Durable Skills and Programs for Digital Curation and Preservation

Dr. Nancy Y McGovern, ACA-UBC International Seminar
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Topics

- Community Landscape
- Individual and group skills assessment
- Frameworks for competencies and skills
- Incorporating long-term planning into ongoing practice
- Monitoring and responding to evolving technology

Community Landscape

Digital Preservation

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Data **Curation**

Digital Curation

Digital Curation Centre definition, circa 2004

Digital Preservation

"the active management of digital content over time to ensure ongoing access" (NDIIPP*)

- Encourage quality creation by producers
- Document actions taken over the life of digital objects
- Ensure access over time
  - handshakes across generations of technology
  - proven technologies for preservation to contemporary for access

* National Digital Information Infrastructure and Preservation Program
Library of Congress

Data Curation

"active and on-going management of data through its life cycle of interest and usefulness to scholarship, science, and education"

enables discovery, ensures quality, adds value, and provide for re-use over time [UIUC]

- Predates the digital community
- Value-added steps by curators to enhance utility
- Intersection of data science (curators) and research (producers and consumers)

Digital Curation

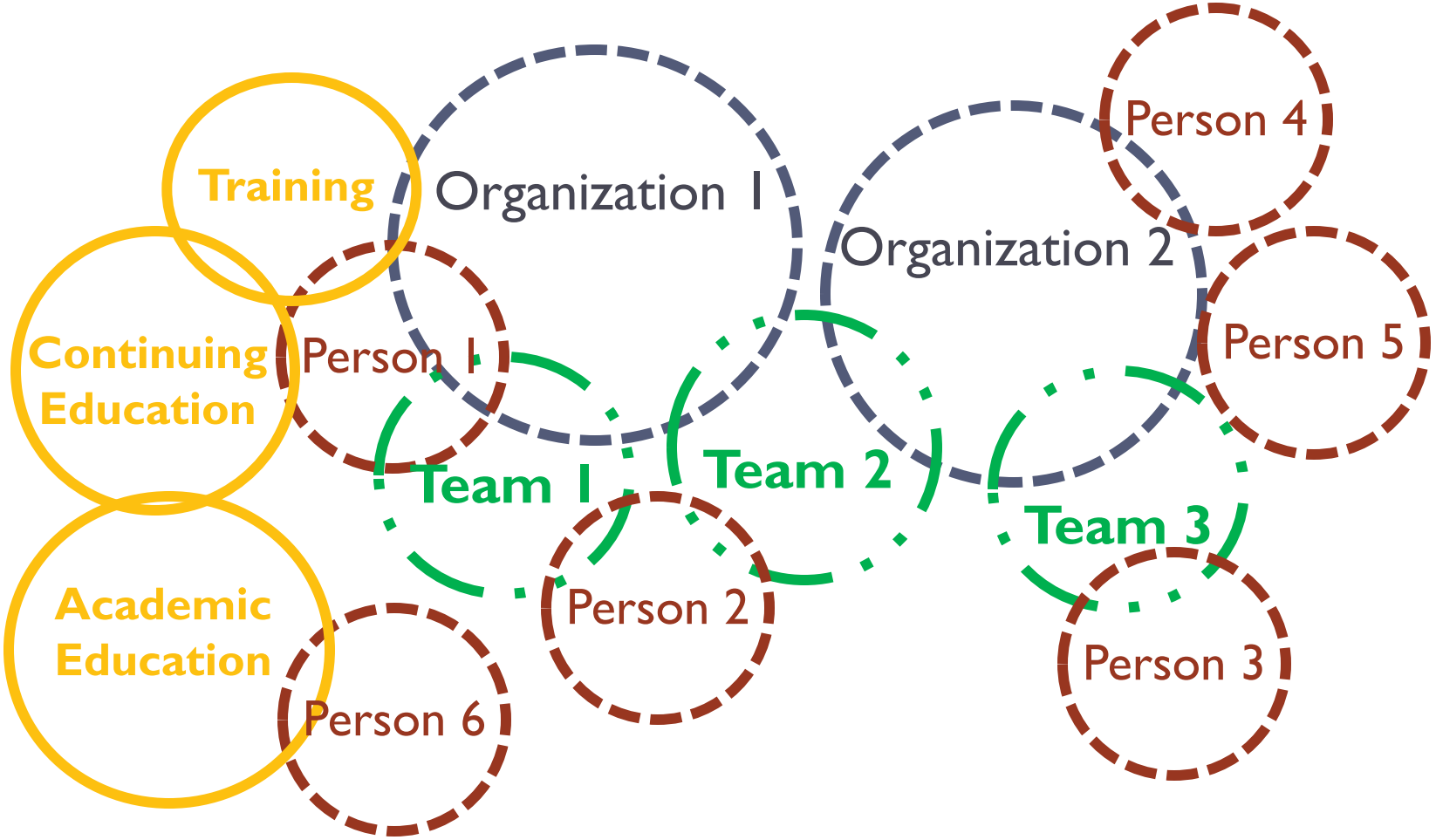
"maintaining and adding value to a trusted body of digital information for future and current use"

