Future Proofing the Provision of Geoinformation: Emerging Technologies

An Exchange Forum with the Geospatial Industry

William Cartwright

Chair JBGIS

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Outline

►Background

►Impetus

►Spatial vs placial

►*The Exchange*

►Operation

►Outcomes

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Background

► The Exchange

  ▪ Facilitate the continued involvement of the geospatial industry at the most senior levels in the discussions surrounding UNGGIM

  ▪ Facilitate industry to 'tie' into the GGIM agenda

  ▪ Demonstrate some of the trends and directions in which the industry is heading

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Impetus

► Rapid advances in technology, information access, methodologies and equipment

► Geospatial information

- collected, globally, to high precision
- processed using innovative software applications
- made available via contemporary communications methods

Impetus II

►Underpinned by

- accurate geodetic data from globally-distributed geodetic infrastructure
- precision data collection methods
- comprehensive analysis tools
- provision of global geospatial information
- integrated data collection and mapping activities
- formalized agreements and specifications
- innovative means for information provision and visualization

Impetus III

► Important that Stakeholders in global geospatial information that are involved in:
- collection
- delivery
- representation
- analysis
- use

► Are cognizant of:
- current technologies
- equipment
- methodologies

► Are aware of:
- emerging trends
- developing technologies
- future geospatial data usage and communication tools

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The Exchange

► To disseminate information between stakeholders

► To address how best to future proof the provision of geoinformation through the application of emerging technologies

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Focus issues

► Determining place

► Monitoring place

► Connecting place
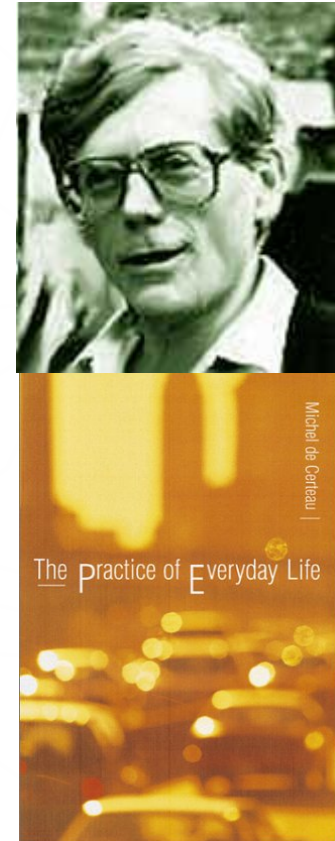
► Delivering [geoinformation about] place

Focus issues

►Determining place

►Monitoring place

►Connecting place

►Delivering [geoinformation about] place

Spatial or 'placial'?

Engaging cartography in everyday practice

►Michel de Certeau (1984)

Explores the concept of practice as
a means of engaging with the
activities of life

de Certeau (1984)

► Place

- "an instantaneous configuration of positions"

- "is stable and not affected by changes or the dynamics of everyday life.

► Space

► "composed of intersections of mobile elements"

► "is dynamic and a continually-changing conglomerate entity that exists in any point in time"

► "a 'practiced place', whereby a place does not come into life unless a user practices it"

