

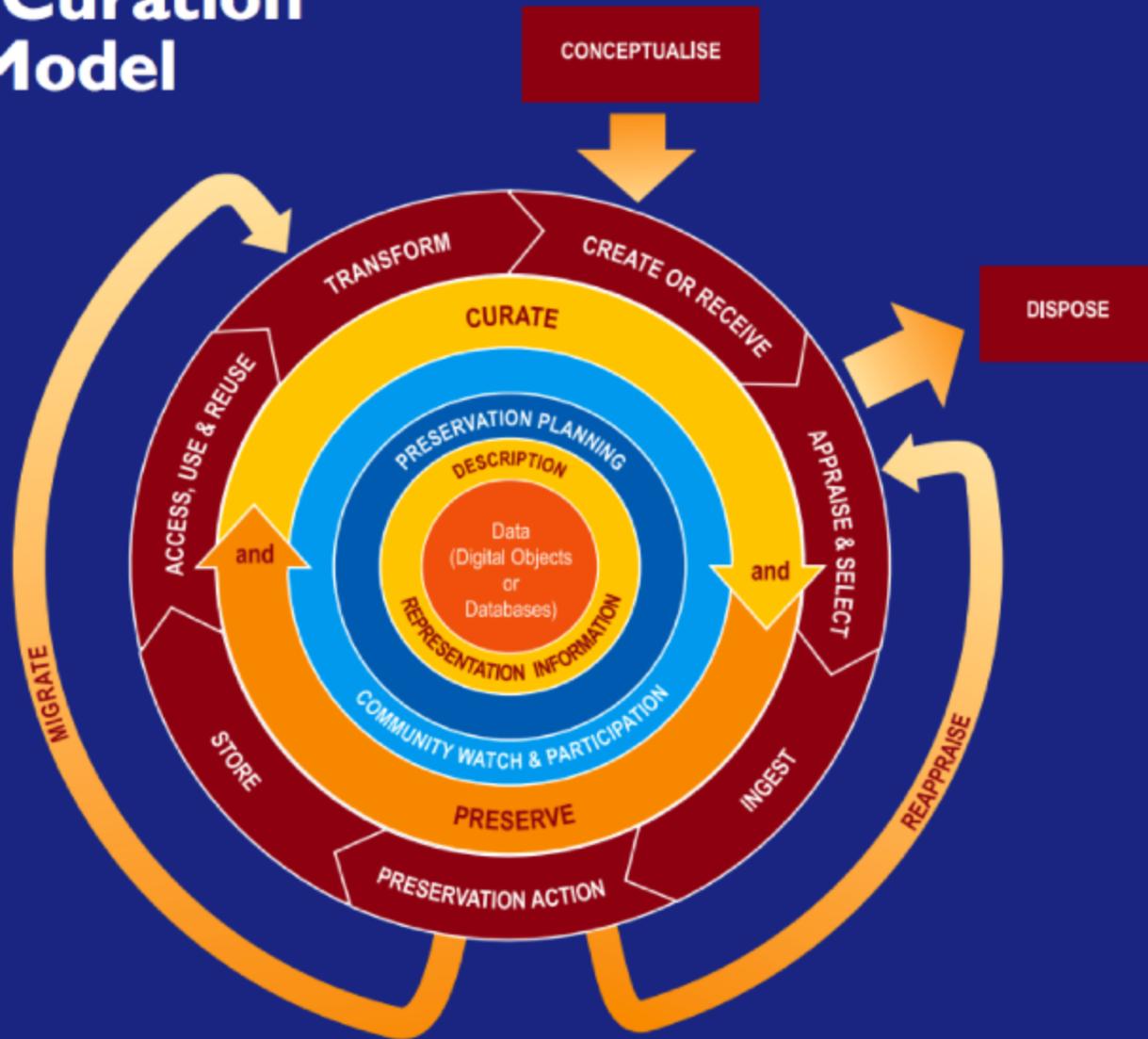
# **Turn, Turn, Turn: Seasons in the life of a digital object**

Through the lens of the digital curation  
lifecycle

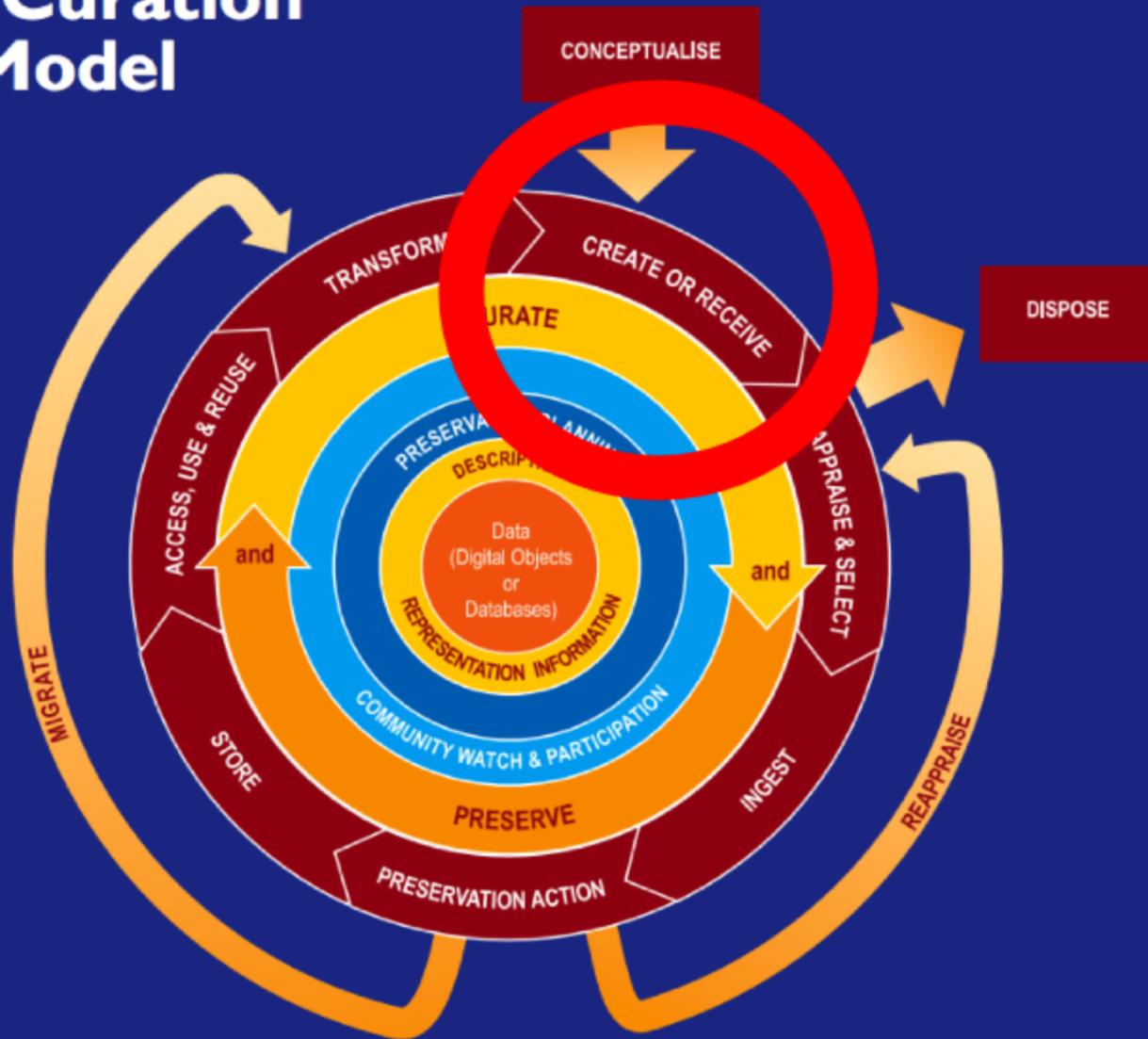
# What is Digital Curation?

