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Topic (i) Communicating effectively on the Web

THREE YEARS OF ‘INTELLIGENT GRAPHICS’

Supporting Paper

Submitted by Federal Statistical Office of Germany¹

I. INTRODUCTION

1. In 2003, the Federal Statistical Office of Germany (Destatis), in collaboration with the Office for National Statistics of the UK (ONS), started to add interactive graphics to their internet offerings.
2. It began with an animated population pyramid for Germany's 10th coordinated population projection in 2003. A year later, an interactive mapping application for the European Election, and a database-driven Atlas for regional statistics, extended our range of “intelligent” graphics on the web. In the beginning of 2005 we introduced an Index Calculator for a personalised inflation rate to better understand price statistics. Lastly, results of the general election of 2005 were published with an adapted version of our interactive Atlas.
3. This paper will examine the success of interactive graphics up to this point and identify recent challenges, three years after Destatis began using interactive graphics on the web as a means to better communicate statistics.
4. Finally, the technology used, namely Scalable Vector Graphics (SVG, an XML- based open standard for publishing data driven graphics on the web), needs to be evaluated so that interested parties can judge for themselves if they want to follow this route. As far as we know, SVG technology is used on the websites in the following statistical offices: ONS, Statistics Netherlands, Statistics Norway, Czech Statistics and the Australian Bureau of Statistics.

II. THE SUCCESS SO FAR

A. What Makes Graphics Intelligent?

5. We call graphics ‘intelligent’ in this context when they meet three requirements:
 - Being data-driven
 - Allowing user-interaction
 - Making use of animation

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6. Being **data-driven** is important for easy, frequent, and possibly automated updates to the data without interfering with the application logic or the graphic's layout. **User interaction** is the key concept whereby users can explore the data in new ways compared to static publications. **Animation** can make understanding time-series a lot easier.

7. With graphics like these we can amend our traditional publications tremendously, and we can only do this in a medium such as the web.

B. The Examples So Far

8. The Animated Population Pyramid is the classic example. In its static occurrence, a population pyramid is a two-dimensional graph with three data dimensions: population count, age, and sex. Adding animation can make the fourth variable "time" visible, thereby demonstrating the demographic concept that most of the following year's population already exists today and that the age-structure is like a growing tree.

(www.destatis.de/basis/e/bevoe/bev_svg_var.htm).

9. The Regional Statistics Atlas offers more than 100 fully customizable choropleth (thematic) maps (www.destatis.de/atlas/atlas.htm). This application is only available in German.

The Atlas is provided with additional statistical tools like a histogram that helps users more easily understand the distribution of values and makes analyzing regional disparities and outliers a much more interesting experience.

10. The Index Calculator (www.destatis.de/indexcalculator) was developed in the framework of a new communication policy to better explain the complex statistical results. The Index Calculator for a personalised inflation rate allows people to mix their own basket of goods, or more precisely, to adjust the weighting patterns of the basket of goods. People who don't smoke, for example, can set the weight for tobacco to zero. Thus individuals can develop a better understanding of how the average inflation rate is calculated and how individual consumption patterns can differ.

C. What Worked Best?

11. It turns out that the simple graphics win in the end. While the Atlas is the most sophisticated application and the Index Calculator might be the most revolutionary for official statistics ("we can't allow people to calculate different results than the official ones"), it is the population pyramid that got the most attention in the long run. This might be supported by the fact that population statistics receive the most hits on our website.

12. Oftentimes we statisticians overestimate how much time people are willing to spend to understand the facts. This, coupled with the high media attention that Germany's ageing society is getting, shows that the animated population pyramid has just the right mixture of serious data, relatively easy to understand concepts, and visual attraction (it is moving, after all).

13. Last but not least, interactive graphics have become an important part of our public relations activities. With 'intelligent graphics' on our website, we have highly attractive material to present and to make demos at trade fairs a lot more convincing and interesting. They also improve the image of official statistics.

D. Major Drawbacks

14. Many audiences still are not ready to accept new forms of communication and judge everything by the standards of the Gutenberg universe. To this day, for example, in the German Parliament and at the location where our most prestigious press conferences take place, projected media (slides, websites etc.) are not permitted.

15. Then there are the technical roadblocks. Interactive Graphics usually require more modern browsers or even additional plug-ins, which many users are unwilling or unable (lack of administrator rights) to install. This is a serious problem especially for our professional users.

