

Need for Community of Interest for Context in Applied Decision Making



**10340 Democracy Lane, Suite 302
Fairfax, VA 22030
703-385-9320
Peter.Morosoff@e-mapsys.com
www.e-mapsys.com**

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Morosoff Lightning Talk - Need for COI.PPT

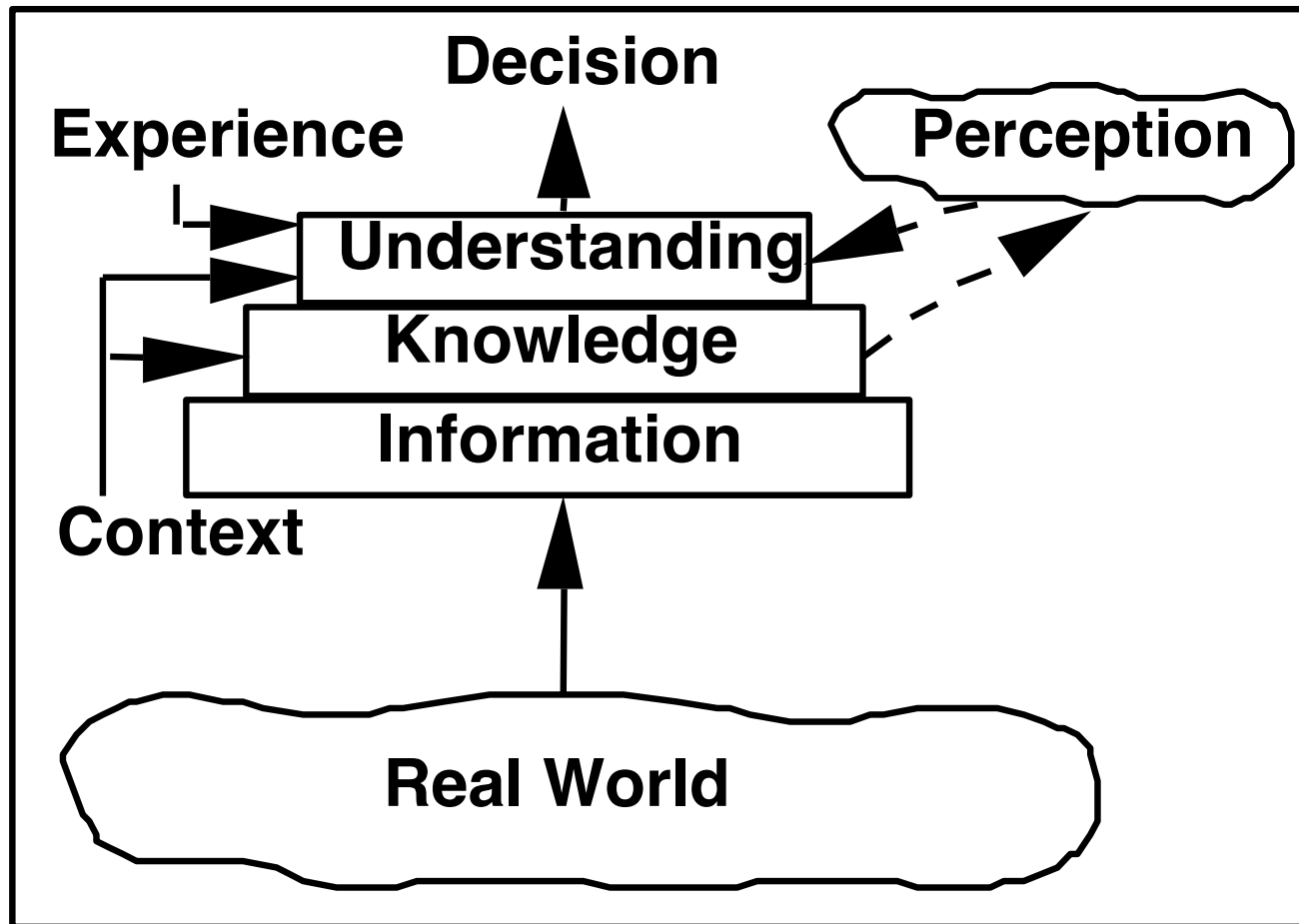
Coping With Massive Amounts of Information

