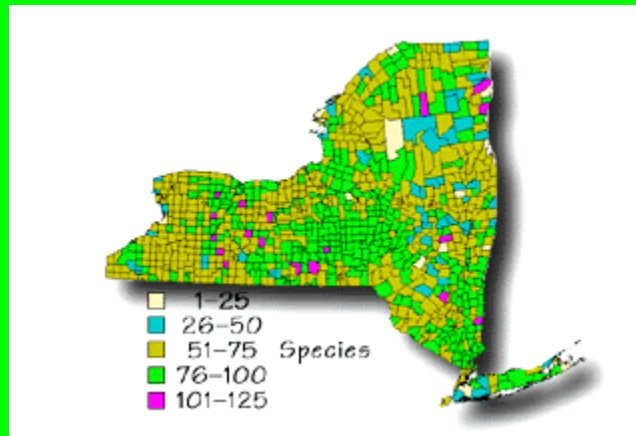
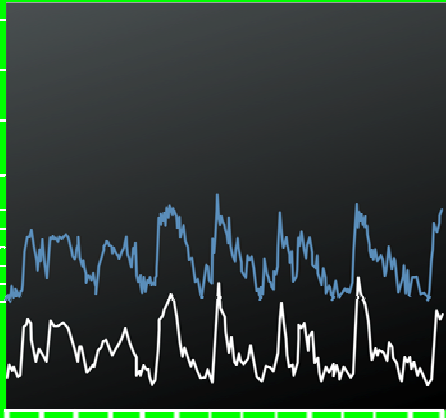
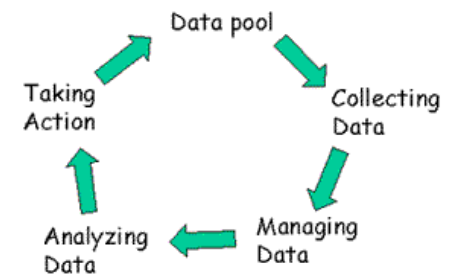


