College of Information Studies

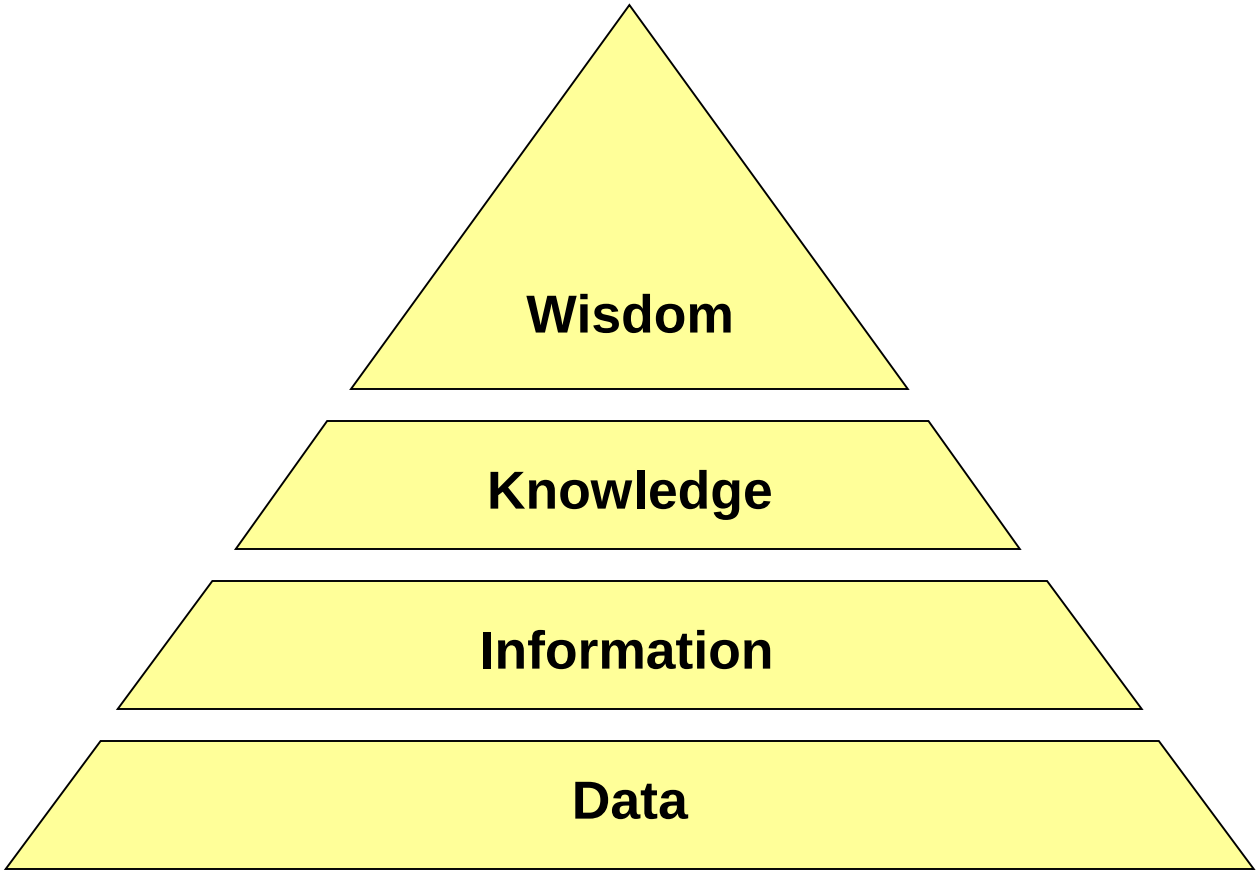
University of Maryland Hornbake Library Building College Park, MD 20742-4345

Knowledge Lifecycle

Session 18

INST 301

Introduction to Information Science


Wisdom
Knowledge
Information
Data

Information Hierarchy

- Data
  - Raw “facts”
- Information
  - Contextualized facts
- Knowledge
  - Actionable contextualized facts
- Wisdom
  - Judgmental choices among possible actions

Knowledge

"Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms."