- active management and appraisal over entire life cycle
- builds upon underlying concepts of digital preservation
- emphasizes opportunities for adding value through annotation and continuing resource management
- Preservation is a curation activity - both are concerned with managing digital resources with no significant (or only controlled) changes over time

Source: JISC

Individual and group skills assessment

Perspectives on Skills



McGovern, 2013

Managing Skills

- Perspectives: organizations, teams, individuals
- Range: generalist to specialist
- Stage: early, mid and later career
- Evolution: technologies, requirements, skills

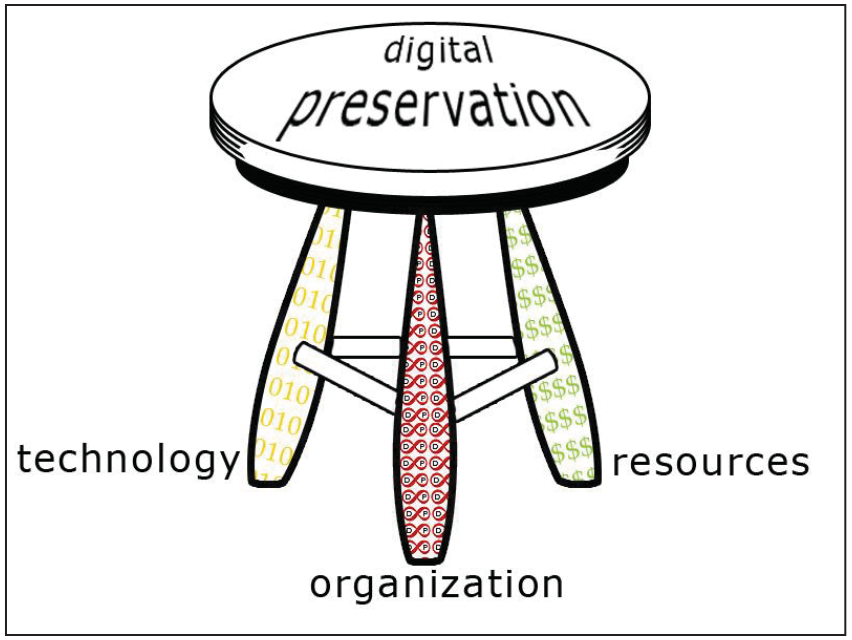
Tools needed

- Organizations: skills bank
- Teams: roles manager
- Individuals: career portfolio

Holistic Combination of Skills

An effective approach addresses:

- Organizational requirements and objectives (what?)
- Technological opportunities and change (how?)
- Resources – funding, staff, equipment, etc. (how much?)



