Exploring Intelligible Associations

Ontological and process issues

Part A: Challenges of knowledge organization

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at
German Research Center for Artificial Intelligence GmbH
(Saarland University, Saarbrücken)

Scope of presentation

1. UIA
2. Associations and complexity – cognitive and otherwise
3. Crisis of meaning – faith-based vs evidence-based reality
4. Policy challenges of the emergent knowledge society
5. Challenges of knowledge organization
6. Integrative modes and metaphors: “ways of knowing”
7. Comprehension gap: core challenge of governance
8. Design challenge: Roundtables – Keystones – Rosetta stones
9. Integrating new metaphors with configurative software
10. Implications for a “global brain” ?
11. Higher order strategic questions ?
12. Challenges for a Union of Intelligible Associations

1. Union of International Associations

Overview: Union of International Associations

- Non-profit clearinghouse for information on international organizations, their activities, their concerns
- Develop and manage large databases
- Largely self-financed – through information services
- Concerned with meaningful use of information
- Strong association with knowledge organization issues
  - Universal Decimal Classification (from 1910)
- Operates from Brussels since 1910

Pault Otlet (1868-1944): Internet visionary

“The man who wanted to classify the world”

Services: Union of International Associations

Book versions of online services:

- *Yearbook of International Organizations* (2005, 42. ed)
- *International Congress Calendar* (2005, 45. ed.)
- *Who's Who in International Organizations* (2005, 5. ed.)
- *Encyclopedia of World Problems and Human Potential* (1995, 4. ed)

UIA Prime data sets

International	Profiles	Links (web)
Organizations	59,430	839,351
Problems	56,543	276,657
Strategies	42,031	198,217
Meetings	213,086	222,418
Human values	3,257	119,255
Biography	21,013	36,465
Doc. Refs.	50,000	

UIA Integrative focus

- Problems (world, regional, social, etc)
- Strategies and initiatives in response
- Responsible international organizations
- Values guiding initiatives
- Human development objectives and modes
- Bibliographical and web resources
- Comprehensibility for governance