Maps, diagrams or drawings– representing place

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maps

- ► precise scientific documents
- ► a record of exploration and discovery
- ► accurate tools
- ► records of lands and settlements
- ► depictions of communications and national development
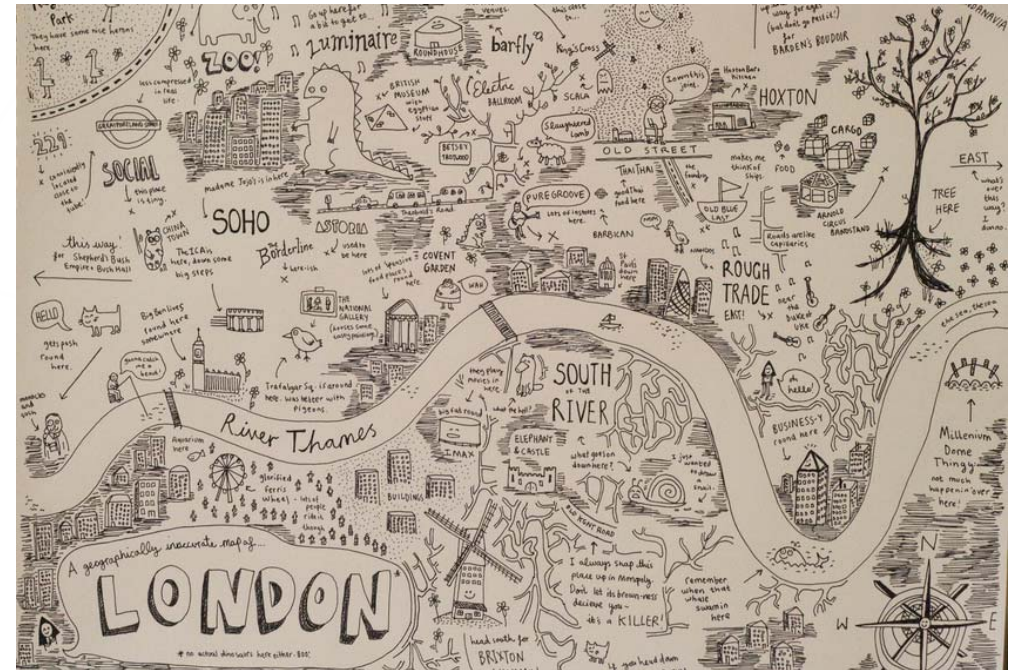- ► artefacts for tourists and conveyances for armchair travellers.