Digital Preservation Management Workshop: dpworkshop.org

Addressing Long-term Access

Preservation makes long-term access possible…

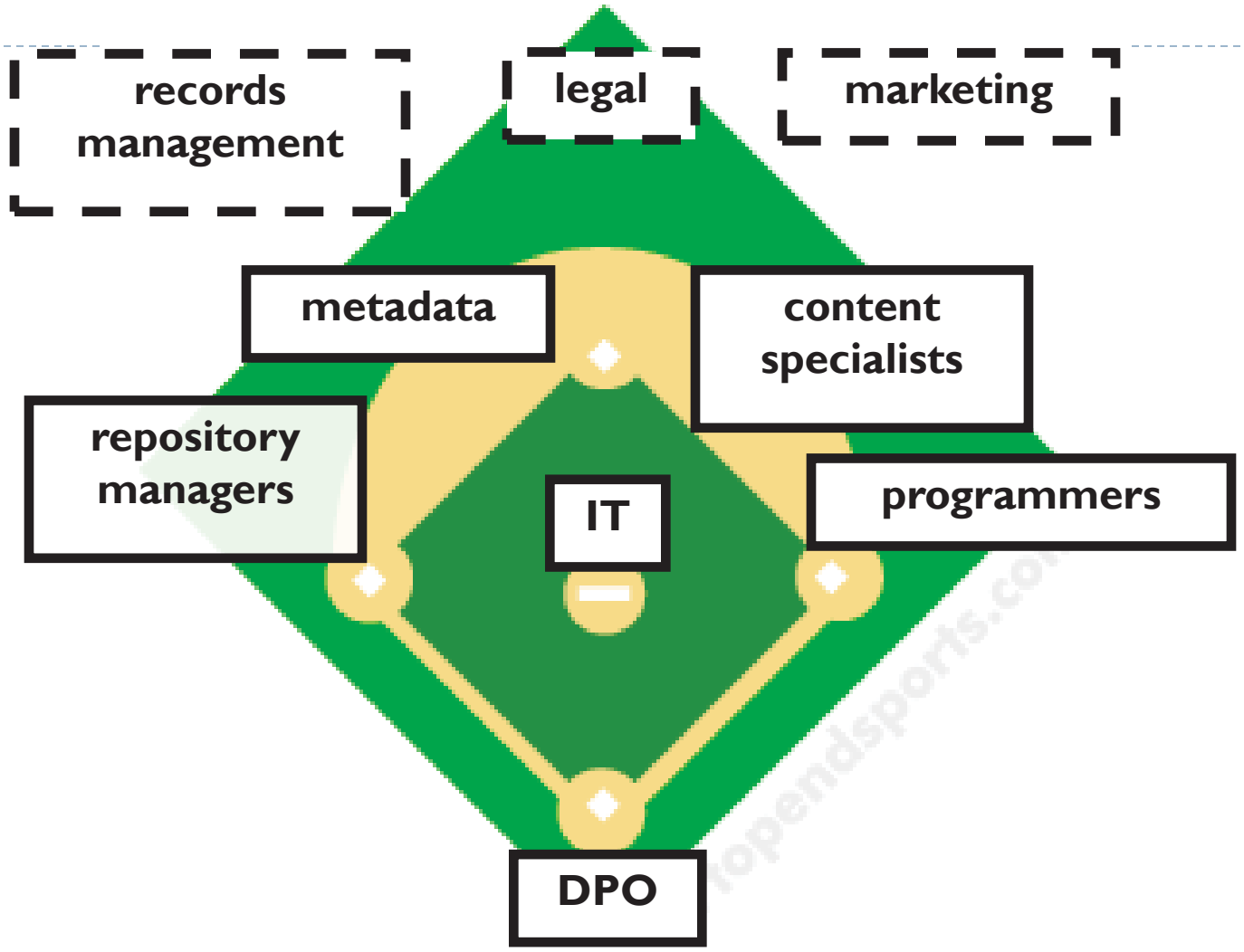
Preservation	**vs.**	**Access**
proven	<- technologies ->	cutting edge
accumulate	<- metadata ->	relevant now
access over time	<- purpose ->	access now
future users	<- focus ->	current users

Requisite Skills

Digital preservation specialists need to:

- Monitor and evaluate developments
- Understand/apply standards (and schemas)
- Define workflow(s)
- Identify and address bottlenecks
- Perform gap analyses
- Raise awareness
- Improvise

DP Dream Team – possible roles…



- NOTE: the Dream Team refers to the '67 Red Sox - of course

Metadata Skills Example

We have:

- Metadata specialists
- Preservation specialists

What might a preservation metadata specialist look like?

