrån

Statistics Sweden

Outline

- Some basic facts
- Regional and spatial statistics
- The Geodata Co-operation
- New production methods
- Conclusions





Sweden

Statistiska centralbyrån Statistics Sweden





Sweden Facts

- Democracy with Parliament elected every 4 years
- Prime minister = Fredrik Reinfeldt, Conservatives
- 9,7 million inhabitants, 1,4 million in Stockholm city
- 290 Municipalities





The role of the municipalities

- Responsible for a larger share of **public financed services** than in most other countries
- Right to levy **taxes** to finance operations
- To carry out their many tasks they rely on regional and spatial **statistics** – both on municipality and small area level





Statistics Sweden

Statistiska centralbyrån

Statistics Sweden has three objectives

- Government agency responsible for statistics based on appropriations
- Produce statistics on commission (i.e. on a commercial basis)
- Administrative duties
mainly responsibility for the Official Statistics of Sweden





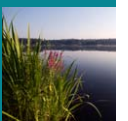
Statistics Sweden: Key figures 2013

- Turnover: \$ 157 million, of which \$ 83 million in appropriations
- 6 800 commissioned assignments
- Staff: 1 367 of which 63% with academic degree
- GIS-Staff: high competence in land use and small area statistics, 10 persons



Regional and Spatial Statistics

Is there a difference?

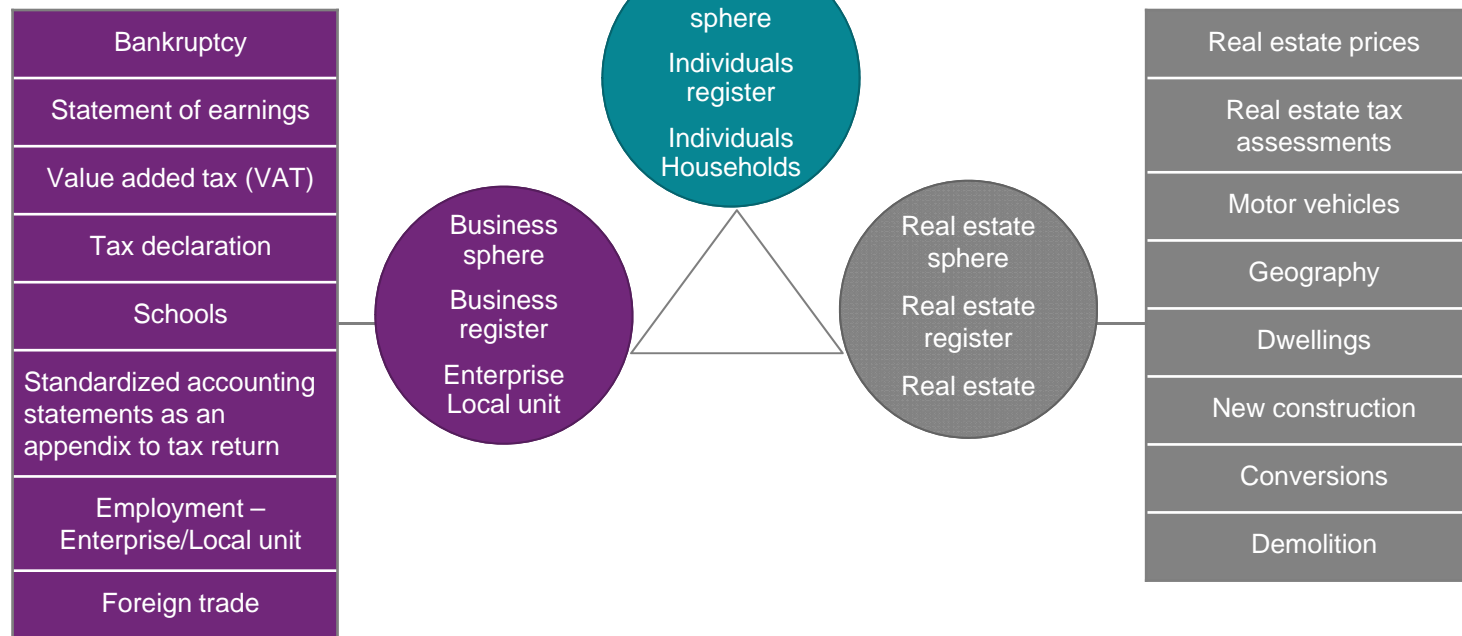




Statistics Sweden's data storage

Statistiska centralbyrån Statistics Sweden

Labour market	Household finances	Living Conditions
Population	Income and taxation	Employment - individuals
Democracy	Integration	Education