Davenport, Thomas A. and Lawrence Prusak
Working Knowledge: How Organizations Manage What They Know, Boston, Mass., Harvard Business School Press, 1998.

Two Types of Knowledge

1. Explicit knowledge refers to what has been codified, structured or semi-structured, recorded and is accessible.

2. Tacit knowledge refers to the knowledge that resides in an individual's mind. It is the "know-how" and experience of the staff member that is vital to the organization.

Internal Sources of Tacit Knowledge

- Information repositories
- Subject Matter Expert (SME) directories
- Apprenticeships
- Mentoring
- Communities of practice
- “After action” and project milestone reviews
- Strategic staffing
  - Recruiting, retention, developmental assignments
- Oral history program

A Broader View

	Internal	**External**
Knowledge	- Colleagues - Meetings	- Contacts - Networking
Information	- Intranet - CMS	- Libraries - Search engines
Data	-Databases -Data mining	- Market research

Knowledge Conversion

To

From	Tacit	Explicit
Tacit	**Socialization**	**Externalization**
Explicit	**Internalization**	**Combination**

Ikujiro Nonaka and Hirotaka Takeuchi, *The Knowledge Creating Company,* New York, Oxford University Press, 1995.

Knowledge Management

“Knowledge Management deals with the systematic process of identifying, capturing, organizing and disseminating/sharing explicit and tacit knowledge that add value within an organization”

“A broad process of locating, organizing, transferring and using information and expertise within an organization.”

Information Management

- Data becomes information when its creator adds meaning
- Information is created when data is:
  - Contextualized
  - Categorized
  - Calculated
  - Corrected
  - Condensed

Knowledge Management

- Information becomes knowledge through human transformation
- Transformation happens through:
  - Comparison
  - Consequences
  - Connections
  - Conversations

Working Knowledge, 1998
T. Davenport & L. Prusak

Why We Don't Share: People

- People don't know what they know; don't know that what they know may be valuable to others; and don't know who wants to know what they know
- People don't have trusting relationships with others
- People don't have time to share
- People don't care about sharing
- People are afraid to share (knowledge is power; fear of negative consequences)
- People don't ask
- People work for people who don't share

(*Source:* Michael J.Novak)

Why We Don't Share: Organization

- Stovepipes
- Not invented here
- Focus on explicit rather than tacit knowledge
- Intra-organizational competition
  - "Knowledge is power"
- Lack of systematic, holistic approach to managing the organization

(*Source:* Michael J.Novak)

Why We Don’t Share: Process

- No formal process for sharing
- Informal sharing processes not supported by management
- Knowledge sharing viewed as “overhead” or “support;”
  - As opposed to “value adding” or “value creating”
- No coherent approach to process management
- Process management focuses on individual processes
  - As opposed to the overall organization

(*Source:* Michael J.Novak)

Why We Don't Share: Technology

- Obsolete systems
- Multiple, incompatible systems
- Systems not user-friendly
- Systems not accessible
- Systems not maintained, improved, updated
- Lack of training on use of systems

(*Source:* Michael J.Novak)

Implementing KM

Making Knowledge Visible
- Who knows what
- Taxonomy of expertise
- Yellow Pages
- Competence

Building "Knowledge-Intensiveness"
- Training, face to face contacts
- Competence centers
- Community of practices
- Management of knowledge process
- Networking

Building Knowledge Infrastructure
- Common communication infrastructure
- Access to external/internal information/knowledge sources
- Use of Modern methods and tools

Developing a Knowledge Culture
- Values and culture
- Rewarding
- Sharing/exchange of knowledge
- Shared mindsets and visions
- Trust on each other

From an article by Marianne Broadbent

Physical Arrangement

- My organization attempts to locate employees and groups who need to share information in the same physical space.
- When employees who need to share information are scattered in different locations, their ability to share is facilitated through frequent face-to-face meetings or other means.
- My organization's office designs and layouts encourage information sharing.
- Documents, posters, videos and other physical dispersal mechanisms are used to facilitate information use and sharing.
- We attempt to distribute value-added information to dispersed workers rather than raw data.