"Digital curation involves maintaining, preserving and adding value to digital research data throughout its lifecycle."

# The DCC Curation Lifecycle Model



# The DCC Curation Lifecycle Model



# Create or Receive

*How do we get well formed data?*

We create *curation* ready data!

**Develop**

**Influence**

**Create**

**Collect**

**Develop**

# **POLICY!**

such SIP specification

# Definition of SIP

*Submitted by nruest on Tue, 07/02/2013 - 15:54*

## Submission Information Package (SIP)

- The information package that is delivered to York University Digital Library for use in the construction of one or more AIPs.
- The format of the SIP may vary from submitter to submitter, based on the submitters willingness and ability to provide the content and metadata in a specific format.
- For a given [Content Type](#), any requirements or restrictions on the type of content that can be contained in the SIP will be described in that Content Type's [Preservation Action Plan](#).

**Tags:**

[Documentation](#)

[Digital Preservation Policy](#)

# Well formed data/objects?

What does that look like!?

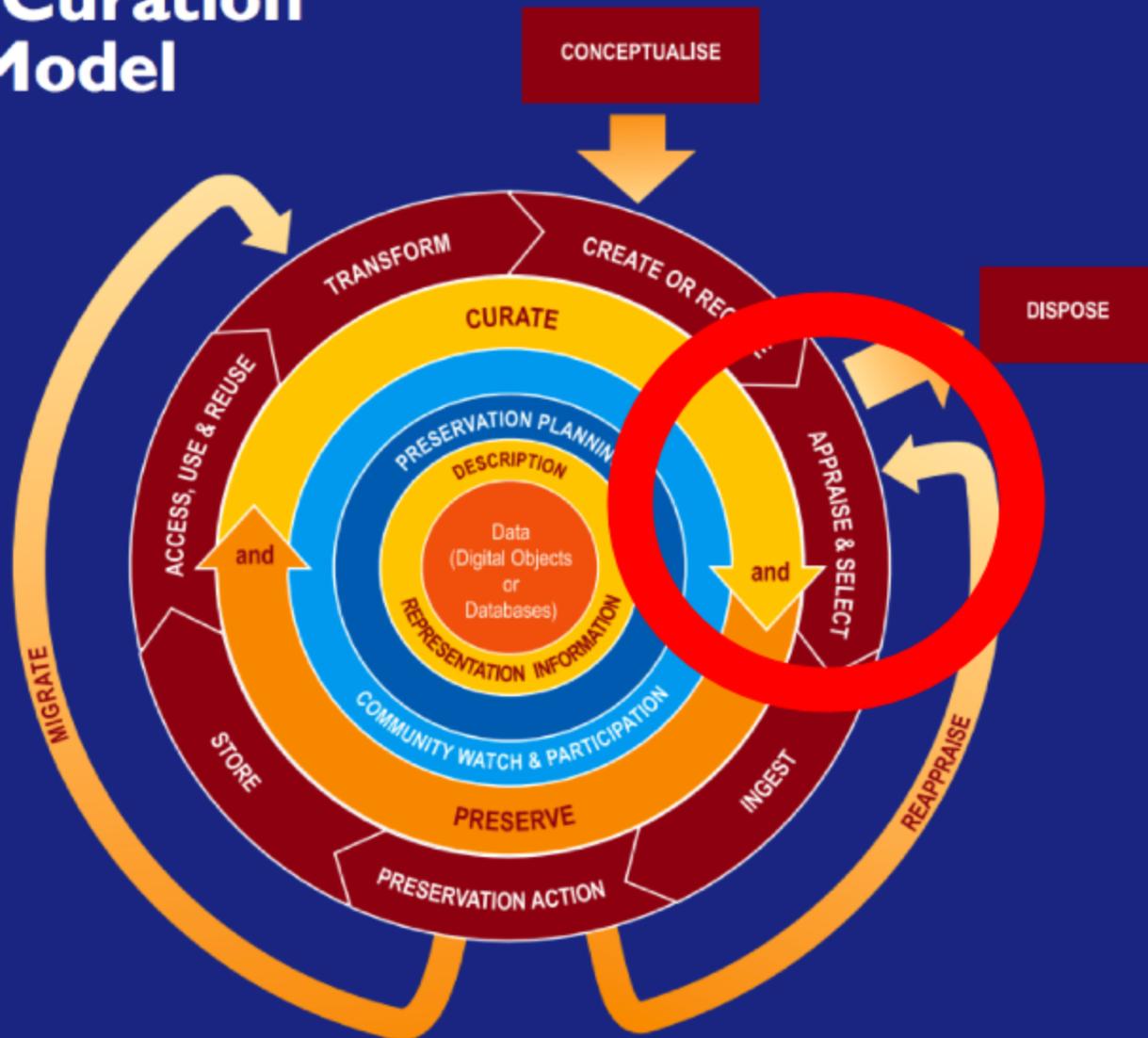
**Openness**

# Portability

**Quality**

# **Sample file format policy**

# The DCC Curation Lifecycle Model



Everything that we choose to preserve means  
that something else won't be.

