

Information Technologies to Support Injury Surveillance: From Data to Knowledge

Bob Kent, University of Windsor

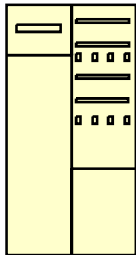
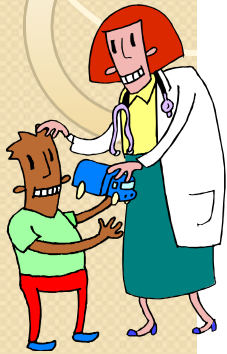


The Mad Hatter's Tea Party

University of Windsor
thinking forward

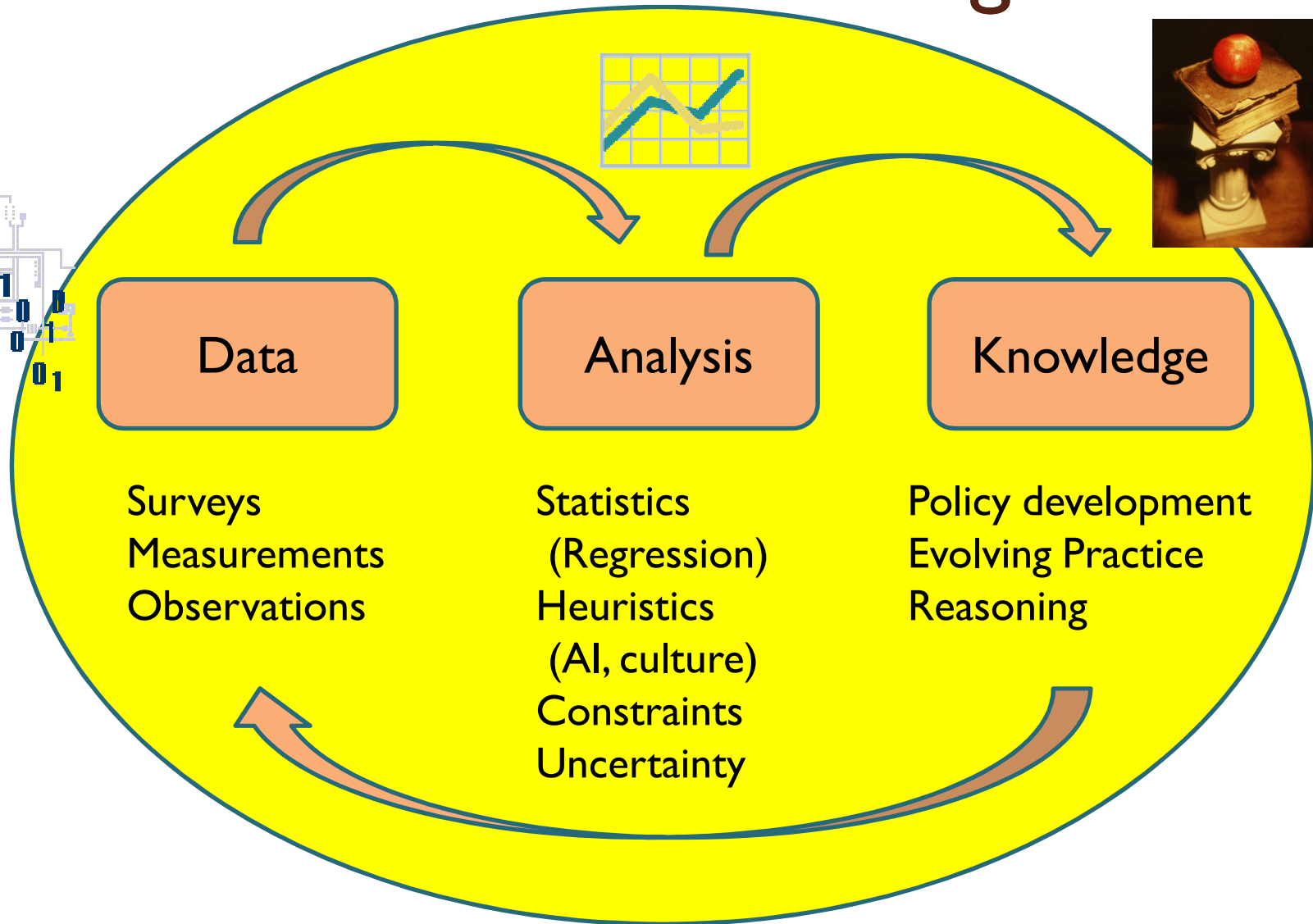
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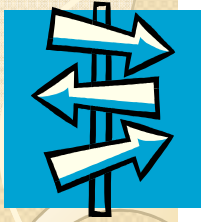
Motivated by wellness



