Interactive visualization of statistical information

Hans-Joachim Mittag

University of Hagen, Germany
joachim.mittag@fernuni-hagen.de
www.fernuni-hagen.de/jmitttag/en

Statistical information has a pertinent importance for evidence-based policy-making at national and international levels. Data, in particular data aggregated to indicators, are used to develop and to support strategies and action plans as well as to monitor and assess their performance. The huge demand for policy-relevant and reliable statistics is accompanied by a growing demand for easily accessible environments for the presentation and dissemination of data and policy performance measures.

Today's advanced state of information technology has opened up opportunities to meet these challenges and to communicate statistical information in a way that can be easily understood not only by experts. User-friendly, interactive visualisation tools are meanwhile available for presenting and communicating official statistics. This statement will be demonstrated by means of an interactive Java-based visualisation tool developed in connection with a German multimedia project for statistics education. The tool is platform independent and self-contained with built-in methodological comments and a help functionality. It aims at communicating the messages behind statistical information at first glance by evaluating user-controlled graphs. In the European Commission, the tool has been successfully applied for presenting, amongst others, the structural indicator "European unemployment rates", the main results of the recent European structure of earnings survey, and the "European e-business readiness index" which is related to the e-Europe action plan. It has been applied on a CD-ROM accompanying Eurostat's Yearbook on Regions for disseminating statistical information on characteristics of European capital-city regions. Furthermore, Java-based interactive elements have been incorporated into selected Eurostat online publications in order to illustrate the added value of this approach.

The interactive elements can be used offline on standard data carriers (CD-ROM, DVD) or as part of a PowerPoint presentation, as well as online embedded into virtual libraries or as an e-mail attachment. The design aims at enabling the educated lay public to explore a data set from different perspectives by using different graphical tools (bar charts, time series graphs, scatterplots, boxplots) and by evaluating different sub-sets of the data universe (breakdown by regions, by economic activities or by sex). The mouse can be employed for slotting in additional information (numerical values, codes for country or economic activities).

An important design principle was to strictly avoid information overload or unnecessary visual distraction. This implies in particular to ensure lucidity by restricting the number of simultaneously presented graphs, to cautiously employ colours and to abstain from superficial show effects.

Links:

http://www.fernuni-hagen.de/newstatistics

Provides information related to a German multimedia project "New Statistics". The path "Library .. / Official statistics" gives access to a virtual library containing Java applets visualizing official European data sets. Recent conference contributions dealing with interactive data visualization are accessible via "Project related publications".

http://forum.europa.eu.int/Public/irc/dsis/wages/information

The second link gives access to a web site of the European Commission containing Java applets based on Eurostat data. The first link leads to interactive online publications published within Eurostat's series "Statistics in Focus" (experimental editions).

http://statind.jrc.it/ebusiness.html

The second link of this web site of the European Commission gives access to the Java applet "European e-business readiness index" mentioned above.