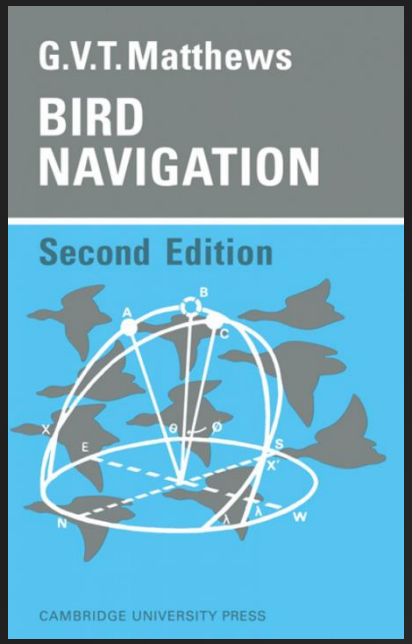
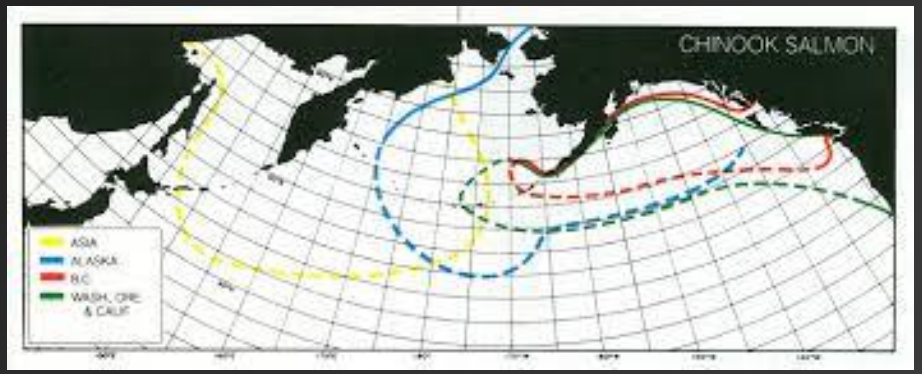
Help Wanted!

Individuals and Organizations that can Learn from Experience

The geographical instinct.





Intelligence:

Preserving, sharing and re-assembling observations and applying lessons learned to new or projected situations.

Planning and policy professionals imagine and describe change scenarios

- Most scenarios involve more than one sort of change.
- Compare Alternative Futures
- Develop authoritative recommendations.

Useful policy recommendations

- Describe change scenarios concisely
- Indicate an educated understanding

How do you know what you know?

Effective Communication

- Create useful ideas in the mind of your experts and the general public.

Nothing happens without communication, credibility, collaboration

Data can be Useful

- But data aren't magic
- But data are confusing
- There are predictable ways that people are confused by data

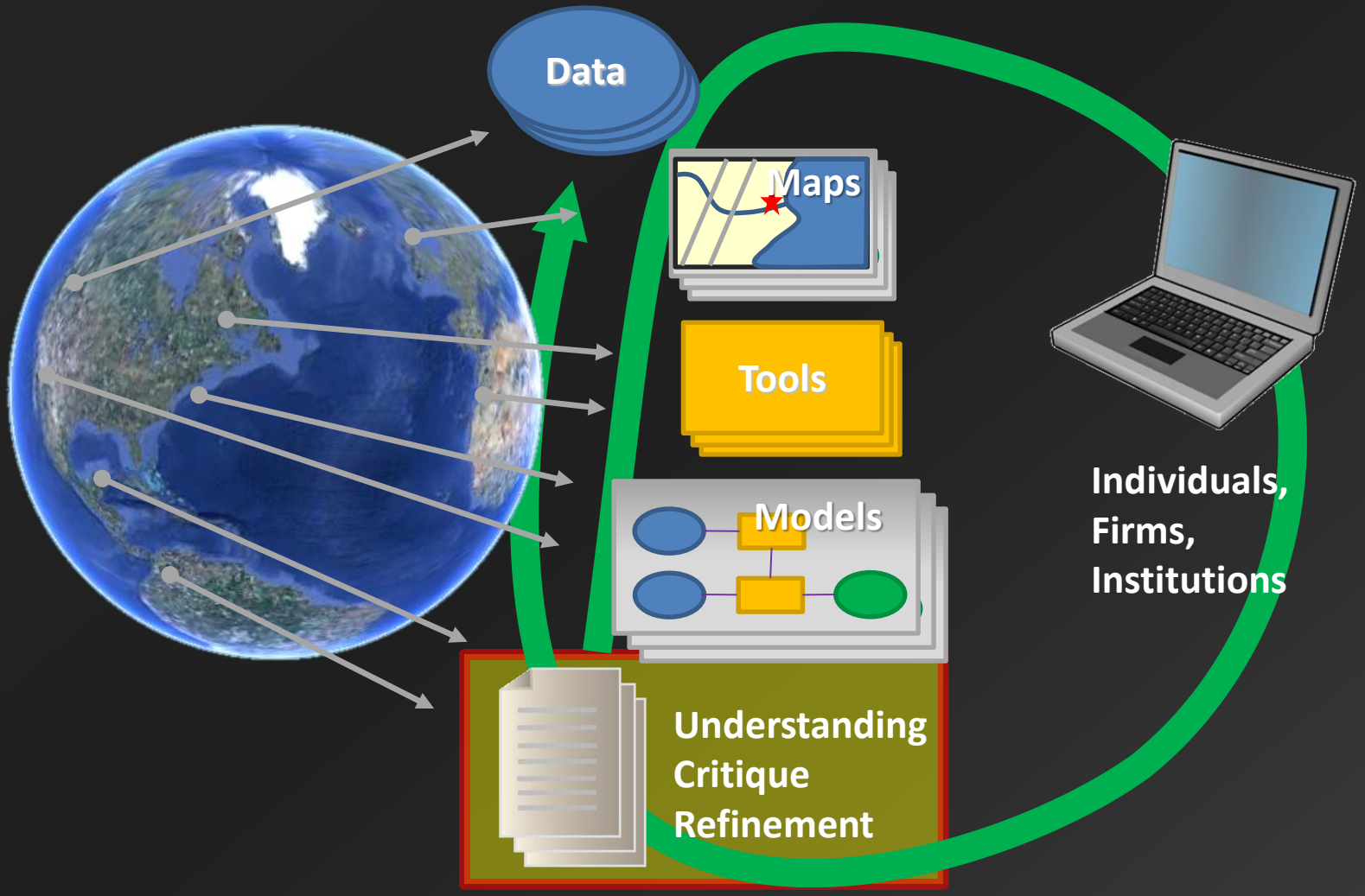
Credible analysis can be recognized by the way that it leads the reader through the interpretation of data, and the predictable issues.

Maps can be Useful

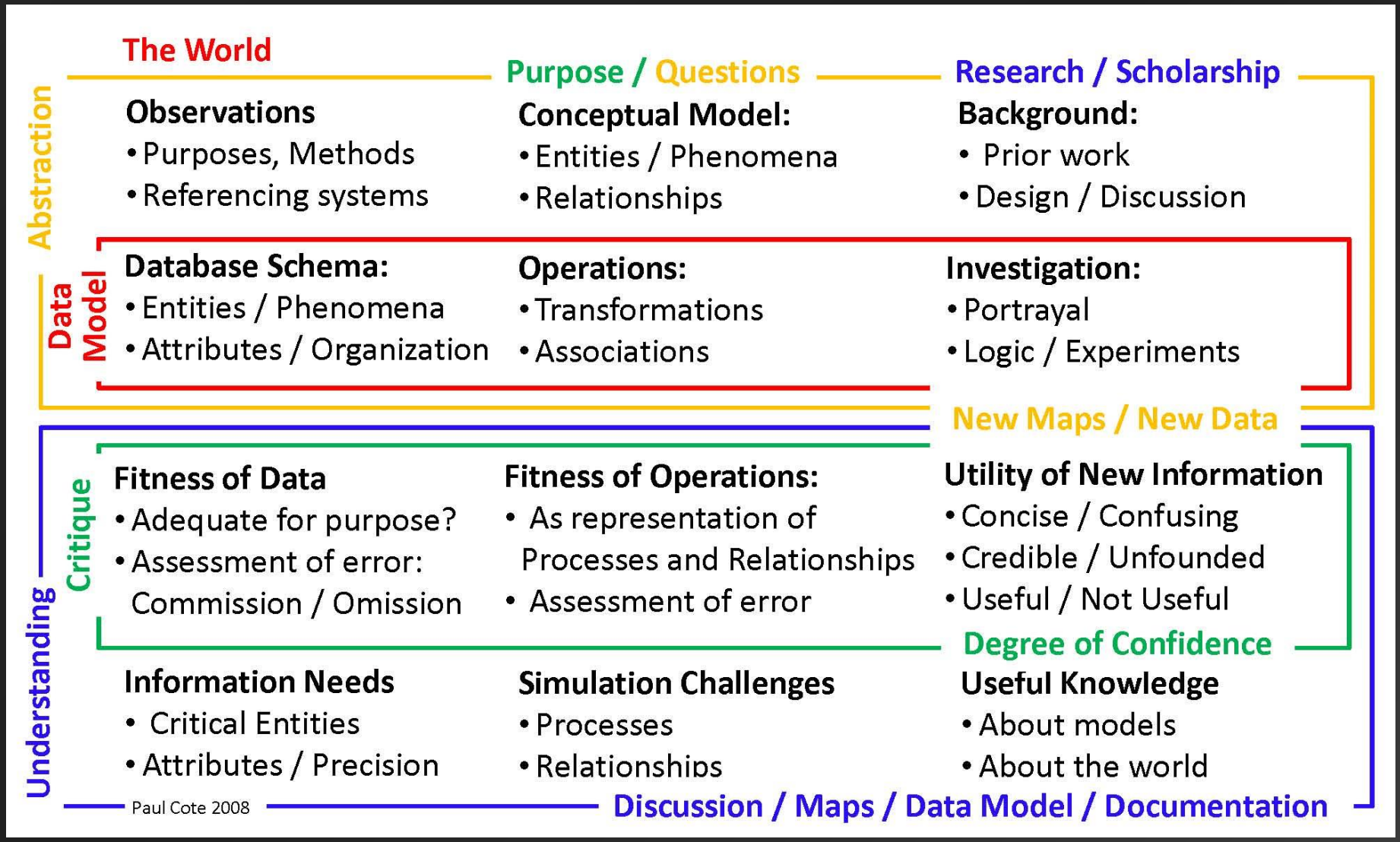
- But maps are confusing
- There are predictable ways that people are confused by maps

be a critical customer.

