Tourist Mobility And Advanced Tracking Technologies

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New technologies, in particular mobile telecommunication, the
Global Positioning System (GPS) and Geographical Information
System (GIS) software offer unprecedented opportunities in relation
to tourist activities at the destination. Electronic positioning,
navigation and tracking technologies are new to tourism research,
but are already showing great potential in this field, especially
when applied together. Destination managers could also benefit
from more detailed knowledge about visitors’ movement patterns
and decision making processes involving the question “Where
should we go now?” The technologies are already very sophisticated
and still advancing. For example, devices are getting smaller and
smarter and the data processing chain getting more and more auto-
mated. However the technological development has taken place so
rapidly and to such an extent that theoretical and methodological
developments are lagging behind, and tourism literature about
research and using tracking technologies has this far been scarce.

Therefore this book is very useful. It has surely been a challenge
to compile a book that provides background information and
outlines the development of the technologies, without getting
lost in detail, and shows the reader a path to setting up their own
research. This challenge has been taken on by Noam Shoval and
Michael Isaacson of the Hebrew University of Jerusalem. Here the
technology has been studied and applied for almost a decade
(Shoval & Isaacson, 2007). The wide range of experiences with
different tracking technologies have enabled to authors to select
a number of examples from their own research, mostly carried
out in urban environments around Israel.

The book has a clear and reader-friendly structure. It progresses
from theoretical and methodological issues, via an assessment of
available technologies to a broad discussion of applications and
implications, supported by a range of relevant real world examples.
In the background section, the authors draw on the Swedish cultural
geographer Torsten Hägerstrand, who was the first to demonstrate
use of space–time path models and show daily movement patterns
using the space–time cube as framework. Recently Hägerstrand’s
work has been experiencing a revival with the advent of tracking
and visualisation technologies, for one of the first examples see

In the review of available tracking technologies (part II of the
book), some older and rather obsolete technologies are described
detail, perhaps too much, given that they will probably only find
little application in tourism studies. The two basic technological
approaches to tracking, namely land-based and satellite-based, are
given a chapter each. Much of the emphasis is on the most popular
and useful satellite system: the US Global Positioning System (GPS),
a subset of the more generic or correct term Global Navigation Satel-
lite Systems (GNSS). The cell phone tracking studies show plenty of
scope for improvement, as they are less spatially accurate than
methods involving GPS receivers. The two basic ways to survey
tourist movements are presented and discussed in an instructive
way. First: the tracking of individuals in a case-oriented way, mostly
with GPS-units or – in more restricted spaces – Bluetooth enabled
mobile phones or RFID chips. Second: statistical description of
groups of visitor within a given area, with either GPS or cell phone
data. The pros and cons of the two approaches are made clear and
nicely summarised in tabular form. Of particular use is the discussion
of the different tracking techniques in relation to different research
environments and places of sampling.

Mathematical methods and algorithms, in particular sequence
analysis and clustering methods are described in detail and well
explained, with illustrative numerical examples. Comparison
between individual tourists’ sequences and patterns of stays and
movements through the building of “distance matrices” seems to
be a useful approach. Sequence alignment is presented as a prom-
ising new computational tool, but the description and explanation
could have been condensed, as not all examples are necessary or
contribute to understanding the tracking technology. Still, as noted
(p. 127): Sequence is an important dimension of spatial behaviour
and has a strong connection to the way people read and experience
space in general and urban space in particular. The analytical
approach using division of towns and destinations into polygons,
each representing a “location” is familiar to geographers and spatial
planning, but should prove useful for almost any kind of survey at
destination level. For instance, scenario models, as described in
Liburd (2005), describing typical behavioural patterns can be
confirmed or rejected – but only through clever application of these.
Visualisation in 2 and 3D, including the time dimension, allows inter-
action with data in hitherto unknown ways. The links with transport
research are well explained, and the authors demonstrate great
knowledge of that field as well.

Important ethical issues related to the various technological
approaches are carefully clarified and discussed. The entire last
chapter of the Application part (III) is devoted to a discussion of
the challenges related to privacy and monitoring of digital identi-
ties. Ethical concerns are often related to capture of cell phone
data – for instance to what extent can they be used without the
consent of the users, and what does it take to “anonymise” data?
However, ethical issues must also be considered when researchers
use (logged and archived) GPS data. Here the individual tourists
have agreed to be tracked, but may not be aware just how precise
his or her behaviour can be monitored or mapped. For those
readers who wish to use the technologies in their own research,
the book has an Appendix with detailed and instructive descrip-
tions of how data from tracking devices can be integrated with a
GIS, for visualisation and spatial analysis. The alternative or
supplementary approach with mash-up like integration with internet mapping services like Google Earth and Open Street Map (see for example Harder, Nielsen, Bro, & Tradisauskas, 2008), are particularly useful for real-time monitoring including generation of context-dependent questions, as discussed in the section Understanding the Tourist.

To conclude, this volume of Advances in Tourism (here the series title is really precise) reflects a rapidly developing field within tourism research, in the sense that it reports to a great extent on work-in-progress. It further provides descriptions of data collection/reporting and visualisation techniques not tried before, simply because such types and amounts of data have not until now been available, at least not to academics. The book is thus a must-read, not only for those planning surveys and monitoring or tracking schemes, but also for those involved in theory development or setting up general or place-specific hypotheses about tourist mobility.

References


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