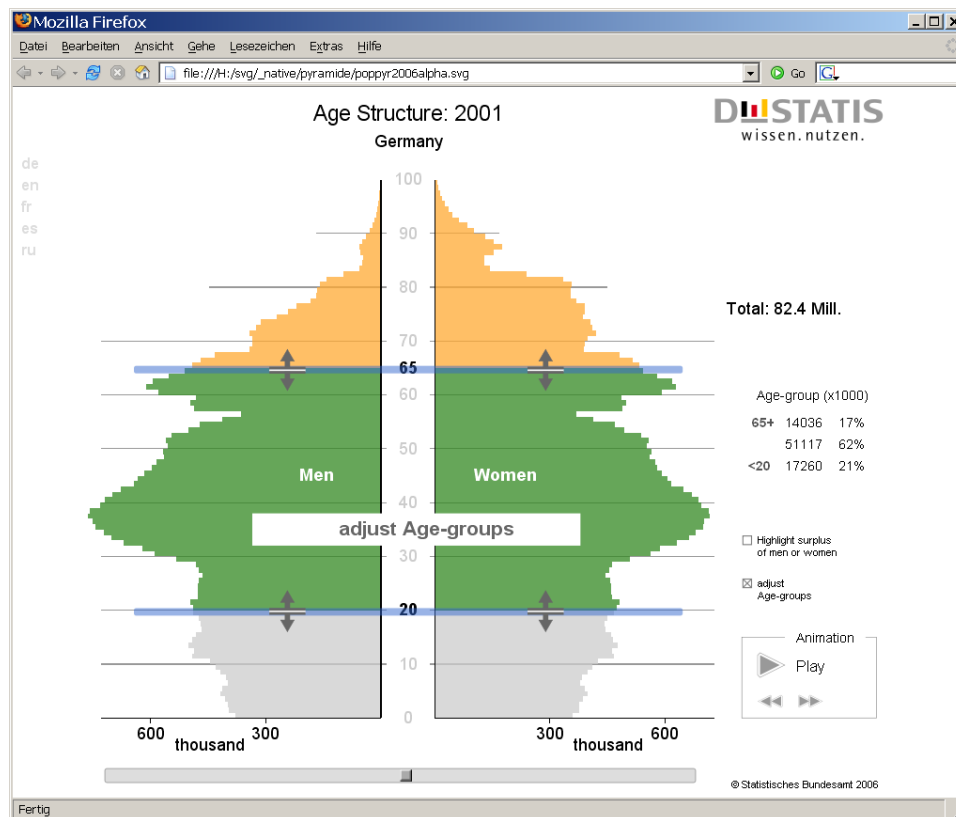
16. Finally, people don't look for something they don't expect, and the space on the front page to promote these new features of the website is limited. In many ways our graphics get a lot of applause when demoed directly to people, and they usually tell us afterwards they had never imagined that we would have such high-quality content on our website. Therefore, it is very important to implement new developments into an active public communication strategy and to use even the traditional printed publications as an additional reference medium to promote the interactive content on the web. Making use of screenshots that reveal the main functionality is very important, as are technical feedback and support channels and training of involved colleagues.

III. CURRENT DEVELOPMENT

E. A New Interactive Population Pyramid

17. As we have seen, the animated population pyramids were the most successful of all those 'intelligent graphics.' They are somewhat close to what people may have seen already (a population pyramid), and are extremely effective in explaining how population projections work. They touch a very hot topic in the political debate of Germany which is the massive ageing of the population we're facing in the coming years.

18. Our goal for the forthcoming 11th coordinated population projection, which is to be published in November (we do population projections every three years) is not only to build on the current success but to further enhance it. The enhancements are threefold: To make it run on as many devices as possible 'right out of the box', to add often-requested features that allow for more flexible research on the data, and to have more features available in a single graphic by using an improved interface.



The new population pyramid runs natively on modern Browsers like Firefox 1.5+ or Opera 9 (out of the box, no installation required). A main new feature is adjustable age-groups via drag & drop. The following languages are included: English, German, French, Spanish, Russian

19. It is now technically possible to implement interactive data-driven graphics with the SVG technology that runs on a multitude of devices. Backwards compatibility is important so that users of MS

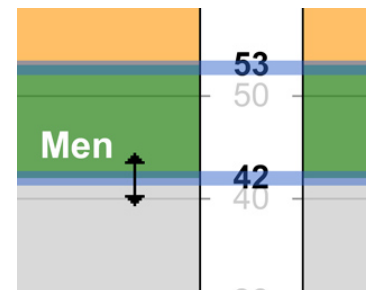
Internet Explorer with the Adobe SVG plug-in who used our interactive offerings so far will not have to change their technology again.

20. In addition, modern browsers like Firefox (since Version 1.5, November 2005) or Opera 9 (June 2006) can display these applications without any additional helpers, just like html pages. Finally, many mobile phones support the SVG language and can display a subset of the animated pyramid. While the functionality on a phone will obviously be limited, we see it as a great public relations opportunity to show and disseminate the file to interested people from phone to phone (it is very small, less than 50kB) and tell them that the same file will 'come to life' on their desktop computers and will include a 100- year dataset.



21. The animated population pyramid derives its strength from the projection data. In many political discussions about all matters in society - be it pension systems, planning of future kindergarten or school capacities, to name just a few - the future population of distinct age-groups is of great importance and is often asked for. Here, our printed publications as well as our database can offer only pre-conceived age-groups that cover the most often- used cases.

22. With our new interactive population pyramid we offer these customised age-groups. There are two variable age-dividers that allow for the creation of every conceivable combination of three age-groups by simply dragging the dividers with the mouse. Population counts and percentages are calculated on the fly and the age-groups are coloured accordingly, even while the pyramid is in motion.



*Customizable age-groups
by dragging the blue bars*

F. Supporting Material

23. Our experience teaches us that many people want to integrate an animated population pyramid in their PowerPoint slides. This means they need a movie of the animation. While this slightly counters the notion of interactivity, it is a valid demand that can be easily met. Starting with the 11th coordinated population projection, we will offer screen- captured video material from the animated population pyramid that can be included in PowerPoint slides.

24. While every population projection has different parameters and will be calculated in different variants, most users care only about the medium variant. The animated population pyramid will therefore only cover the medium variant but will link to comprehensive material (both web and print) about all aspects of the projection.