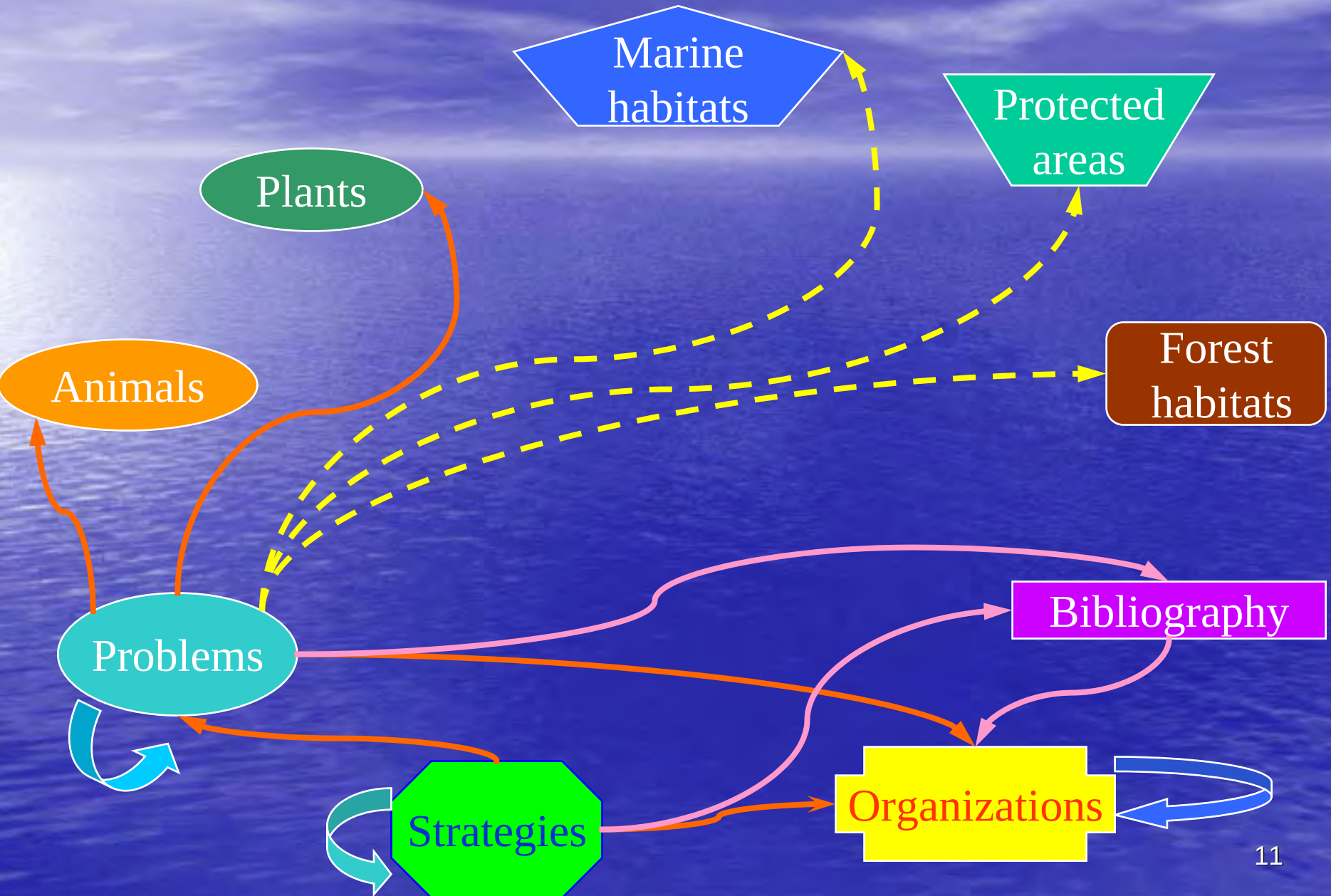
UIA Project examples

- Information Context for Biodiversity Conservation (Ecolynx)
- Interactive Contextual Environmental Planning Tool for developing countries (InfoDev)
- Cultivating Knowledge Ecosystems: Adapting visual arts and music to sustain new patterns of community knowledge work
- Global Knowledge Grid: A New Infrastructure for Understanding Globalization
- Gateway to Civil Society Organization Information
- Local Action Dynamics: Knowledge patterns for local, participatory implementation of the Lisbon Strategy
- Procedural Framework for the Interoperability of Decentralized Knowledge Management Processes