The Information Age: New Expectations for Scholarship, Planning and Administration



De-Mystify Data and Models



Every policy and planning enterprise requires people who can lead projects that:

- Describe change situations concisely
- Create maps that communicate
- Use data to support recommendations
- Organize data for re-use.

Always begin with a pilot feasibility study!

Information Lifespan: School Projects

Start

INDIVIDUALS ADD COHERENCE TO INFORMATION

Collect Resources:
- Site Photos
- GIS Data
- CAD Data
- Documents
- Process Understanding

Synthesis / Study:
- Maps
- Digital 3D Models
- Physical 3D Models
- Simulation Models

Working Drafts:
- Adobe Projects
- GIS Projects
- Video Compositions
- Renderings & Video
- Sources / Bibliography

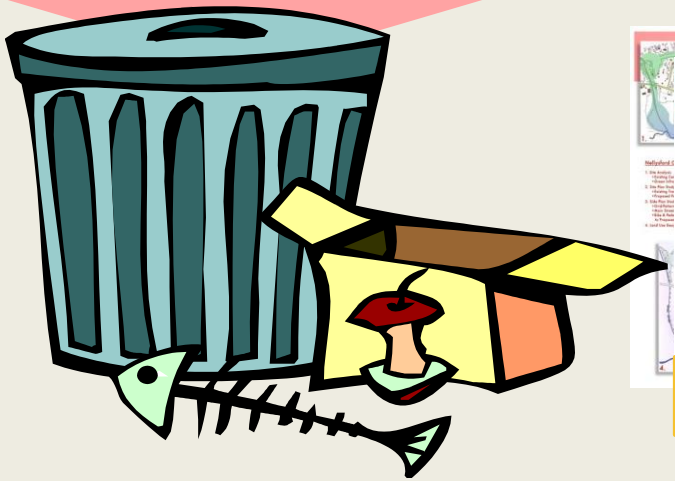
LACK OF PREDICTABLE ORGANIZATION AND DOCUMENTATION

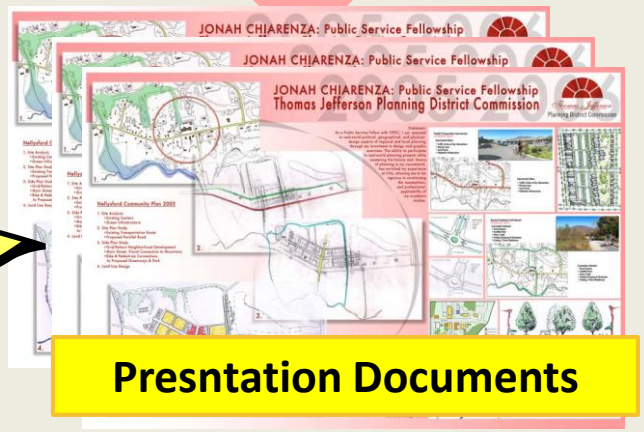
End of Term

Bulk of Knowledge is Lost

RETURN ON INVESTMENT

Few Resources Fit for Re-Use





Presntation Documents

Typical information lifecycle in planning and research

Start

INDIVIDUALS ADD COHERENCE TO INFORMATION

Collect Resources:
- Site Photos
- GIS Data
- CAD Data
- Documents
- Process Understanding

Synthesis / Study:
- Maps
- Digital 3D Models
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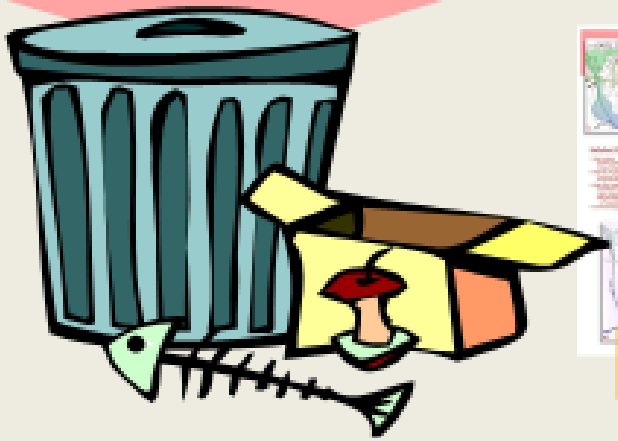
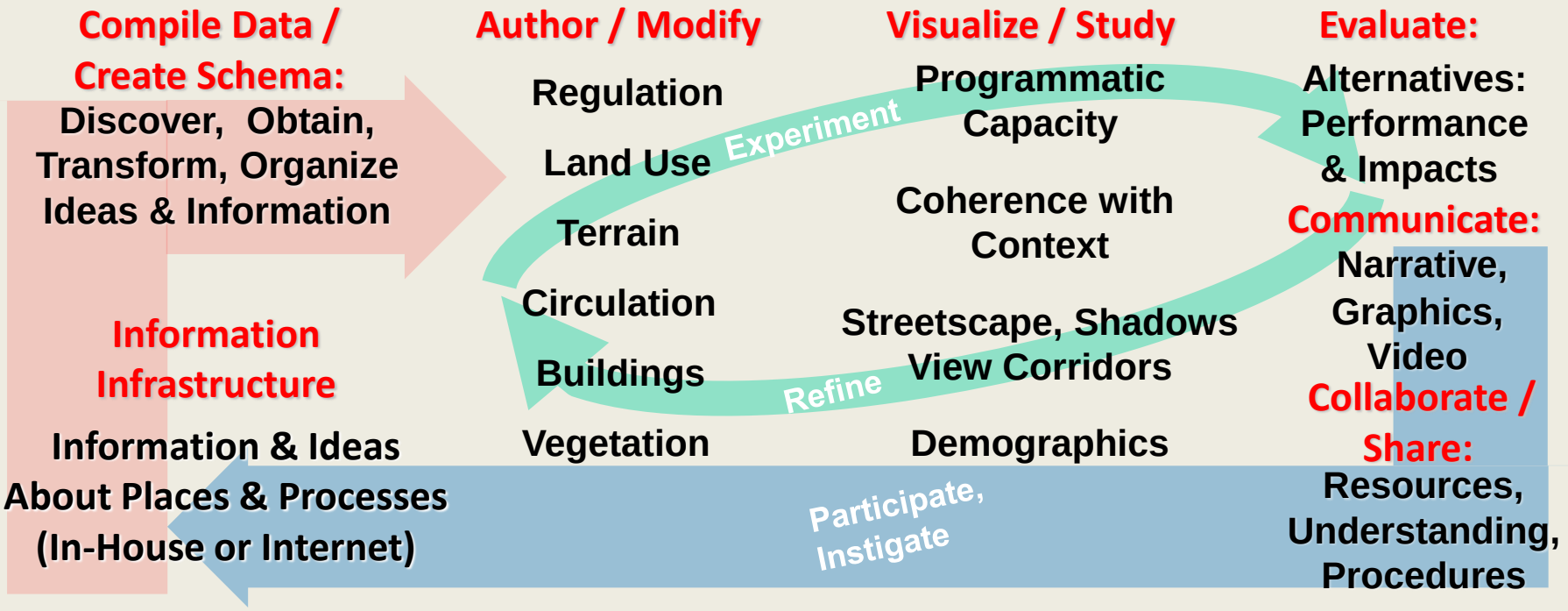
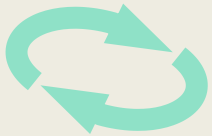