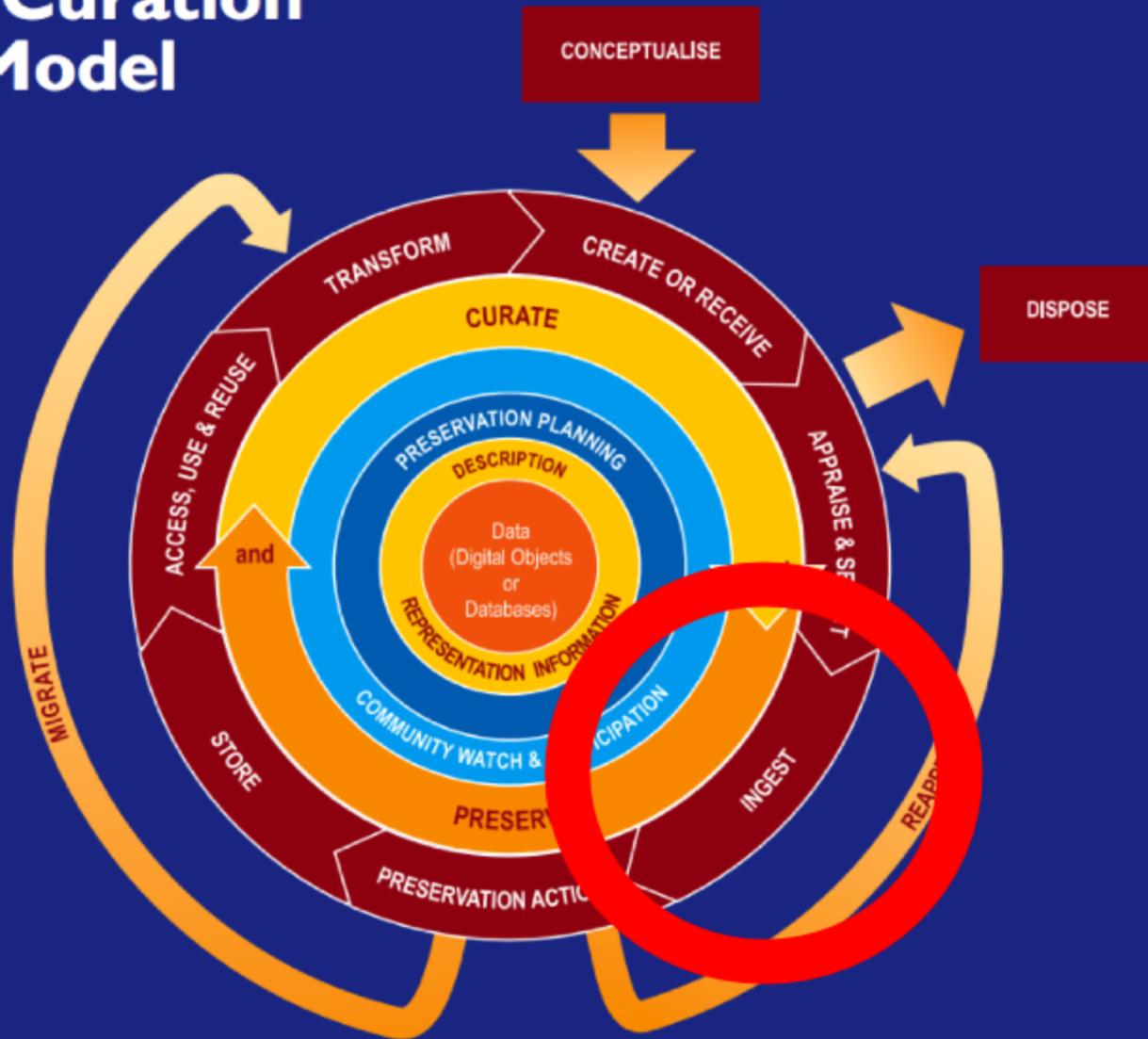
# How do we decide?

- Needs of users (Designated Community)
- Feasibility of preservation
- Legal and IP rights
- Criticality of data
- Presence of associated data/metadata

**POLICY!**

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# The DCC Curation Lifecycle Model



**SIPs to AIPs**

**Step 1: Submit**

# **Step 2: Ingest**

**What's an AIP?**

# Reference Information



# Provenance



# Context Information



# Fixity Information



**Process!**

# 1. Receive and accept SIP



## **2. Prepare the SIP for storage and management**



# **3. Perform quality assurance activities on the SIP**



# **4. Initiate format conversion to create the AIP**



# 5. Generate AIP



# **POLICY!**

Definition of AIP

# Definition of AIP

Submitted by nruest on Tue, 07/02/2013 - 15:54

## Archival Information Package (AIP)

- The information package consisting of the Content Information (CI), Preservation Description Information (PDI), Packaging Information (PI), and Descriptive Information (DI) that is archived at York University Library.
- The level of content in a York University Digital Library AIP can vary, depending on the amount of content provided by the submitter.
- This description will use the OAIS Information Model to illustrate completeness of our conceptual model, and will describe, in general terms, what a York University Library AIP looks like.

### Content Information (CI)

- The Content Data Object is generally stored with from the primary preservation metadata file, which is held in Fedora Commons.
- Representation Information is maintained, and contains information on the CDO's file format, version, and a reference to a format registry in order to provide information on how to interpret the file. See: [registry of file formats](#)

### Preservation Description Information (PDI)

- *Reference Information* - Identifiers are stored for each object identifying it globally (e.g. YUL PID) and locally (e.g. URI).
- *Provenance Information* - Provenance metadata is maintained for each object that provides a history of preservation events in the object's lifetime, beginning at ingest into the YUL Digital Library repository and referencing any preservation activities taken on the object (e.g., replacement due to corruption, format migration, etc.).
- *Context Information* - As appropriate, information on how a CDO relates to other CDOs or to other conceptual entities. Examples of these relationships can include: a newer version of an object that supersedes an older one.
- *Fixity Information* - Fixity information is generated at the time of ingest in order to later determine whether or not the item remains in the same state as when it was ingested. This information can be used to determine integrity of an object being copied within the system (as in the case of a change in storage location), or for periodic integrity checks.