diagrams

- ► embellish geographical information
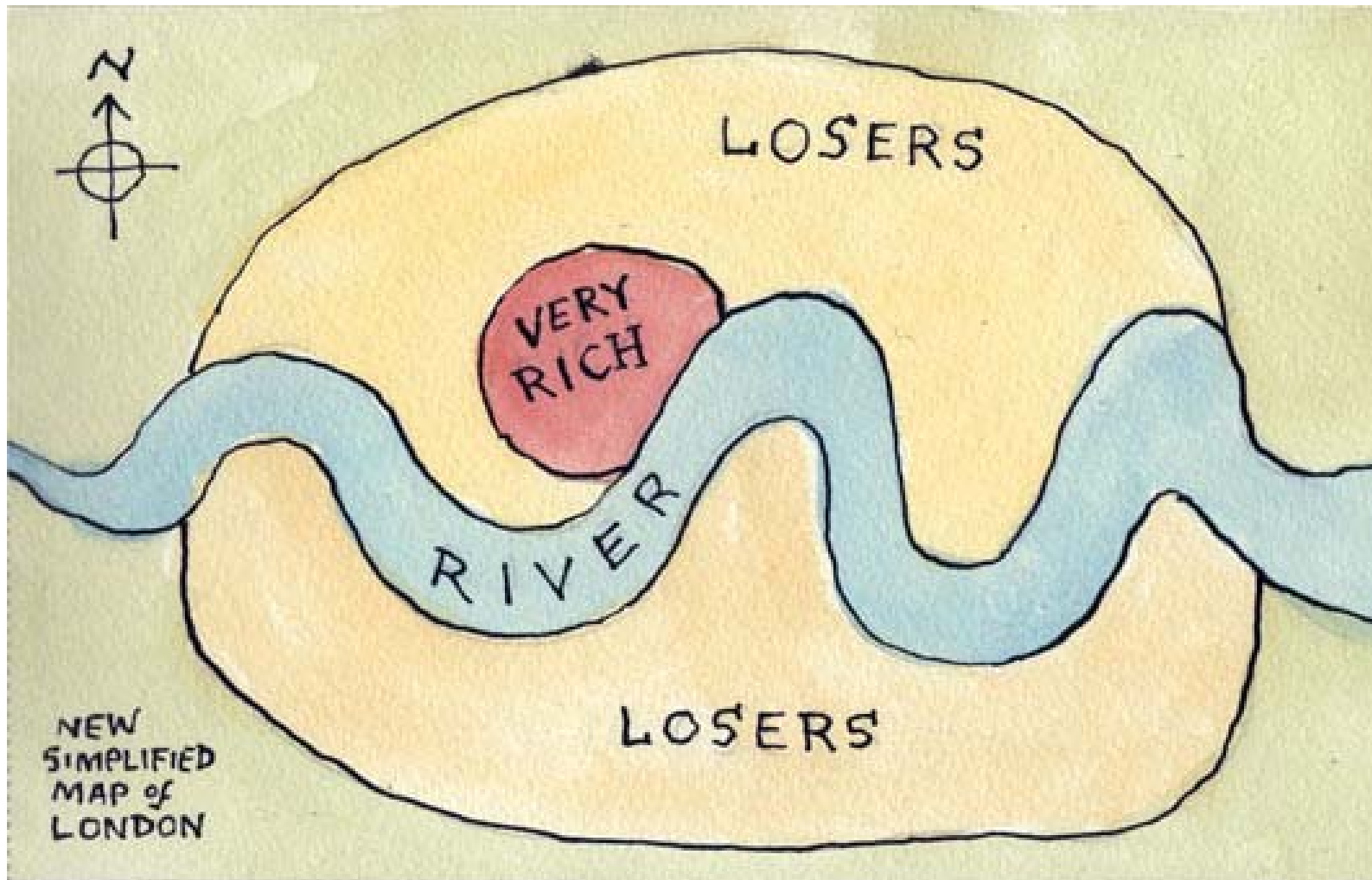- ► imparting geographical information more efficiently
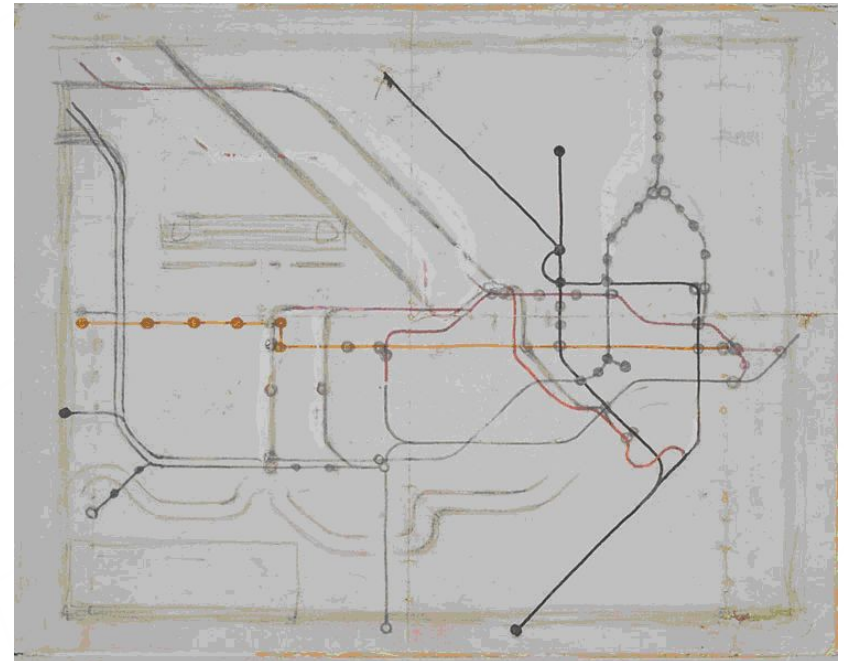
drawings

► naive geographies
► can be a better communicator of geography - of PLACE

Hand-Drawn Maps of London: City Centre
http://londonist.com/2010/03/hand-drawn_maps_of_london_city_cent.php

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Sketch of a Londoner's mental map of wealth in London
http://www.allmaps.com.au/unusual-maps/new-simplified-map-of-london/

► It is not only the versimilitude* of the map to its world, but also its indexical relation to the personal.

(*distinguishes truth and falsity of assertions or hypotheses)

► "my map now has the coffee stains of the journey itself"