# Librarians without Borders: The Information You Need Anytime, Anywhere



## The Life Cycle of Data

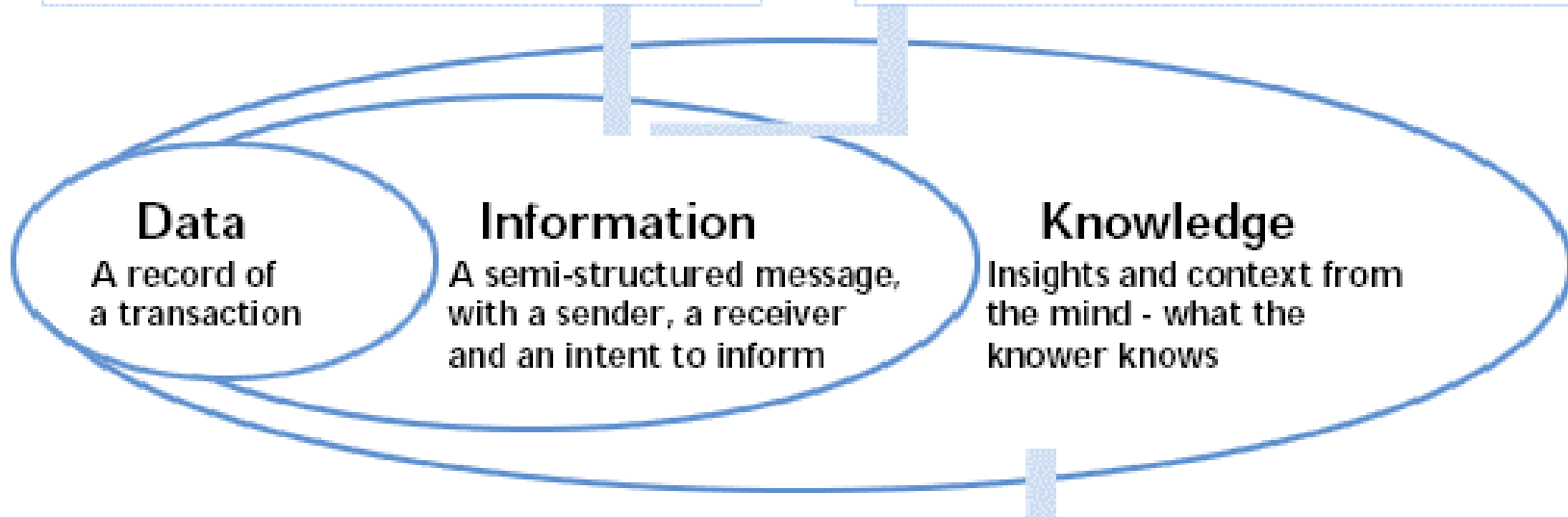




**Explicit knowledge:**  
Knowledge represented  
in artifacts: e.g., books,  
documents, e-mails, etc.



**Embedded knowledge:**  
Organizational understanding  
manifested in processes,  
products and services



**Tacit knowledge:**  
Knowledge that is difficult to  
articulate or represent.

# Decisions



# Decision Making Process



Knowledge

Libraries

# USERS

+/-

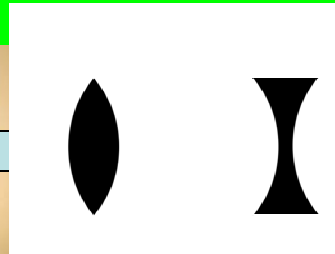
+/-

Data

Information



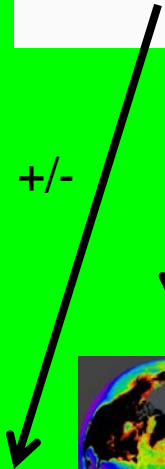
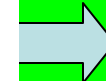
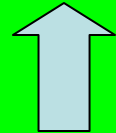
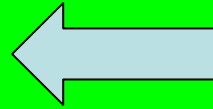
Perceived  
(subjective)



# Cultural & Societal Filters & Conditions

# Stakeholders

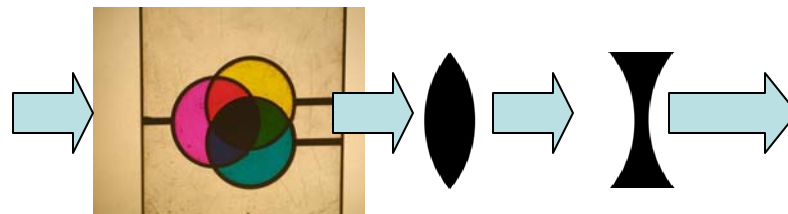
Real  
(objective)



We “see” the **Perceived Environment**, as a result of looking at the **Factual Real Environment** through a series of cultural & societal filters & conditions:

Religion	Race	Education	Income
Neighborhood	Car	Transportation	Computer
Career	Work setting	Schools	Political Party
Military Service	Organizations	Civic Groups	Library Books
Subscriptions	Energy Use	Hobbies	Vacations
House Style	Age	Family Stability	Health
Voting Record	Charities	Consumption	Recycling

Factors called “Quality of Life Indicators” or “Sustainability Factors” will have major and minor influences affecting our perceptions.