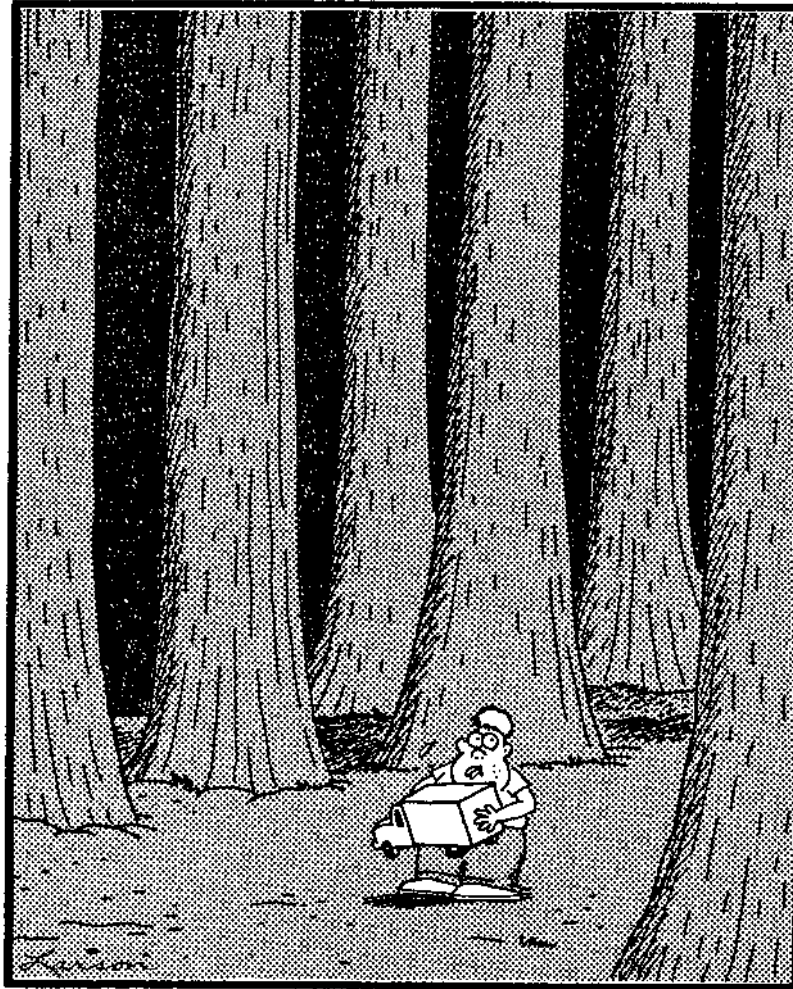
- The Glare of War -

Dr. Howard S. Marsh
Chief Engineer, ELB ACTD
Office of Naval Research

Common Tactical Picture Workshop
8-9 July 1998

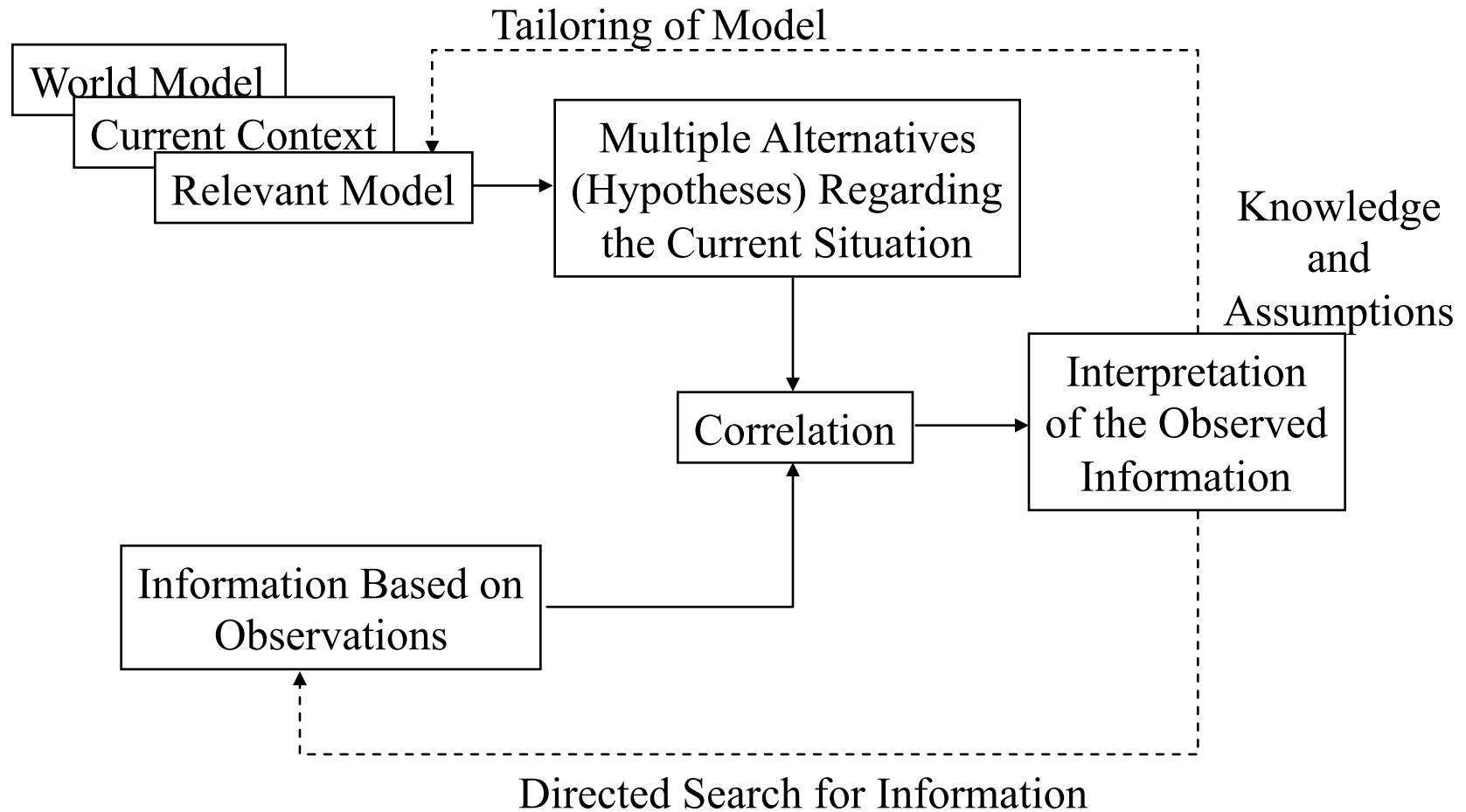