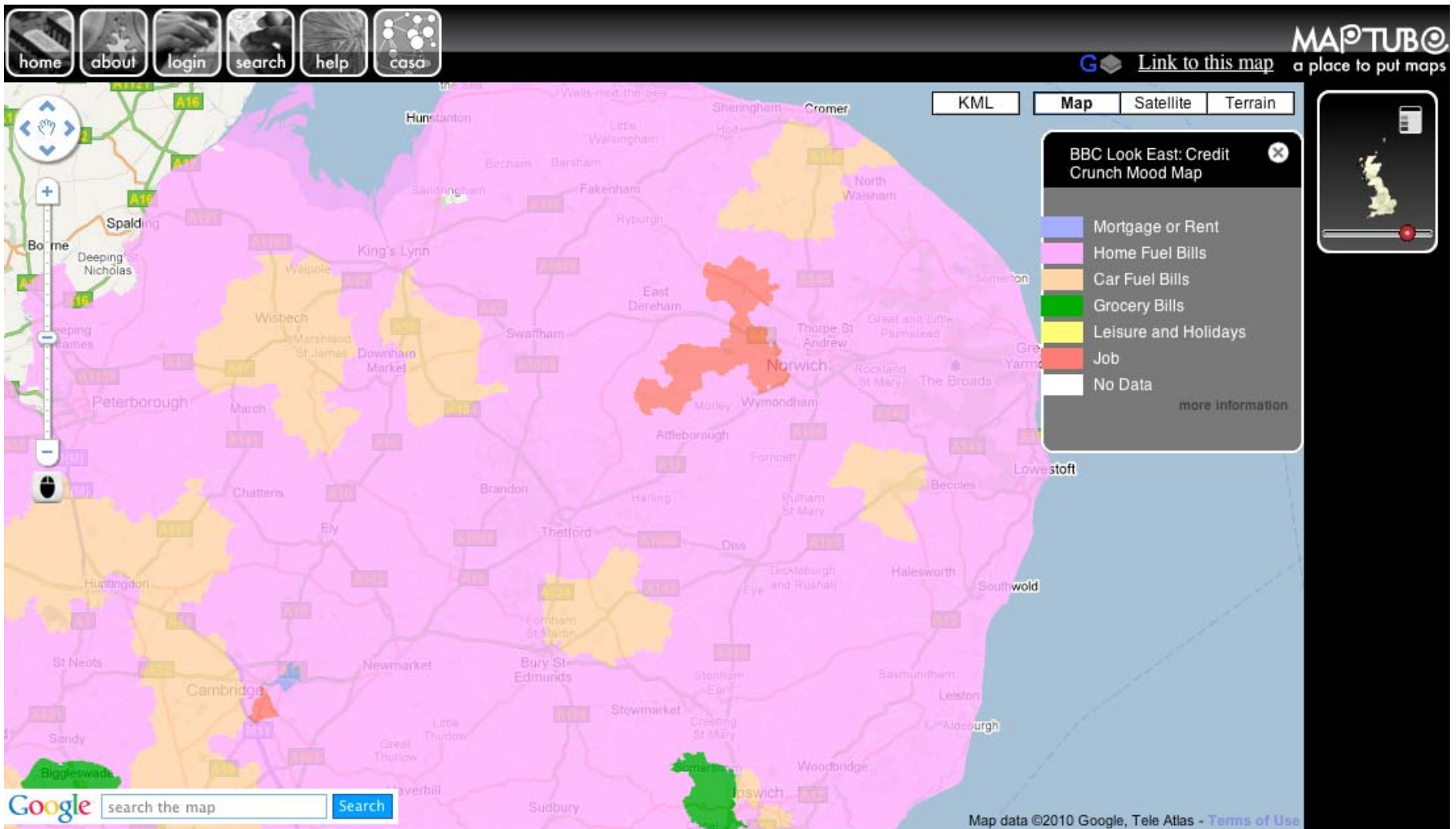Adrian Miles

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Things 'placial' define what makes us 'us'
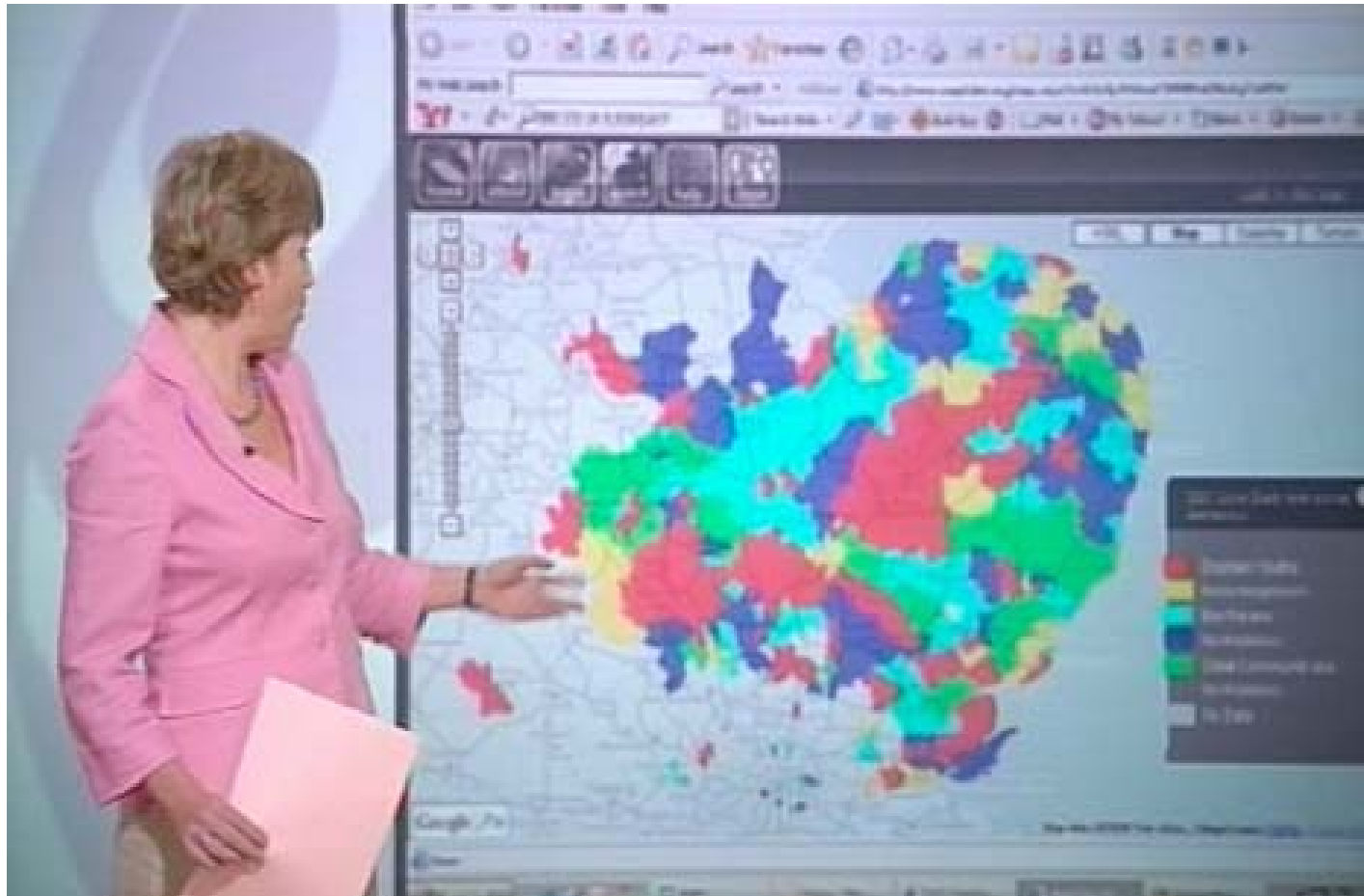
CASA
Mapping Anti-Social Behaviour in East Anglia Using *MapTube* on BBC TV Look East

BBC Look East.

Credit crunch mood map

http://www.maptube.org/map.aspx?s=DJxSpJlQTAqTODjDA8CowcCnksChGN

Addressing place

Session 1 - *Determining place*

► Methods and technologies used to determine place.

► Focus

- Advances in geodetic reference frames and techniques
- Surveying methods and technologies
- Overarching concepts of geographic information collection and classification

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Session 1 - *Determining place*

► How can new technologies be used to facilitate the efficient location of geographic information – from global to local applications?

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Session 2 - *Monitoring place*

► Advances in remote sensing and imaging, and related technologies

- continue to make data collection, monitoring and surveillance more efficient.

- from local to global applications

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Session 2 - *Monitoring place*

►What technologies, strategies and methodologies are essential to facilitate information capture to support global geospatial initiatives?

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Session 3 - *Connecting place*

► At a global level, just having information available is not enough

► Need efficient and usable methods, systems and agreements for:

- management
- access
- dissemination

Session 3 - *Connecting place*

►What are the the advances in research and development and current initiatives for better access and use of geospatial data and information?

