

EuroFigures - a digital portrait of the EU's General Statistics

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The EuroFigures project has developed a prototype of a Java-based Internet-GIS for the visualization and analysis of Eurostat's NewCronos database about general statistics. The resulting software is an application and extension of the system Descartes [1,2] for automated thematic mapping and interactive data exploration. The provided level of user support is only possible because Descartes incorporates knowledge that comes on two levels. On the one hand, Descartes knows about general principles of cartography. This knowledge is predefined and independent of particular applications (or concrete data). On the other hand, the creator of a new application can provide knowledge about the characteristics of statistical variables and relationships between them. This application-specific knowledge is described using a declarative data characterization language [3].

The EuroFigures prototype holds spatial data derived from Eurostat/GISCO layers for NUTS level 0,1,2 and 3 administrative boundaries. Selected statistical data come from the NewCronos REGIO dataset. Using the prototype a user may just select those variables that she or he wants to study on one map, and the system will automatically propose suitable, alternative visualization methods (choropleth maps, pie or bar charts, etc.). Choosing from these the user may then focus on the further interactive analysis of the data. EuroFigures may be used both in the Internet and on stand-alone computers.

Figure 1 presents one of possible visualizations of NewCronos data using interactive map and linked graphic displays.

The project also addresses ways to analyze and visualize time-series data. For this purpose, a special Java applet was created as an extension of Descartes. Due to the size of NUTS3 level maps and data, the presentation of time-series data in the Internet was constrained to data on the NUTS 0, NUTS 1, and NUTS 2 level. Implemented functionality includes:

- Visualization of data for selected moments of time;
- Animation of data (i.e. creation of dynamic thematic maps); Animation can be automatic or interactive by using controls that resemble those of a video recorder.
- Application of analytical operations (comparison to values of previous year, comparison to fixed year, comparison to reference object or to reference value).

These operations can be applied separately or in combinations. For example, it is possible to animate maps presenting comparisons to a reference object, etc.

Figure 2 presents a screenshot of EuroFigures system dealing with temporal data. It demonstrates visual comparison of values for different years.

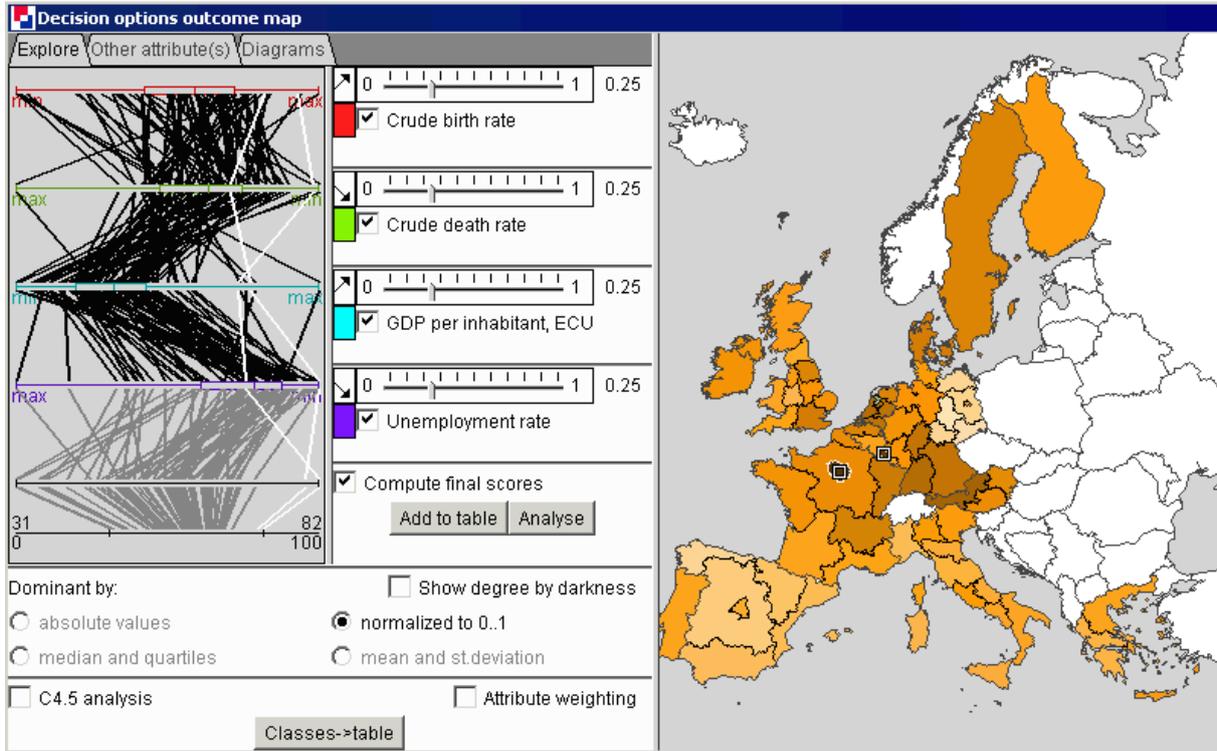


Figure 1. Visualisation of 4 attributes: “birth rate”, “death rate”, “GDP per inhabitant”, and “unemployment rate” using parallel coordinates plot. Integrated values of “goodness” (maximise birth rate and GDP and minimise death rate and unemployment) are computed and shown in choropleth map (NUTS 1 data).