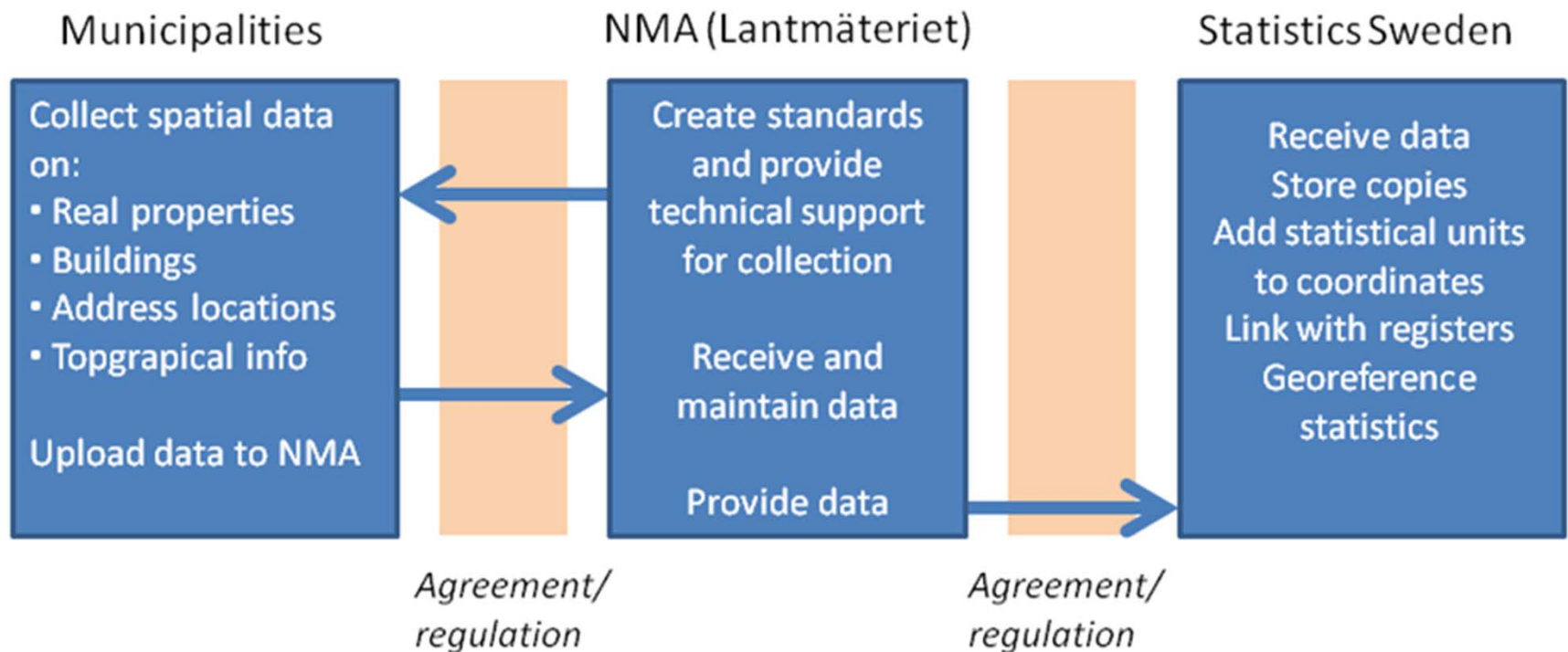




Authoritative spatial data

Real property – Adresses - Buildings

Statistiska centralbyrån
Statistics Sweden





Need for spatial data?

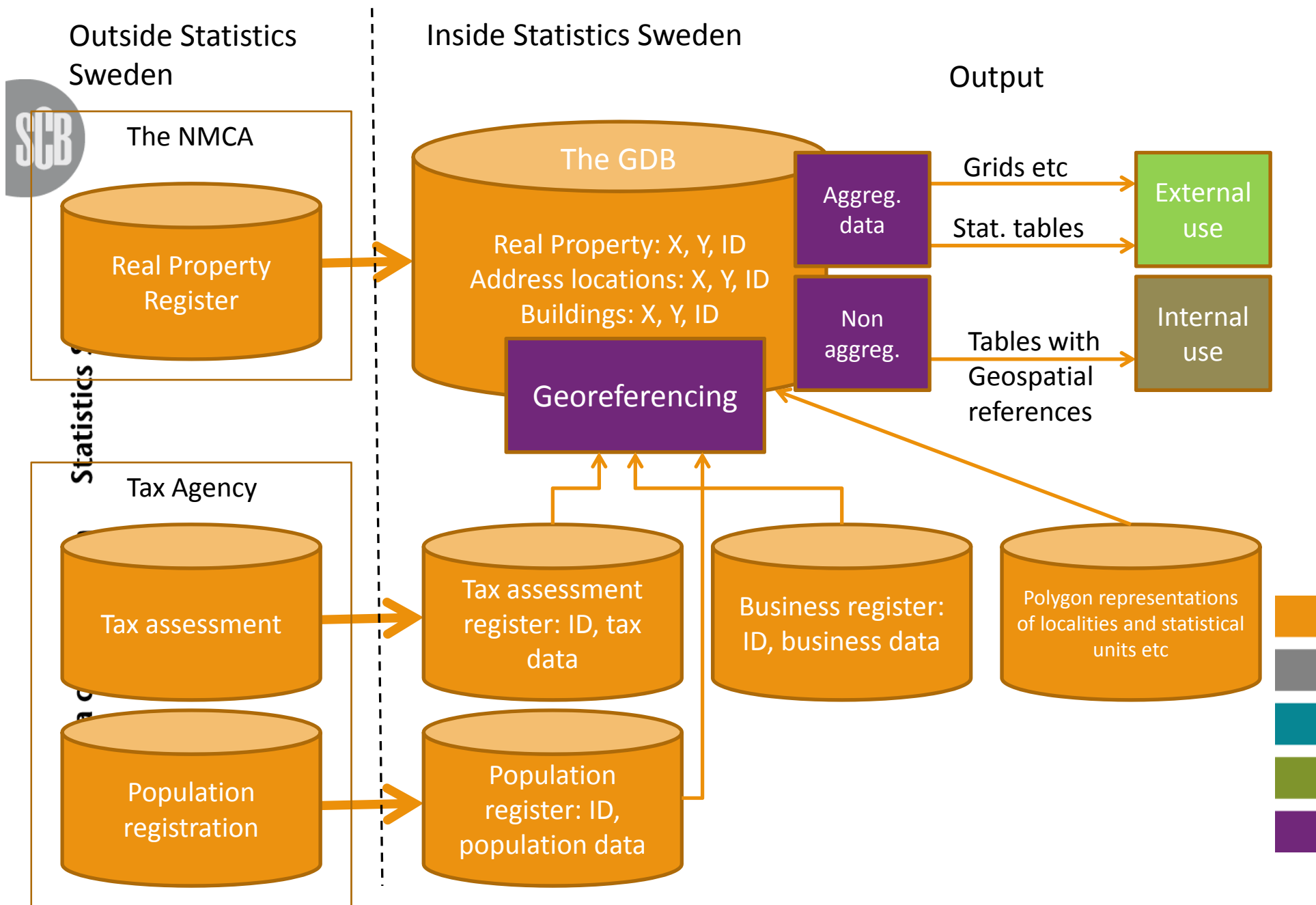




Geodata and geospatial applications at Statistics Sweden

- Long tradition
- GI integrated in production in two ways:
 - Creation of geospatial products (grids, localities etc)
 - Geospatial processing as part of the official statistics production chain
- Land use statistics most geodata intense
- Some 20 products concerning use of land and water, land ownership, urban green areas, designated areas, coastal and urban development etc





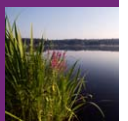


Statistics Sweden

Statistiska centralbyrån

The Geodata Co-operation

Increased access to spatial data



The INSPIRE Directive



- The European INSPIRE Directive entered in force in May 2007 and will be fully implemented by 2020.
- An infrastructure for spatial information in Europe – supports environmental policies and policies or activities which may have an impact on the environment.





