# Everyone needs a map! – Evolving information society to provide insight from big data

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## Extended Abstract

Online map products are essential tools for helping us respond to some of the biggest issues in the world, from emergency response during disasters to tracking forest change and preserving endangered languages before they become extinct. As our world changes, maps are becoming increasingly important tools for people and organisations to tell stories in time and space. To present geo-spatial information clearly and concisely, one must overcome a number of challenges so that "Users can interactively choose a location to map and the features to include on the map" (Peterson 2007).

The first challenge is around users. There are a whole host of different types of user of geo-spatial information, from government researchers to academics, NGOs and the general public. Tools and visualisations can achieve impact by focusing on a number of these groups, so long as they're targeted in the right way and tools respond to their specific motivations to interact with data. The motto "if it's too inconvenient I'm not going after it" (Connaway et al 2011) holds true here, with ease of access, convenience and satisfaction determining decisions to find data.

Linked to this is the choice of communication channel to engage interested users. Especially with the predominance of a worldwide web, it can be easy to assume that anyone can find a map that interests them. But there are huge differences in the types of people using various channels to access information (Cartwright 2008).

With a target audience and channel selected, the next step is to think about the different devices used to view maps and how that affects the design of geo-spatial information. Smaller screens and screens that are touched, as opposed to screens controlled with a mouse, change the way data need to be displayed. Designers and developers must always be conscious of the day-to-day work to be completed by the user on the application or tool, to avoid bad experiences that make them stop using applications: "it needs to be clickable (or tappable)" (Gothelf and Seiden 2013).

As well as the physical interaction, map design also needs to consider the cognitive interactions between a user and the data, "but the tools of cartography are always changing and often borrow from other technologies" (Brewer 2005). More and more, users want to be empowered and able to change and customise the display, or even to add new data in different ways to shed more light on a topic. Good design provides intuitive interfaces to the data and displays it in a concise way, while bad designs can suffer from 'analysis paralysis' and unclear display. Providing the right level of control and customisation is crucial for satisfactory engagement and learning.

ICA European Symposium on CARTOGRAPHY
VIENNA, 10–12 NOVEMBER 2015

Published in "Proceedings of the 1st ICA European Symposium on Cartography", edited by Georg Gartner and Haosheng Huang, EuroCarto 2015, 10-12 November 2015, Vienna, Austria

At Vizzuality, we really believe design must be centered on users: interfaces need to attend to users' needs and must be easy to understand and use, letting them focus on what they are really interested in instead of allowing them to do hundreds of things they will never use or understand. "As far as humanly possible, when I look at a web page it should be self-evident. Obvious. Self-explanatory." (Krug 2006). Maps are about information, so designers should do all they can to avoid confusing the user.

That said, the talk concludes with a look to the future and the window of opportunity that has been opened at the intersection of all of these points to innovate, inspire and improve our world. Visualisation can "help to inform and educate as well as encourage people to change their lifestyle" (Krätzig & Warren-Kretzschmar 2014), so is an important element of achieving 'the world we want'. In a world where technological capabilities are constantly improving, it's important to assess the best ways to deliver maps to users. The points outlined above will be a useful starting place to ensure tools make the most of the possibilities of new technologies and ultimately deliver impactful work.

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