- ▶ Wellness cannot afford to wait for hard science and medicine to “prove” diagnosis and treatment efficacy when urgency demands **action now** and good experience and professional “intuition” can provide it with lower cost tools.
 - We all collect lots of data, but we wait a long time between data collection (evidence) to obtaining useful, interpretive results (decisions)
 - Statistics is expensive, requires expertise and takes a long time to model and compute! (but, it is still necessary)
 - Heuristic modeling is lower cost, often requires less data, computes faster, can be made evolutionary to consider both latitudinal and longitudinal effects, and is a more natural paradigm for practitioners.

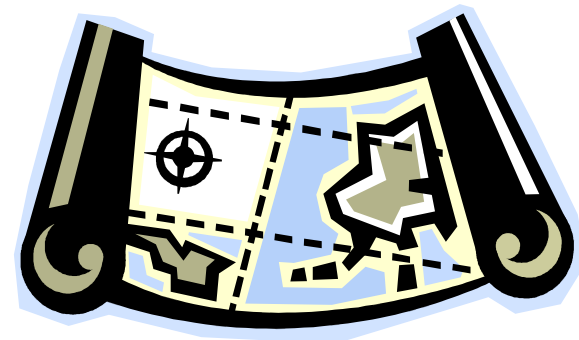
From Data to Knowledge



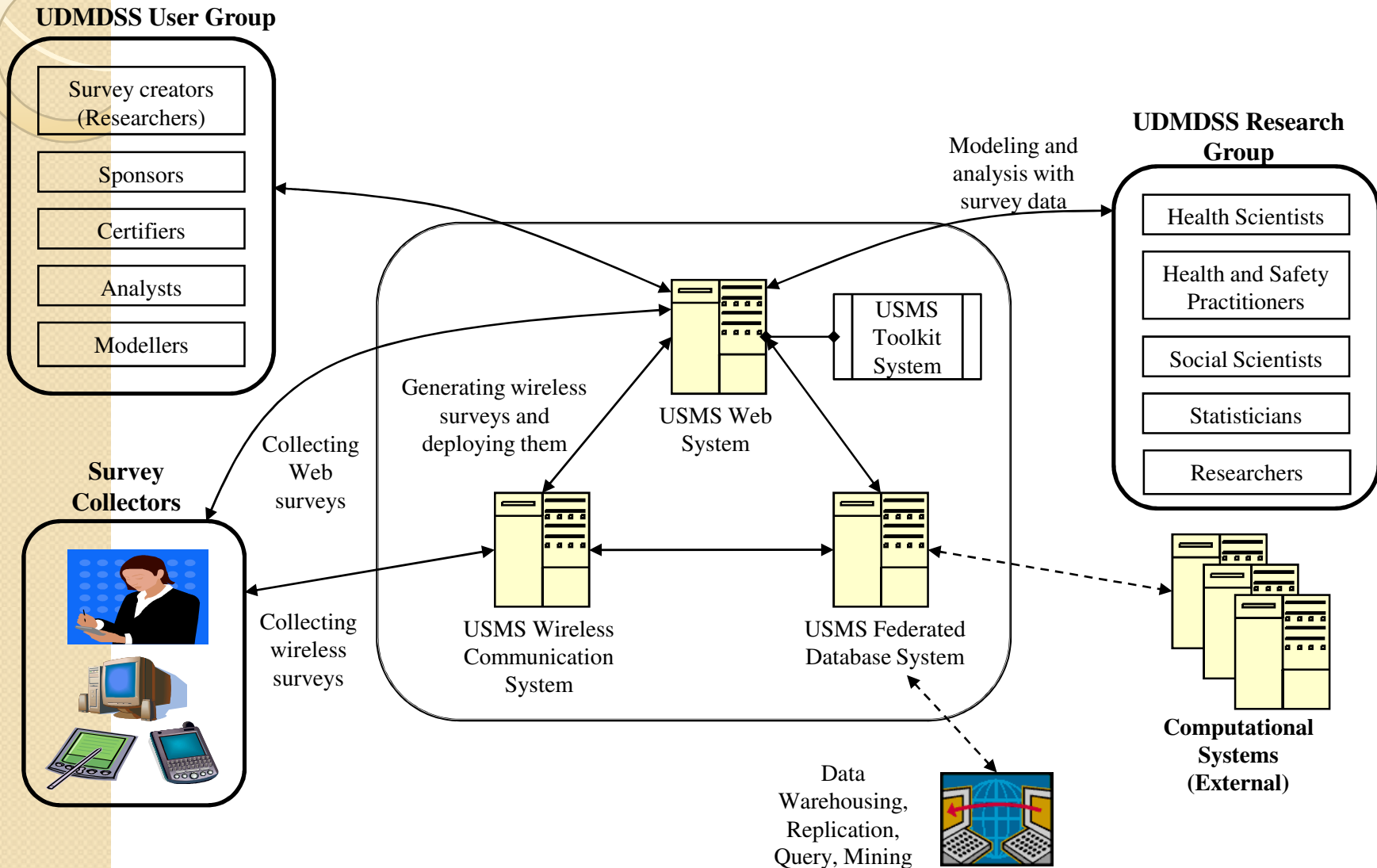


Navigation Systems:

- Integrate data sets and analyze trends
- Comprehensive
- Accessible
- Generate reports in “real time”