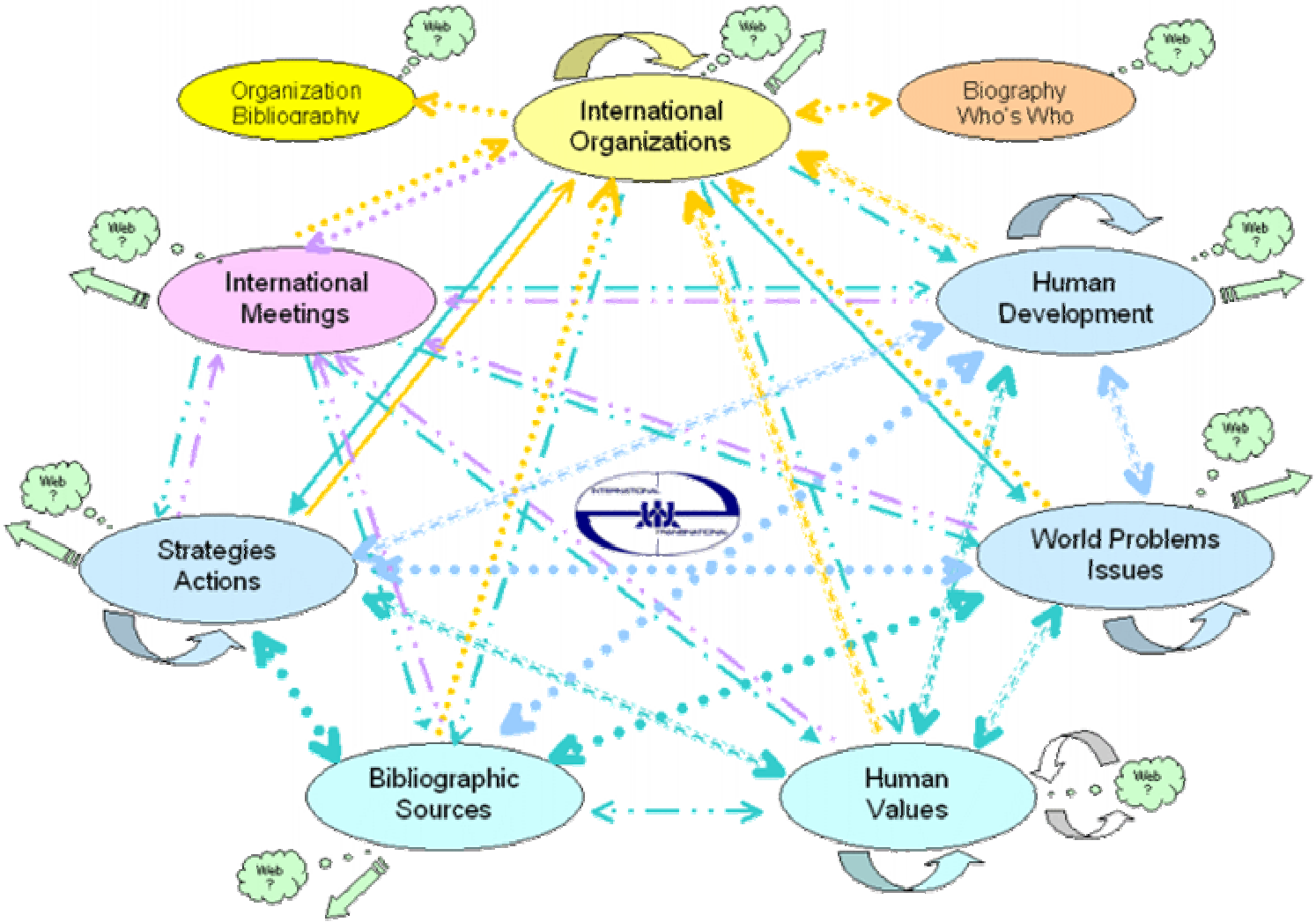
UIA Approach / Assumptions /Bias

- Real entities: orgs. / problems / solutions / values
- “Global”: comprehensive / pro-variety / “world”
- Matching networks: problems/orgs./strategies/etc
- Collecting biases / misrepresentations
- Incomplete / long-term
- Low-resource / geared to income stream
- Innovative low-tech / continuity

Hyperlinking datasets between institutions



UIA Interlinked knowledgebases



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Database selected: World Problems - Issues (?)

Registered user TJFULOPP | Free search | Full profile

] **Threatened species of Panthera leo persica**

- [W] **Threatened species of Asiatic lion**

- Search Threatened Animals of the World (WCMC)
- Search Convention on International Trade in Endangered Species of Wild Fauna and Flora (WCMC)
- Search European Union Wildlife Trade Regulation (WCMC)
- [Search Web Panthera leo persica]
- Search UNEP-WCMC Resource Centre Catalogue

oader problems

- Threatened species of Panthera leo

ualization experiments: | Tensegrity | Polyhedra1 | Polyhedra2
nour experiments: [contribute?] or see [rationale]
tinent information may already be available in: broader problems (listed above)

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Claim A major cause of tree decline is the loss and fragmentation of old-growth forests. Temperate forests in the northern hemisphere have been heavily modified for centuries and few natural forests are left there. This weakens the forest ecosystem. [Add comment?]

Counter-claim The department of agricultural, environmental and development economics at Ohio State University, predicts tha for every 20 hectares set aside and protected in North America and Europe, one hectare of previously inaccessible forest in Asia, South America, Africa, and the former Soviet Union is lost. In short, the forests saved in Europe and America are replaced by the felling of trees elsewhere. They claim that currently many of the world's tropical forests are too expensive to harvest at today's prices, but if through conservation efforts prices are raised, it will become economically feasible to harvest trees from areas wher it was previously too expensive.

A greater percentage of original forests in the United States and Australia have been destroyed at a faster rate than in Brazil and other developing nations. Thus, the western nations are not in a position to assume the moral high ground and preach to other nations about saving their forests." [Add comment?]

References

- Postel, Sandra Air Pollution, Acid Rain, and the Future of Forests (1984)
- Ulrich, B and Pankrath, J Effects of Accumulation of Air Pollutants in Forest Ecosystems: proceedings of a workshop held at G"ttingen, West Germany, 1982 (1983)
- World Resources Institute World Resources 1986 (1986)
- Hutchinson, T C and Meema, K M Effects of Atmospheric Pollutants on Forests, Wetlands, and Agricultural Ecosystems (198
- United Nations Economic Commission for Europe Impact of Air-pollution Damage to Forests for Roundwood Supply and Fores Products Markets (1987)
- [Add comment?]

Organizations [Add comment?]