A Simple Model for Decision Making



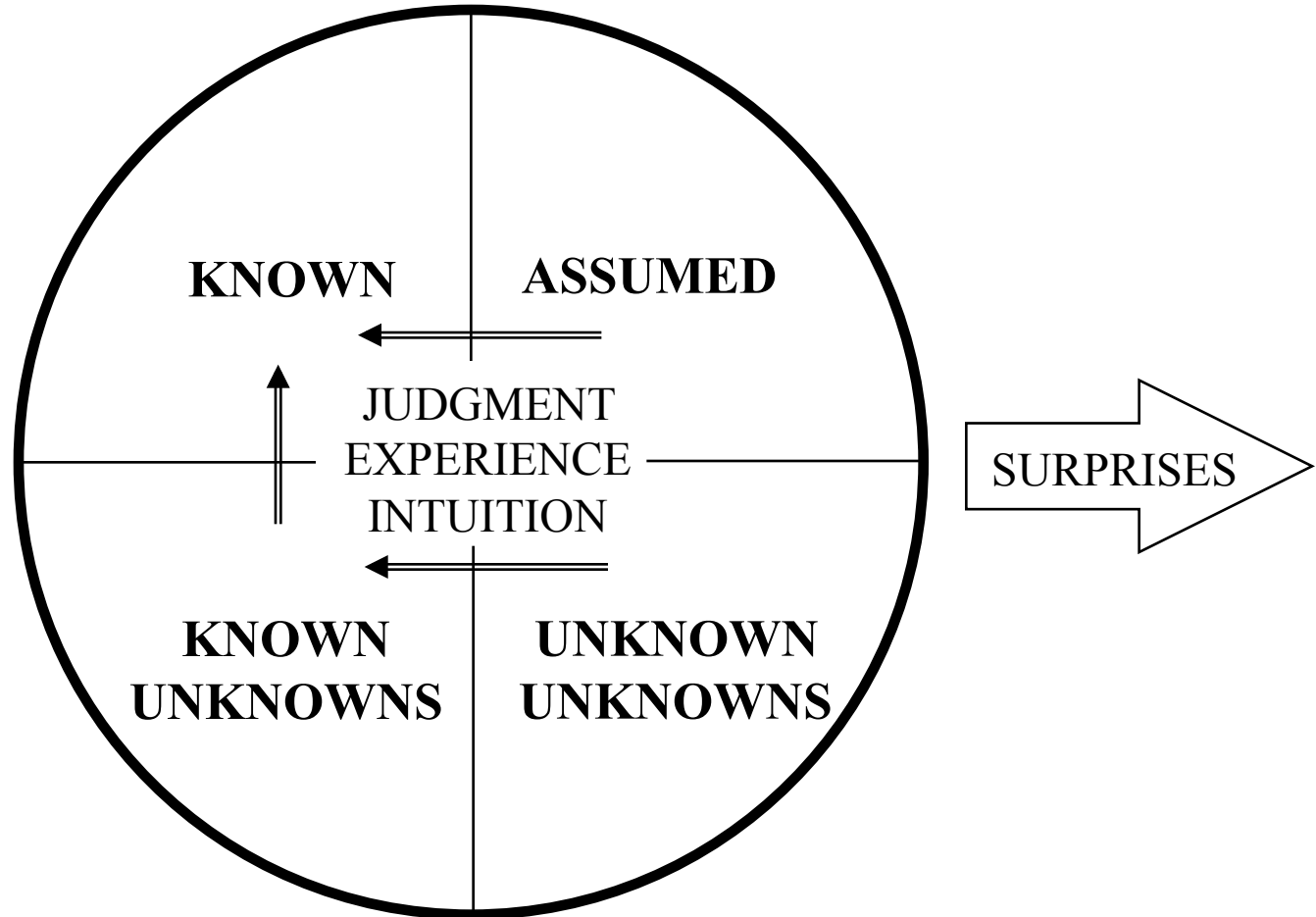


Eventually, Stevie looked up: His mother was nowhere in sight, and this was certainly no longer the toy department.