Presentation Documents

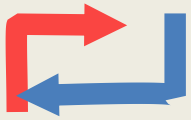
Cultivating Social Intelligence



Paul Cote, 2008

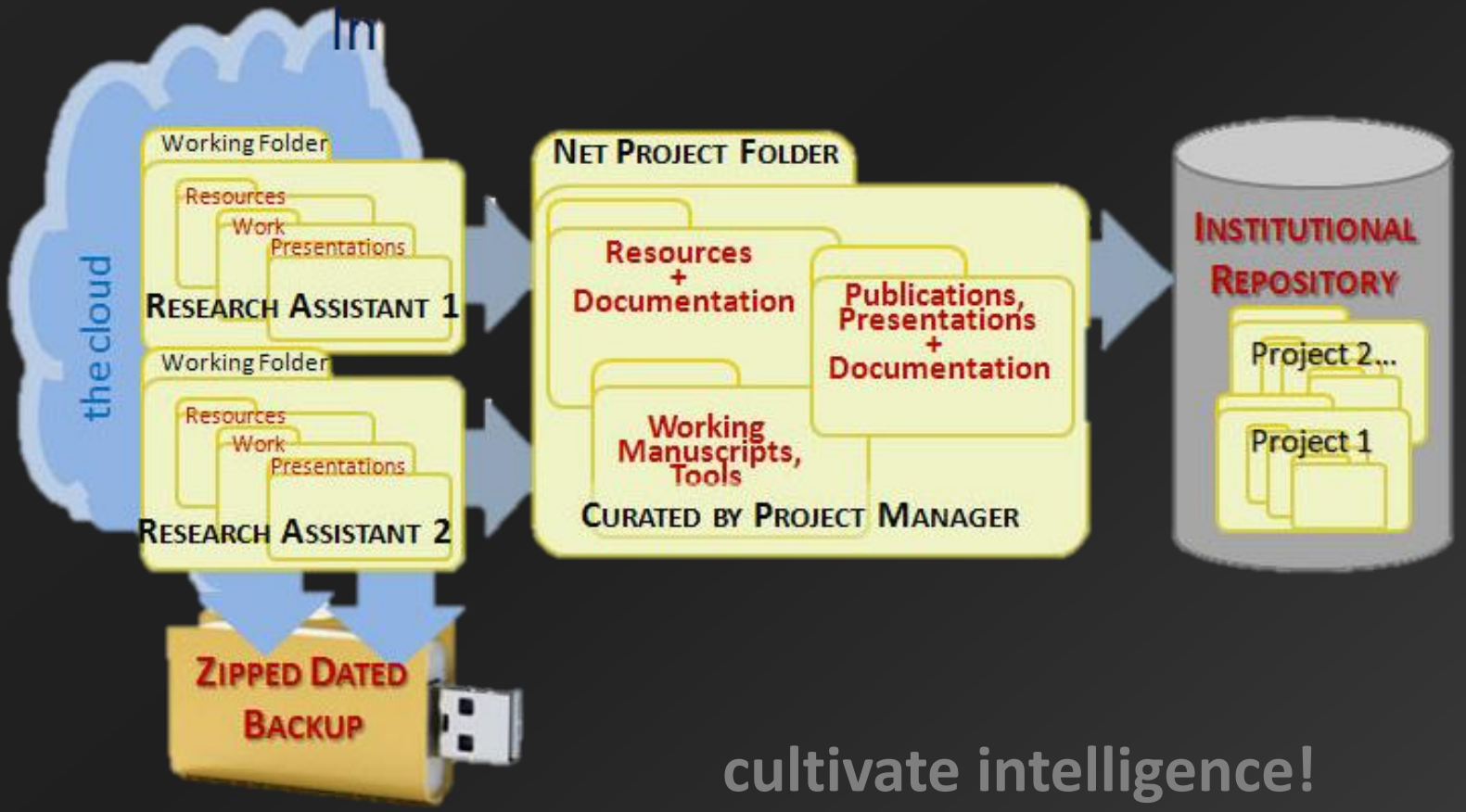


Information Development :
New information emerges from coherent organization.



Sharing and Re-Use:
Resources and tools exchanged with collaborators and successors

Enterprises that learn from experience

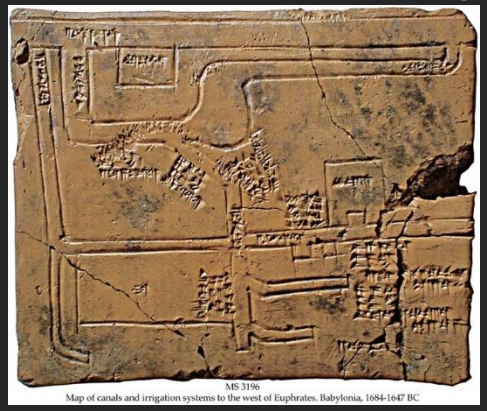


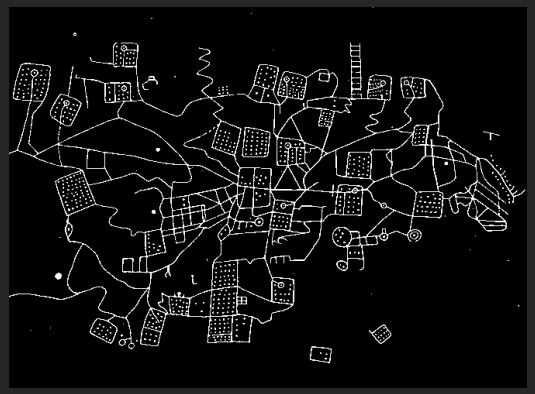
cultivate intelligence!

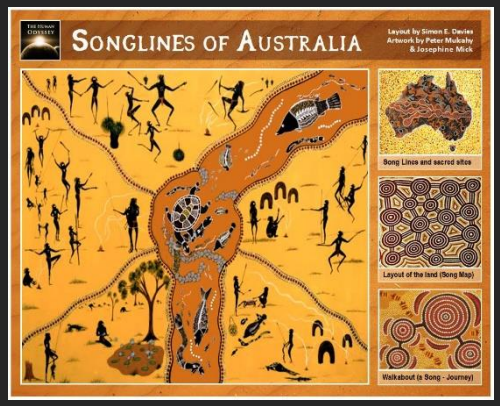
Old Trends in Geography and Information Systems

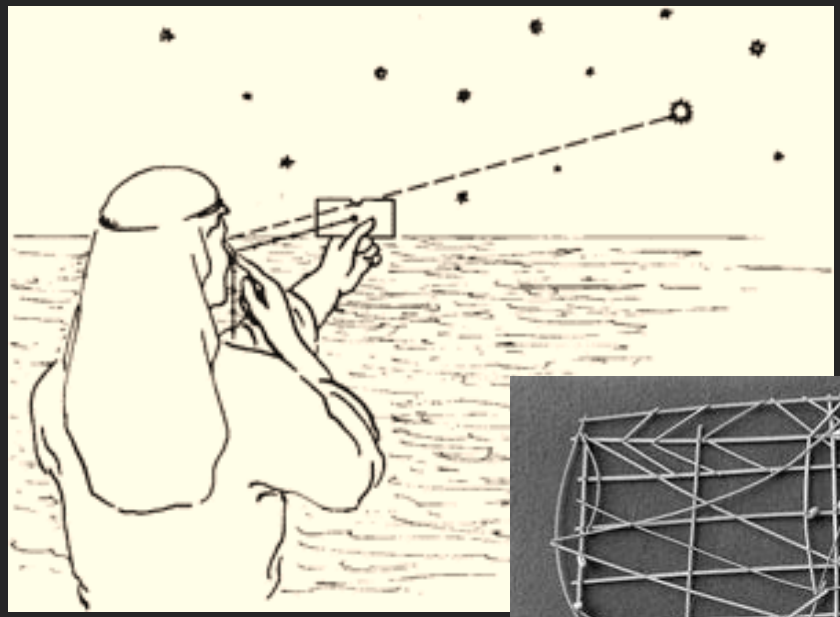
- Systematic observation
- Standardized referencing systems
- Open, Interoperable encoding
- Sharing and integration of independent observations

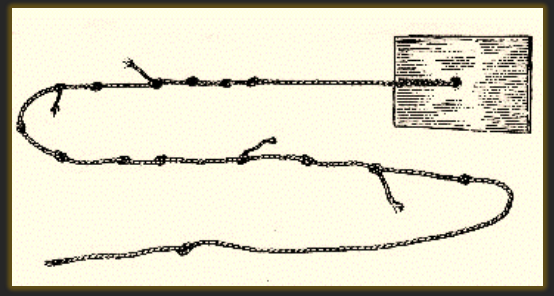
Observation, Encoding, Re-Use

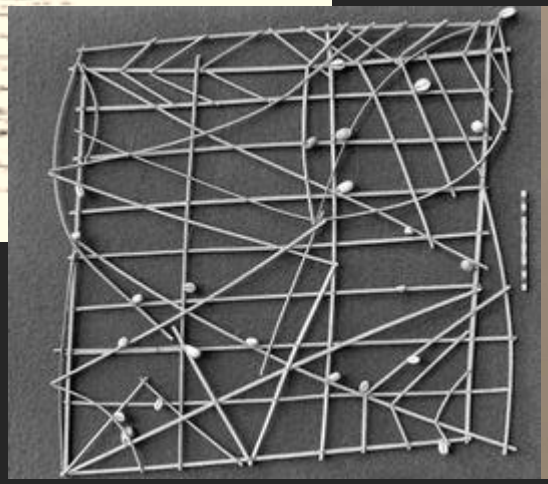

MS 3196
Map of canals and irrigation systems to the west of Euphrates. Babylonia, 1684-1647 BC