**Cultural & Societal  
Filters & Conditions**

# Sophisticated Users

- **Professionals in Many Disciplines**
- **Institutional Support**
  - Facilities
  - Resources
  - Support Personnel
  - Ready Access to Data & Information
- **Ability to Synthesize D&I**
  - Subject Knowledge/Expertise
  - Able to Evaluate D&I
    - Contextualize across disciplines

# Sophisticated Users

- Researchers
  - Science
  - Engineering
  - Social & Business Sciences
  - SOME Librarians & Information Specialists
- Educators
- Policy Makers
- Private and Public Institutions & Agencies

# Secondary Users

- **Individuals & Organizations**
  - Lacking Access to D&I
  - Lacking General or Specific Skills to
    - Acquire D&I
    - Analyze D&I
    - Contextualize across disciplines
- **Not interested in Primary D&I**
- **Reliant on Sophisticated Users' Expertise**
  - Secondary Access to D&I
    - Others' reports, summaries, news, general articles, white papers, testimony

# Secondary Users

- **Nonprofit Organizations**
  - Public & Special Interest Groups
  - Advocacy Groups
  - **HOWEVER:** since 1970 have **GREATLY** increased their staffs with **Sophisticated Users**
- **Officials** (appointed & elected)
- **Managers**
- **Teachers**
- **Many Librarians & Information Specialists**
- **Media** (print & broadcast)



# Tertiary Users

- **Individuals**
  - **Lacking Immediate Access or Knowledge about Accessing D&I**
  - **Lacking skills to understand the scientific and technical complexities**
  - **Easily Realized & Persuaded by Secondary Users / Not connect to Primary Users**
  - **Affected by Adverse Environmental Conditions**

# Tertiary Users

- **Citizens**
  - Neighborhood Coalitions
  - Community Advisory Boards
- **Staff of Local Officials**
- **Students**
  - K-12, College, University
- **Perhaps the Largest Group**
- **Perhaps the Group Most in Need of D&I**
- **Perhaps the Most Disenfranchised**
- **Needing the Greatest Amount of Help**



The **“Real Environment”** is defined by various types of objective Data that are applied to specific settings or applications:

- **Data-Intensive**

- **Regulatory Compliance**
- **Basic R&D**
- **Applied R&D**
- **Monitoring & Measuring Campaigns**

- **Use of Data**

- **Background or baseline data (preexisting conditions)**
- **Descriptive**
- **Continuous monitoring**
- **Subject to further**
  - **Analysis**
  - **Evaluation**



**Real**  
**(objective)**

The **“Real Environment”** is defined by various types of objective data:

- Numeric (datasets, data files, data inventories)
- Descriptive (illustrations, photographs remote sensed data, satellite images)
- Digital
- Laboratory notebooks
- Field notebooks surveys
- Graphs, tables, figures, images

**Compiled with**

- Standards & Specifications (testing and data collection)
- Protocols & Procedure Manuals
- Good Laboratory/Field Practices
- Verifiable record capture

**Subject to**

- Statistics
- Analyses
- Quality Assurance and Quality Control (QA/QC)

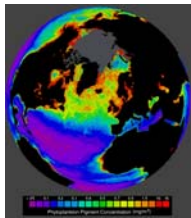


**Real  
(objective)**

**Leads to the Primary Literature (journal articles, technical reports, conference papers, patents, dissertations/theses)**

The **“Perceived Environment”** is the vision we have after the “real” environment has been analyzed, evaluated, re-defined, interpreted, and other forms of subjective study, including:

- Opinions
- Assumptions
- Interpretations
- Judgments
- Guesses (educated ones!)
- Arguments
- Biases
- Inferences



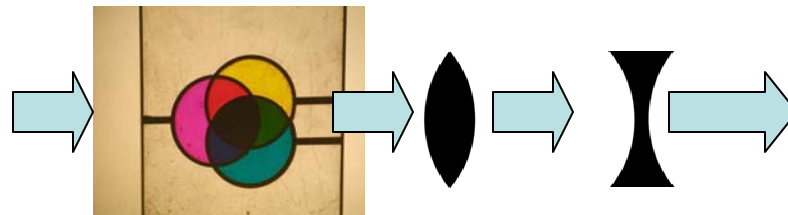
- Critical evaluations
- Interpreted Data Analyses
- Repackaging of Data

**Perceived  
(subjective)**

We “see” the **Perceived Environment**, as a result of looking at the **Factual Real Environment** through a series of cultural & societal filters & conditions:

Religion	Race	Education	Income
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Factors called “Quality of Life Indicators” or “Sustainability Factors” will have major and minor influences affecting our perceptions.