Developing and Maintaining Skills

DPM Program Stages

1. Acknowledge
2. Act
3. Consolidate
4. Institutionalize
5. Externalize

Skills Development

1. Interest
2. Self-study or Course(s)
3. Credential
4. Specialization
5. Instruction / Mentoring

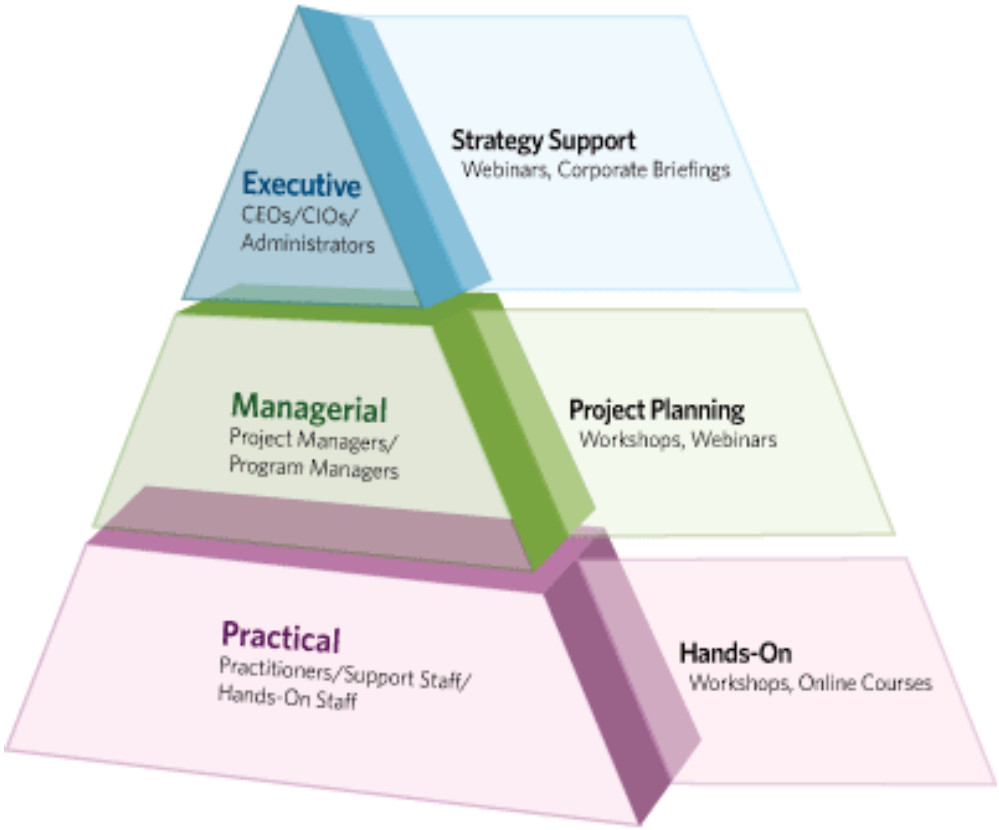
Frameworks for competencies and skills

Competencies for Curators: DigCCurr Matrix

Dimension
1. Mandates, Values and Principles
2. Functions and Skills
3. Professional, Disciplinary, Institutional, Organizational, or Cultural Context
4. Type of Resource
5. Prerequisite Knowledge
6. Transition Point in Information Continuum

http://www.ils.unc.edu/digccurr/digccurr-matrix.html

DPOE Pyramid



Skills appropriate to levels

http://www.digitalpreservation.gov/education/

Levels and Skills

Different roles need different skills

	Organizational	**Technological**
Executive	Fund	Invest
Managerial	Plan	Select/Administer
Operational	Use	Coordinate/Build


DAS
Digital Archives Specialist
Society of American Archivists

Digital Curator Vocational Education Europe

- Area 1: Knowledge and principles
- Area 2: Skills and competences
- Area 3: Audience/profile types
- Area 4: Part of digital curation lifecycle
- Area 5: Teaching methods/training delivery
- Area 6: Professional context

Defining Positions and Roles

- Same job title + different job description = confusion for employers and employees
- *Solution*: define competencies, formalize
- Reporting lines - what level position?
- *Factors*: experience, development, costs
- Balance of organizational and technical
- Required vs. Desired skills – which degrees?
- Communication skills

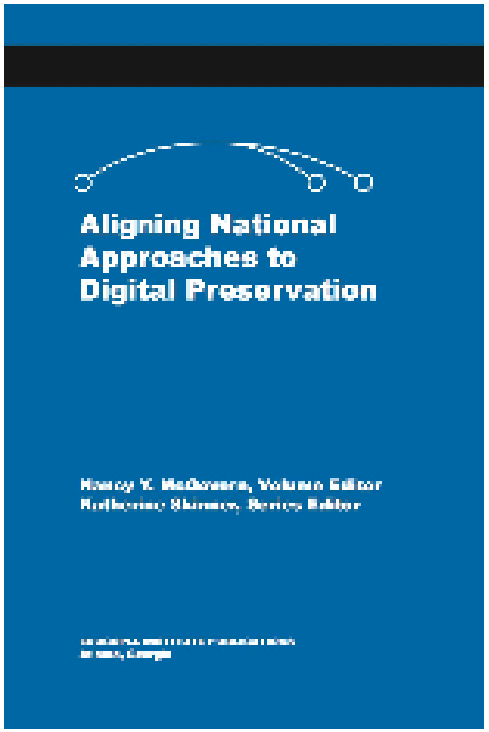
ANADP

Aligning National Approaches to Digital Preservation

- Envisioning an International Community of Practice
- National examples (Estonia, USA, Sweden)
- Alignment aspects:
  - Legal
  - Organizational
  - Standards
  - Technical
  - Resources
  - Education
- Alignment Opportunities (with Cliff Lynch)

ANADP released August 2012

http://www.educopia.org/publications



Capabilities

- Devise strategies
- Develop polices
- Collaborate
- Raise awareness
- Define good practice
- Develop programs
- Address legal issues
- Investigate problems
- Develop workflows
- Design object packages
- Identify dependencies
- Enable interoperability
- Develop competencies
- Build/maintain registries
- Balance risks and costs
- Monitor technology
- Invest in solutions
- Manage repositories
- Promulgate standards
- Manage metadata