Source: Davenport, Thomas H. and Lawrence Prusak, *Information Ecology: Mastering the Information and Knowledge Environment*, Harvard Business School Press, (1997) pp. 175-192.

Communities of Practice

- Are made up of volunteers – no one forces them to join
- While they may learn and work together, they don't produce community deliverables or meet deadlines
- They are distinguished by what brings them together
- May have stated goals but these may be very broad and general
- Members tend to be like each other with same types of jobs and/or skills
- These communities last as long as members want them to last

Life Cycle of the Community (Wenger)

- Planning
- Start-Up
- Growth
- Sustainment
- Closure

	COLLECTING	CONNECTING
Exploit	• Databases (external & internal) • Codify useful information • Content architecture • Information service support (HARVEST)	• Learning communities • Directories • Groupware • Response teams • Culture of collaboration • Knowledge maps (HARNESS)
Explore	• Selection of items for alerting (“push”) • Data mining and text mining (HUNT)	• Openness to new ideas • Spaces (physical & virtual) • Groupware • Meetings • Brainstorming • Scenario analysis (HYPOTHESIZE)

From *Knowledge Management for the Information Professional*, Edited by T. Kanti Srikantaiah and Michael E.D. Koenig. Information Today, Medford, N.J. (2000)

Competitive Intelligence

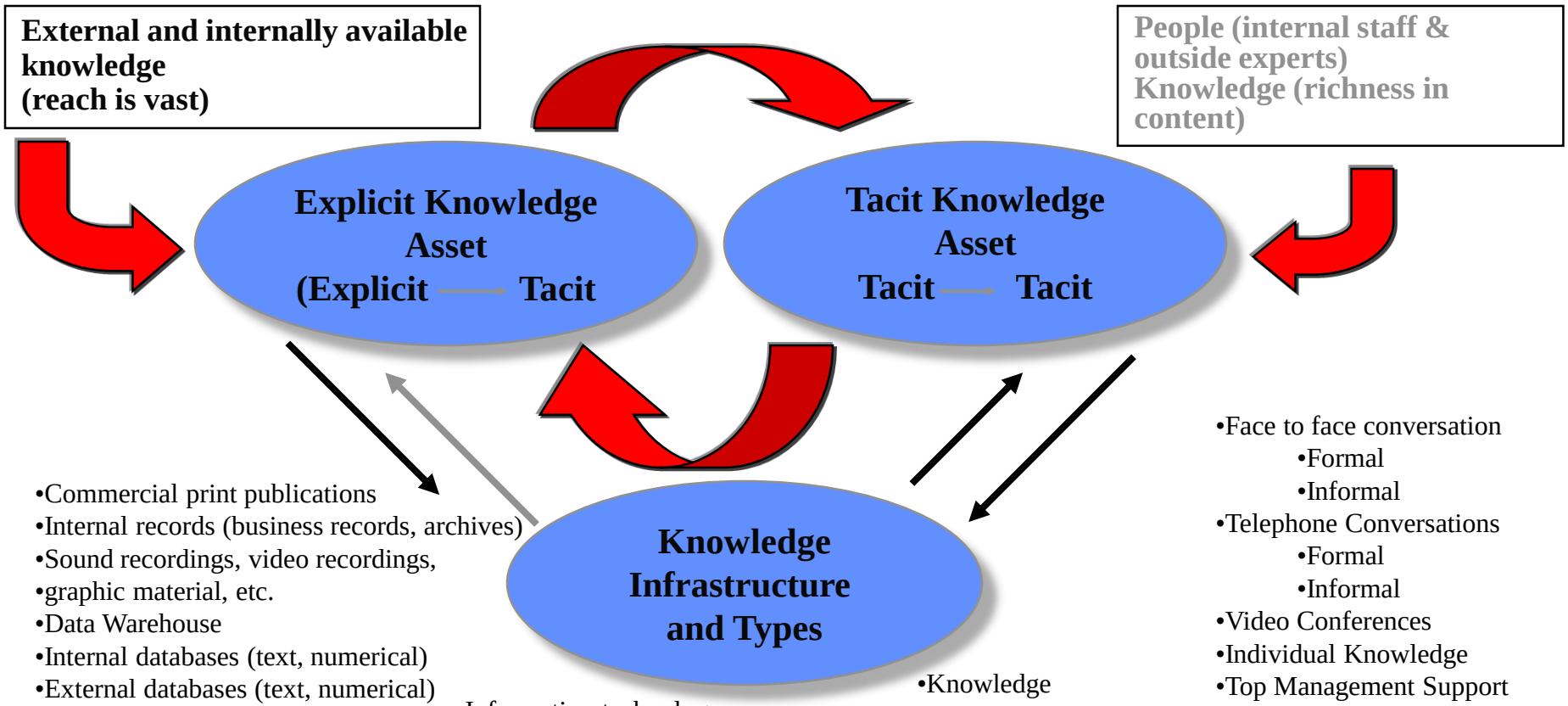
Definition

systematic and ethical program for gathering, analyzing, and managing external information that can affect your company's plans, decisions, and operations...Specifically, it is the legal collection and analysis of information regarding the capabilities, vulnerabilities, and intentions of business competitors, conducted buy using information databases and other “open sources” and through ethical inquiry (http://www.scip.org/ci).

Knowledge Mapping