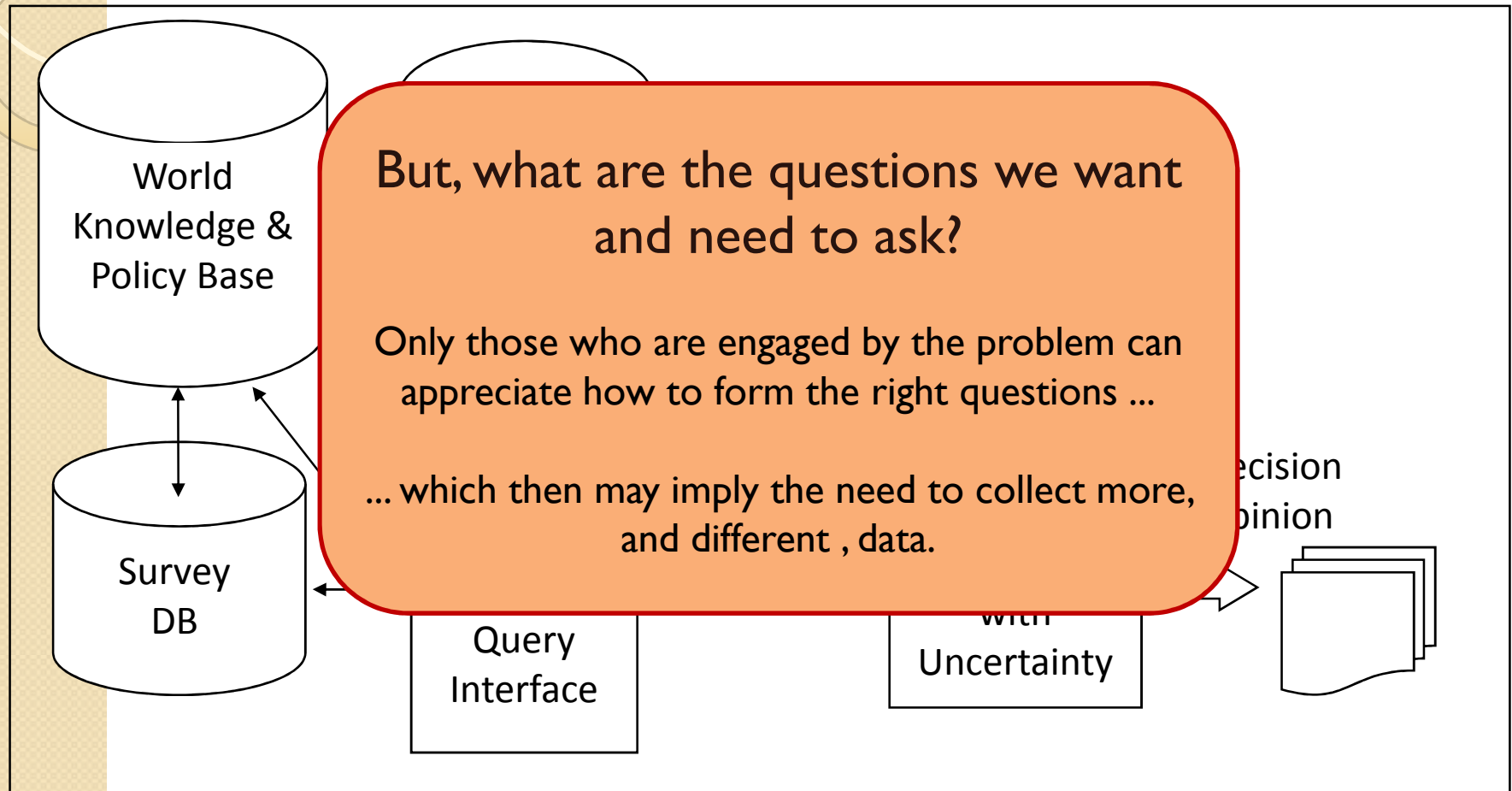


Unified Data Management & Decision Support System (UDMDSS) - Overview

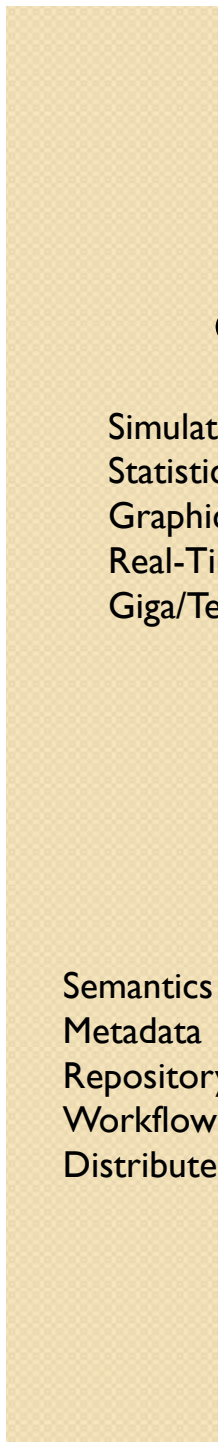




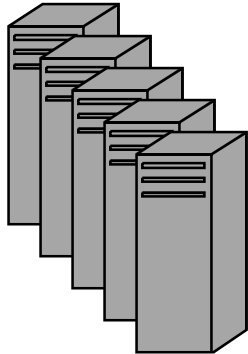
Using evidence to inform decisions



Network and workflow diagram (architecture) to support evidence based research involving population surveys as opinions.



Computation



Simulations
Statistics
Graphics
Real-Time
Giga/Tera/Peta scale

Management

Business Logic
Communications
Security & Support



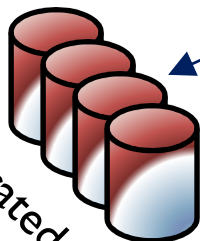
Modelling & Simulation



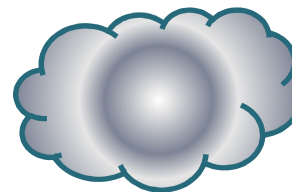
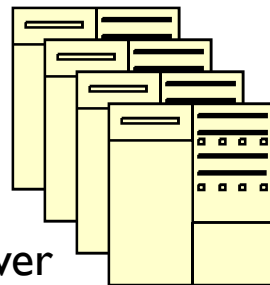
Statistics
Agents & Culture
Genetic & Evolutionary algorithms
Pattern Recognition
Decision & Game Theory



Federated Data
Warehousing & Mining



Server
Grid



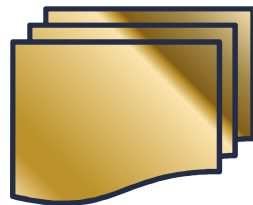
Research Methods

Semantics
Interoperability
Evidence based Reasoning
Heuristic and Subjective Logic
Conceptual Modeling

Semantics
Metadata
Repository control
Workflow Management
Distributed Query logic

Archiving

Documents
Report generation
Replica management



Thank you – Can we help you?

- ▶ Dr. Robert (Bob) Kent <rkent@uwindsor.ca>
 - Computer Science, U.Windsor
 - High Performance and Grid Computing Group
 - Intelligent Health Information Systems
 - Traffic and Road Injury Prevention (CIHR)
 - Chief Architect & Designer: UDMDSS

- Collaborators:
 - Anne Snowdon
 - Ziad Kobti
 - Gokul Bhandari



Courtesy: Summer Breeze–Kent, 2006