Broader problems [map] [tree structure]

- Death of plants
- Natural environment degradation
- Deforestation
- [Add comment?]

Narrower [Add comment?]

Related [Add comment?]

Aggravates problems [map] [loop list] [loop pattern] [loop map] [loop VRML] [tree structure]

- Threatened urban trees
- Endangered forests

Database selected: Strategies - Solutions (?)

[W] **Landscape planning**

- [W] **Advancing landscape architecture**

- **Virtual Library of landscape Architecture** http://www.clr.toronto.edu:1080/VIRTUALLIB/larch.html.

Organizations

- European Landscape Architecture Network
- European Foundation for Landscape Architecture
- Council of Educators in Landscape Architecture
- European Landscape Architecture Students Association
- Advanced Technology Centre for Landscape and Architecture

Broader strategies

- Spatial planning
- Designing using ekistics

Narrower strategies

- Creating wildlife corridors
- Developing wildlife habitats on human constructions
- Conserving landscape diversity

Related strategies

- Developing architectural art
- Informing on built environment

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Database selected: World Problems - Issues (?)

[W] **Landscape disfigurement**

- [W] **Dependence on landscape disfigurement**
- [W] **Untended landscape areas**
- [W] **Degradation of culturally important landscapes**

Nature In past centuries, landscapes developed slowly. Natural forces tended to keep a balance between plants, men and other species. Even man-made landscapes -- cultural landscapes -- were varied in character and rich in species. In recent decades the balance has been upset by the use of agricultural machinery and technologies, and the growing population. Industrialized societies expand rapidly, making heavy demands on resources. Fragile geological forms and living plant and animal communities, evolved over many thousands of years, can be destroyed very quickly. Once disintegration of a landscape begins it is difficult to reverse, leading to ugliness, wastelands, and erosion of fertile land (as a result of over-grazing, unwise cropping, mining, tourist facilities construction, and ill-considered deforestation). Culturally important landscapes include natural, modified, cultivated or built environments (separately or in combination), that symbolize a particular relationship between a society and the natural world. They may range from sacred groves and other sacred sites (as in Southeast Asia) to tracts of moorland (as in Europe) and alpine landscapes. Such landscapes are vulnerable to inappropriate development projects.

Incidence Many of the most beautiful landscapes in the UK have been seriously damaged by farming and development. Natural lowland pasture rich in wildlife has been replaced by cereal crops. More recently windfarms have been intruding on the aesthetics of both lowlands and previously untouched uplands. The degradation has been accelerated by the large number of visitors.

Broader problems

- Ugliness
- Amenity destruction
- Environmental degradation
- Destruction of human heritage
- Environmental consequences of war
- Deterioration of human environment

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2. Associations and complexity – cognitive and otherwise

Evolving pattern of associations in a learning society

- Associations of ideas, concepts, theories
- Associations of different technologies
- Associations across cultures
- Associations across faiths and beliefs
- Associations of values (for quality of life)
- Aesthetic associations
- Associations of people and other bodies

Strategic opportunities for association

- New associations of ideas, concepts, theories
- New associations of different technologies
- New associations across cultures
- New associations across faiths and beliefs
- New aesthetic associations
- New metaphors
- New associations of people and other bodies

Implementing associative strategies

- Exploring new patterns of concepts, theories
- Exploring new inter-modal technologies
- Exploring cross-cultural fertilization
- Exploring dialogue across faiths and beliefs
- Exploring new aesthetic associations
- Exploring new metaphors
- Exploring new associations of people, groups,etc

3. Crisis of meaning

-- faith-based vs evidence-based reality

Contemporary crisis of meaning

- Conceptual incoherence in strategy
  - global
  - local
- Loss of sense of direction
- Loss of faith in systems and beliefs
- Fragmentation of initiatives
- Inter-disciplinary chaos and disrespect
- Conceptual and policy gridlock
- Severe erosion of institutional credibility

Frenetic strategic desperation

- Overproduction of
  - appeals
  - manifestos, declarations
  - resolutions
- Mutual recrimination
- Unrelated new initiatives
  - unrealistic action plans
  - proliferation of organizations
  - content-free conferences

Individual and collective uncertainty

- Crises in financial system
- From employment to unemployment
- Social insecurity (safety net inadequacy)
- Urban violence and personal safety
- Environmental fragility
- Erosion of moral and ethical standards
- Institutional corruption
- Policy indecision & Leadership vacuum
- Policy discontinuity -- broken promises

Global values ?