INSPIRE GEOPORTAL

Enhancing access to European spatial data

- 27 Member States provide search, view and download services
- 34 Spatial data themes – both reference data and thematic data from different authorities





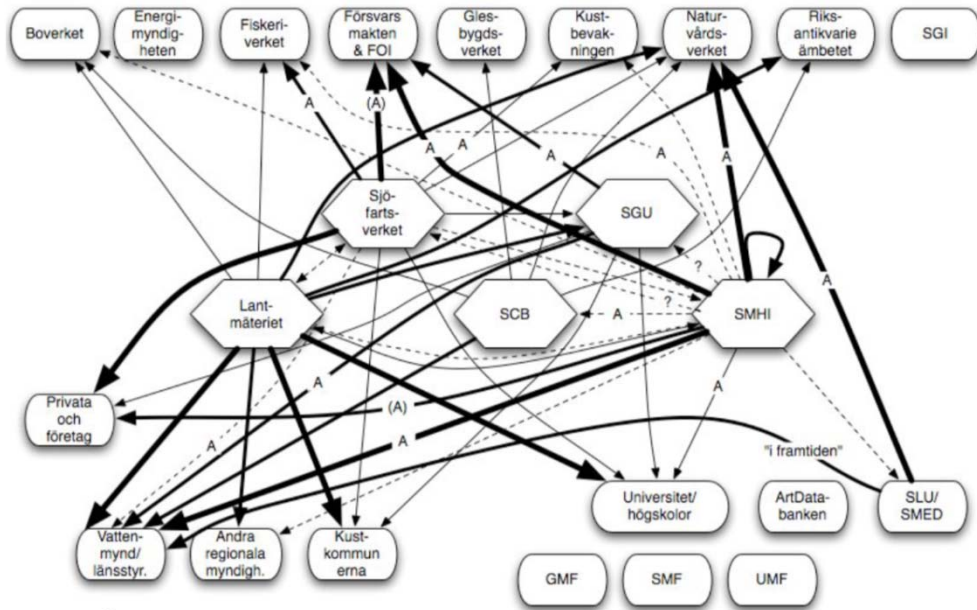
The Swedish Geodata Cooperation Agreement

- INSPIRE requires data sharing between public authorities = a Geodata Cooperation Agreement.
- The parties in the Geodata Cooperation offer each other their spatial data for official use at an annual fee.
- The Swedish Geodata Strategy gives the cooperation a broader scope than INSPIRE: the aim is to include as much spatial information as possible.





Before 2011



Statistiska cer

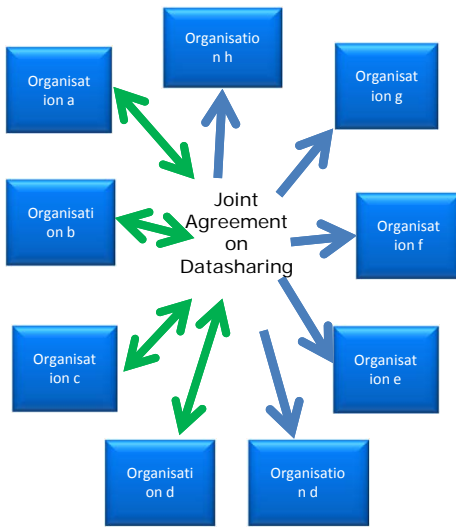
and after.....





Geodata Cooperation Agreement

Statistics Sweden
Statistiska centralbyrån



- A part signs *One* Agreement
- A part pays *One* annual fee
(Municipalities \$ 15 000 – 150 000)
(Public Authorities \$ 7 500 – 980 000)

Gives access to > 400 geodata products from 19 public data providers

- Geoportal
- Product catalogue



New Production Methods

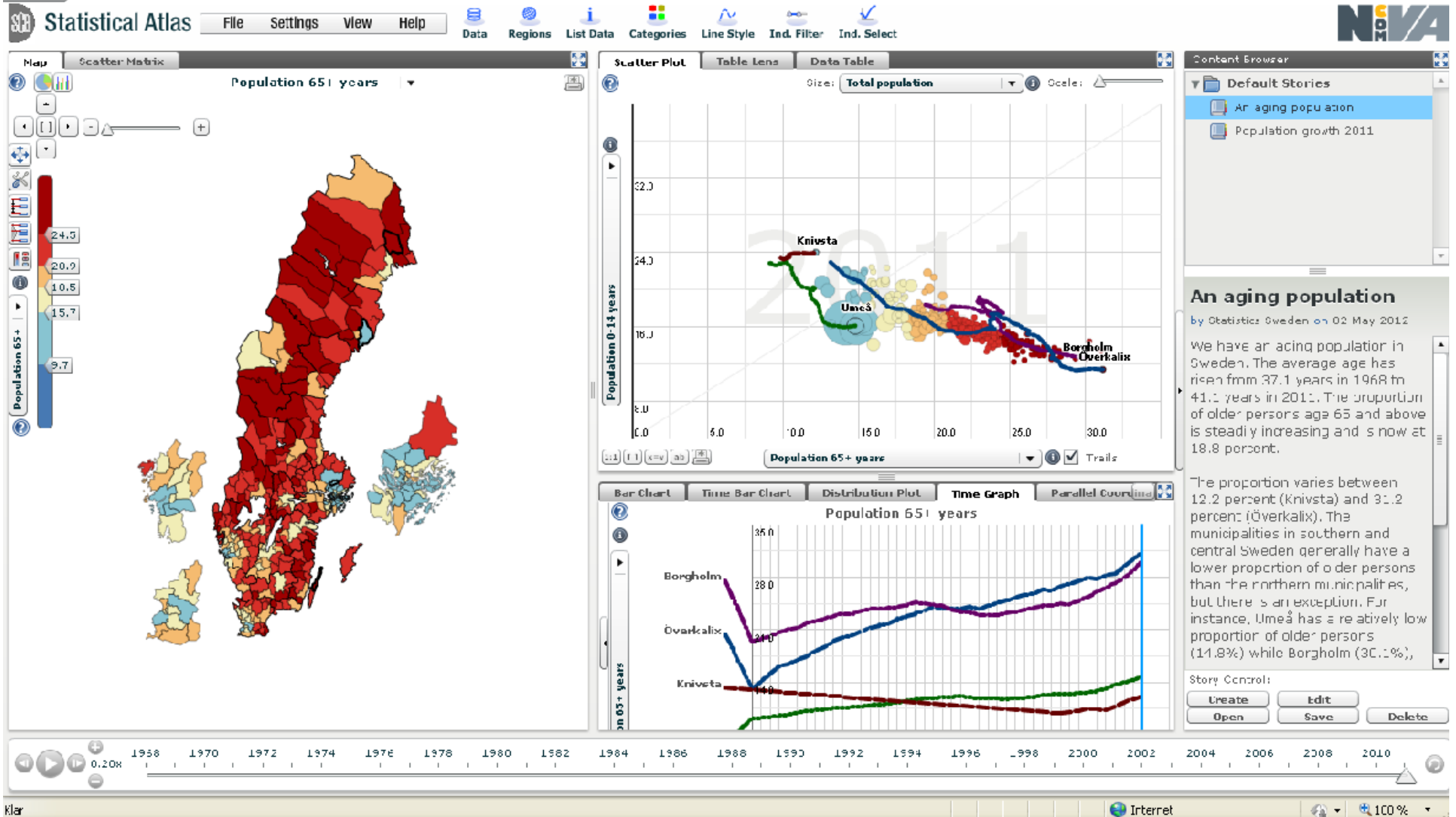
Geography adds a new dimension!