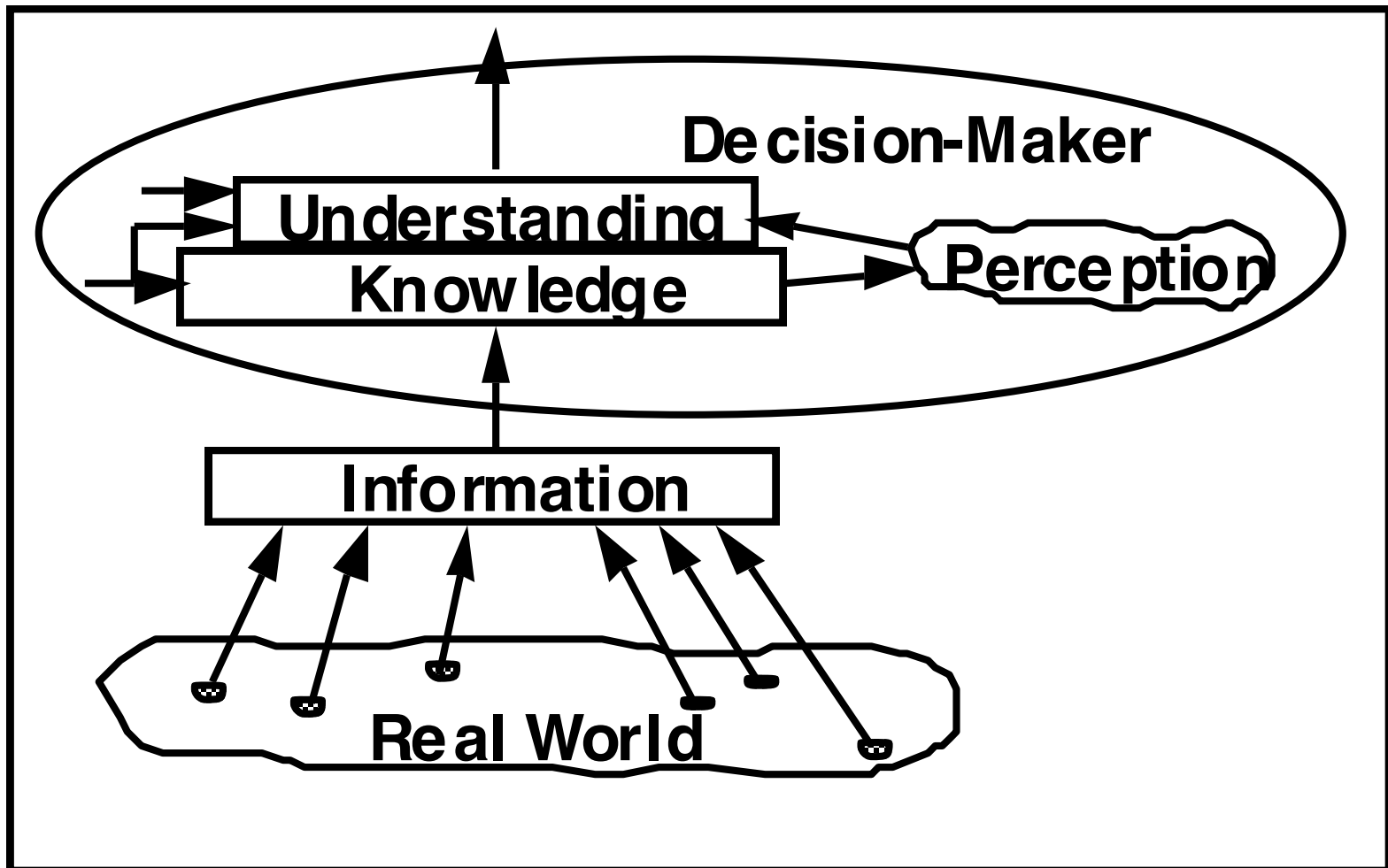
Building Knowledge from Information



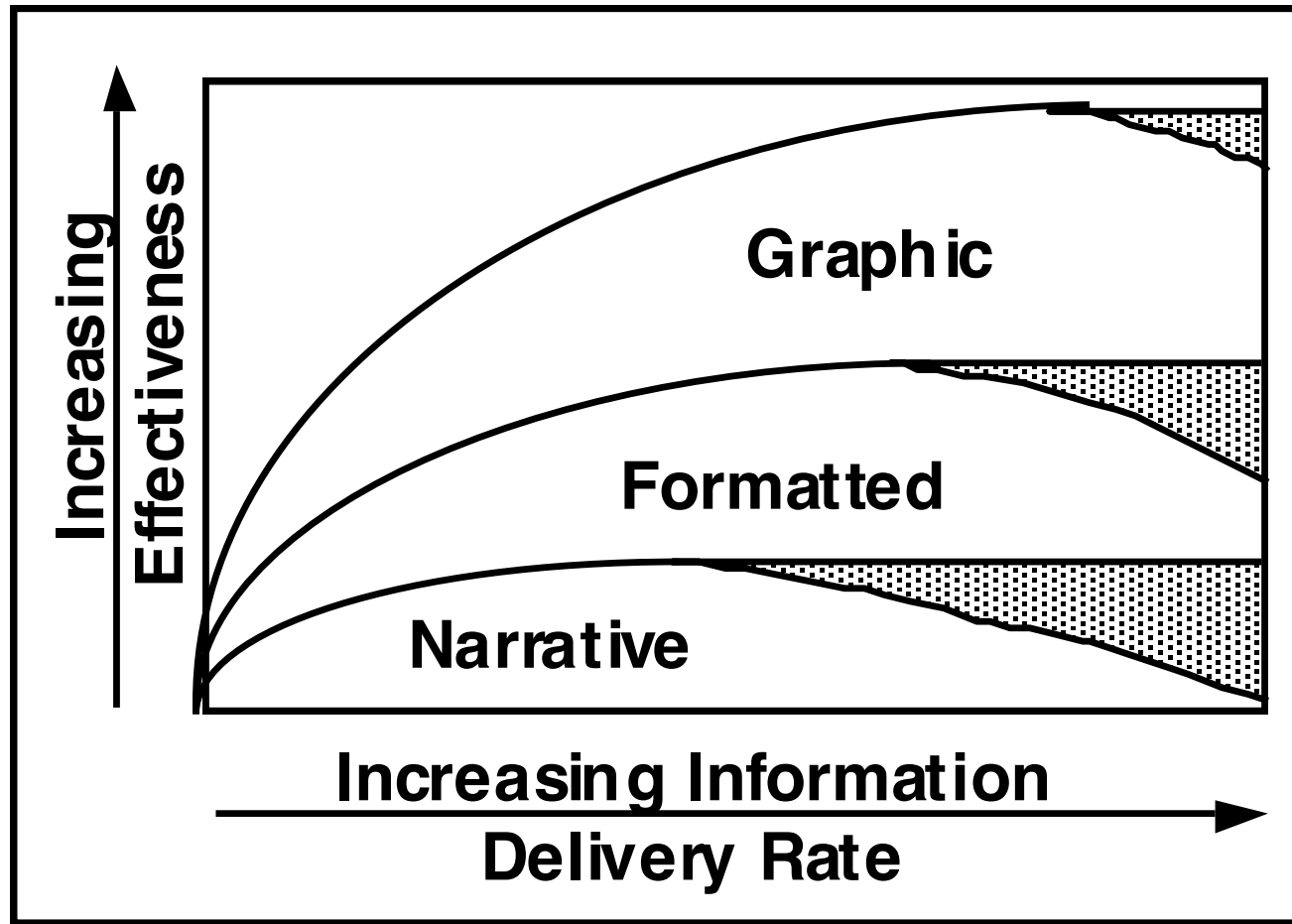
The Perception Map



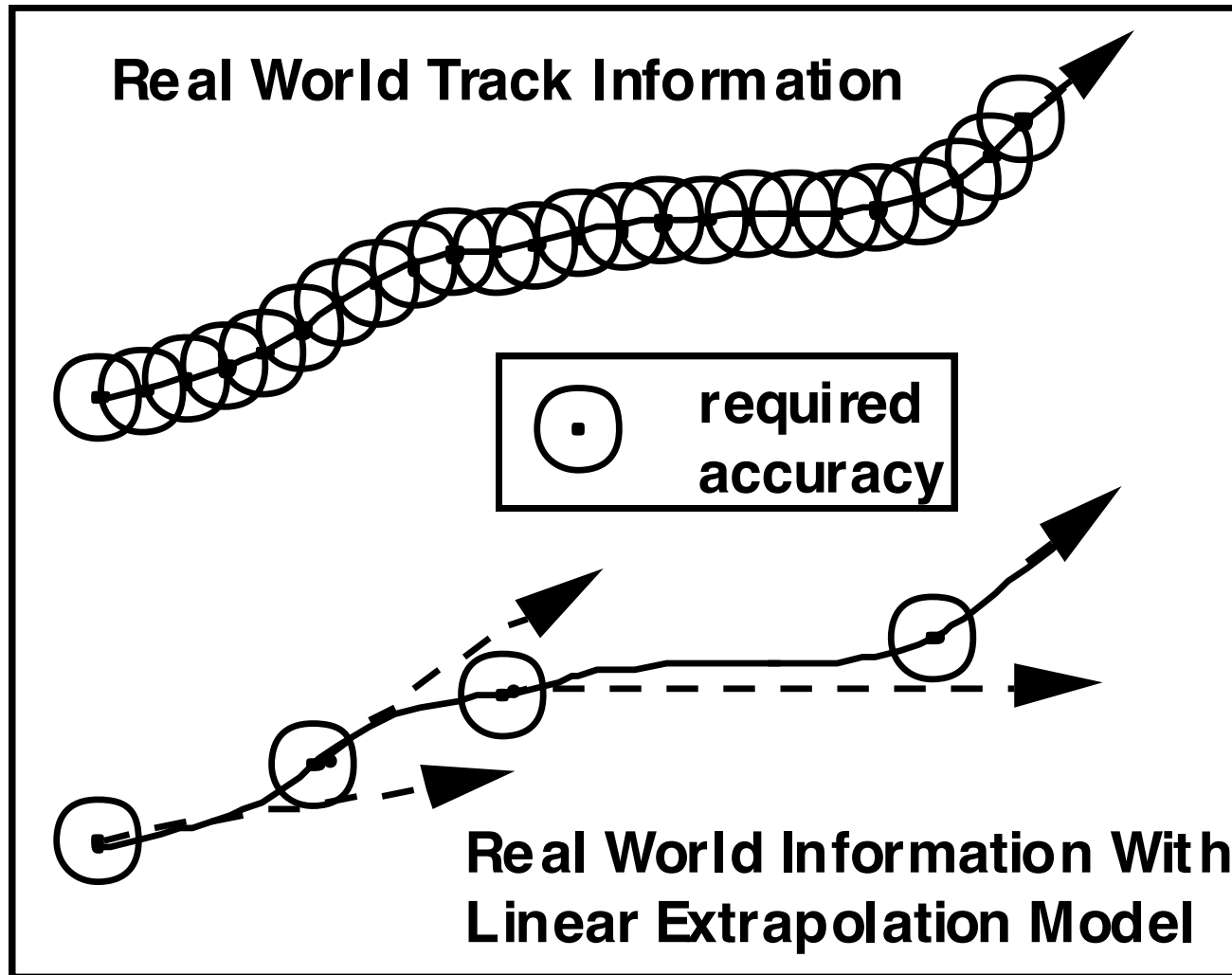
