

Ubiquitous Computing and the Spatial Sciences Perspectives for the Profession

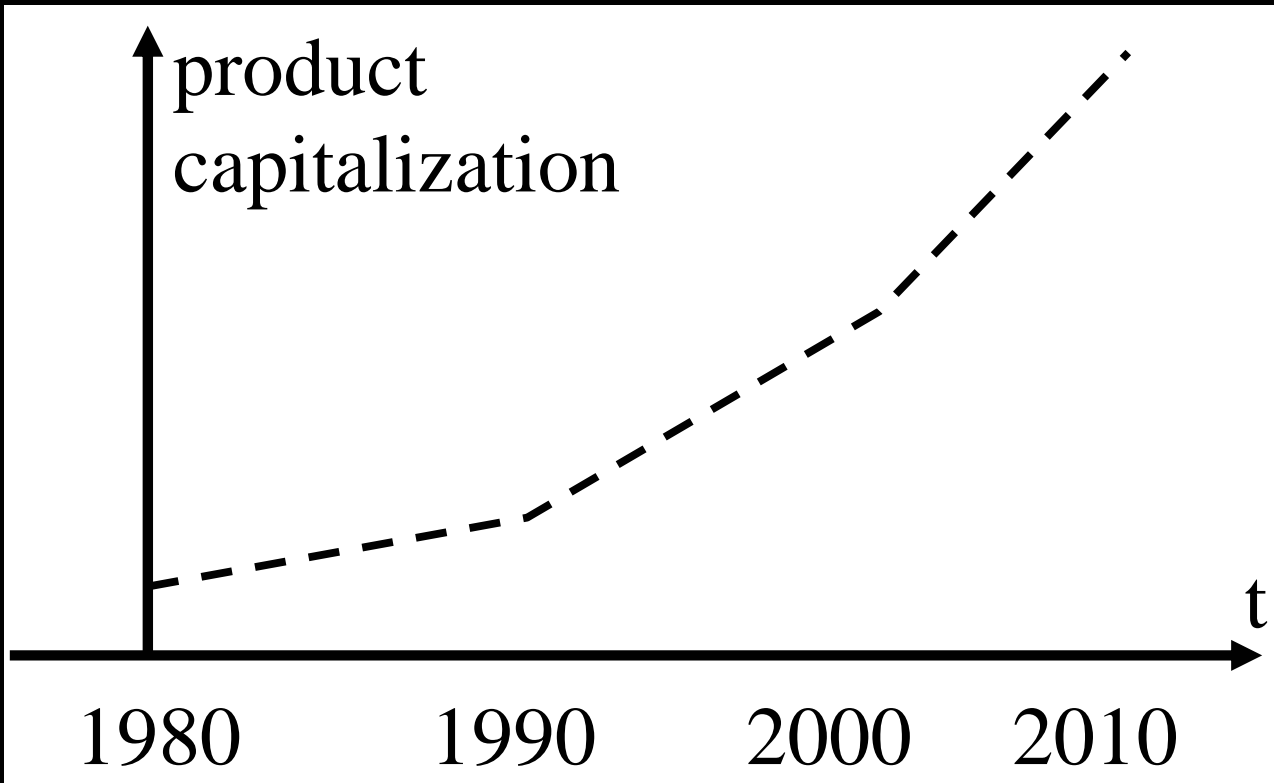
Dr Stephan Winter
CRC-SI / University of Melbourne
winter@unimelb.edu.au

Position of spatial sciences

spatial information ...

- is ubiquitous (16% of GNP)
 - is becoming mobile
 - will become ubiquitous
- market expands
 - profile changes

Spatial information



stand-alone GIS

distributed GIS

internet GI

ubiquitous GI

- stand-alone GIS
 - digital mapping
 - expert users
- distributed GIS
 - georeferenced information
 - trained users
- internet GI
 - services
 - everyday use
- ubiquitous GI
 - pro-active, smart environments
 - ubiquitous use

Spatial sciences at universities

Research:

- science 10 years ahead of industry
- at Uni Melbourne:
 - ad-hoc mobile geo-sensor networks
 - spatial data management and analysis in p2p ad-hoc networks
 - apps in transportation and route planning

Teaching:

- engineers entering job market in 3+ years
- what is relevant in 5+ years
- foundations for future

anticipate social, economical, and technological changes

The 4M mantra ...

(Longley et al. 2001)

- **m**easure
 - collect data
- **m**anage
 - data management & maintenance
- **m**odel
 - spatiotemporal analysis
- **m**ap
 - visualize

... adapts to ubiquitous computing

- spatial sensors
 - positioning, imagery, environmental
- spatial infrastructure
 - access, rights, power and control, economy
- spatial intelligence
 - events & processes, smart groups/environments
- spatial communication
 - interaction, gestures, behavior, context, cognition

Perspectives for spatial sciences

- ubiquitous demand for spatial scientists and engineers
- less and less relevance of traditional professions