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Session 4 - *Delivering [geoinformation about] place*

►Need to have systems and standards in place for efficient production and delivery

►Rapid advances

  ▪ combining electronic production and publishing methods with contemporary communications systems

  ▪ output and delivery

Session 4 - *Delivering [geoinformation about] place*

►What are the current and developing technologies for production and delivery of authoritative data and information for decision-makers?

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Format

► 4x 'Scene-setting' key presentations

► 12x 'lightning talks'
- JBGIS representatives
- Industry/research presenters
- Government presenters

► 4x Q & A and Discussion sessions

► Panel session
- Biggest potential
- Biggest difficulty
- 'Take-home' message

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Outcomes

Locating place

► IAG has developed an accurate International Terrestrial Reference System (ITRS) on which all GNSS positioning services are based. The sustainability of ITRS implementation and associated infrastructures require intergovernmental support and commitment through a UN mandate.

Locating place

► GNSS provides high accuracy for positioning applications.

► IAG services provide an accurate global reference system under the name of International Terrestrial Reference System (ITRS) which requires further improvement for scientific applications.

► Sustainability of ITRS implementation and associated infrastructures require intergovernmental support and commitment through a UN mandate.

► The respective roles of public and commercial positioning services should be regulated.

► The implementations of the ITRS at the national level should continue to be progressed.

► There is a need to develop a worldwide height system.

► Progress is required to improve indoor positioning.

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Monitoring place

► Noting the advances in number, types and capacities of platform and sensors, imageries is the main source of data and the basis for monitoring place. There remain the needs for open standards and strategies to demonstrate the underlying economic benefit of geospatial information as well as consideration to address privacy issues that are context driven. These are important considerations for the future technological development.

Monitoring place

- ► How do we create a knowledge base?
- ► Government working with Industry in a collaborative way
- ► Advances in number and types of platform and sensors
- ► Imagery as source of data and monitoring tool
- ► Need for standard and strategies
- ► Data for archive and simulation for future
- ► Policy relevant information
- ► Cloud, consumer, crowd, communication
- ► PPP
- ► Precision and technology scale (large/small scale)
- ► ROI vs immediacy
- ► Privacy
- ► Personal place
- ► Big data
- ► Need to consider linkage with other sectors

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Connecting place

► Collaborating and communicating across disciplines using the value of place to facilitate informed decision making to improve societies. This could be achieved by integrating authoritative and crowd-sourced information and place-based analysis using the Cloud platform.

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Connecting place

- ► Big Data, Hardware and software, and Cloud
- ► Data value, volume, variety, and velocity
- ► Detect, filter and business analysis
- ► Beyond spatial enablement
- ► Multi-Disciplinary collaboration
- ► Response to societal challenges
- ► Return of Investment value
- ► Geographic information is pervasive
- ► Story maps and simplicity in communication
- ► Geoinformation integral to statistical data
- ► Quality control of data dependent on the use of the data
- ► Use of both authoritative and Crowd sourced information
- ► Spatial -> Placial
- ► Need to reassess Business models based on availability of data vs scarcity of data and new uses
- ► Predictive analytics leverages place based information

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Delivering [geoinformation about] place

► Contemporary GIS offers flexible platforms for managing and integrating data under the context of location. Electronic production and publishing methods are combined with contemporary communications systems for output and delivery. There remain the needs for effective communication of geospatial information through context-dependent contemporary cartographic presentation techniques to ensure efficient dissemination of geospatial information to decision makers as well as the public.

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Delivering [geoinformation about] place

► GIS is now the result of the convergence of new architecture

► available for non-experienced users.

► In the future, the map will be real-time, ubiquitous, media adopted, personalized geospatial information communication medium.

► oMajor issues on SDI have moved from being an institutional, overarching, strategic document to one that now supports inter-sector business integration.

► Mapping key risks now support government decision-making related to society and industry.

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Finally

► The Exchange

- collaborative effort

- developed and moderated by members of the sister societies that comprise JBGIS

- Facilitated by the UN Cartographic Section, Strategic Support Service, Department of Field Support, with support from the UN Statistics Division.

- The JBGIS and the geospatial industry committed to continually exchange ideas and practices to further the objectives of UNGGIM

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Thank you

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