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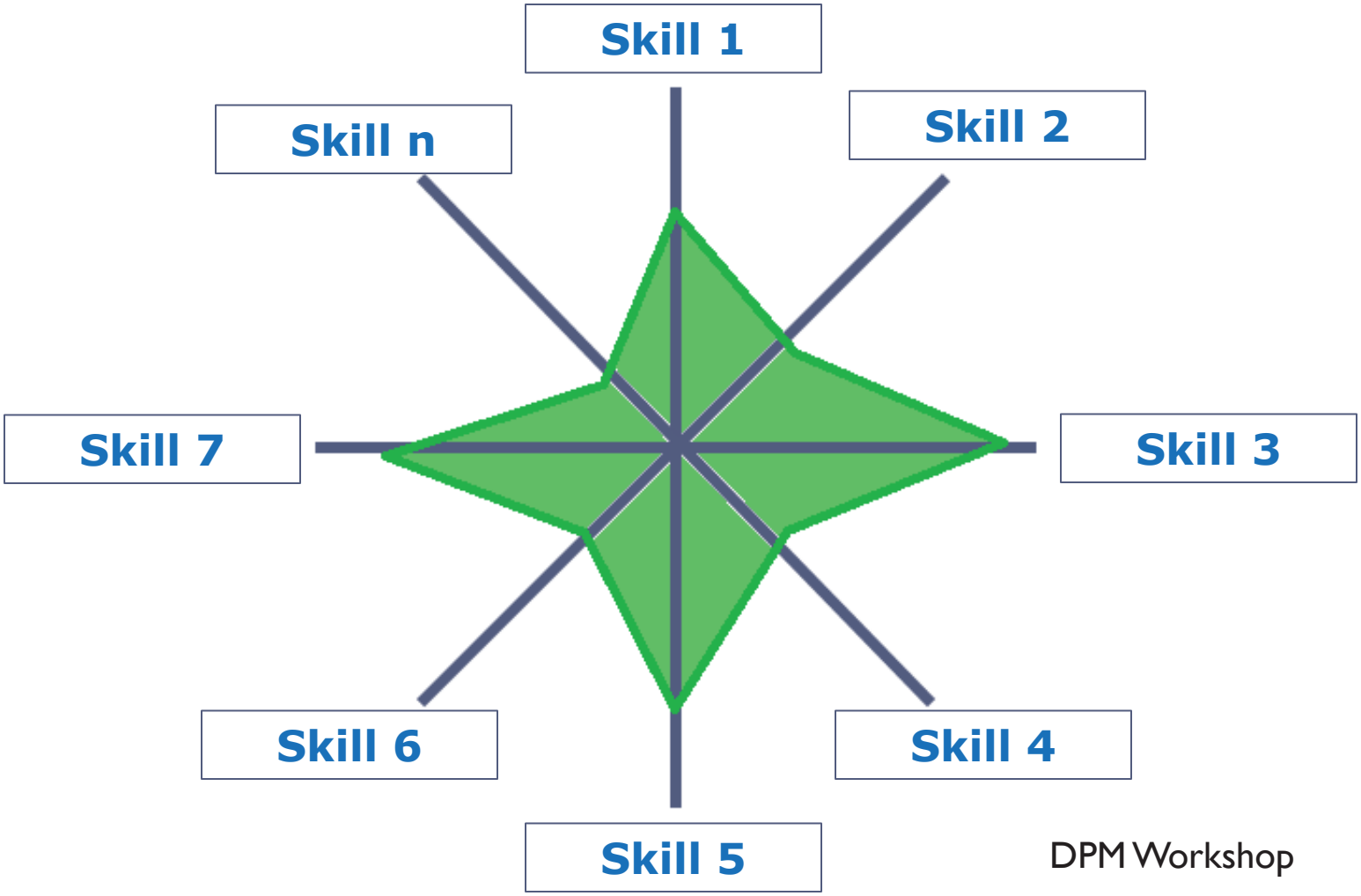
Skills Acquisition



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Incorporating long-term planning into ongoing practice

DP Planning

- Preservation Planning (ongoing)
- Self-assessment (internal process)
- Audit (external review by peers)

