

# Geospatial Technology and the Role of Location in Science

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Henk J. Scholten · Rob van de Velde ·  
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# Geospatial Technology and the Role of Location in Science

 Springer

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# Foreword

Hundreds of thousands of creative and innovative efforts of users around the world provide evidence of the growing value of Geospatial Technology. Their work is saving resources, helping plan more livable communities, fostering economic development, improving human health and mitigating conflict: Geospatial Technology is creating more sustainable actions throughout the world.

These efforts are part of the long history of the role of location in science. More than 200 years ago Alexander von Humboldt introduced the idea of geography as an integrative science; his holistic view considered the world as a series of interrelated and interdependent processes. Horticulturist and early landscape architect Warren Manning used map overlays as a way to integrate various physical and cultural geographic factors for site and regional planning. Ian McHarg popularized Humboldt's and Manning's ideas in his book *Design with Nature* (1969). Waldo Tobler, the first geographic information scientist, used quantitative methods, computer algorithms and software tools to analytically model geographic processes. In the 1960s Roger Tomlinson conceived and built the first geographic information system (GIS) in Canada. Carl Steinitz, an urban planner at Harvard University, pioneered many of the early ideas about the application of GIS for landscape analysis and urban planning. We stand on the shoulders of these pioneers.

Today a new generation of scientists and researchers are making the history of Geospatial Technology. They are using science-based approaches and the powerful tools of geospatial measurement, data collection, data management, spatial analysis and modeling, and geospatial visualization. They are accelerating the creation of geographic knowledge and its application to nearly every problem confronting society today.

*Geospatial Technology and the Role of Location in Science* is, first of all, a contribution to the history of the current development of Geospatial Technology, documenting how this new generation of workers is using as well as shaping this technology.

Secondly, *Geospatial Technology and the Role of Location in Science* also chronicles the complex process of technology diffusion: how knowledge about Geospatial Technology is spread, how people learn to use it, and why and how it is used. Since technology diffusion is not well understood, any fresh insights into the process are welcome.

But I think the book serves a third important function as well.

We live in a rapidly changing world: population growth and human actions impact our natural world, changing climate, biodiversity and the availability of ecosystem services that support human life. These changes are affecting our economies, our security and challenge sustainability for all of us. Given these challenges, it is not enough just to create the tools of Geospatial Technology: they must also be applied and applied widely. We must understand how to make that happen.

To those of us who believe in the power of this technology and want to see it spread rapidly, *Geospatial Technology and the Role of Location in Science*, by providing numerous examples of why and how Geospatial Technology has been successfully applied, can help make an important difference in meeting the great challenges confronting our world.

For all these reasons the authors deserve our thanks.

Jack Dangermond  
President ESRI

# Acknowledgements

In September 2007, a conference was held by the Spatial Information Laboratory of the VU University, Amsterdam. The meeting brought together leading geographic information scientists from a variety of disciplines throughout the world, to discuss the role of location and the use of Geospatial Technology in science. The content of this book reflect many of the themes presented and discussed at the conference.

We wish to acknowledge the valuable input of Professor Guido Martinotti, Professor Hans Kamermans, Dr. Frans van der Wel and Professor Julian Richards in preparing the conference.

This volume would not have been possible without the support of the programme, Space for Geo-Information (RGI) and of the Department of Spatial Economics of VU University, Amsterdam.

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Amsterdam, The Netherlands  
Amersfoort, The Netherlands  
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Henk J. Scholten  
Rob van de Velde  
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