- A knowledge map graphically displays, among other things, staff skills and competencies, business processes, products, customers and information repositories in an organization emphasizing relationships.
- A knowledge map provides an assessment of knowledge creation, knowledge capture, knowledge transfer and knowledge sharing in an organization identifying gaps and assisting in developing appropriate knowledge management policies and practices.
- Knowledge maps point to people, documents, databases, and practices.

Srikantaiah's Knowledge Management Model



- Commercial print publications
- Internal records (business records, archives)
- Sound recordings, video recordings,
- graphic material, etc.
- Data Warehouse
- Internal databases (text, numerical)
- External databases (text, numerical)
- Email
- Intranet
- Internet
- Best practices
- Self study material
- Newsletters
- Groupware
- Other

- Information technology
- Customer knowledge
- Top management support
- People as assets (social capital: culture, trust, knowledge behavior & human capital issues)

- Knowledge
- Mentoring
- Twining arrangements
- Benchmarking
- Study tours
- Training and personal
- Development
- Budget allocation

- Face to face conversation
  - Formal
  - Informal
- Telephone Conversations
  - Formal
  - Informal
- Video Conferences
- Individual Knowledge
- Top Management Support
- Outside experts
- Mentoring
- Coaching
- Study Tours
- Client Knowledge
- Email
- Other

Knowledge Audits

- What knowledge to people have access to?
- How is knowledge acquired in the organization?
- How is knowledge acquired from outside sources?
- How is knowledge transferred in the organization?
- Is knowledge power, or is sharing knowledge power?
- What technology is used to manage knowledge?

Data Collection and Analysius

- How will the data be collected?
  - Questionnaire
  - Focus group interviews
  - Personal interviews
- How will the data be analyzed?
  - Manually
  - Using databases and spread sheets
  - Using specialist data analysis tools