### Packaging Information (PI)

- YUL preservation metadata packages both the descriptive and preservation metadata together.

### Descriptive Information (DI)

- Depending on the type of CDO, the format of this descriptive metadata can vary (MODS or Dublin Core), but is selected to maximize findability. In all cases, the descriptive metadata will be recreated within the preservation metadata.

### Tags:

[Documentation](#)

[Digital Preservation Policy](#)

# Policy. Policy. Policy.

Sort & Identify

Acknowledge receipt

List data/objects

Depositor agreement

Uncompress

Decrypt

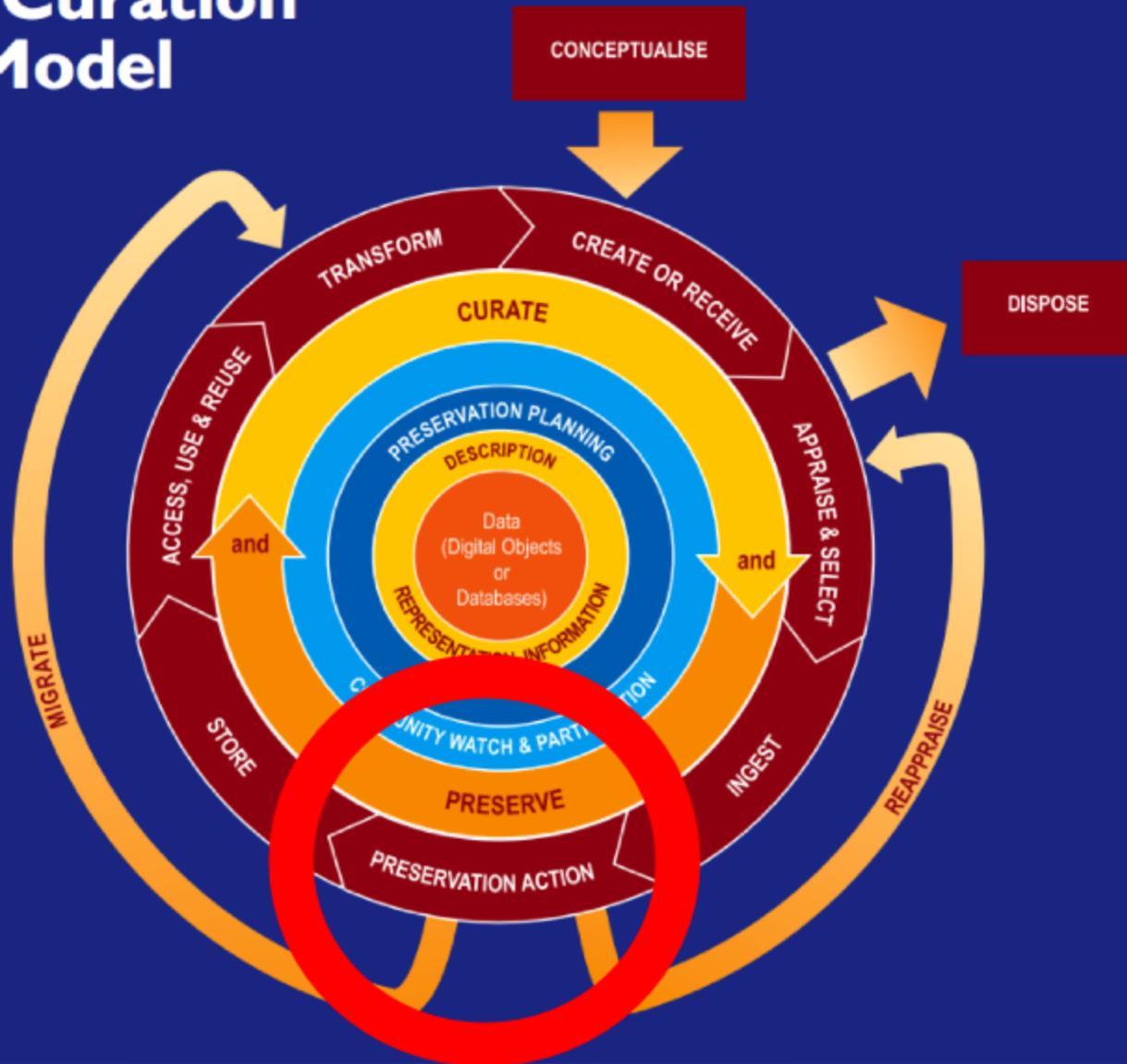
Virus & malware

Fixity

Permanent identifiers

Transform/derivatives

# The DCC Curation Lifecycle Model



# Preservation Action

Anything that we do to maintain the

- Integrity
- Authenticity
- Usability

of our content.

# Usability

3 main strategies:

- Technology preservation
- Technology emulation
- Information migration

# Case 1:



## Disabled or young? Relative age and special education diagnoses in schools<sup>☆</sup>

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### ABSTRACT

This study extends recent findings of a relationship between the relative age of students among their peers and their probability of disability classification. Using three nationally representative surveys spanning 1988–2004 and grades K–10, we find that an additional month of relative age decreases the likelihood of receiving special education services by 2–5 percent. Relative age effects are strong for learning disabilities but not for other disabilities. We measure them for boys starting in kindergarten but not for girls until 3rd grade. We also measure them for white and Hispanic students but not for black students or differentially by socioeconomic quartiles. Results are consistent with the interpretation that disability assessments do not screen for the possibility that relatively young students are over-referred for evaluation. Lastly, we present suggestive evidence that math achievement gains due to disability classification may differentially benefit relatively young students.