Also

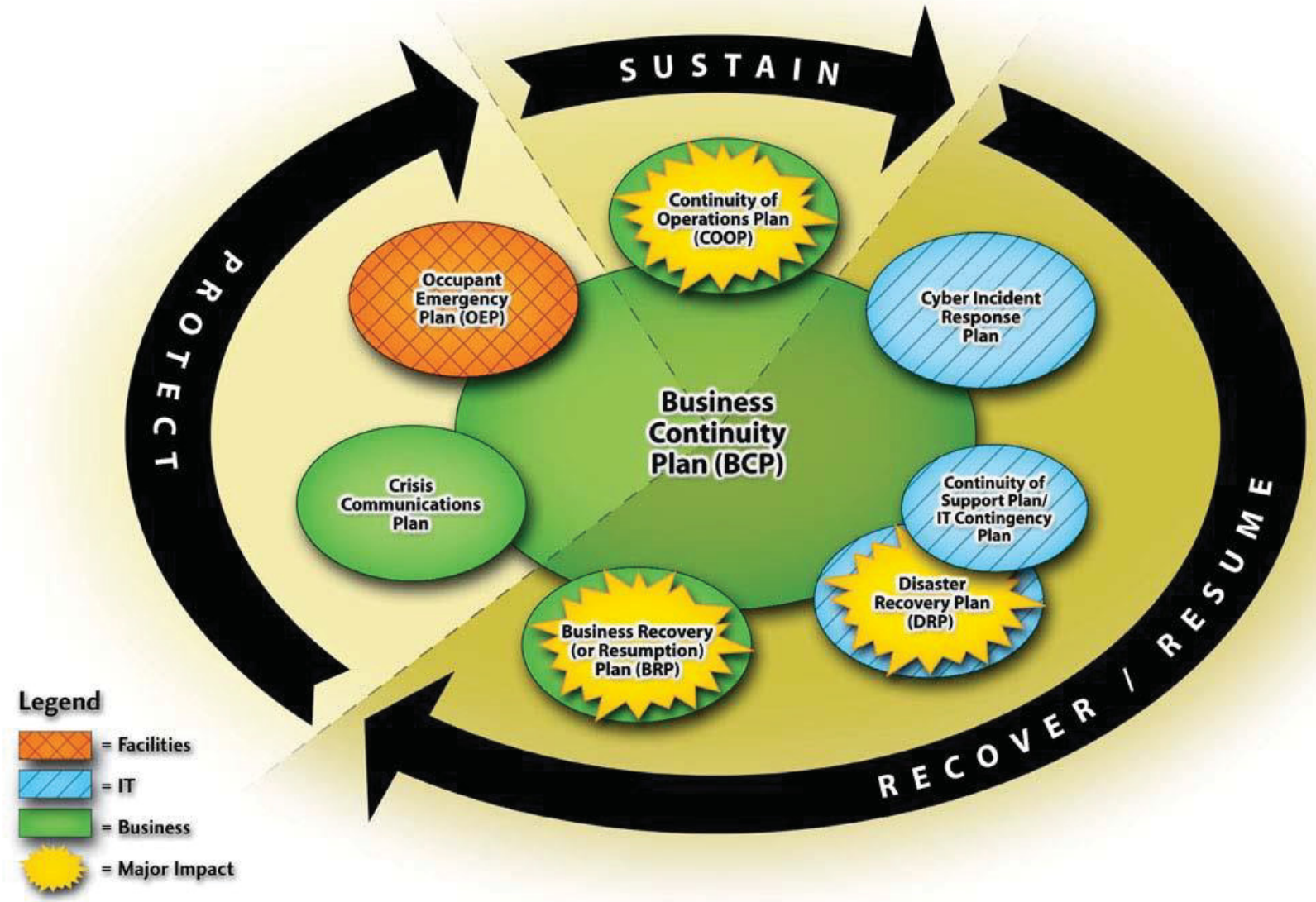
- Business Continuity (Protect)
- Disaster Planning (Protect)

Ten Principles

1. Commits to continuing maintenance of digital objects for identified community/communities.
2. Demonstrates organizational fitness (including financial, staffing structure, and processes) to fulfil its commitment.
3. Acquires and maintains requisite contractual and legal rights and fulfils responsibilities.
4. Has an effective and efficient policy framework.
5. Acquires and ingests digital objects based upon stated criteria that correspond to its commitments and capabilities.
6. Maintains/ensures the integrity, authenticity and usability of digital objects it holds over time.
7. Creates and maintains requisite metadata about actions taken on digital objects during preservation as well as the relevant production, access support, and usage process contexts before preservation.
8. Fulfils requisite dissemination requirements.
9. Has a strategic program for preservation planning and action.
10. Has technical infrastructure adequate to continuing maintenance and security of its digital objects. [6]

PLATTER

Strategic Objective Plan	*Responsibilities*	*Corresponding Core Principle(s)*
Business Plan	Financial planning, monitoring, and reporting	2
Staffing Plan	Acquisition and maintenance of relevant skillset for managing repository	2
Data Plan	Specification of data and metadata objects, formats, and structures for ingest, storage, and dissemination, together with the relevant transformations and mappings.	5,6,7,8
Acquisition Plan	Management of the relationship with depositors and other data providers. Appraisal policy.	3,5
Access Plan	Management of relationship with end users. Access Policy.	1,8
Preservation Plan	Ensure that access and usability of material in repository is not adversely affected by technological change and obsolescence	9
Technical System Plan	Specifies goals for hardware, software and networking	10
Succession Plan	Manage obligation to ensure preservation of material beyond the lifetime of the repository	1
Disaster Plan	Respond to rapid changes to the repository environment	1,6