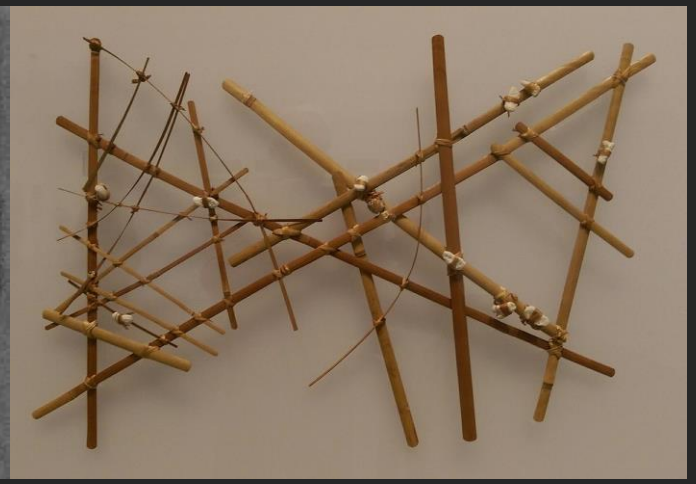




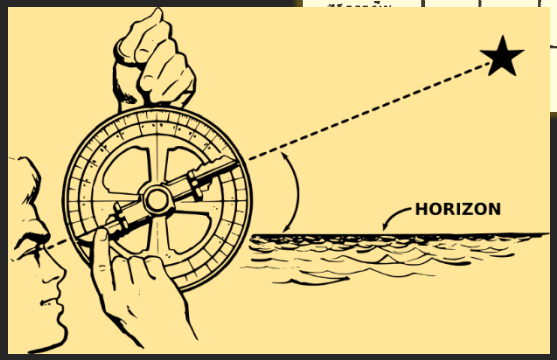


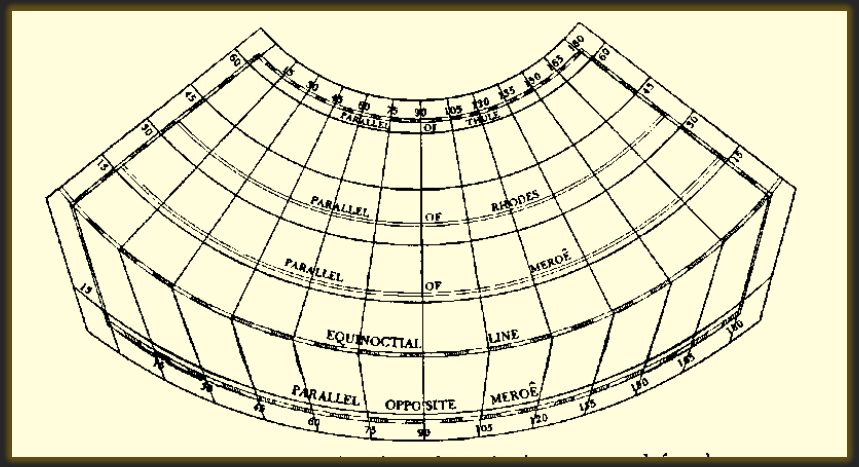


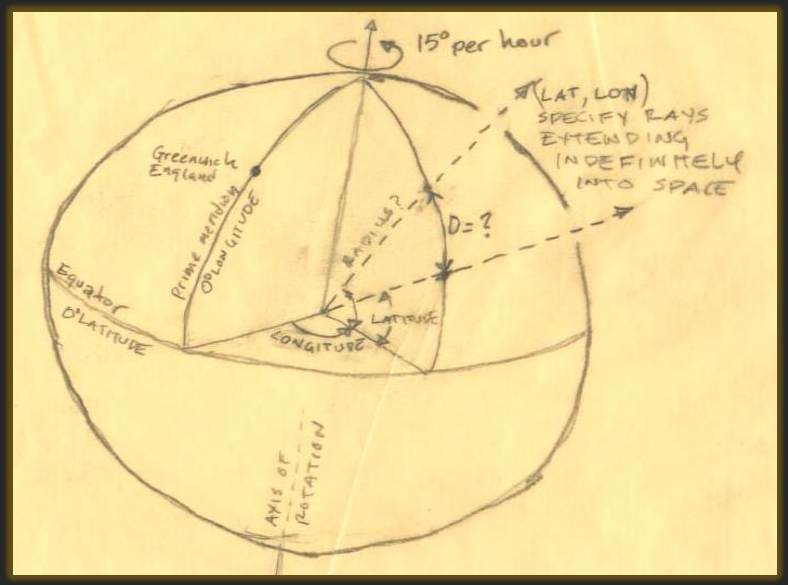


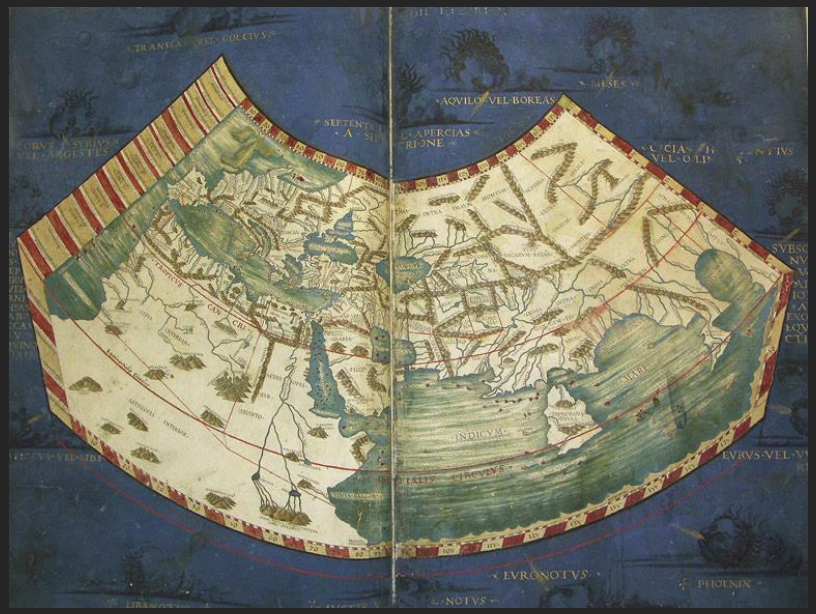


Observation, Encoding, Re-Use

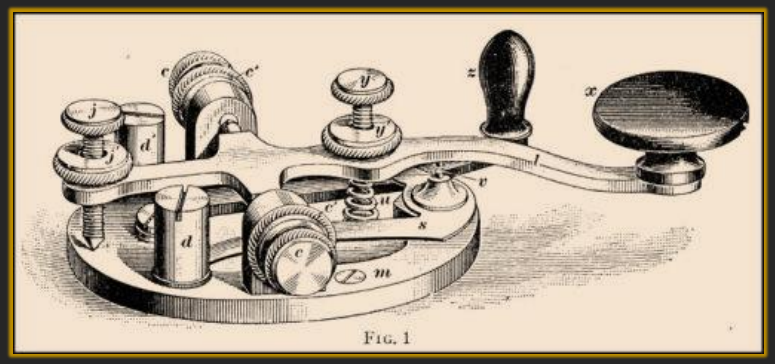








Observation, Encoding, Re-Use

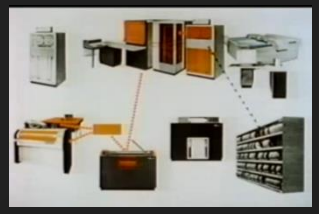


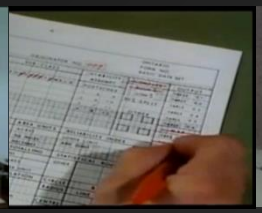
A ●−	J ●−−−	S ●●●
B −●●●	K −●−	T −
C −●−●	L ●−●●	U ●●−
D −●●	M −−	V ●●●−
E ●	N −●	W ●−−
F ●●−●	O −−−	X −●●−
G −−●	P ●−−●	Y −●−−
H ●●●●	Q −−●−	Z −−●●
I ●●	R ●−●	

ASCII Code: Character to Binary

0	0011 0000	O	0100 1111	m	0110 1101
1	0011 0001	P	0101 0000	n	0110 1110
2	0011 0010	Q	0101 0001	o	0110 1111
3	0011 0011	R	0101 0010	p	0111 0000
4	0011 0100	S	0101 0011	q	0111 0001
5	0011 0101	T	0101 0100	r	0111 0010
6	0011 0110	U	0101 0101	s	0111 0011
7	0011 0111	V	0101 0110	t	0111 0100
8	0011 1000	W	0101 0111	u	0111 0101
9	0011 1001	X	0101 1000	v	0111 0110
A	0100 0001	Y	0101 1001	w	0111 0111
B	0100 0010	Z	0101 1010	x	0111 1000
C	0100 0011	a	0110 0001	y	0111 1001
D	0100 0100	b	0110 0010	z	0111 1010

Geography:
First GIS: ca 1961

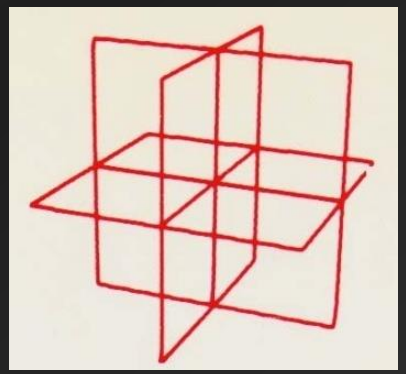




[Watch Video: Data for Decision on You Tube]

Roger Tomlinson and the Canada Land Inventory

Harvard Lab for Computer Graphics and Spatial Analysis
Pushed Geography into the Mainframe Era