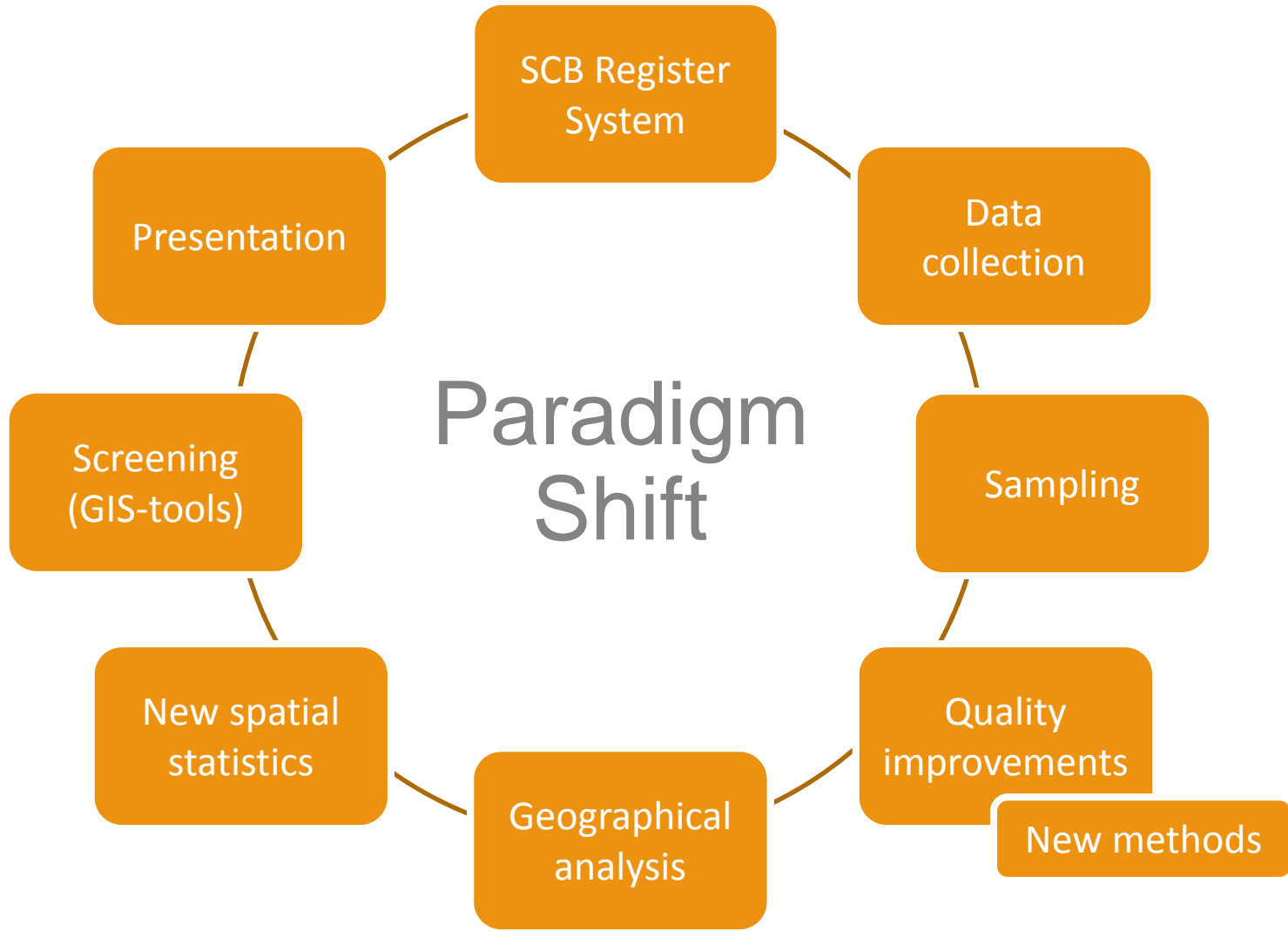
Example: Land use statistics





Focus has been on the Output

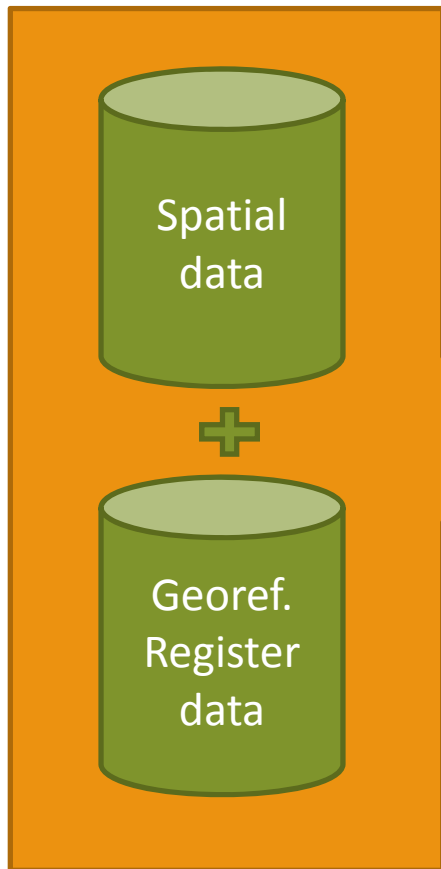




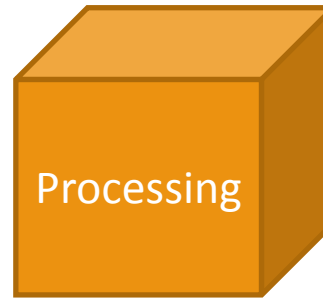
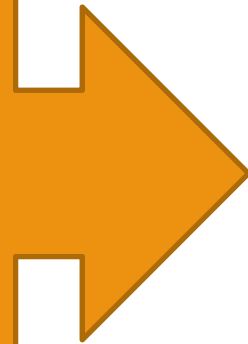


Creating statistics based on spatial data

Statistiska centralbyrån Statistics Sweden



Cadastral map
 Farm blocks
 Localities
 National Road database
 Land cover
 Etc



Population register
 Real estate register
 Farm register
 Open pit register
 Etc

This block contains the final outputs of the process. At the top is a line graph showing agricultural land use in Sweden from 1850 to 2005. The y-axis is labeled 'Mj. ha' (Million hectares) and ranges from 0 to 4. The x-axis shows years from 1850 to 2005. The graph shows three lines: 'Åker' (arable land) which peaks around 1920 and then declines; 'Naturlig ångränning gräsbärande mark' (natural grassland) which increases and then levels off; and 'Betesmark' (pasture) which increases and then declines. Below the graph is a table with the caption 'Tabell 1. Markanvändningen omkring år 2000. Ha (Land use about 2000. Hectares)'. The table has columns for 'Land', 'Totalt', 'Skog', 'Vatten', 'Byggnader', 'Öppen mark', 'Kulturland', 'Natur', 'Betesmark', and 'Åker'. Below the table is a map of Sweden showing 'Ha jordbruksmark per km2 47' (Agricultural land per km2 47), with a color-coded legend ranging from 0 to 47.