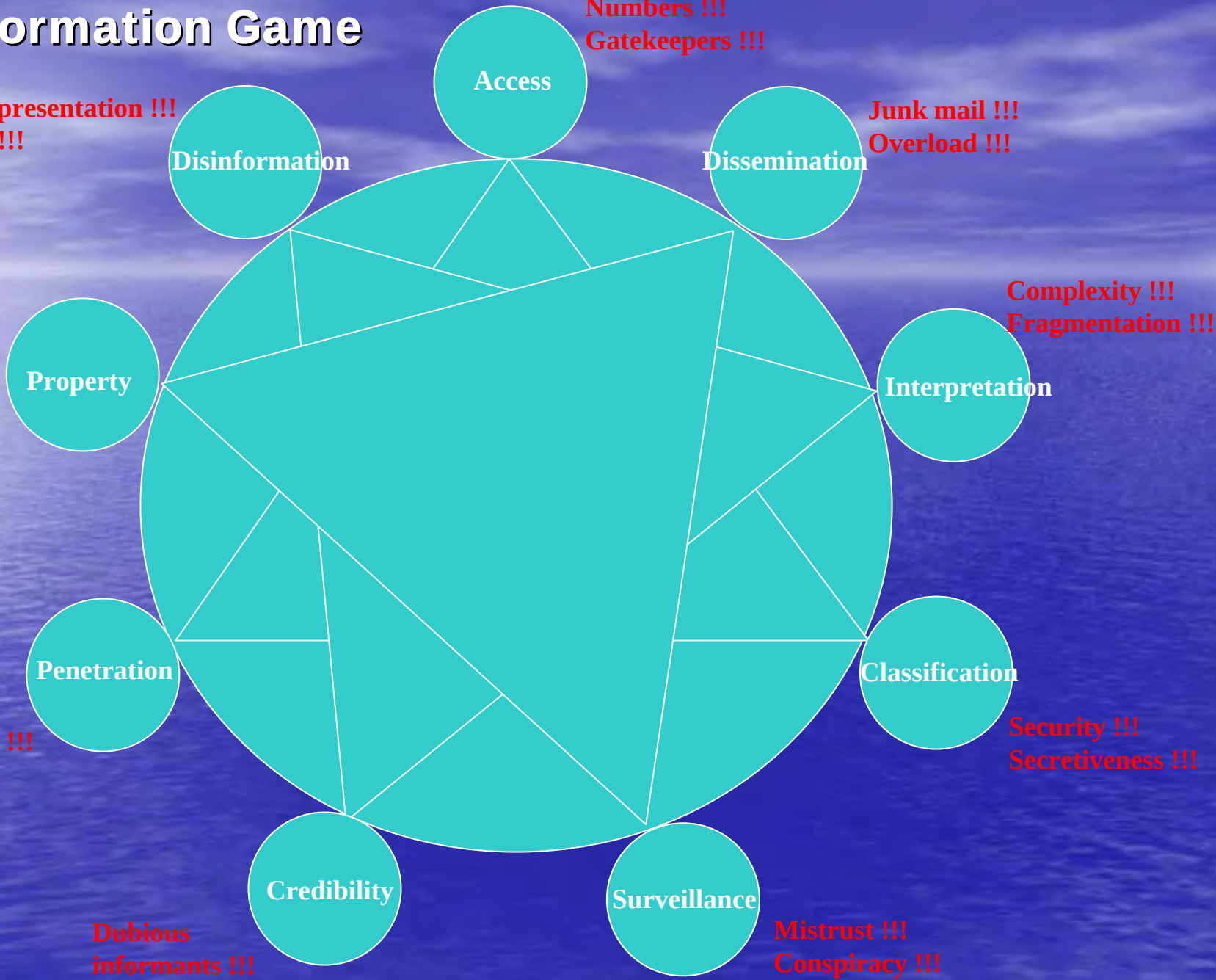
- Whose values?
  - whose values are recognized?
  - whose values are neglected?
  - what meaning do they have locally?
- Who designs the system of global values?
  - how are the values related?
- Who imposes the values?
  - what of alternative values?
  - and those who disagree?
- How do new values emerge...for the future?