Observation, Encoding, Re-Use

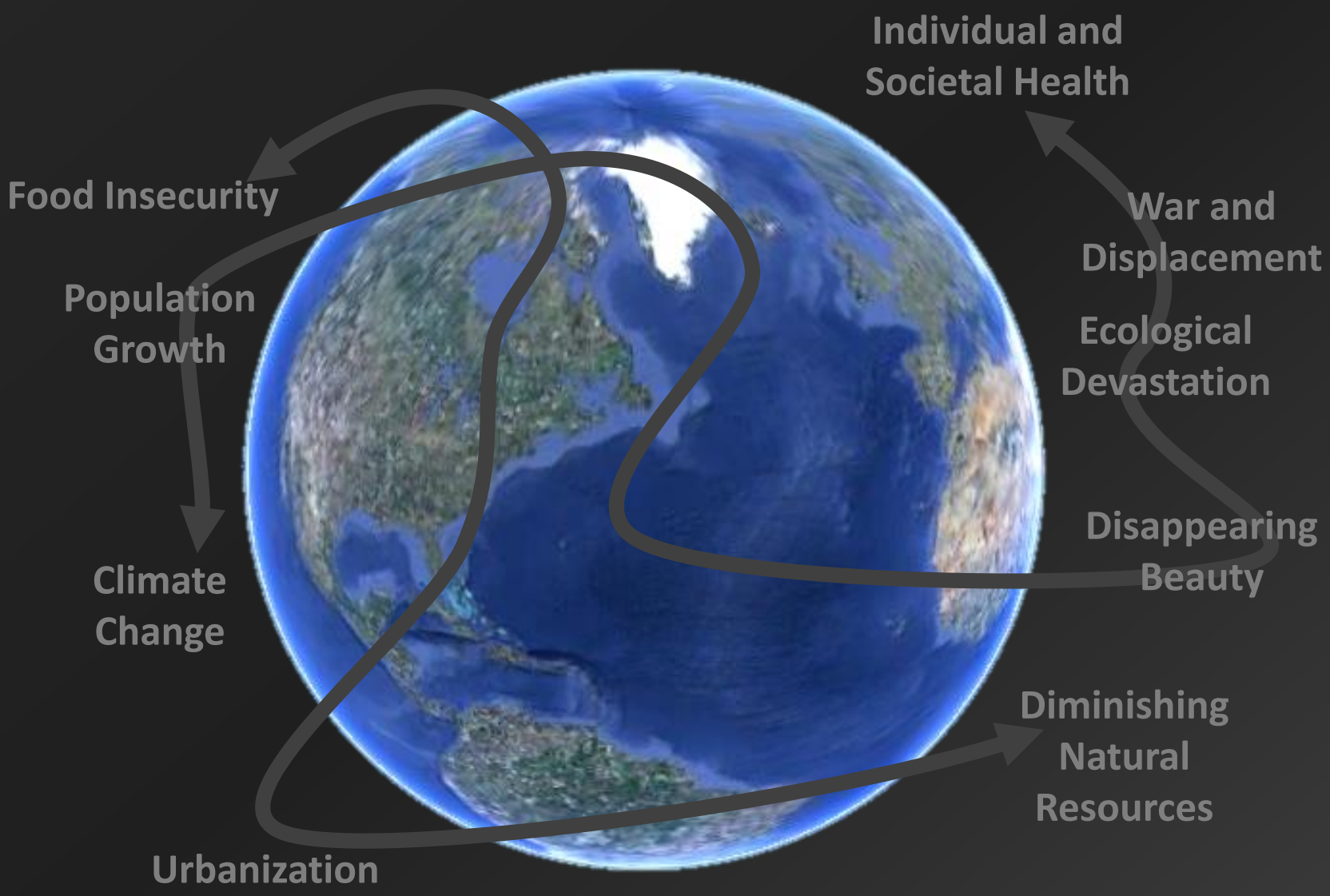
A:A1: 'EMP MENU

Worksheet Range Copy Move File Print Graph Data System Quit
Global Insert Delete Column Erase Titles Window Status Page Hide

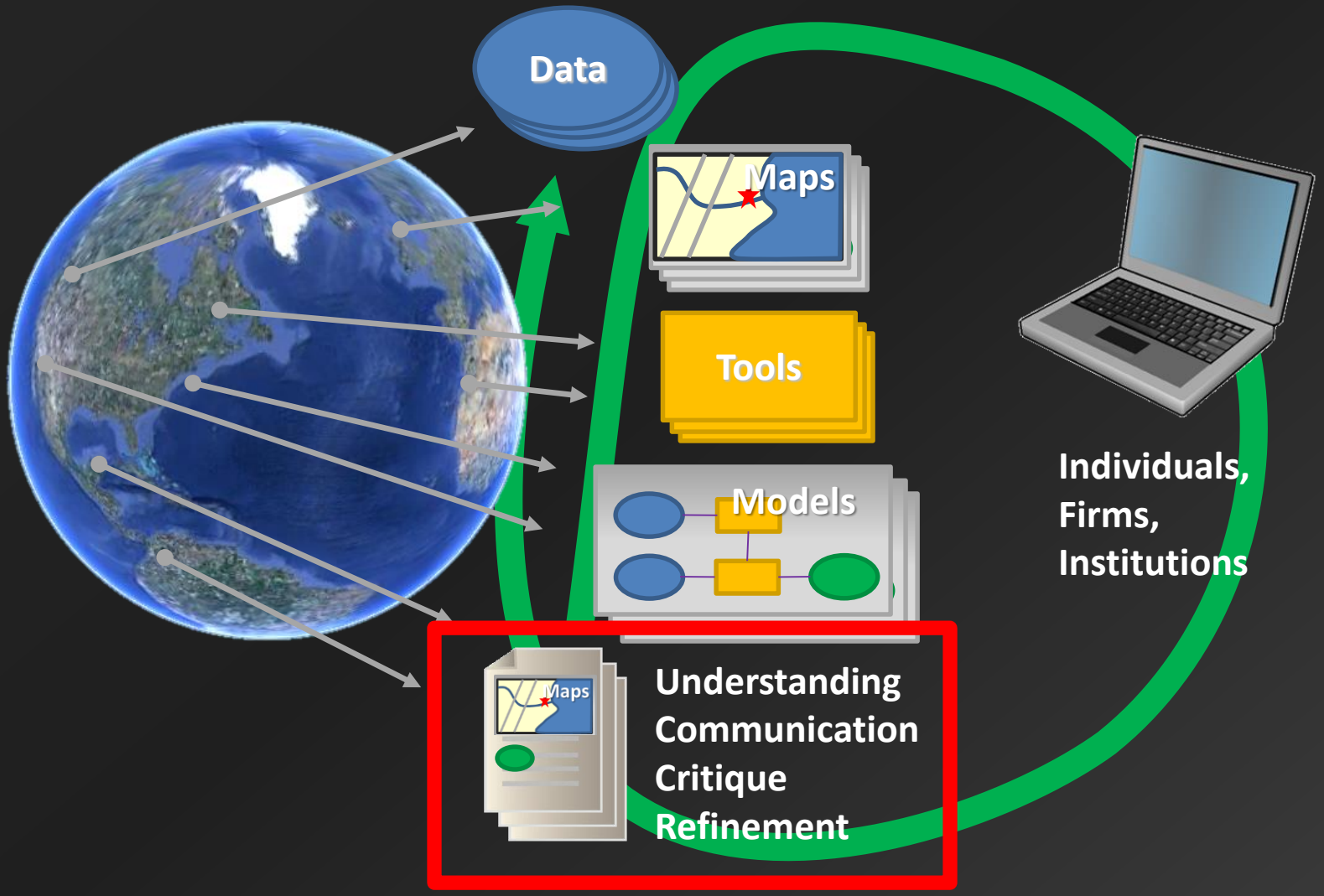
	A	B	C	D	E	F	G
1	EMP	EMP_NAME	DEPTNO	JOB	YEARS	SALARY	BONUS
2	1777	Azibaw	4000	Sales	2	40000	10000
3	81964	Brown	6000	Sales	3	45000	10000
4	48378	Burns	6000	Mgr	4	75000	25000
5	58706	Caesar	7000	Mgr	3	65000	25000
6	49692	Curly	3000	Mgr	5	65000	20000
7	34791	Dakarrett	7000	Sales	2	45000	10000
8	84984	Daniels	1000	President	8	150000	100000
9	59037	Dempsey	3000	Sales	3	40000	10000
10	51515	Donovan	3000	Sales	2	30000	5000
11	48338	Fields	4000	Mgr	5	70000	25000
12	91574	Fiklore	1000	Admin	8	35000	---
13	64596	Fine	5000	Mgr	3	75000	25000
14	13729	Green	1000	Mgr	5	90000	25000
15	55957	Hermann	4000	Sales	4	50000	10000
16	31619	Hodgedon	5000	Sales	2	40000	10000
17	1773	Howard	2000	Mgr	3	80000	25000
18	2165	Hugh	1000	Admin	5	30000	---
19	23987	Johnson	1000	VP	1	100000	50000
20	7166	Laflare	2000	Sales	2	35000	5000

DATA.WK3

Local Problems Occurring Globally



New Modes of Scholarship, Planning, Design and Administration



Old Trends in Geography and Information Systems

- Systematic observation
- Standardized referencing systems
- Open, Interoperable encoding
- Sharing and integration of independent observations