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### 1. Introduction

Students with disabilities represented about 13.7 percent of the public school enrollment in the United States by 2005–2006, with about half diagnosed with learning disabilities.<sup>2</sup> All students with disabilities are entitled by law to a free and appropriate public education, which can be considerably more costly than educating students not classified with special needs. Spending on students with disabilities has been estimated to be 90 percent higher

than for other students, on average (Chambers, Parrish, and Harr, 2004).<sup>3</sup> Special education spending also has grown faster than regular education spending since the 1980s, representing a larger share of district budgets (Lankford & Wyckoff, 1995; Parrish, 2001).

A recent study by Elder and Lubotsky (2009) finds compelling evidence that school officials may use relative standards in classifying children as having a disability. Their results indicate that children who start school at older biological ages are less likely to be classified with Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD) by fifth grade.<sup>4</sup> The effects are large; starting school a year older decreases the likelihood of diagnosis with one of these conditions by 67 percent. Conditional on

<sup>☆</sup> Stephen Lipscomb gratefully acknowledges the Public Policy Institute of California for its support and Elizabeth Dhuey gratefully acknowledges the financial support of the Social Sciences and Humanities Research Council of Canada. This paper reflects the views of the authors alone.

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<sup>1</sup> Tel.: +1 617 674 8371; fax: +1 617 491 8044.

<sup>2</sup> See <http://www.ideadata.org>, Table B1.

<sup>3</sup> Duncombe and Yinger (2005) detail methods to estimate the extra costs of educating disadvantaged students.

<sup>4</sup> Goodman, Gledhill, and Ford (2003) find a similar negative relationship between relative age and child psychiatric disorders in the United Kingdom.



# The 2 arrows

- Migration
- Reappraisal

**POLICY!**

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# Digital Preservation Strategic Plan

*Submitted by nruest on Tue, 07/02/2013 - 15:40*

## YUL Digital Preservation: Strategic Plan

*"Preservation is not a place into which content is put for safe-keeping, but rather, it is a process in which content evolves proactively and reactively through the application of strategy-embodying services."*

The purpose of the York University Library Digital Preservation Plan is to outline the digital preservation strategy used by York University Library to ensure continued access to its digital collections by the Designated Community.

**Objectives:** The primary focus of the YUL's digital preservation activities is on preserving the intellectual content of the materials digitized by the library, materials deposited into YorkSpace, and born digital materials acquired by Clara Thomas Archives and Special Collections. This means that YUL will prioritize the preservation of the content of all materials ingested, as opposed to the look and feel of the document.

The following properties are those which will be prioritized in all preservation activities:

- The intellectual content of the object in the repository. This will be defined on a collection-level, type-by-type basis and includes all supplemental materials and the relationship between these objects, as can be determined from metadata or other context at the time of ingest.
- Metadata included with the object at the time of ingest, especially that which relates it to other objects within the repository, or to the universe of its collection type overall.
- The intellectual rights to the object held by YUL and members of its designated community. While these properties are used to control access to the content and to determine its preservation level, they are also

# Digital Preservation Implementation Plan

*Submitted by nruet on Tue, 07/02/2013 - 15:43*

## Preservation Activities

YUL's preservation strategies are based around the preservation of the intellectual content of the digital objects contained in YUL's digital repositories ([YorkSpace](#), [YUDL](#)) through the transformation of these objects to delay or prevent file obsolescence. In the course of these transformations, priority is given to maintaining the information contained in an individual content object, as opposed to preserving its appearance or a specific question.

To this end, YUL utilizes the following approaches to preservation:

**Archival File Formats:** YUL is committed to the use of file formats that support long term sustainability. In general, the considerations for selecting file formats include the "openness" of the file format, its level of support as a preservation format in the academic/scholarly community, and its uptake among YUL's [Designated Community](#), as well as its well-suitedness to later format migration.

**Normalization:** As mentioned above, YUL works to identify file formats well-suited to its approach to preservation and access. Upon ingest, materials not conforming to YUL's accepted standards will be converted to one of the previously identified formats. To the extent possible, YUL will attempt to preserve the essential characteristics of the object. In cases requiring compromise, transformations that maintain the content of the object will be prioritized over those that preserve the presentation.

**Format Migration:** When YUL perceives that a portion of its content is stored in a format that is at risk of obsolescence, a new version of this content will be created in a format more suited to long-term preservation and use. This transformation may consist of migration to a newer version of the content's existing format or

# Image - Preservation Action Plan

*Submitted by nruest on Wed, 10/02/2013 - 11:47*

## Introduction

This document describes the preservation plan for image content in the York University Digital Library. Most of the image content content is from the Clara Thomas Archives and Special Collections. The preservation plan for image content follows from policies and practices described in the [Digital Preservation Strategic Plan](#) and the [Digital Preservation Implementation Plan](#). This document explains practical steps that York University Libraries take to preserve the intellectual content of image in digital format. It outlines the basic tools, methods, and standards used for the long-term preservation of image content.

## Content Formats

For the preservation of image content, York University Libraries require uncompressed TIF versions of the content, and descriptive metadata. During the ingest process, derivatives are created for display. York University Libraries continuously monitors developments in file formats to determine if and when formats require migration (see [Environmental Monitoring of Preservation Formats](#)).