Information Oriented Support



Impact of Presentation Form



Information Report vs Knowledge Update



Update Based on Significant Changes

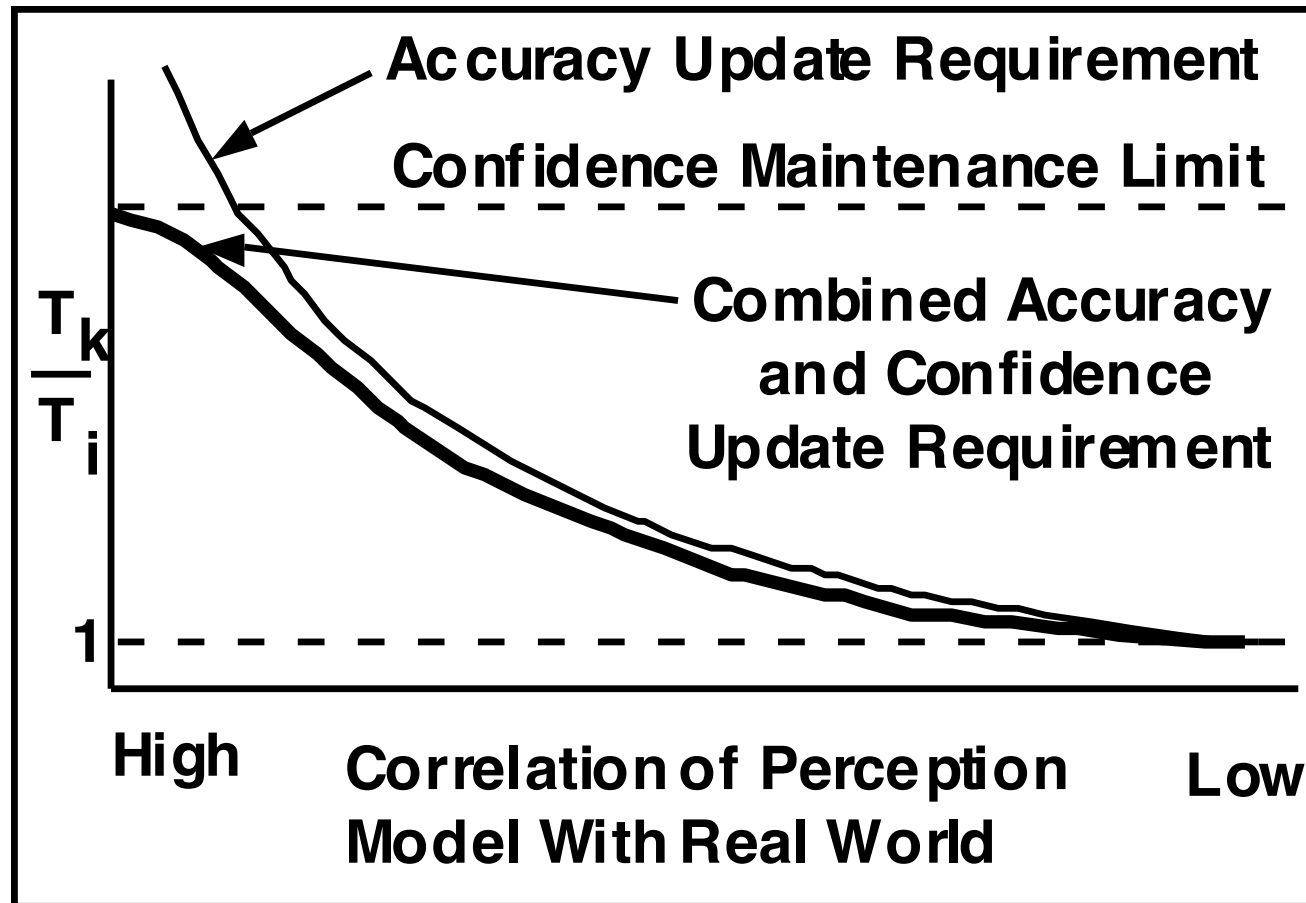
Velocity = 1000 ft/sec