4. Policy challenges of the emergent knowledge society

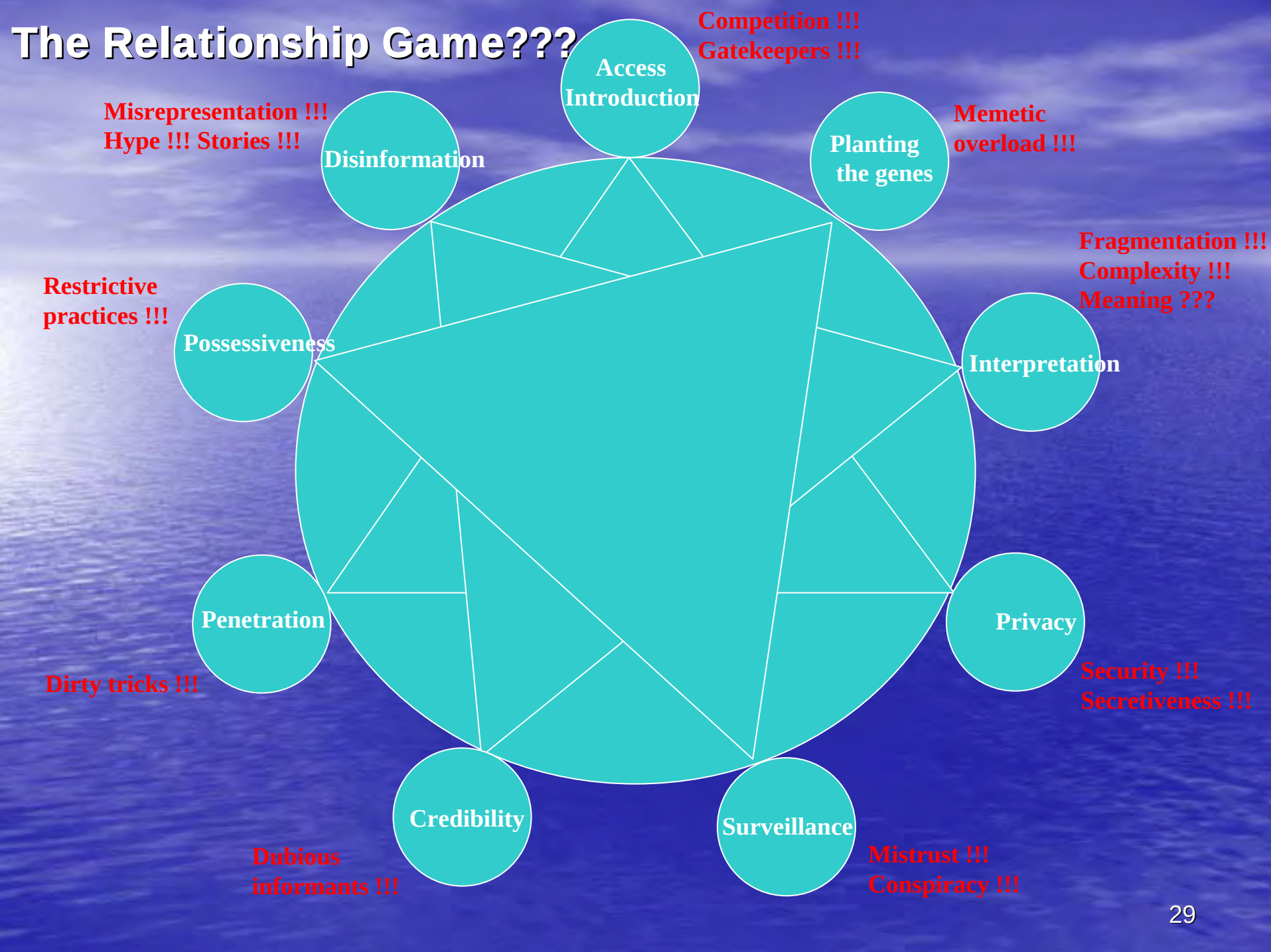
Information overload & underuse

- A truism -- there is “too much” information
- Overproduction of information
- Limited dissemination / readership
- Diminishing collective attention span
- Fragmented & disorganized information
- “Dumbing down” public information
- Unreliable information -- misinformation
- An analogous problem?: *overpopulation*

The Information Game



The Relationship Game???