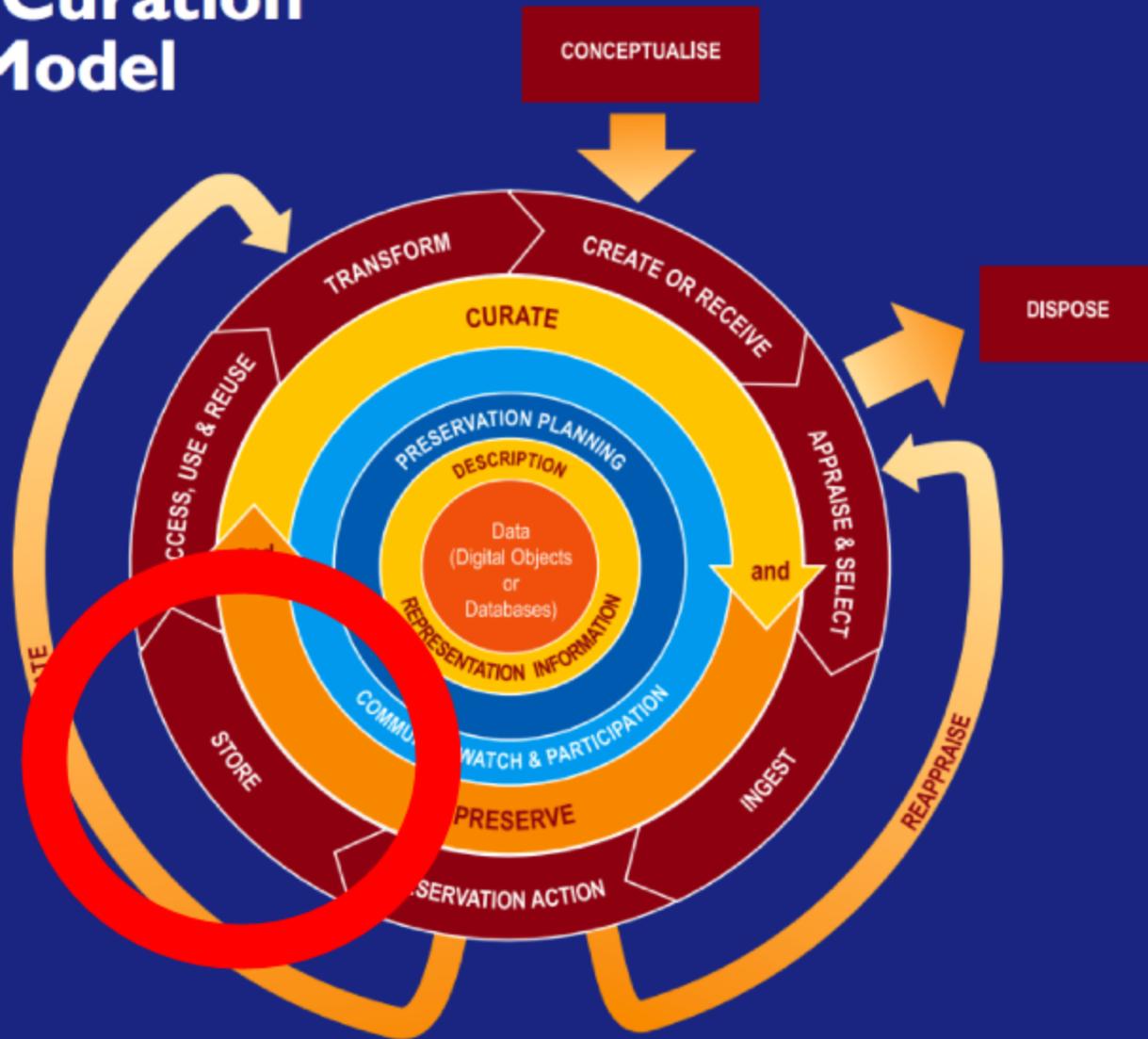
## SIP Format

Image SIPs (see [Definition of SIP](#)) generally consist of a TIF file, and an associated MODS descriptive metadata file.

## Analysis on Ingest

Upon ingest, every file in the repository is subject to identification of its file format and validation using FITS. The output of the FITS identification and validation processes are recorded to a technical metadata datastream

# The DCC Curation Lifecycle Model





WOW

such backup

not preservation

much part of preservation

very 1110 0001

0010 1010 1101

# Policy!

backup plan, URIs, file naming plan, fixity

# URI Policy

*Submitted by nruet on Wed, 01/22/2014 - 07:52*

## Policy Statement

URIs created by York University Digital Library

- York University Digital Library uses a systematic convention to generate unambiguously unique identification for digital objects within its repository. This convention will create a stable name or reference to an object that can be permanently associated with that object, regardless of future changes to organizational structure or to digital access protocols.
- This is in conformance with section 4.2.4 of Metrics for Digital Repository Audit and Certification (CCSDS, June 2009) which states that a compliant repository "shall have and use a convention that generates persistent, unique identifiers for all AIPs" and "its components."
- This convention will ensure that "each AIP can be unambiguously found in the future" and that "each AIP can be distinguished from all other AIPs in the repository"

## Implementation

### Islandora object

York University Digital Library canonical URIs are consistently constructed in the following manner:

- `/islandora/object/PID`

These URIs are aliased using [Islandora Pathauto](#) to the following pattern:

- `[fedora:pid]/[fedora:label]`

Example:

- **Photograph:** New Woodbine : racehorses train for opening of season
- **Canonical URI:** <http://digital.library.yorku.ca/islandora/object/yul:88675>
- **Aliases URL:** <http://digital.library.yorku.ca/yul-88675/new-woodbine-racehorses-train-opening-season>

**Tags:**

[Documentation](#)

[Digital Preservation Policy](#)

# Fixity procedures

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*Submitted by nruest on Thu, 06/27/2013 - 12:51*

## Policy Statement

York University Library are committed to maintaining the integrity of objects in its care. This includes creating checksums for all archival format objects -- plus associated datastreams -- ingested into the repository, and regular fixity checking of those objects.

## Implementation

At the time of ingest an MD5 checksum value is calculated for the archival format object, and is stored along the object in the repository.

Daily, a set number of files in the repository will have their current checksum calculated (using a single checksum) and compared to this stored value, which is expected to match. In cases where the calculated and stored values do not match, this is reported to the repository manager.

**Tags:**

[Documentation](#)

[Digital Preservation Policy](#)