Allowed Δ = 1000 ft

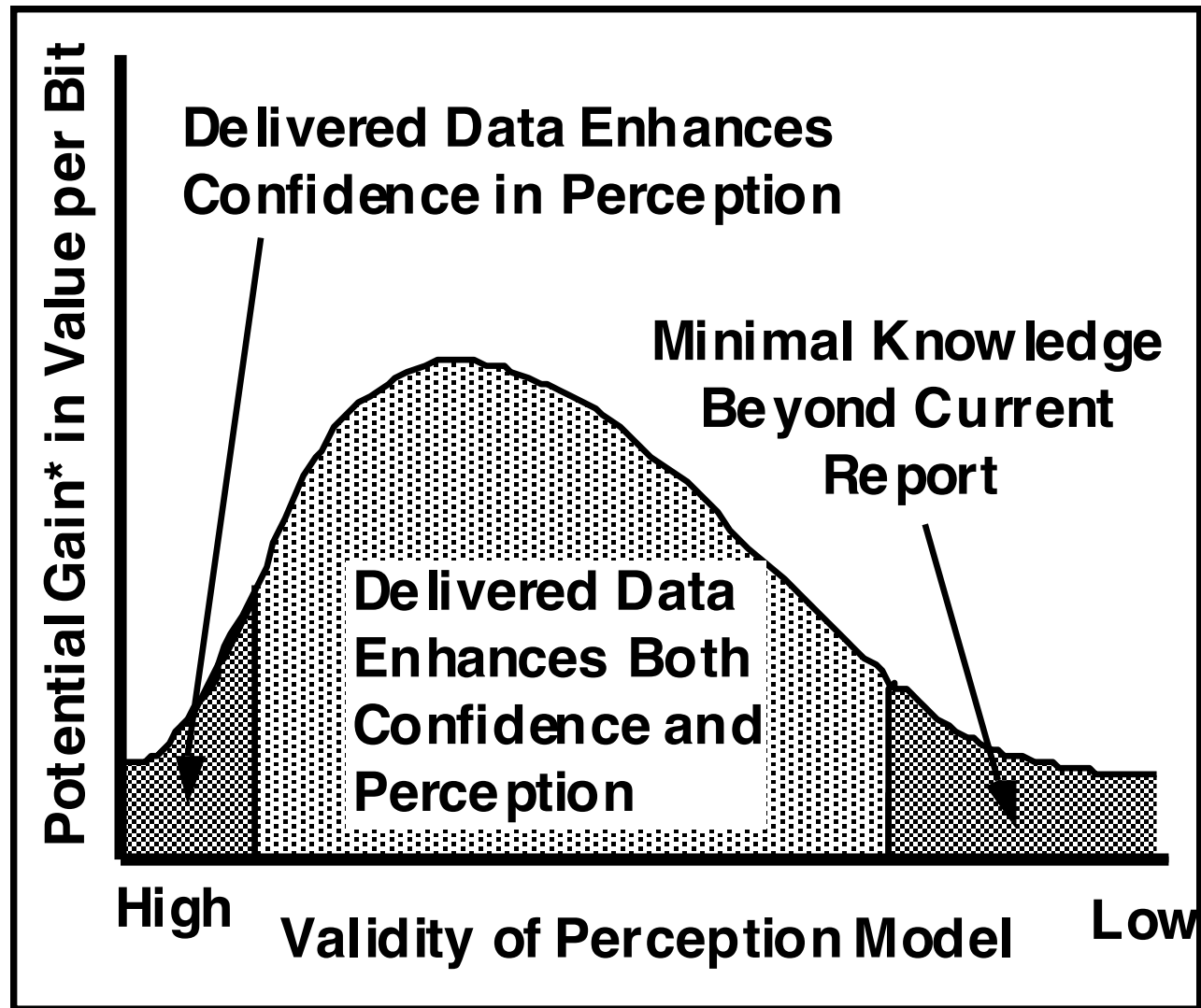
T_i = 1 sec

Acceleration ($g = 32 \text{ ft/sec}^2$)	$T_k(\text{sec})$	T_k/T_i
0	-	-
0.05	35	35
0.1	25	25
0.5	11	11
1.0	8	8
2.0	5.5	5.5