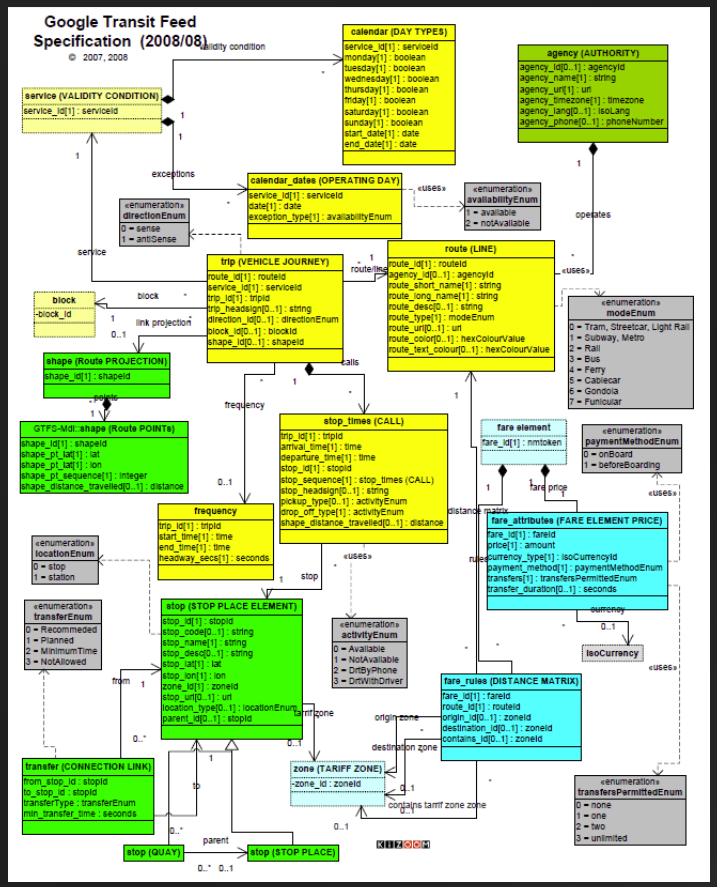
Additional recent trends in Geography and Information Systems

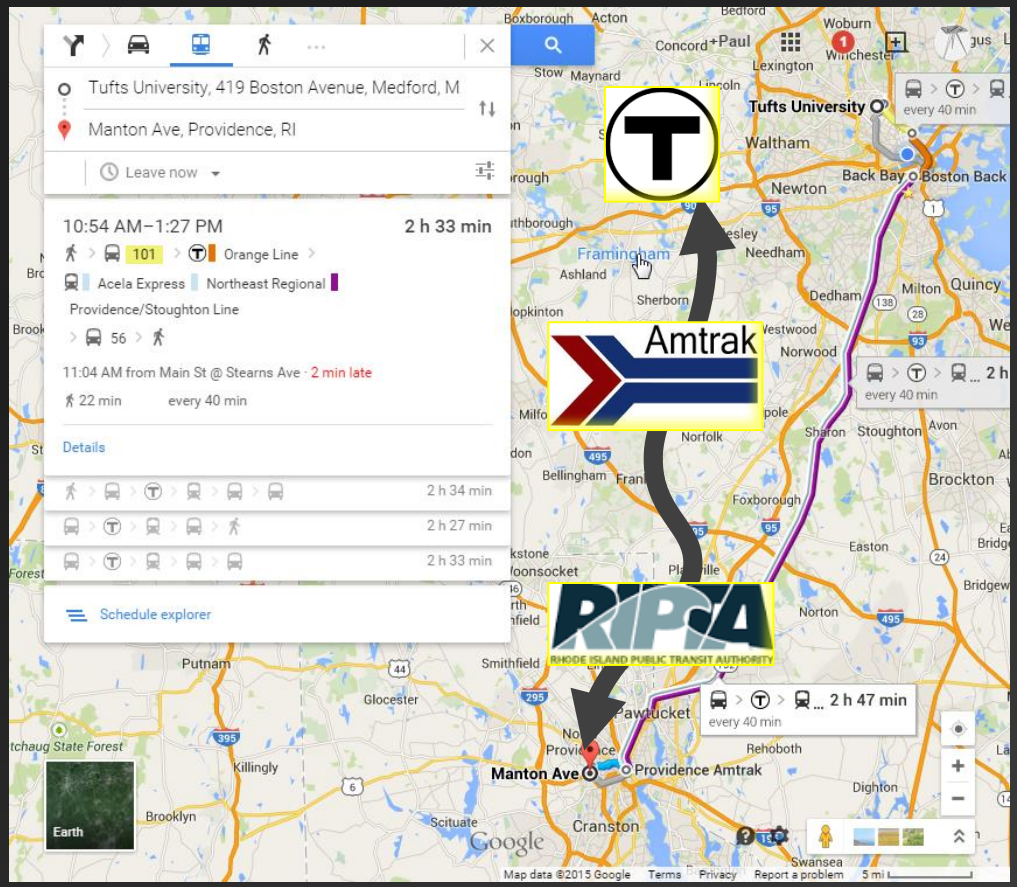
- Engineered Information Infrastructure
- Web-Based Data and Metadata
- Automatic, Intentional Models

*Same as the old trends, only exploded and multiplied!

Adaptive Systems of Models that Communicate

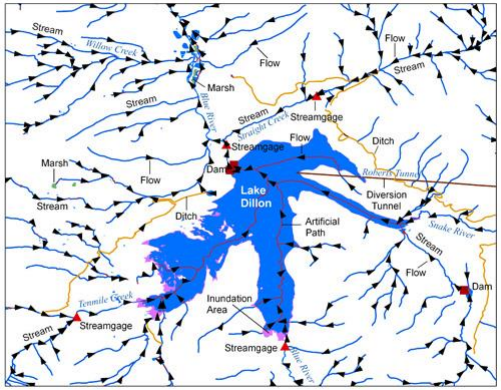
- General Transit Feed (formerly Google Transit Feed)