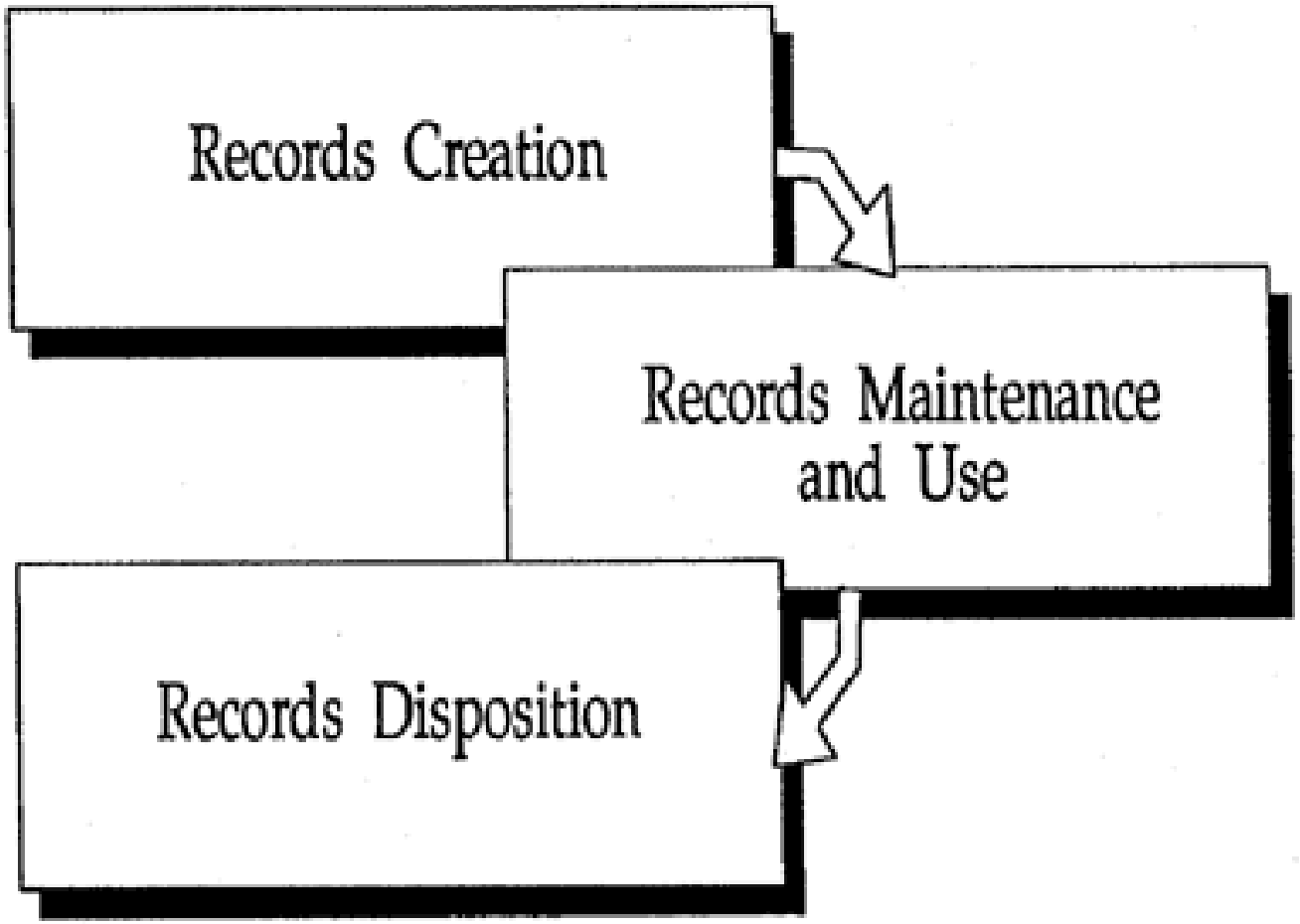
Source: Henczel; *The Information Audit: A Practical Guide*

Typical Knowledge Audit Questions

- What precisely, is the nature of the knowledge resources to be dealt with in the project?
- What information do people need to do their jobs?
- What is the function of the information?
- Who holds that knowledge now? Who needs it? When?
- How can that peocess be made substantially more effective?