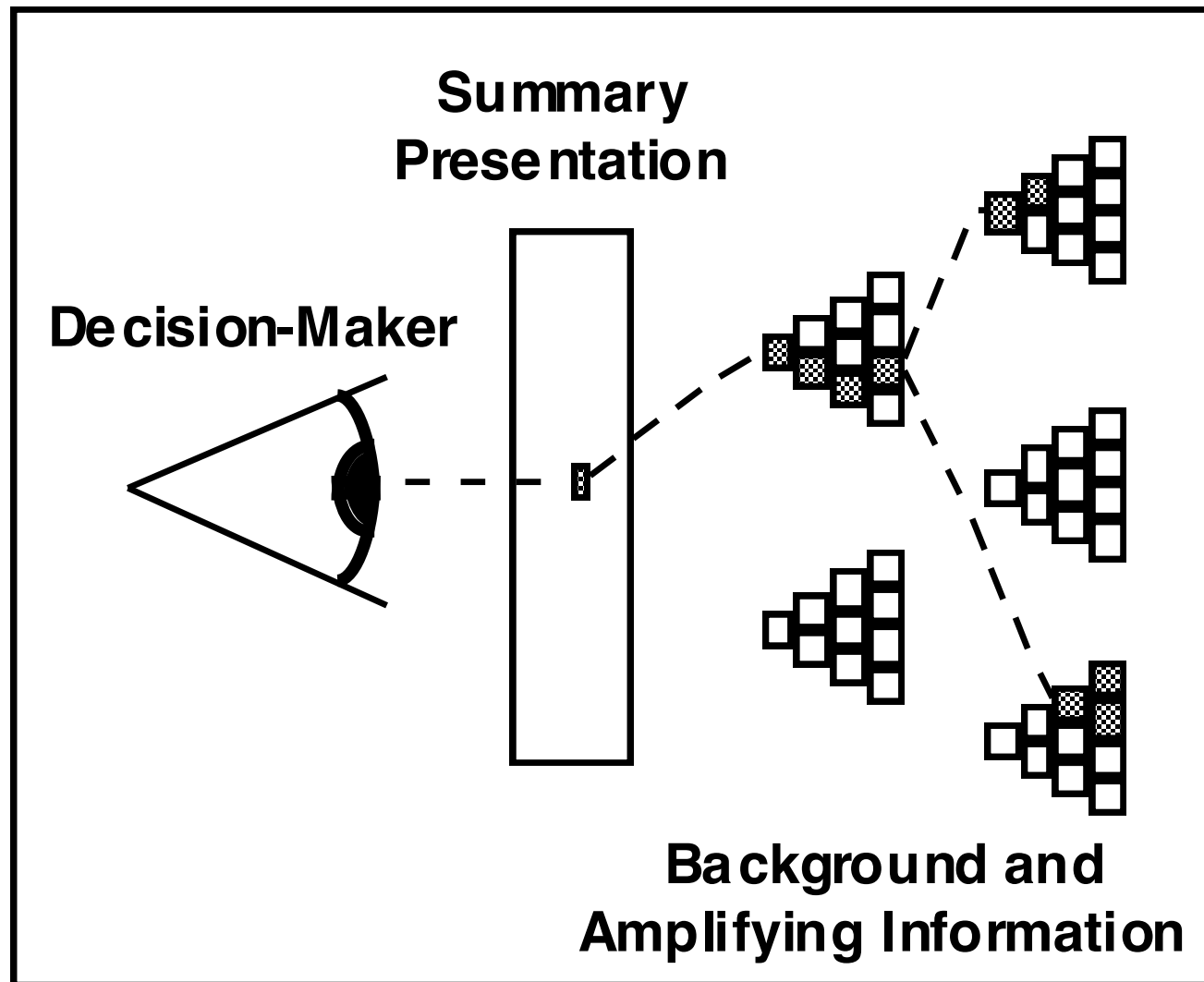
Potential to Throttle Back on Information Delivery Based on Ability to Infer Knowledge

