The Aalborg case – GPS tracking of 169 young adults in a Danish central city area.

If GIS analyses of location-based dataset is the answer – what was the question?

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Recent developments in GPS and 3G/GSM technology have enabled relatively simple and cost-effective tracking of human activity in urban areas by using mobile phones for the collection of vast amounts of location-based data.

From a private and commercial perspective, applications such as Google Latitude and Twitter already offer spatial and social information for users and their “friends”, enabling them to continuously monitor places and activities. The applications also offer location-based information on "nearby attractions", such as fast-food outlets, entertainment, etc. Users are increasingly relying on easily accessible information from their gadgets.

From a planning perspective, location-based datasets on collective or individual spatial behaviour in urban areas are highly interesting. Combining them with existing information on urban elements such as plazas, shops, etc., to yield infinitely detailed information on the interplay of hundreds of users’ individual behaviour with urban elements require complex, yet understandable ways of representation. Further questions must address other, value-based choices concerning urban design and planning. An altogether different question concerns the ultimate value and operationalization of such information. The existence of a new technology does not in itself justify its use.

We show that the collected data enable statistical analysis of urban activity such as citizens’ time spent in plazas, parks, or window-shopping, etc. In addition, more complex analyses could be undertaken by breaking down the data into male and female cohorts, times or activities at other places of interest.

As the paper demonstrates, GIS technology allows easy retrieval and animation of information on urban activity. However, it is argued that analyses of the huge datasets available cannot answer simple and essential questions on urban users’ motivations for their activity. In order to glean such information, we still need to rely on simpler and more traditional methods of data collection, such as the in-depth interview. We illustrate our argument by analysing extracts of 16 one-and-half hour interviews with selected participants.

The study was based on a unique sample of movement data on 169 representative 16 to 20-year-old young adults. Each person was GPS-tracked over a period of seven days of 2008-2009 to plot their use of Aalborg’s central city area (fourth-largest city of Denmark; with 122,461 inhabitants (2009)).

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References used for the paper (maximum 3):

Harder, H, Nielsen, T, Bro, P & Tradisauskas, N 2008, 'Experiences from GPS tracking of visitors in Public Parks in Denmark based on GPS technologies', In van Schaick, J & van der Spek, S (eds.), Urbanism on Track. Application of Tracking Technologies in Urbanism, IOS Press, Amsterdam, pp. 65-78 (Research in Urbanism Series).

Kwan, M 2009, 'GIS Methods in Time-Geographic Research: Geocomputation and Geovisualization of Human Activity Patterns' Geografiska Annaler: Series B, Human Geography, Volume 86 Issue 4, Pages 267 - 280, Published Online: 6 Jan 2005, Swedish Society for Anthropology and Geography.

Van der Spek, S.; van Schaick, J.; de Bois, P.; de Haan, R. 'Sensing Human Activity: GPS Tracking' 2009, Sensors 2009, 9, 3033-3055, Sensors (ISSN 1424-8220; CODEN: SENSC9).