**ensure that sufficient description  
and representation information is  
stored with data**

**use a reliable storage medium  
and  
geographically distributed  
backups systems**

**monitor events that might trigger  
other preservation actions**

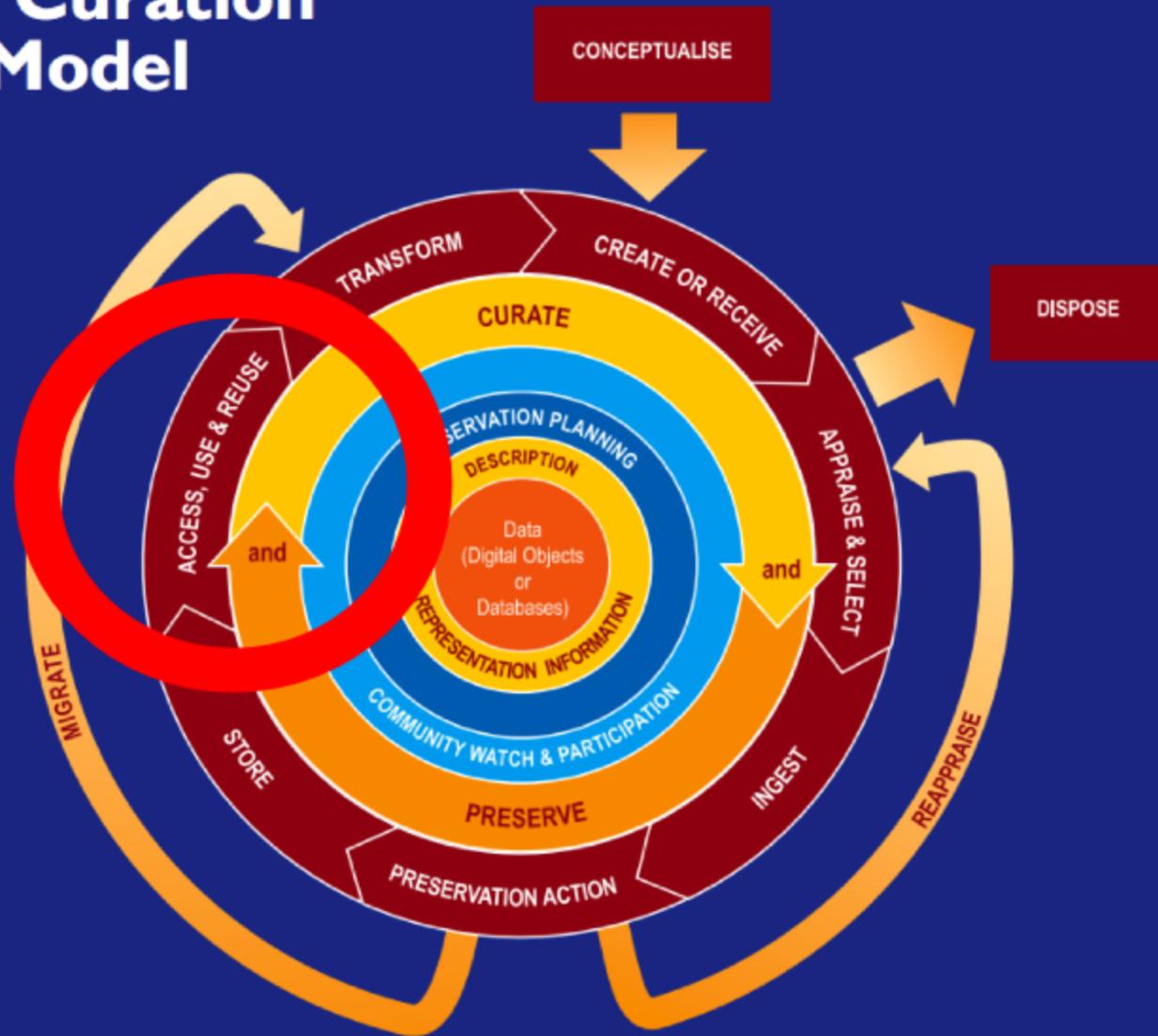
**regularly check to ensure the  
integrity of the stored data and  
their description and  
representation information**

**ensure system and physical  
security**

**maintain and replace the technical  
infrastructure as necessary**

**develop, and administer as  
necessary, data recovery  
procedures**

# The DCC Curation Lifecycle Model



**There is NO preservation without access.**

# What's required?

- Appropriate metadata to ensure data can be located.
- Appropriate legal permissions to ensure data can be (re-)used.
- Tools to allow the use of data.
- Access controls.

# Policy!

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# Definition of DIP

*Submitted by nruest on Tue, 07/02/2013 - 15:54*

## Dissemination Information Package (DIP)

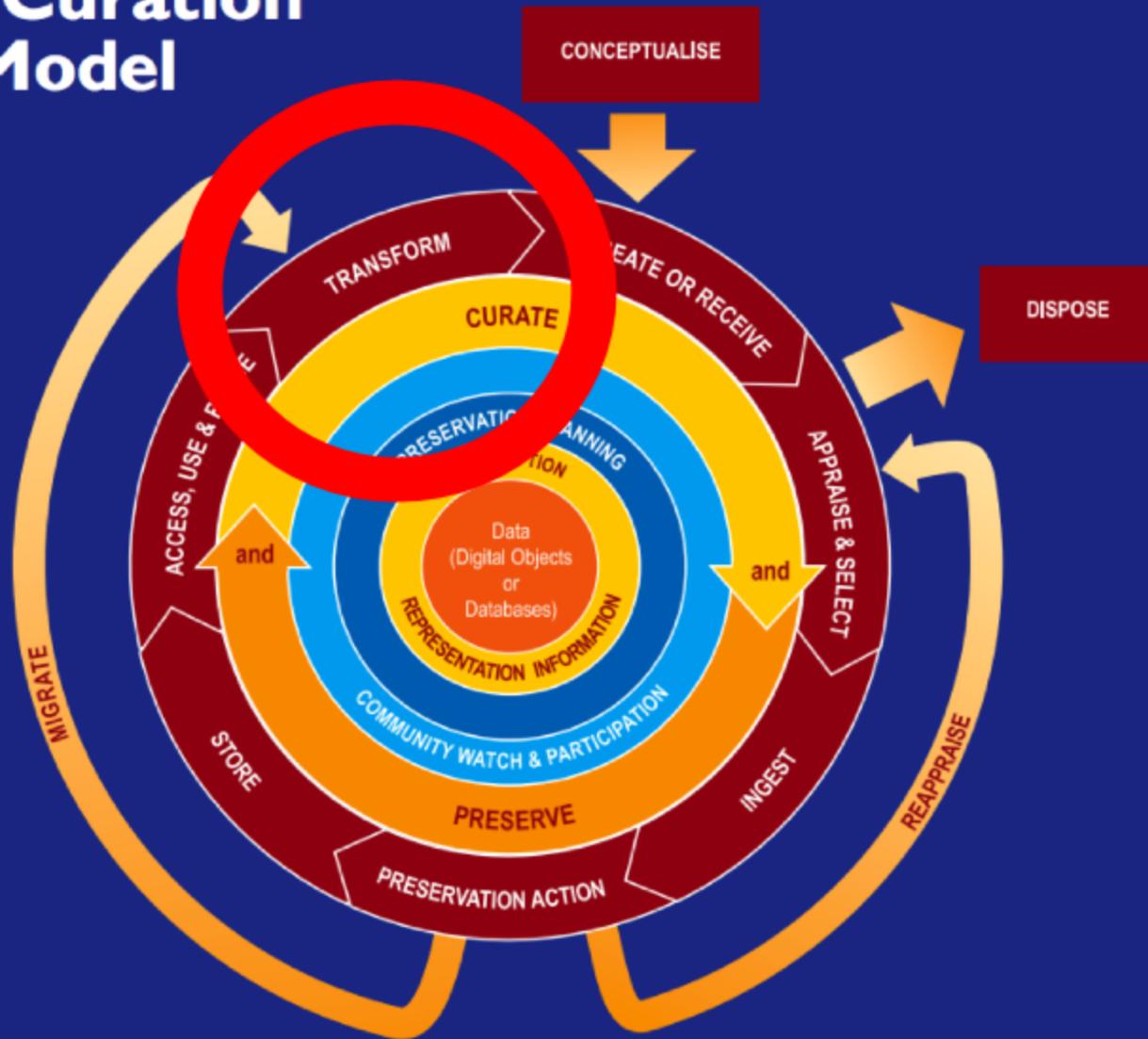
- [OAIS](#) describes a DIP as "the Information Package, derived from a part, or all, of one or more AIPs, received by the Consumer in response to a request to the OAIS."
- York University Library's DIPs are always generated from a single AIP.
- User access to archival objects is generally provided through the [YUDL website](http://digital.library.yorku.ca) (http://digital.library.yorku.ca).
- The user is first authenticated, and will, depending on their level of access, see basic object metadata, and a link to the object article as available.
- Context information is provided in the form of links to other items in a given collection.
- The DIP is retrieved using the URI for the corresponding AIP. In turn, the AIP contains metadata tying it back to the SIP.