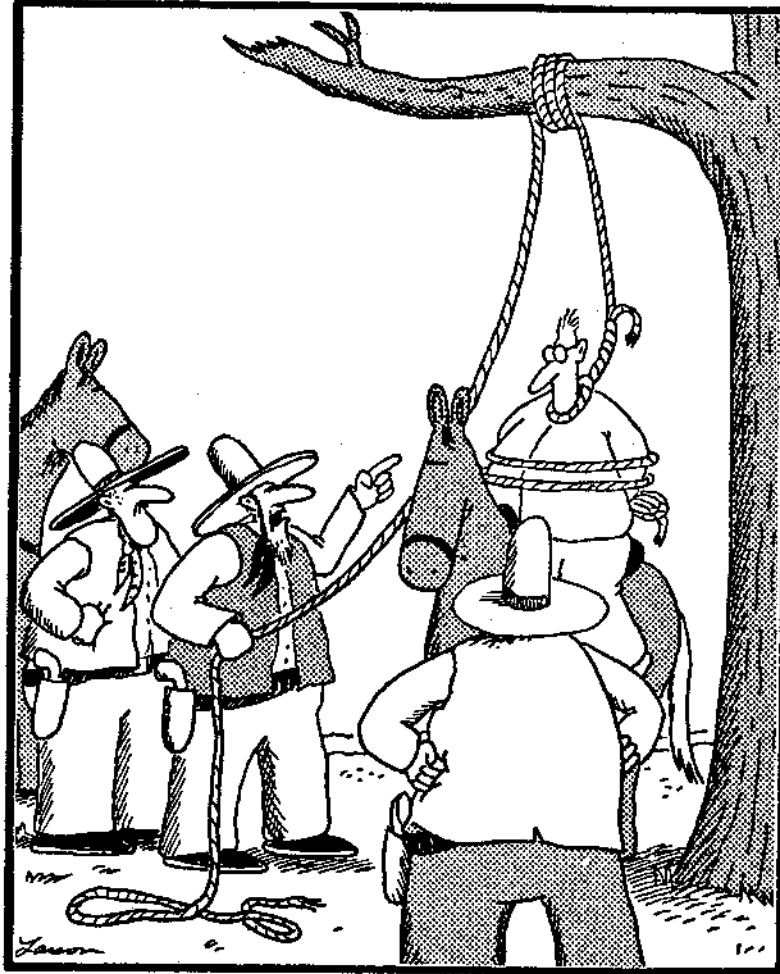


Gain in Knowledge Value per Delivered Bit



Presentation of Knowledge



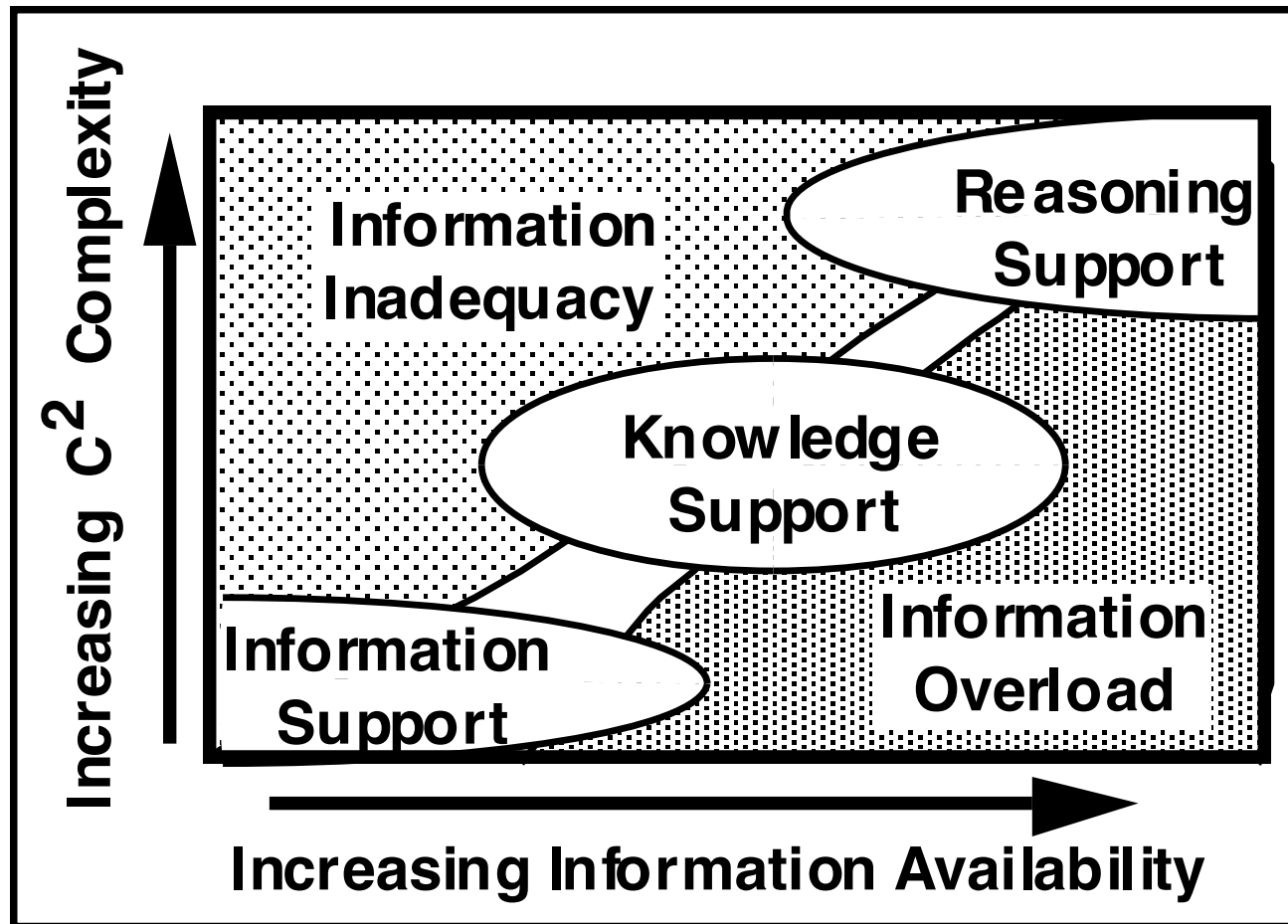


"We'll ask you one more time, stranger—if you're really a cowboy from the Rio Grande, then why ain't your legs bowed or your cheeks tan?"

Appreciation: A Higher Form of Reasoning

- Knowledge
 - Matching Available Information to Known Entities and Behaviors in the Real World
- Understanding
 - Matching the Knowledge With One or More Likely States Based on the Context of the Problem
- Appreciation
 - Interpreting the Currently Understood Situation and Desired End States to Determine Responses

Domains of Information Utility vs Overload



Available Aids Can be Embedded in Tactical Displays and Information Management

- Knowledge
 - Correlators
 - Multi-Hypothesis Trackers
 - Uncertainty Displays and Cues
 - Alerting and Reporting Agents
- Understanding
 - Multi-Hypothesis Trackers
 - Uncertainty Displays and Cues
 - Visualization
 - Alerting and Reporting Agents
- Appreciation
 - Case-Based and Constraint-Based Reasoning
 - Simulation

The New Challenge

- The Fog of War
 - Uncertainty
 - Ambiguity
 - Assumptions
 - Unknown Unknowns
- The Glare of War
 - Massive Inputs of Information
 - Mix of Relevant and Marginally Useful Information
 - Heterogeneous Forms of Information and Presentation
 - Hiding of Important Information

**Too Much Information Can Be As Bad As Too Little.
The Key Is In The Management And Presentation.**