Land and water areas

- Cadastral map used for the first time in 2012
- Some 4.2 million real property parcels aggregated to municipalities
- Combined with water bodies
- All data in scale 1:10 000
- **Result: Land area of Sweden “shrunked” with some 3,000 square kilometres or 0.7 percent**





Statistiska centralbyrån Statistics Sweden

helagotland.se

Nyheter | Sport | Opinion | Familj | Kultur/Nöje | Webb-TV | Bloggar | Krönika | Ekonomi

Sverige | Världen

Höghusets tionde våning på plats

Hermansson ute ur biskopsleken

Syns du på Gotlands turistsajt?
Nu bokar turisterna årets resor, boende och aktiviteter på ön och de gör det på nätet. **GO**
Hittar de ditt företag?

"Vi minskar inte i värde bara i yta"
Av helagotland.se Eva HC Nyström. Publicerad 2012-03-12
Gotland är sex kvadratkilometer mindre än man trott. Det motsvarar Furillen och Lilla Karlsö tillsammans. Samtidigt har Sveriges yta minskat med nästan exakt lika mycket som Gotland är stort.



+ Visa bildinformation

Det visar färskas beräkningar från Statistiska Centralbyrån, SCB.
- Jaha, vad ska man säga om det, säger en något överraskad Per Ahlström, förrättningslantmätare vid länsstyrelsen på Gotland.

ANNONS



metro

"Barnillatet 'glory hole' för handmassage"
Aron Andersson, pryloxpert

Så läser du Metro i mobilen!

Start | Nyheter | Kolumner | Stockholm | Göteborg | Skåne | Nöje | Mat & Dryck | Resor | eniro 50k

Sverige | Världen

Här är frågorna som splittrar Alliansen

Polis filmade kvinnliga kollegor i duschen

Tre svenska par berättar om livet efter bröllopet

Maktskifte om det vore val i dag

Experten: De har betett sig som cowboys

Uppdaterad 2012-03-12 16:28



Relaterat

- Sambo till tv-kändis misstänkt för mordbrand
- Planerar nya spår - där ingen bor
- Tolgfors: FOI gick för långt
- Dumpad på Facebook - brände ner ex-kompisens hus

Sponsrade länkar

Fakturerings
Överlämna faktureringen till oss! Vi försenar småföretagarens vardag
www.intrum.com/faktura

Exklusiva klockor
Stort urval av märkesklockor. Välkommen in i butiken i Göteborg
www.larsandin.se

Sveriges yta har krympt med ett Gotland

Nya beräkningar från SCB visar att Sveriges yta är 3 000 kvadratkilometer mindre än vi tidigare trott. En yta lika stor som Gotland.

Tweeta 4 | Gilla 35 | Share 35

Vårt lilla land i nord har nu blivit ännu mindre. I alla fall på pappret. Statistiska centralbyrån, SCB, har nämligen gjort en

Mest läst just nu

MEST LAST

SENASTE

Därför spelar vi inte Wordfeud till hösten
Forskare reagerar: så uppstår trenden.

Experten: De har betett sig som cowboys
Polisen sköt samtliga skott vid guidsmedsårnet.

Först och främst med teknik och IT
Tisdag 13 mars 2012

Annonsera
Prenumerera
Om Ny Teknik

Surfa direkt från sjukhus

NyTeknik

Nyheter | Lediga jobb | Nyheter i bild | Webb-tv | Debatt | Populär teknik | Teknikrevyn | Kaianders | Teknikfrågan | Miniproblemet | Smått och gott

Va, har Sverige krympt?

Av: Jonas Melzer
Publicerad 9 mars 2012 16:07
9 kommentarer

Enligt en ny beräkningsmodell är vårt avlång land nu 3000 kvadratkilometer mindre, visar ny statistik från SCB.

Verktyg

stort. 77
de utgörs av insjöar och vattendrag.

och vattendragen som blivit större.
att mäta geodata.

igt. Sjöar och vattendrag är
m landhöjning och stranderosion.
sänkningar har betydelse för