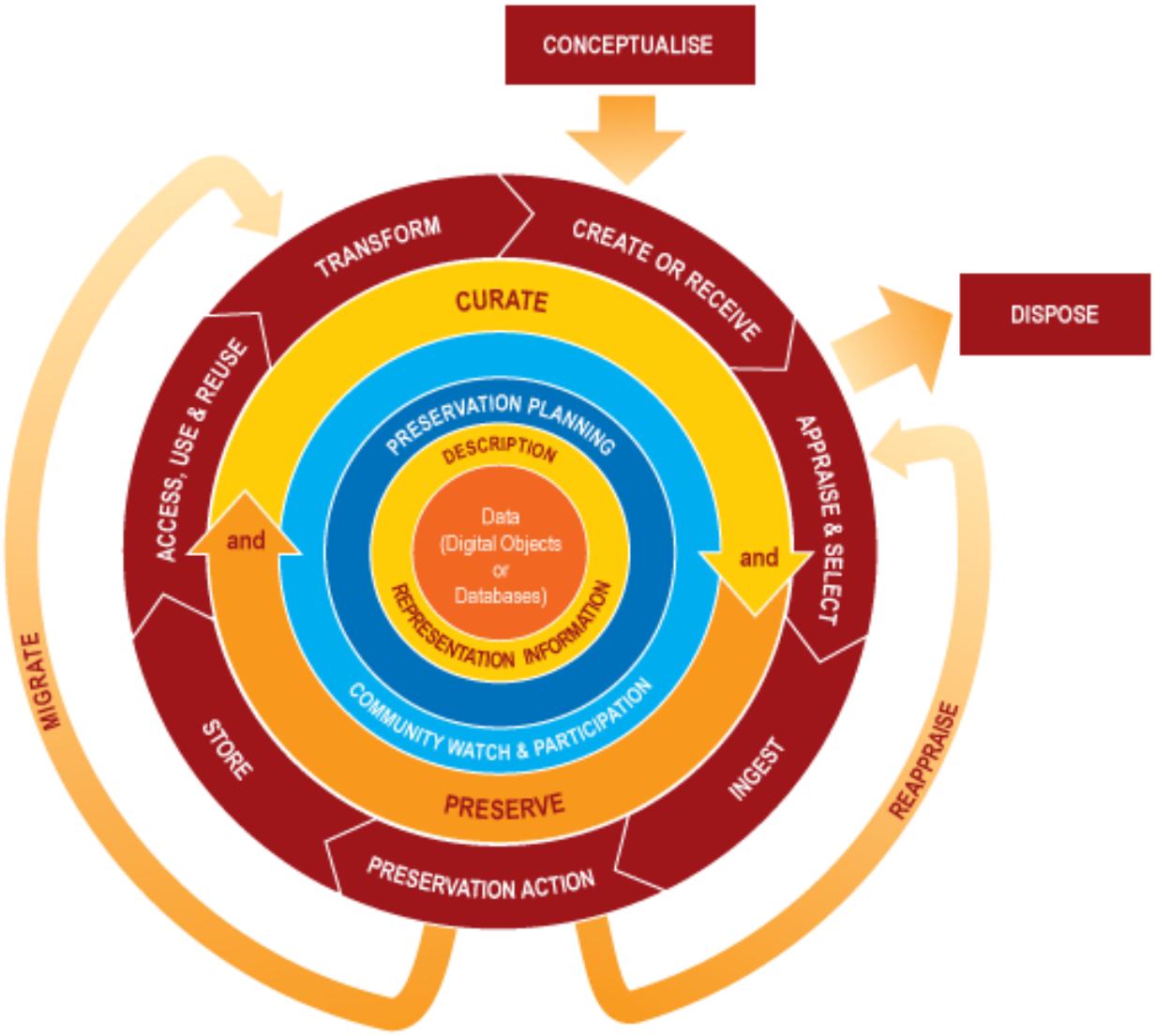
(Source: Martin Dillon)

