Analyse, Collaborate and Publish Statistics for Measuring Progress in our Society using Storytelling

Storytelling by Professor Mikael Jern

The most ancient of social rituals
Agenda

- Massive statistics data ..... Interest for regional development and progress is growing;
- Geovisual Analytics – what have we learned and adapted from this research domain;
- Collaborating through Storytelling and Publishing dynamic Visualization in blogs and web pages;
- Some demonstrations;
Massive Statistics Temporal Data available on the Web
But very little methods for sharing knowledge and insight
Why is Storytelling about Statistics important?

- Tell a story about a region’s development over time and shape the measure of economic growth and well-being;
- Discoveries that engagingly draw us into reflections about the knowledge on how life is lived - and can be improved;
- Invite the reader to dynamically participate in this visual statistics discovery process;
- Help advancing research critical to the collaboration and dissemination of official statistics by means of advanced web-enabled tools;
Ageing population in Europe 1990–2008
by Mikael Jern, NCVA on 11 Apr 2010

elderly dependency rate population

The Elderly Dependency Rate population (ratio between population aged 65 years and population age 15-64 %) in European countries increased almost three times faster than total population between 1990 and 2007. In Italian regions Toscana and Liguria the elderly population was more than 40% of total population in 2008. On the other extreme, in London the elderly population represented only 15% of the total population. In 2007, 35% of the elderly population lived in only 10% of European regions; thus regions face different economic and social challenges raised by an ageing population. In Germany the concentration of the elderly population is higher in the old East Germany region such as Chemnitz. In Poland, Belgium, the Slovak Republic and Hungary the share of the elderly population seems to be higher where population is more concentrated, generally in urban regions.
The Storytelling Loop

OECD Europe eXplorer

Statistical Database

Select statistical data and explore

Gain insight
The Storytelling Loop

- Select statistical data and explore
- Gain insight
- Create a story
- OECD Europe eXplorer
- Story Editor
  metadata & hyperlinks

- OECDStat
  Statistical Database
The Storytelling Loop

Select statistical data and explore

Gain insight

Create a story

Share stories with colleagues

Get feedback
reach consensus, trust

OECD Europe eXplorer
The Storytelling Loop

two levels of collaborations
Tell a story about ageing population in the world 1960-2008
Swedish, Germany, Japan and Uganda
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Sweden, Germany, Japan and Uganda
Tell a story about ageing population in the world 1960-2008
Sweden, Germany, Japan and Uganda
Tell a story about ageing population in the world 1960-2008
Sweden, Germany, Japan and Uganda
A story about fertility rate during 1960-2008
Uganda, Mexico and Italy
A story about fertility rate during 1960-2008
Uganda, Mexico and Italy
Statistics eXplorer is based on Adobe Flash

Requirement by the statistics community

- **Web 2.0** compliant explorative, communicative and collaborative dynamic statistical visualization;
- Visualization tools are developed and optimized for the Adobe© ActionScript for Flash 10 and Flex 3 platform;
- Explore **large spatio-temporal** and **multidimensional** statistics data;
- Publish statistics knowledge and insight through **Storytelling**;
Time-linked views for multidimensional statistics data
See data simultaneously in different views

Histogram

Table Grid

Choropleth Map

Scatter Plot

Glyphs – pie charts

Time Graph

Parallel Coordinates

Table lens
Dynamic Colour Legend
facilitating statistical methods for class value calculations and scientifically tested perceptual acceptance of colour scales and a filter mechanism attached to legend;

High level education
Divergent Colour Scale

"Population Growth Rate" - Blue is positive and Red negative.
Dynamic Filter Mechanism attached to Legend
regions with *elderly dependency above 90th percentile*
Introduce InfoVis technique to the statistics community
dynamic histogram based on Focus & Context technique

Population aged 65+ OECD TL2 regions

Population aged 65+ countries
Gather information and data
Tasks to be answered?

Visual representation
Choose visual forms that aid analysis;

Develop insight
Through exploration and dynamic visual inquiries;

Share insight and knowledge
Collaboration, Storytelling and Publishing;
Collaborative Statistics Visualization for the Web

tools to first analyse, collaborate and publish insights and knowledge

Statistics eXplorer - author tool
Analyse - Gain insight – Storytelling
Collaborate

Statistics Publisher
Publish – Insight - Knowledge

NCVA
Publishing statistics information requires Storytelling

- GAV Flash (eXplorer) has an architecture supporting Storytelling;
- Capture the current application state for all views;
- Dataset, map positions, scatter plot axes, time step – everything is saved as a “snapshot”;
- Stories with metadata are saved as XML files
- and can then be shared with colleagues;
Storytelling requires a Snapshot Mechanism to capture important events
time, region(s), methods, indicator, colour, ..
Step 1  Statistics eXplorer – analytic and authoring tool