From NIST Contingency Planning Guide for Information Technology Systems

Policy Development

who (producers, consumers, curators, managers, auditors) can do **what** (actions specific to a life cycle stage) **when** (at what stage of the life cycle)

In what circumstances (rules derived from policy decisions) – past, present, and future

Types of life cycle activities:
Real time – collection/object (e.g., processing, delivery)
Over time – repository (e.g., preservation planning, audit)

Policy Continuum

McGovern, 2009

Monitoring and responding to evolving technology

Technology Definitions

Defined as:

- "scientific study of practical or industrial arts" [OED]
- "physical devices of technical performance" *
- knowledge about how innovations work *
- "skills, methods, procedures, routines…" *
- problem-solving activities *
- Sociotechnical system involving the "manufacture and use of objects involving people and other objects in combination" *

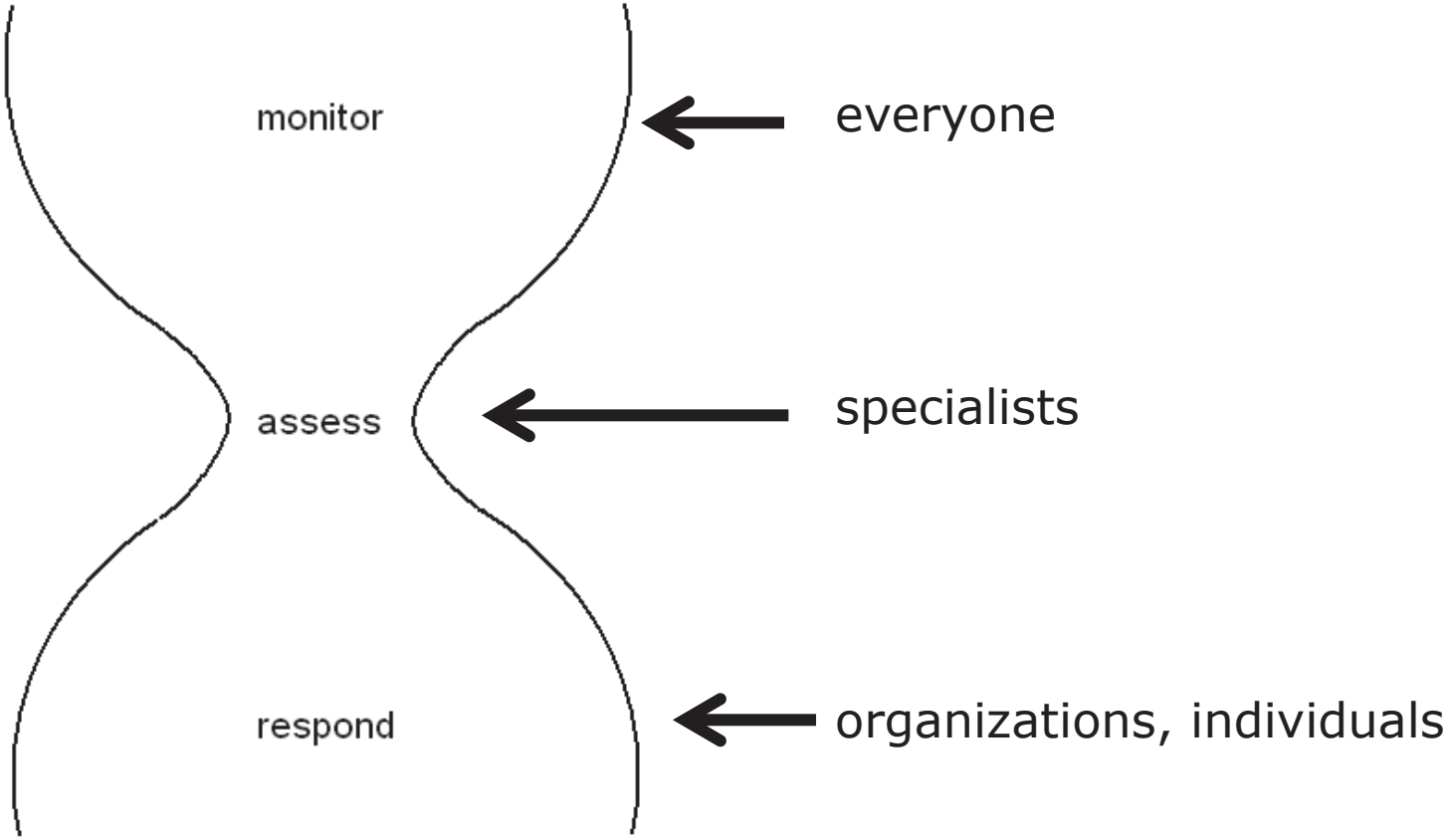
* UK Technology Education Centre

Technology Developments

Outcomes:

- Enhancement: doing a known thing better
- Alternative: doing a known thing differently
- New ability: doing a new and desired thing
- Innovation: doing a new and unimagined thing

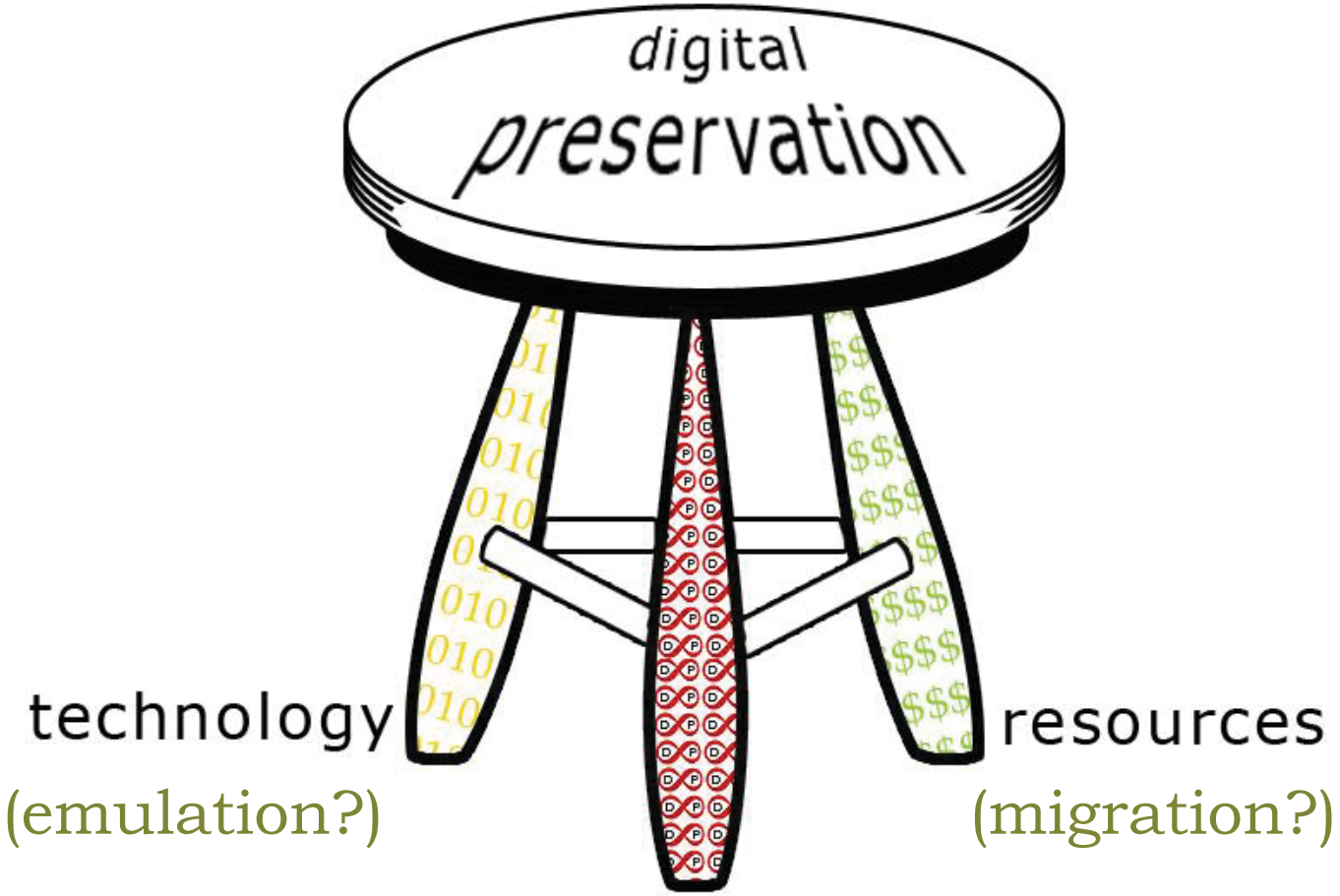
Technology Response – Skills?



Raise awareness, increase understanding, supplement curriculum

McGovern, 2009: http://discovery.ucl.ac.uk/18017/

Preservation Strategies Example



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Maintaining Durable Skills

- Anticipate change (flexible)
- Assess technical capabilities (aware)
- Track relevant technologies (current)
- Balance monitoring and doing (adaptive)
- Make informed decisions (prudent)
- Invest in technologies (savvy)
- Collaborate on solutions (innovative)

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