National Archives Records Life Cycle

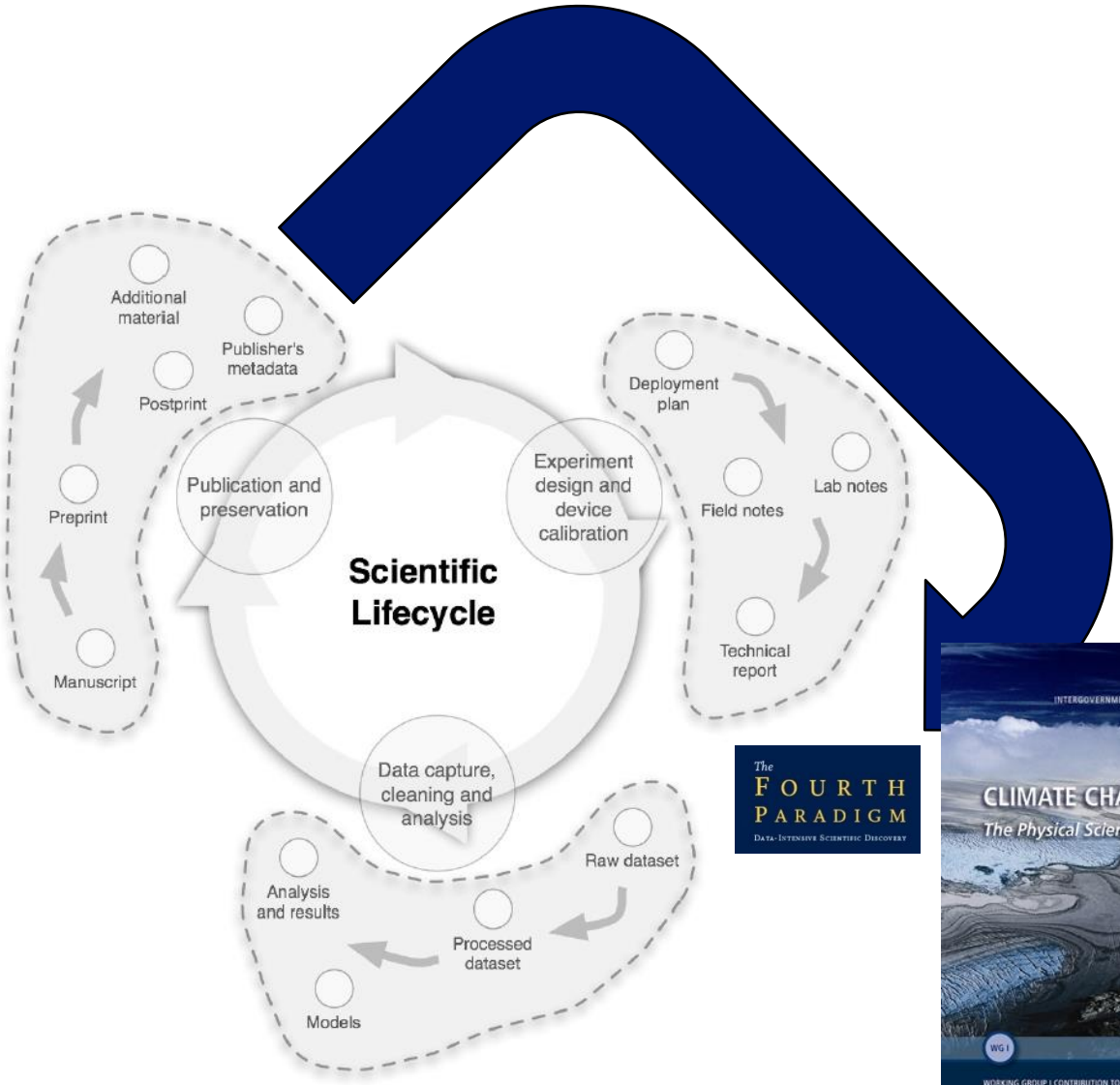


National Archives and Records Administration (2000)

DCC Digital Curation Life Cycle



A Scientific Information Lifecycle



Alberto Pepe, AAHEP4 Summit (2010)

Some Good Advice

- Capture tacit knowledge and make it explicit
- Identify and nurture communities of practice
- Find and disseminate best practices
- Develop locators of both experts and expertise
- Implement enterprise portals as gateways to corporate knowledge
- Have clear taxonomies for major knowledge domains
- Build robust data warehousing and business intelligence architectures
- Focus on knowledge about the customer
- Assure that corporate culture rewards knowledge sharing
- Focus the enterprise on learning

Source: Ramon Barquin

Some Websites

- http://www.skyrme.com
- http://www.acm.org
- http://www.ibm.com
- http://www.kikm.org
- http://www.scip.org
- http://www.sla.org
- http://www.sveiby.com
- http://www.tfpl.com
- http:/ /cpsquare.org
- http://www.eknowledgecenter.com
- http://www.icasit.org
- http://www.knowledgeboard.com
- http://www.uts.edu.au
- http://www.KMPro.com
- http://www.apqc.org
- http://www.worldbank.org
- http://www.kmresource.com
- http://www.brint.com
- http://www.cio.com
- http://www.kmci.org
- http://www.orgnet.com
- http://www.km4dev.org
- http://www.kmnetwork.com
- https://www.youtube.com/watch?v=6pIFUOav2xE