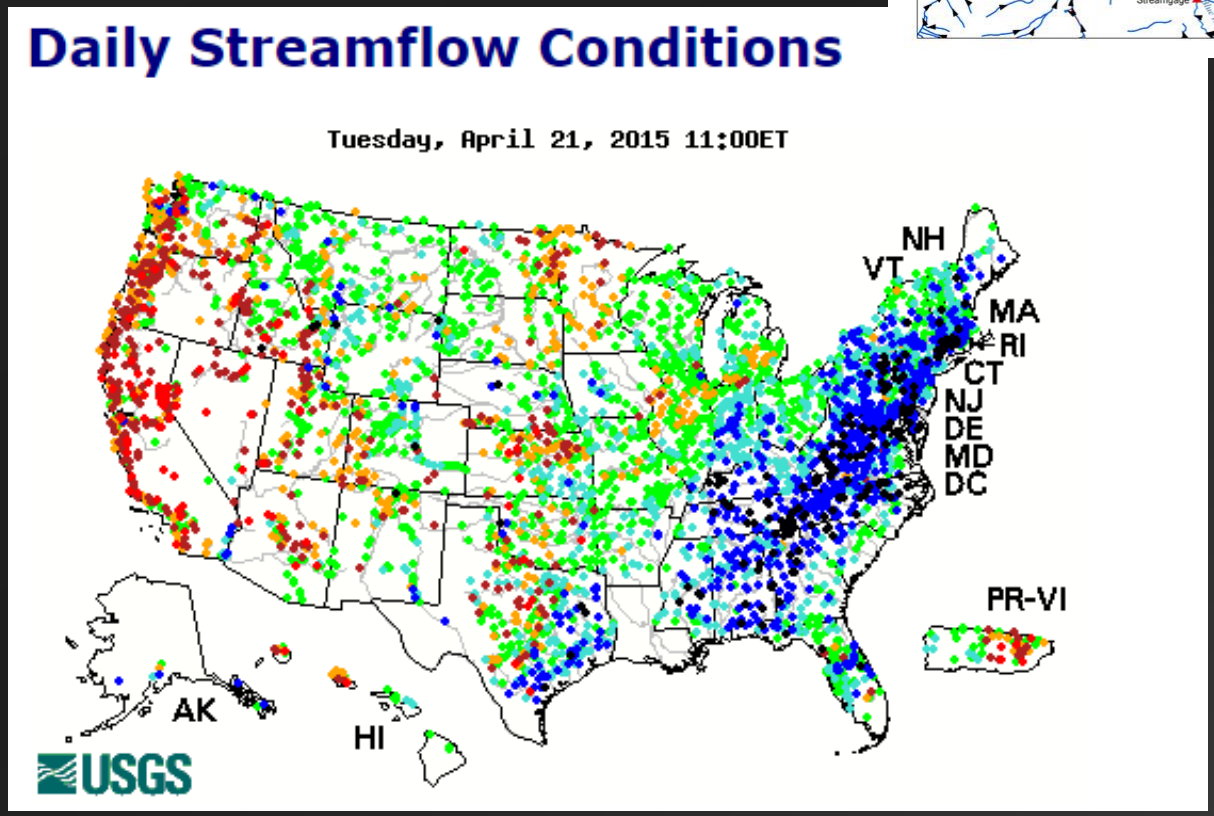




Adaptive Information Systems

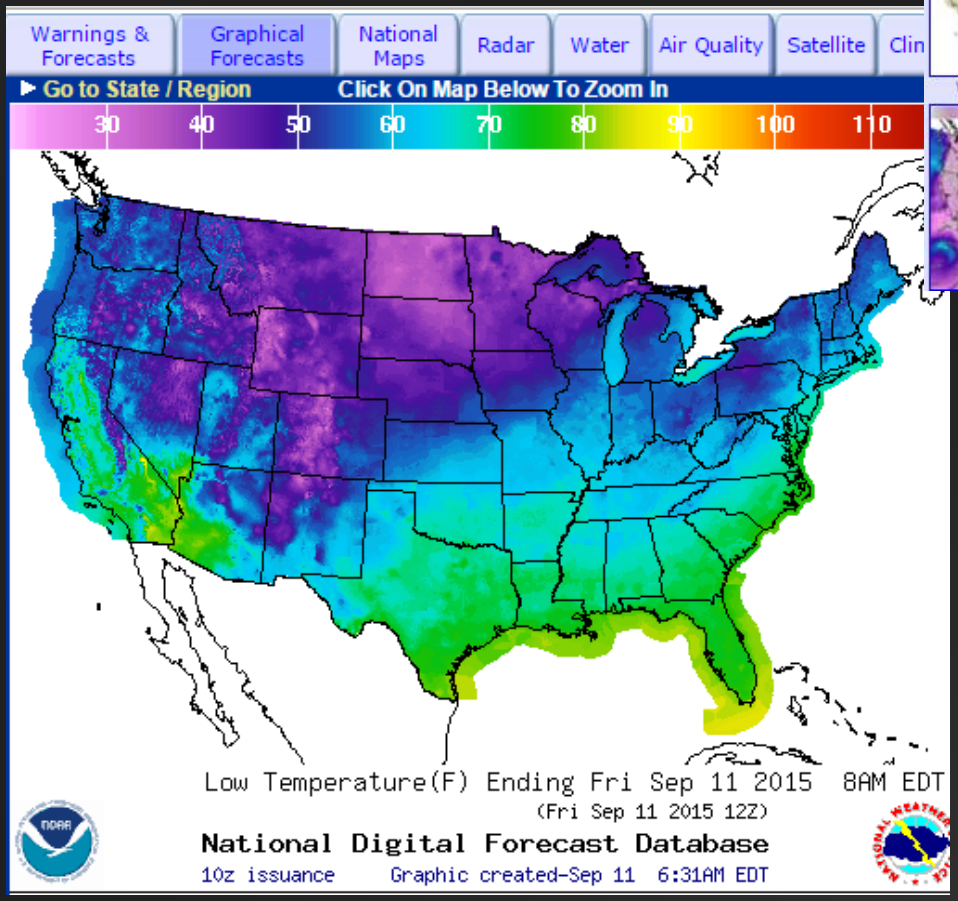
- U.S. Geological Survey
- Hydrographic Model
- Real-Time Monitoring

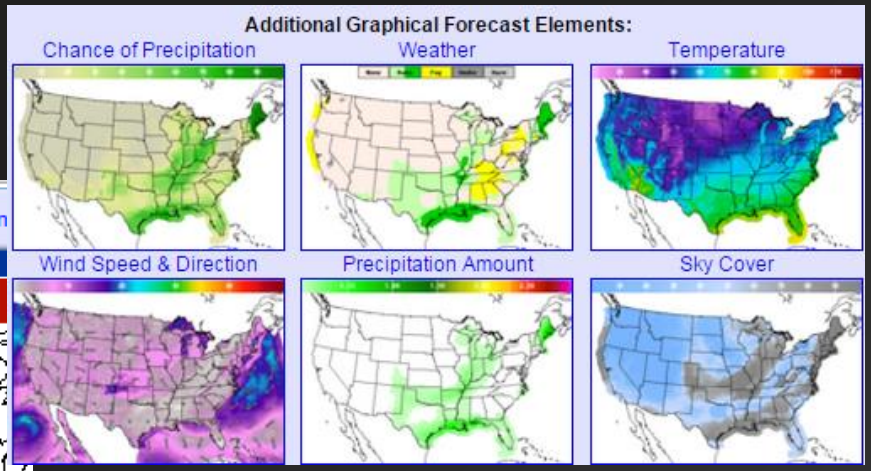




Real-Time Atmosperic Models

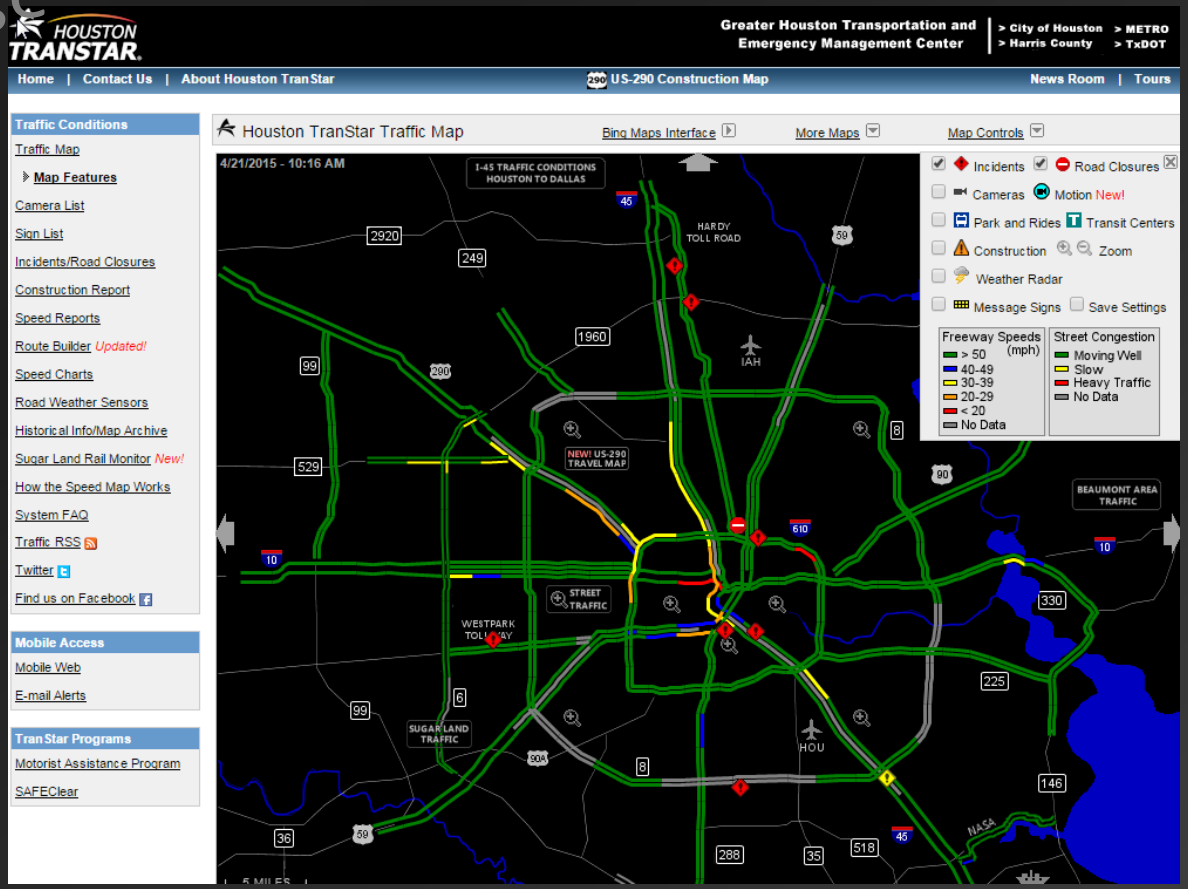
- NOAA Real Time Forecast
- graphical.weather.gov/





