Adaptive concepts for a mobile cartography

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GISs are moving away from a system for experts to a more widely-used tool for answering spatial-related questions. The dawn of new technologies on the horizon, such as telecommunication, mobile Internet, and handheld computing devices, offers new chances to the everyday use of geoinformation. However, the existing approaches to mobile visualisation of geoinformation mostly have a commercial background and are rather technology-centred. This quite narrow view ignores many relevant problems and does not fully profit from the new possibilities a mobile cartography could provide. Taking the existing problems into account the paper sketches a general conceptual framework for geoinformation use in a mobile environment. Specific user tasks and requests in a mobile environment are identified, which is followed by an outline of possible methods to personalise a GIS for better mobile assistance. Putting emphasis on the importance of analytical functions for mobile cartography, the process of adaptive and dynamic generation of visualisations for mobile users on the basis of vector data (e.g. SVG) is illustrated and the key research fields involved are pointed out.

Adaptive concepts for a mobile cartography Tumasch Reichenbacher (Inst. of Photogrammetry and Cartography, Technical University Munich Munich, Germany) Abstract: GISs are moving away from a system for experts to a more widely-used tool for answering spatial-related questions. The dawn of new technologies on the horizon, such as telecommunication, mobile Internet, and handheld computing devices, offers new chances to the everyday use of geoinformation. However, the existing approaches to mobile visualisation of geoinformation mostly have a commercial background and are rather technology-centred. This quite narrow view ignores many relevant problems and does not fully profit from the new possibilities a mobile cartography could provide. Taking the existing problems into account the paper sketches a general conceptual framework for geoinformation use in a mobile environment. Specific user tasks and requests in a mobile environment are identified, which is followed by an outline of possible methods to personalise a GIS for better mobile assistance. Putting emphasis on the importance of analytical functions for mobile cartography, the process of adaptive and dynamic generation of visualisations for mobile users on the basis of vector data (e.g. SVG) is illustrated and the key research fields involved are pointed out. Key words: context awareness; adaptive visualisation; mobile computing; personalisation CLC number: P28 1 Introduction For years GISs have been a tool for experts, running only on expensive machines requiring many skills. In the early 1990s easy-to-use desktop GISs were introduced. With the widespread Internet and web mapping a further "democratisation" of geoinformation use took place. And now, after the tremendous success of Internet and cellular telephone in the last decade, the next technological wave seems to be the convergence of the two: the mobile Internet. This brings web GIS and web mapping a step further, since the dissemination of digital geospatial data is no longer bounded to the desktop platform. The emergence of mobile computing and wireless devices has brought about a whole palette of new possibilities for cartography. New mobile information devices (MID), such as PDAs, Smartphones and the like, have their inherent advantages concerned with personal assistance in mobile situations: they can present up-to-date spatial/non-spatial information in an individual, dynamic, and flexible way, and the user being mobile. Another important trend in IT that increasingly draws attention in the field of cartography is user focus (personalisation) and context awareness. The incorporation of these trends results in adaptive systems. This paper develops a vision for geospatial assistance during mobility with a strong focus on the visualisation part. Based on this vision the urgent research items will be developed. 2 What is mobile cartography? 3 What are the prerequisites? 4 What is already there? 5 What is still missing and where are the obstacles? 6 User tasks in a mobile e

nvironment 7 The way to a more personalised GIS 8 Adaptive geoinformation visualisation 9 Outlook References

关键词： context awareness; adaptive visualisation; mobile computing; personalisation