Inappropriate policy metaphors for a rapidly evolving society

- Military metaphors (for peaceful purposes)
  - targeting... population groups
  - mobilizing...support
  - war...on drugs
- Simplistic, selective, static, linear metaphors
  - vision (but no other sense)
  - programming...people and organizations
  - points in a line of argument
  - state of the world / environment / etc

5. Challenges of knowledge organization

Knowledge organization: “Technical” challenge

- scope / comprehensiveness
- response to detail
- mathematical representation (modelling / simulation)
- visualization (geometry / topology)
- user interactivity: change of perspective and degree of detail
- compatibility / consonance with popular frameworks (possibly as carriers)
- intuitive/psychological consonance
- memorable / mnemonic challenge
- adaptability / openness

Knowledge organization: “Strategic” challenge

- complementarity of incommensurable / opposing perspectives (keystone function)
- global comprehension (grokability)
- strategic insight for governance and communication channelling
- compatibility / consonance with popular frameworks (possibly as carriers)
- intuitive/psychological consonance
- memorable / mnemonic challenge

Knowledge: "Psycho-cultural" challenge

- Axes of methodological bias *(W T Jones)*
  - Order vs disorder; Static vs dynamic Continuity vs discreteness; Inner vs outer; Sharp focus vs soft focus; This world vs other world ; Spontaneity vs process
- Epistemological mindscapes *(Magoroh Maruyama)*
  - H (homogenistic, hierarchical, classificational); I (heterogenistic, individualistic, random); S (heterogenistic, interactive, homeostatic); G (heterogenistic, interactive, morphogenetic)
- Work-related values *(Geert Hofstede)*
  - Power distance ; Uncertainty avoidance; Individualism; Masculinity
- Modalities in dialogue *(Kinhide Mushakoji)*
  - Affirmation; Negation; Affirmation and negation; Non-affirmation and Non-negation
- Modes of reality construction *(Will McWhinney)*
  - Analytic; Dialectic; Axiotic; Mythic
- Forms of intelligence *(Howard Gardner)*
  - Linguistic; Musical; Logical/mathematical; Spatial; Bodily-kinaesthetic; Personal

"Ontology"

- Formal description of categories and relations
- Derived from shared discourse of a knowledge community
- Pragmatic, not intended to be "true"
- Used to provide a common framework into which disparate data sets can be translated
- Not created in a "pristine" state

Ontology - Phase 1: Focus on the data level

- Identify iniitial set of data providers and form a consortium of data providers
  - The GDG as a “VO”
  - Perhaps á la the Gene Ontology Consortium
- Clean and normalize existing data sets (according to internal standards of data provider)

Ontology -- Phase 2: Focus on the ontology level

- Collaboratively define an ontology of globalization.
  - A series of workshops
  - Involve representatives of stakeholder groups
    - data providers, users and developers
- Choose an encoding standard for the ontology
  - OWL?
- Define a methodology for ontological mapping of contributor data sets

Ontology -- Phase 3: Focus on the middleware level

- Build a grid hub at Princeton University (see diagram at end of document).
- Develop an ontology “filter” to process incoming data sets.
- Develop a data aggregation caching mechanism for ontologically filtered data sets, which will be accessible by the analytical services.

Ontology -- Phase 4: Focus on the analytical and visualization level

- Choose a flexible application development framework
- Create a NetMap client for data users
- Provide an interface with basic functions:
  - search, select, sort, count, etc. of data
- Provide interface with higher-order functions
  - E.g. data mining.
- Use a “participatory design” process

UIA Links

Anthony Judge:
Email: Anthony.Judge@gmail.com
Web: http://www.laetusinpraesens.org

This presentation:
http://www.laetusinpraesens.org/docs00s/untelos2.pdf

Associated text (and references):
http://www.laetusinpraesens.org/musings/untelos.php

UIA home page
http://www.uia.org/

Online database access
http://www.uia.org/data.htm

Some related texts

- Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity (2005)
- Animating the Representation of Europe (2004)
- Spherical Accounting: using geometry to embody developmental integrity (2004)
- Simulating a Global Brain: using networks of international organizations, world problems, strategies, and values (2001)
- Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society (2004)
- Knowledge Gardening through Music: patterns of coherence for future African management as an alternative to Project Logic (2000)
- Coherent Policy-making Beyond the Information Barrier (1999)
- From Information Highways to Songlines of the Noosphere: Global configuration of hypertext pathways for meaningful collective transformation (1996)
- Poetry making and Policy making: marrying Beauty and the Beast (1993)
- Aesthetics of Governance in the Year 2490 (1990)