**Cultural & Societal  
Filters & Conditions**

**Stakeholders** are those persons, institutions, organizations, agencies, etc. responsible for the subjective evaluations, analyses, judgments, etc. These are individuals and entities sharing a common interest in a particular issue, problem, concern, topic:

Architects	Economists	Educators	Journalists
Lawyers	Managers	Librarians	Research Scientists
Forecasters	Activists	Leaders	Politicians
Special Interest	Public Interest	Ethicists	Elected Officials
Regulators	Students	Planners	Authors/Writers
Social Scientists	Clergy	Administrators	Engineers

**They will be found working in a variety of Public and private settings:**

Nonprofits	Industry	Business
Governments (elected, staff appointed, career)	Schools	Colleges
Institutes	Institutions	Neighborhoods
Self-Employed	Media	Libraries
	Organizations	Consultants
	Coalitions	Publishers



**Stakeholders**



# Decision Making Process

The **Decision Making Process** is, perhaps the most difficult, complex, controversial, and important part of this proposed model The process (should) includes:

Networking  
Consensus  
Respect  
Agenda Setting  
Policy Formulation  
Risk Analysis  
Models and Simulations  
Benefits—Costs Analyses  
Options  
Outcomes



The **Decision Making Process** takes place in:

board rooms  
legislative bodies  
public meetings

think tanks  
hallways  
class rooms

It is both informal and formal. The outcome is a sound decision, hopefully based on sound science and reasoning

# Decision Making Process

The **Decision Making Process** is, perhaps the most difficult, complex, controversial, and important part of this proposed model.

The information needs are based on stakeholders access to data & information and their ability to understand it.

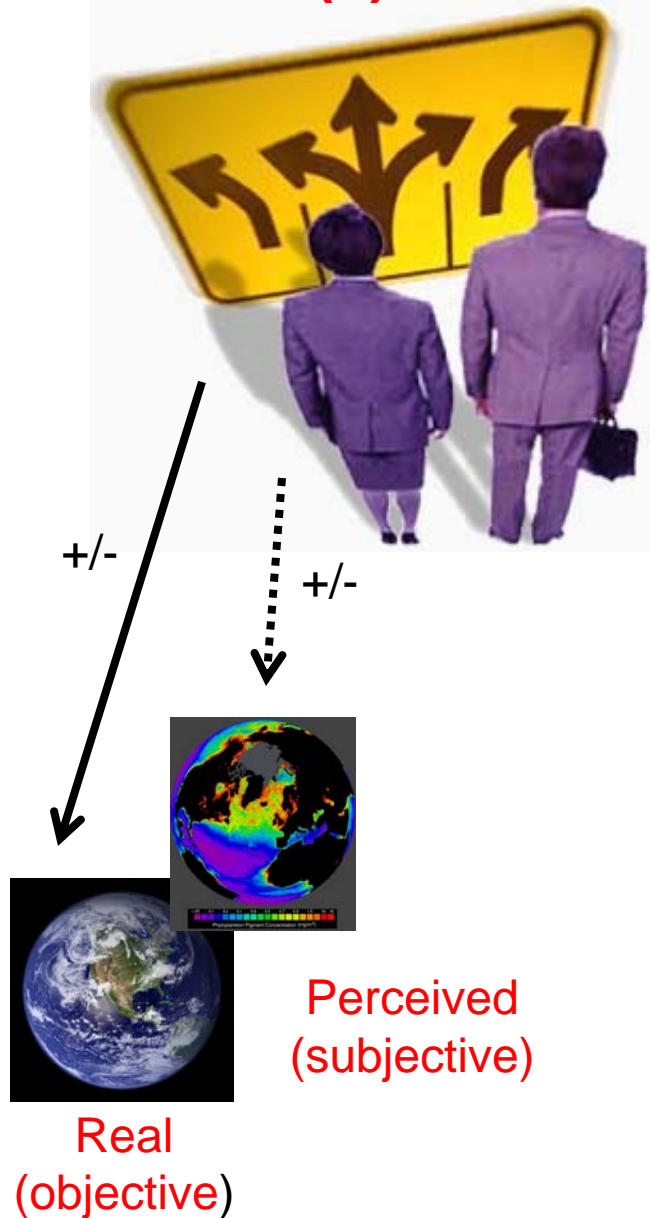
Many are completely reliant to others (individuals or groups) to provide these critical access and evaluation criteria (primarily due to costs of time, dollars, and expertise).