Select regions and indicators to be analysed – here OECD regional Statistics
Step 2  Statistics eXplorer – analytic and authoring tool

Analyse data and gain insight and knowledge - select methods OECD EU Regional Statistics
Step 3  Statistics eXplorer – analytic and authoring tool

Start writing your Story - Story Editor
Step 4  Statistics eXplorer – analytic and authoring tool

Start writing your Story – use snapshots to highlight (capture) special interesting insights and knowledge
Step 5  Statistics eXplorer – analytic and authoring tool

Share the Story with expert colleagues and reach consensus and trust – The Story is imported by your colleagues with OECD Regional Statistics and evaluated and if needed updated and returned to the author.
Step 6a

Statistics Publisher – *Publish the Story*

Import Story - Select visualization methods for Vislet
Step 6b

Statistics Publisher – *Publish the Story*

Import Story - Select visualization methods for Vislet
Step 6c

Statistics Publisher – *Publish the Story*

Preview Vislet

- **Publisher Login**
- **Size Vislet Window**
- **Define Vislets**
- **Copy HTML Code**
- **HTML Code**

**Story XML** -> Publisher Stories -> eXplorer -> Vislet

- **Publisher**
  - Dimensions: Width: 100% Height: 650
  - Background: Transparent Colour: 
  - Show Metadata: Text Color: 

- **Select chapter views**
  - The views active when the chapter was created are pre-selected for you.

- **Google Map API key**
  - google_map_API_key_for_your_website (optional, but needed for background map layer)
  - API Key: 1234567890

- **HTML snippet**
  - Now to put this story in a booklet on your website, copy and paste this HTML snippet:

```html
<iframe src="//www.example.com/your-story" width="650" height="650" allowfullscreen"></iframe>
```
Step 6d

Statistics Publisher – **Publish the Story**

Produce the HTML code
Step 7

Statistics Publisher – *Publish the Story*

Embed (drop) the HTML code in a Blog (or HTML page)

```
<object data="http://www.mydomain.com/explorer/Video משווק/Component/ChoroplethMap,ScatterPlot&
amp;storyMy/story.xml&amp;backgroundColor=ffffff&amp;textColor000&amp;showMetadata1=true&amp;maxHeight=300&amp;GoogleMapsKey=myGoogleKey" type="application/x-shockwave-flash"
    width="500" height="300"
</object>
```
Step 8

Statistics Publisher – *Publish the Story*

A Vislet with Metadata is now Published about ageing population in Europe

OECD Explorer Vislet ageing population in Europe 1990-2008

The elderly population (those aged 65 years and over), in European countries increased almost three times faster than total population between 1995 and 2007. In Italian regions Toscana and Liguria the elderly population was more than 25% of total population in 2007. On the other extreme, in Inner London the elderly population represented only 12% of the total population. In 2007, 33% of the elderly population lived in only 10% of European regions; thus regions face different economic and social challenges raised by an ageing population. In Germany the concentration of the elderly population is higher in the old East Germany region such as Sachsen. In Poland, Belgium, the Slovak Republic and Hungary the share of the elderly population seems...
Step 9

Statistics Publisher – *Publish the Story*

and here with Histogram and Scatter Plot

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**Ageing population in OECD EU TL2 1990-2008**

*Demo Time Animation by Mikael Jern, ECMA*

The elderly population (those aged 65 years and over) in European countries increased almost three times faster than total population between 1995 and 2007. In Italian regions Toscana and Liguria the elderly population was more than 25% of total population in 2007. On the other extreme, in Inner London the elderly population represented only 10% of the total population. In 2007, 33% of the elderly population lived in only 10% of European regions; thus regions face different economic and social challenges raised by an ageing population. In Germany the concentration of the elderly population is higher in the old East Germany region such as Chemnitz. In Poland, Belgium, the Slovak Republic and Hungary the share of the elderly population seems to be higher where population is more concentrated, generally in urban regions.

The elderly dependency rate – i.e., the ratio between the elderly population and the number of people of working age (15-64) – gives an indication of the balance between the economically active and retired populations. In 2007, the elderly dependency rate across European regions was on average higher in rural than in urban regions (London, Paris, Copenhagen); at the same time, only 24% of the elderly population lived in rural regions in 2007. As such, rural regions are more likely to face the challenge of ageing due to...
Vislet embedded in the Sweden Statistics Blog
Way forward

• Use eXplorer Statistics Publisher to produce online publications following a defined model
• Statistics Publisher as a repository of evidence, facts to spur discussion on regional performance, quality of life in different communities
• Use Statistics Publisher in Media (Economist, etc.)
Many Thanks!

Questions?

http://ncva.itn.liu.se/