Det förklaras till viss del att
d till skillnad från förra gången

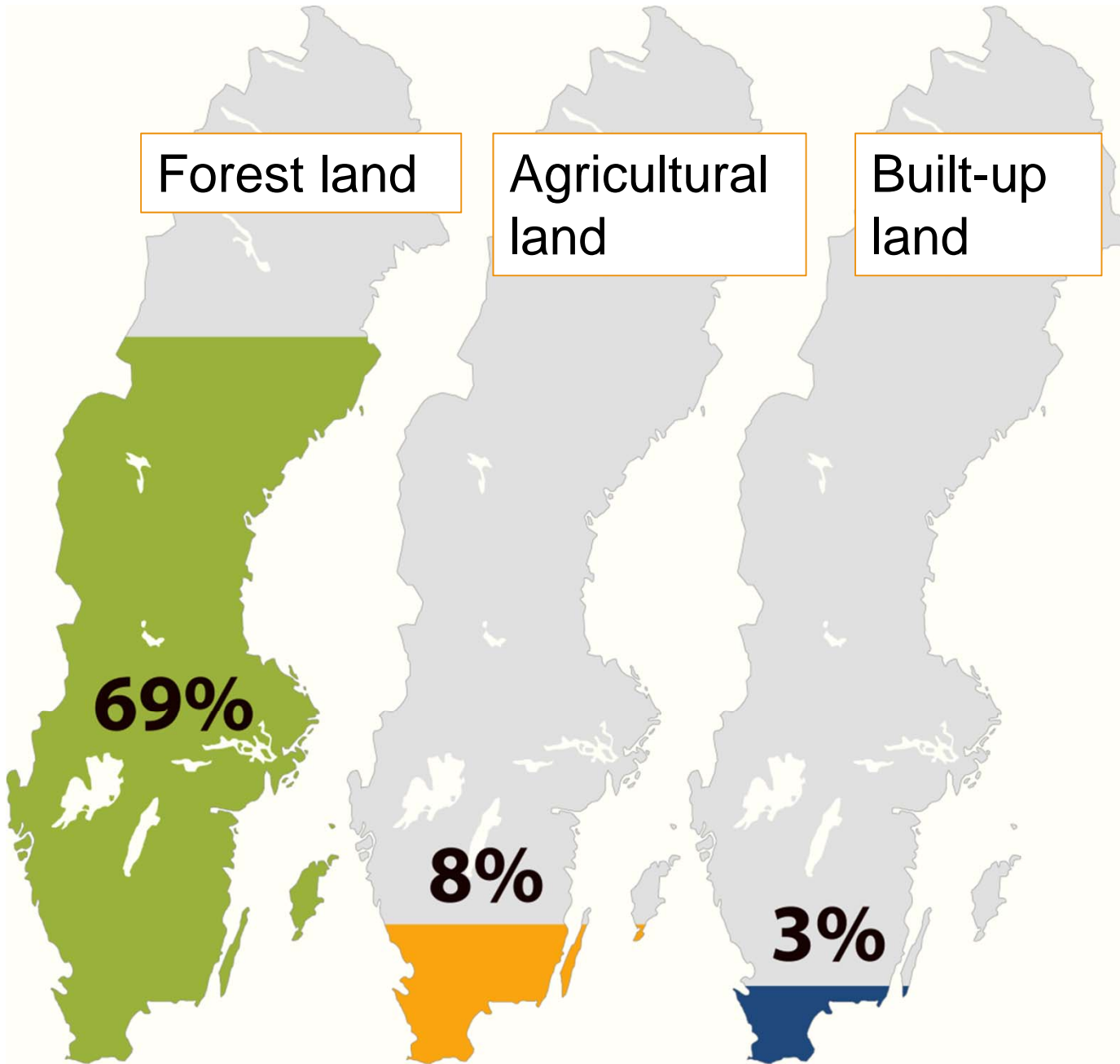
nu har en landareal som beräknas
rocent mindre än vid den senaste

ANNONS



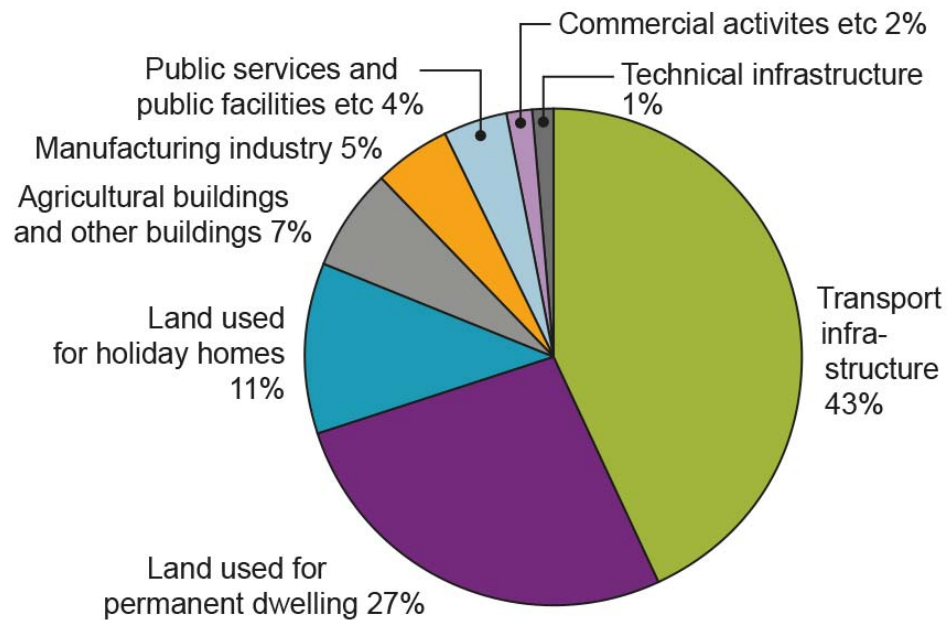
En kärleksfull gåva
Ge bort ett fadderskap eller bli fadder själv!



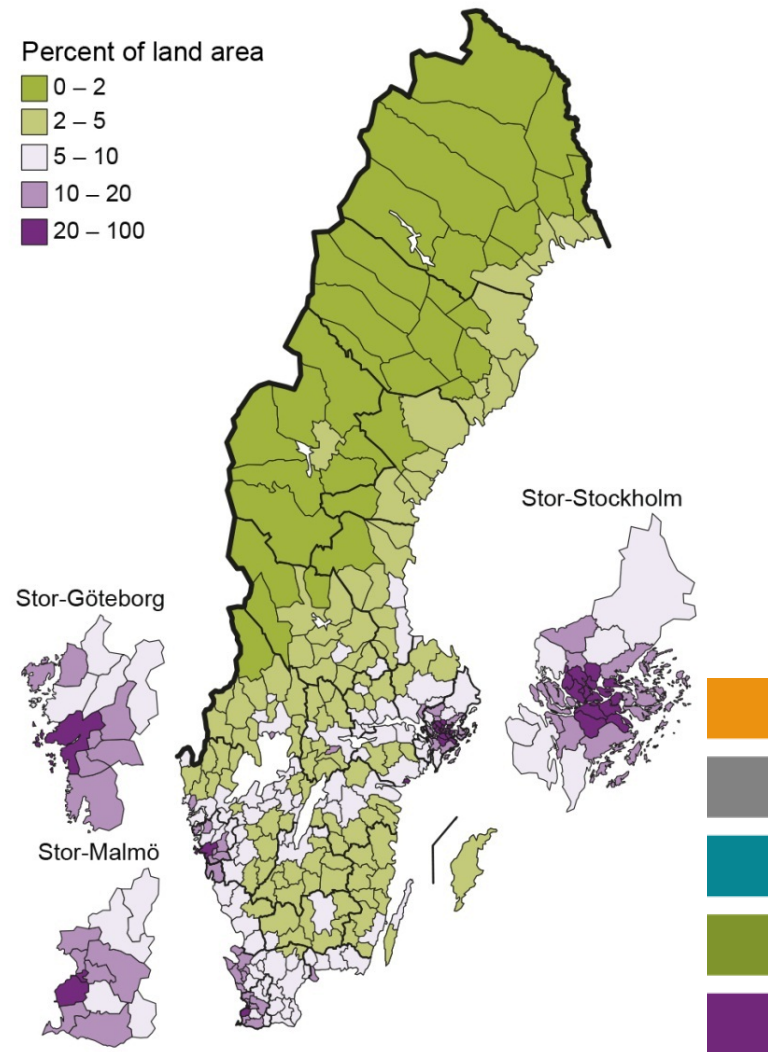


Built-up land

- 8 categories of built-up land
- Some categories reduced due to better methodology



Built-up and associated land by municipality in 2010, share of land area, percent



Before 2011

After 2011



Register data

Type: Industry
Owner: Company
Land area: 200.000 m²
Built-up land: 200.000 m²?