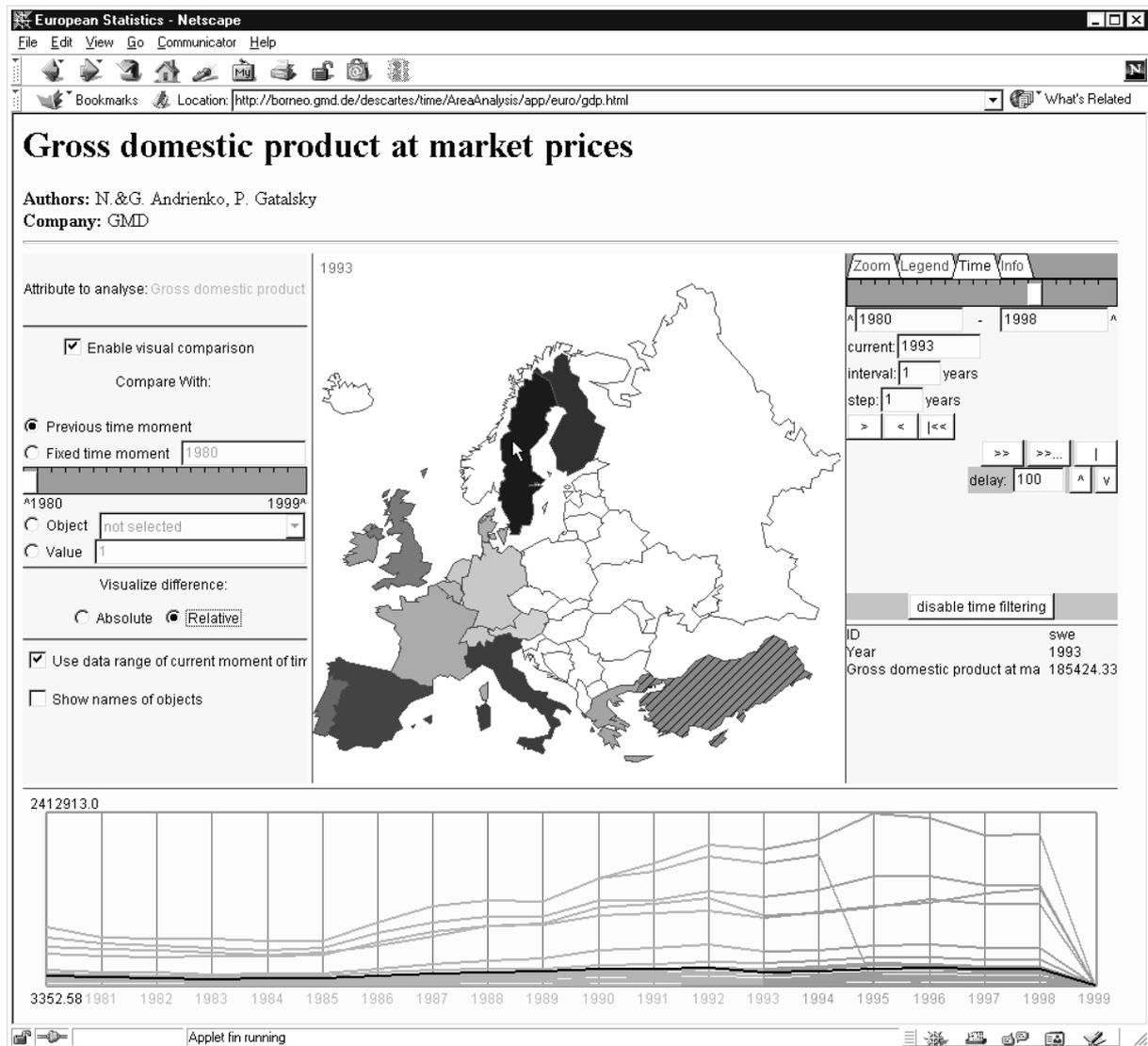


Figure 2. Change in GDP values between 1992 and 1993. One country has decrease of the value (shown by hatching) while all others are characterised by increase (shown by intensity of colour on the map)

References

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