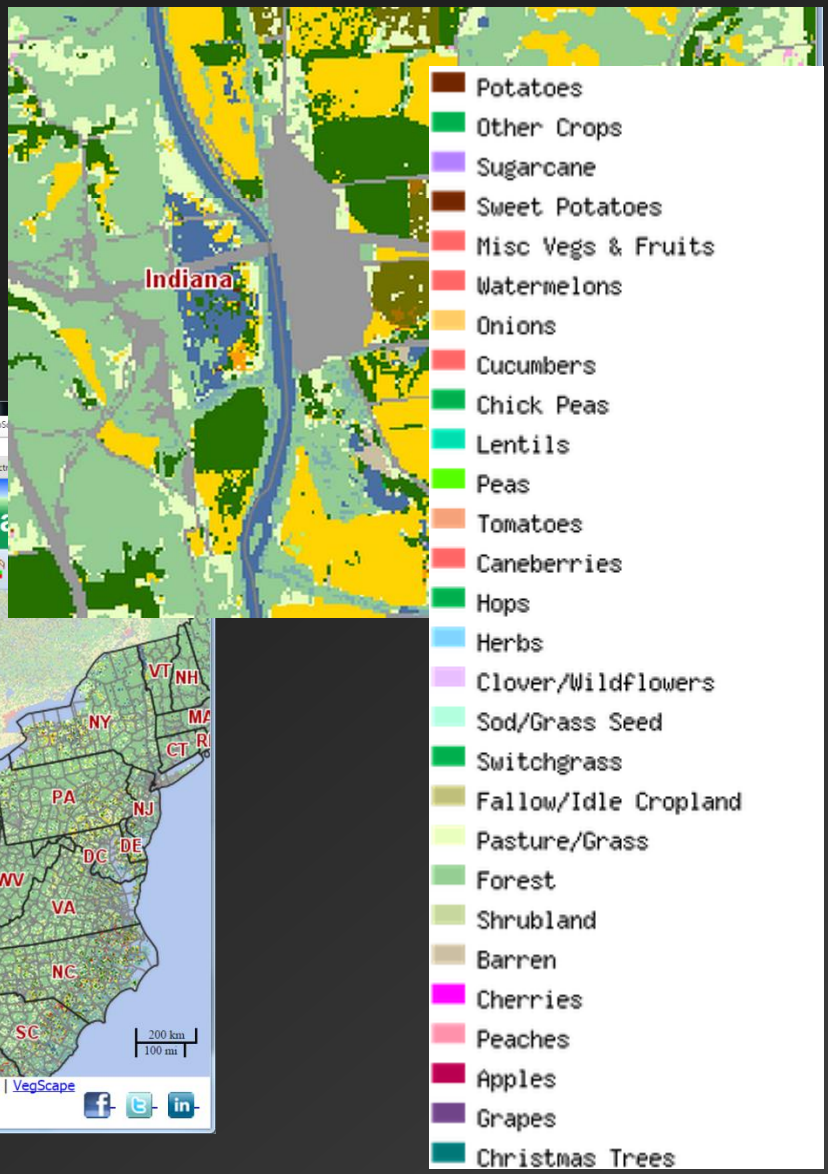
Adaptive Information Systems

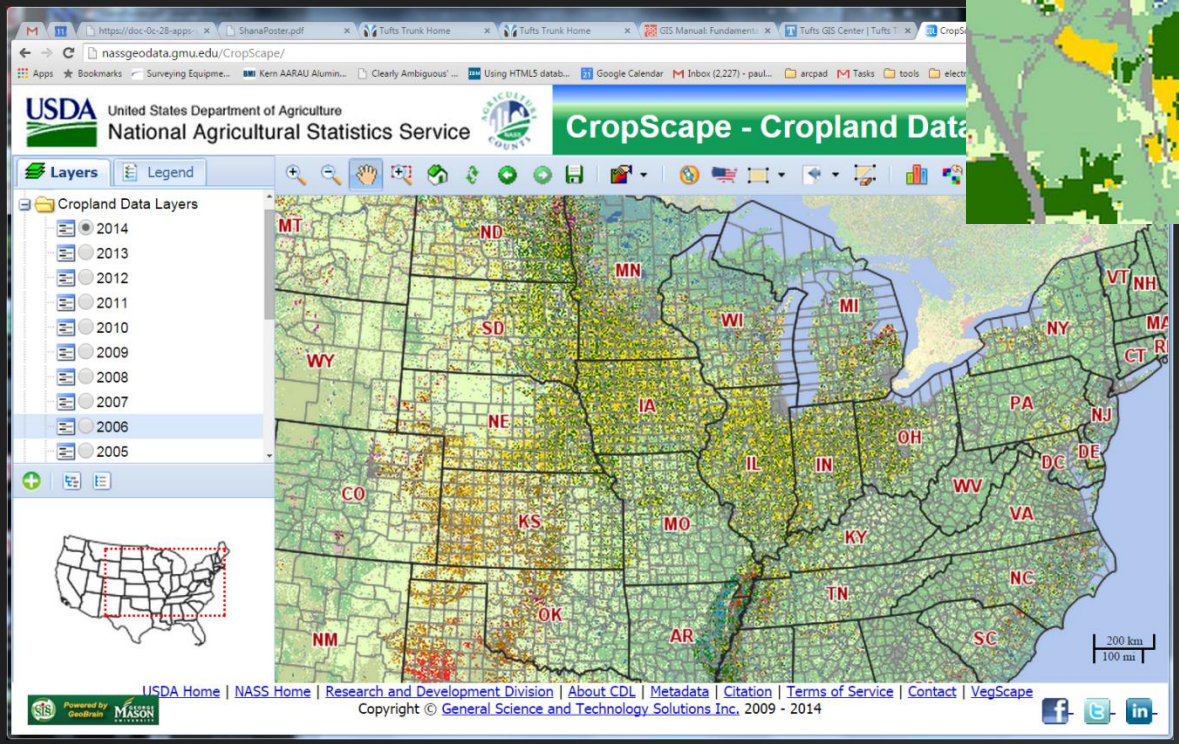
- Real Time Traffic
- Memory of traffic behavior associated with land use change



Agricultural Monitoring

- NASA Mission to Earth
- CropScape
- Real-Time Monitoring

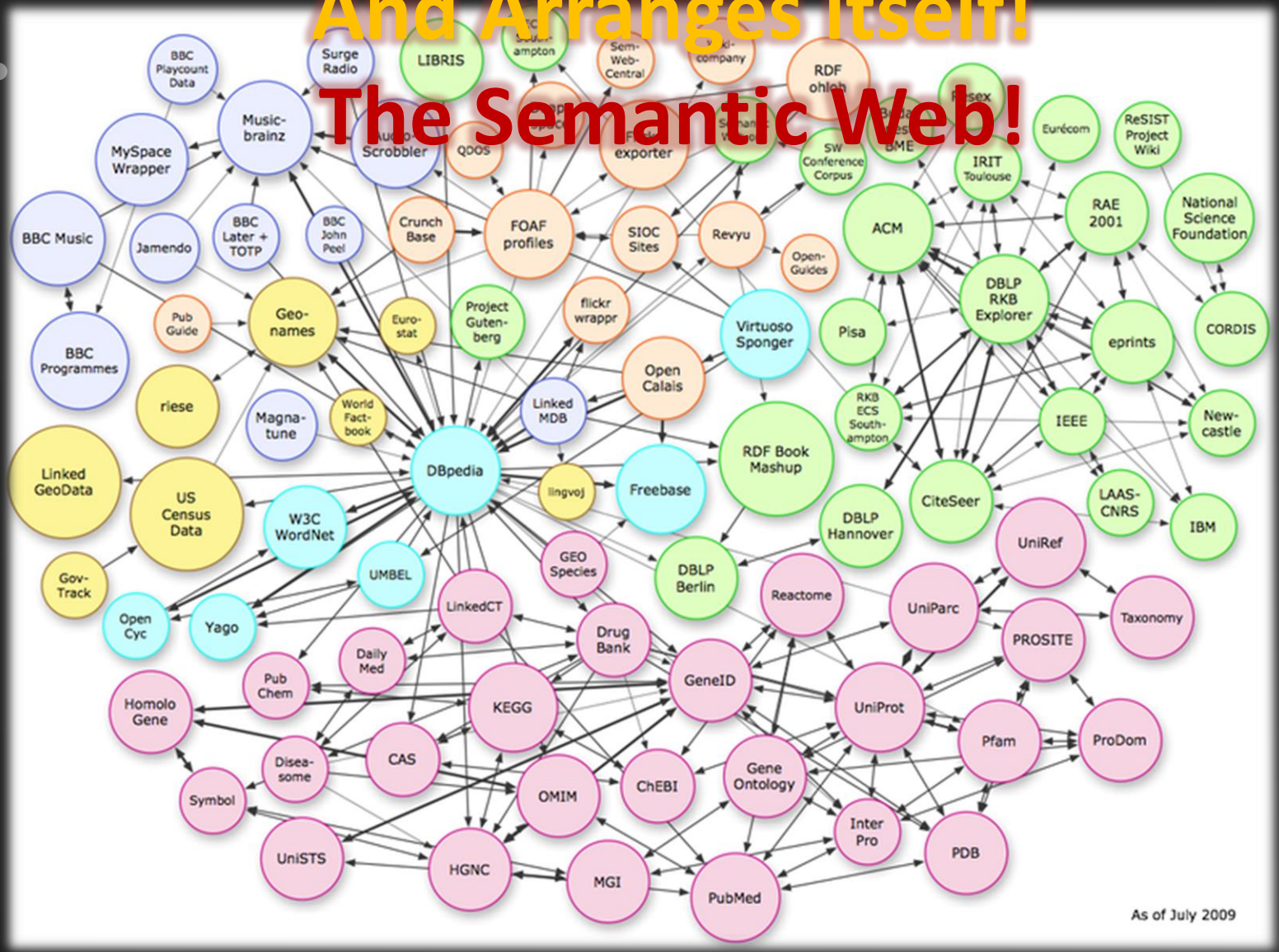




Data that knows What It Represents.

And Arranges itself!

The Semantic Web!



Tim Berners-Lee - Semantic Web - World Wide Web Consortium

Standards: the Heart of societal information sharing

W3C® WORLD WIDE WEB consortium

International Organization for Standardization ISO

OGC™ Open Geospatial Consortium, Inc.

Communities
Stakeholders
Experts

You!

Open Geospatial Consortium

Some cool projects

- History PIN: Linking historical images with geography
- Map Junction: Web Map Services for georeferenced historical imagery.
- *When will HistoryPIN incorporate historical map services?*

My Projects:

- Boston and Cambridge 3d Models More info…
- City of Cambridge Historical Commission Archive Project.

Cheap, Free Tools and Infrastructure

amazon web services

rackspace

Microsoft Azure

MySQL

PostgreSQL PostGIS Spatial PostgreSQL

GeoTools

Your server in the cloud $40 / Month

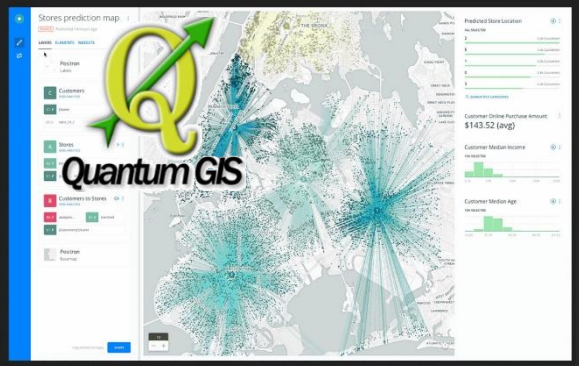
Industrial Strength tools. FREE!

CARTO

Leaflet

mapbox

Javascript frameworks for web ‘maplications’



Interactive data visualization

Mobile Applications

Help Wanted!

Information Systems in Planning and Policy