**Tags:**

[Documentation](#)

[Digital Preservation Policy](#)

# The DCC Curation Lifecycle Model



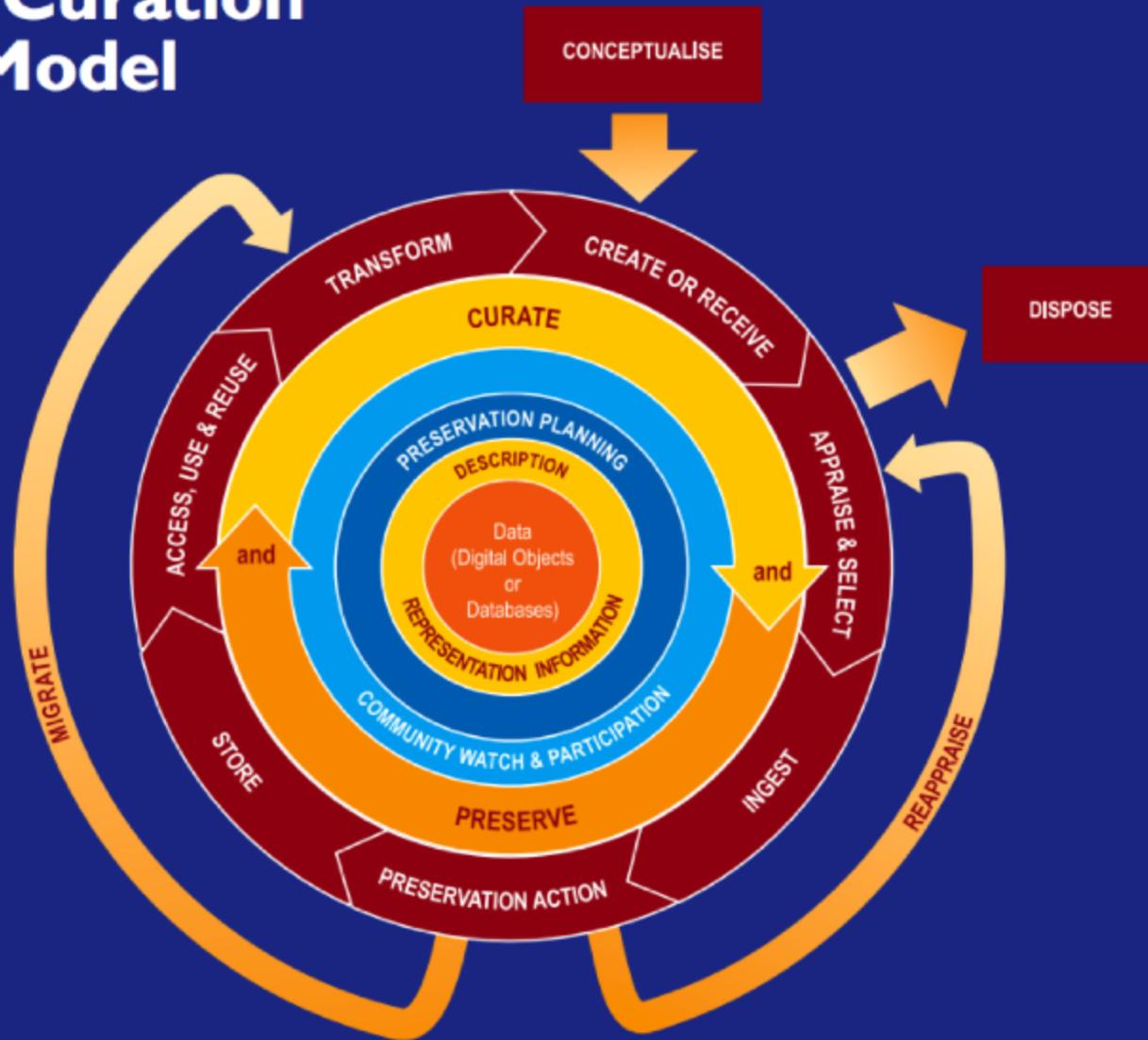
# Transform



# Transformation

- Can be invoked:
  - At Ingest
  - At time of access
  - As a preservation action
- At ingest: Received formats are not always suitable for preservation
- At access: preservation formats are not always suitable to user needs.
- As preservation: mainly associated with 'Information migration' preservation strategy.

# The DCC Curation Lifecycle Model



**Community**

# **Thatched roof cottages**