Type: Industry
Owner: Company
Land area: 200.000 m²
Built-up land:
 $200.000 \text{ m}^2 - 78.000 \text{ m}^2 =$
122.000 m²

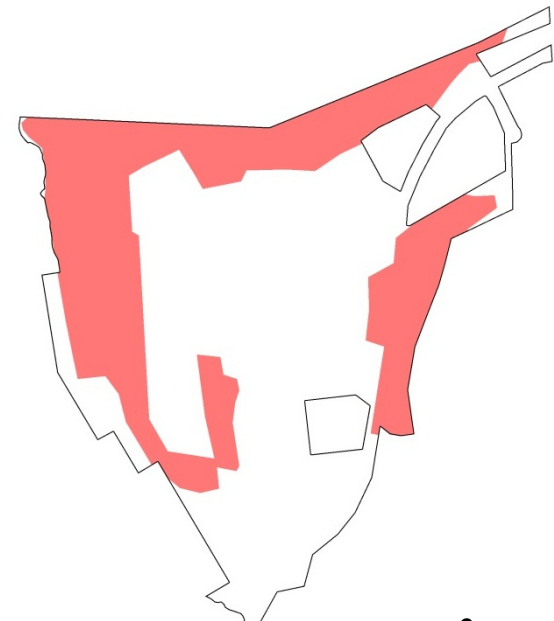
Improved figure: 122.000 m²

Geospatial data

X, Y
Coordinates



Land area: 200.000 m²



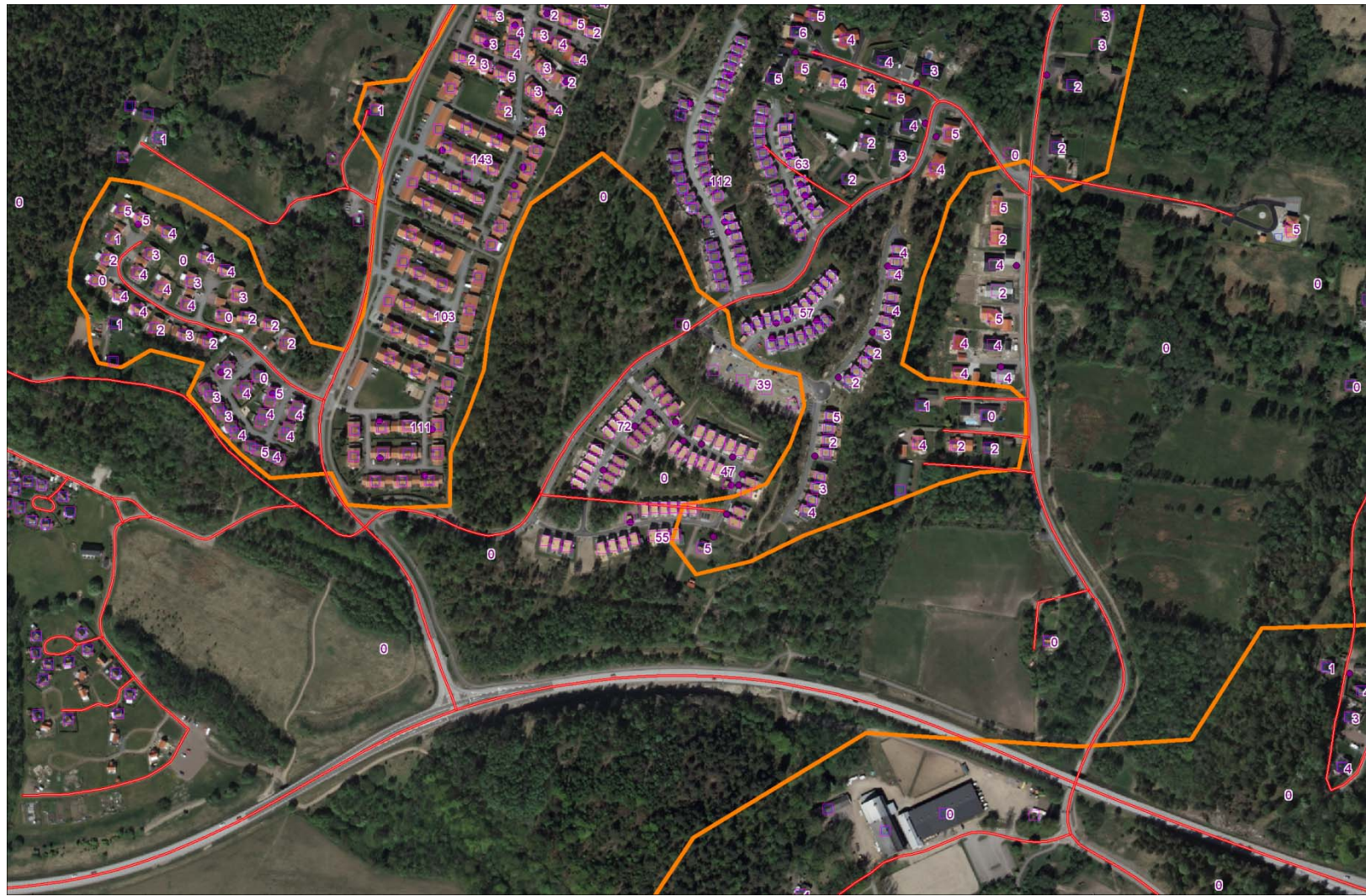
Forested area: 78 000 m²





Delineation of localities

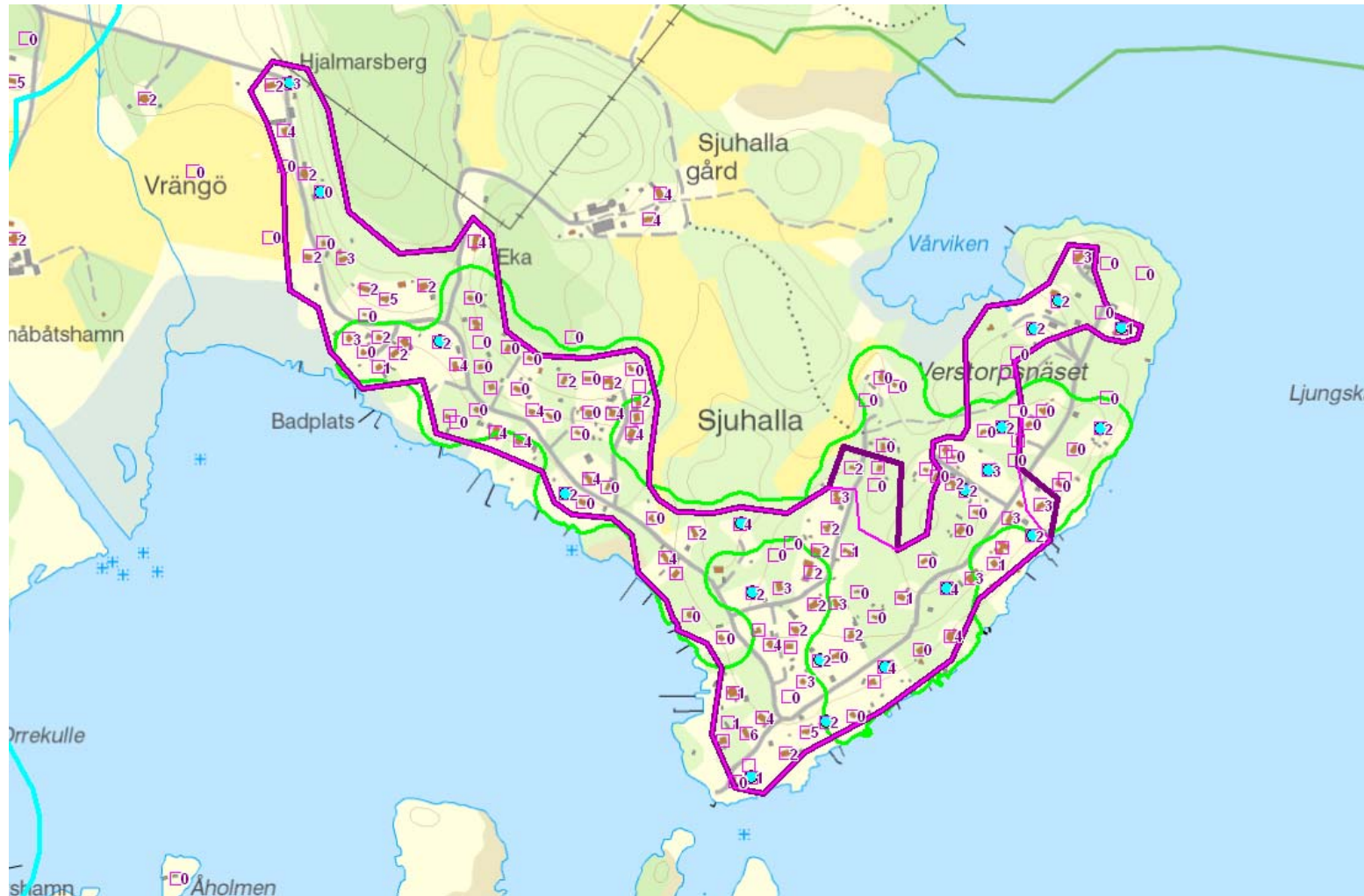
Statistiska centralbyrån Statistics Sweden





Identifying new localities

Statistiska centralbyrån Statistics Sweden





New statistics on functional areas – people living close to the sea

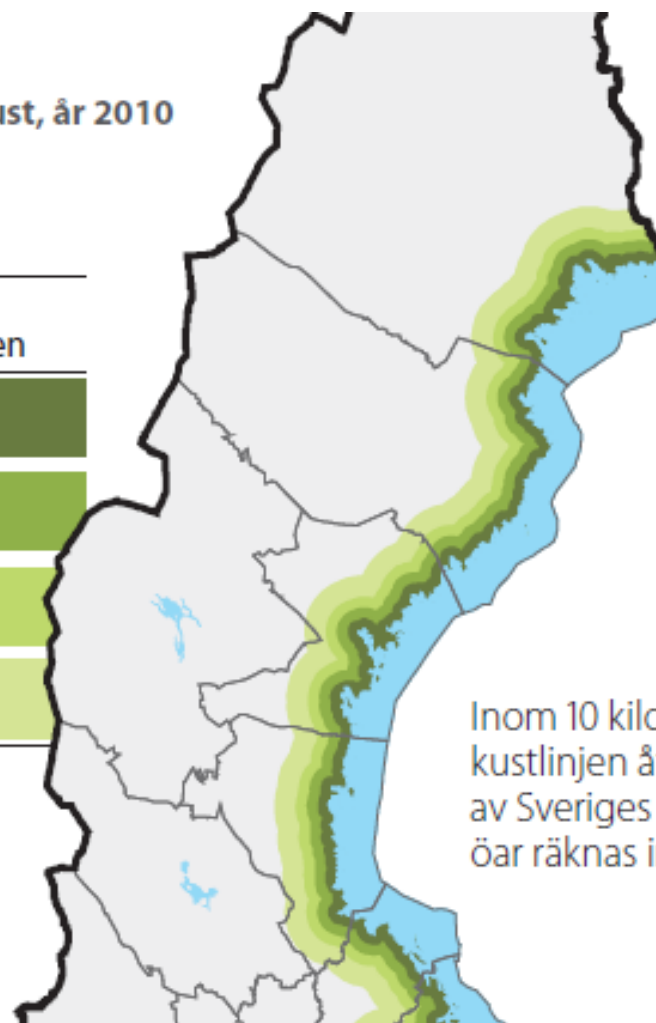
Statistics Sweden

Statistiska centralbyrån

NÄRA HAVET VILL JAG BO

Sveriges befolkning efter avstånd till kust, år 2010

Avstånd till kust	Antal boende	Andel av befolkningen
10 km	4 625 000	49 %
20 km	5 435 000	58 %
30 km	5 904 000	63 %
50 km	6 660 000	71 %



Inom 10 kilometer från kustlinjen återfinns **49 %** av Sveriges befolkning. Större öar räknas in i kustlinjen.



Statistics on how the coast line is affected by buildings



Possibilities

- Combining register information with geodata
- Making use of new spatial data from different INSPIRE themes - develop new methods
- Include spatial data and GIS-tools in the whole production chain: input – throughput – output!



Challenges

- Evaluation of datasets based on the INSPIRE metadata
- Using existing datasets in a new context – testing the quality
- Explaining how a change of data source will affect the statistical results





Conclusions

- Increased need for spatial data in society – NSI’s and NMCA’s need to co-operate!
- Spatial statistics depend on Population Registers and a National Spatial Framework
- NSI’s need GIS-competence and bench-marking!



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GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