It is a game of influencing and of opinions.



The **Decision Making Process** relies on awareness raising, learning activities, case study analyses, data and information referrals, teaching good data practices, interpretations, publicity campaigns, lobbying and influencing, agency and regulatory body hearings

# Decision(s)



Once a **decision** has been made, it  
Can influence the metrics of the  
“**Real Environment**” AND the  
“**Perceived Environment:**”

What happens to the scientific data  
When a policy calls for a 50% reduction  
In CO<sub>2</sub> emissions?

What happens to the way we look at this  
“new” data and perceptions based on  
The decision to reduce CO<sub>2</sub>?

Clean Water Act  
Clean Air Act  
Montreal Protocol  
CITES  
Kyoto

remove phosphates  
reduce lead, SO<sub>2</sub>, etc.  
eliminate CFCs  
protect species  
reduce CO<sub>2</sub>

**Public Health &  
Environmental Quality**

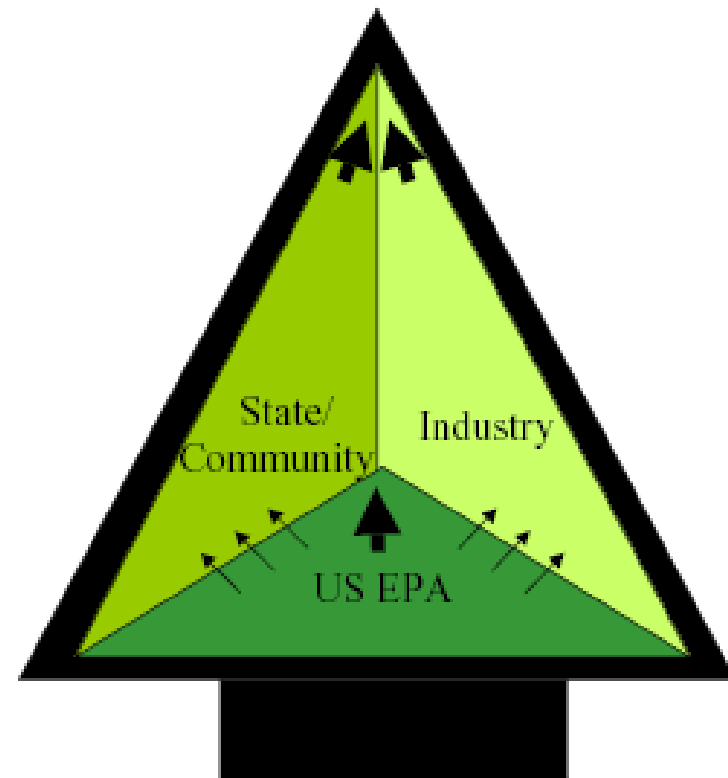


**Public Health &  
Economic Vitality**

**Profit &  
Development**

**Figure 5.1 – IBM Analysis of the US EPA's traditional approach to Environmental Management**

**COMMON GOAL:  
Public Health, Environmental  
Quality & Economic Vitality**



**Figure 5.2 – IBM Analysis of the US EPA's holistic approach to Environmental Management (2000 Strategic Plan)**