

Draft Digital Preservation Policy for IGNCA



Dr. Aditya Tripathi

Banaras Hindu University

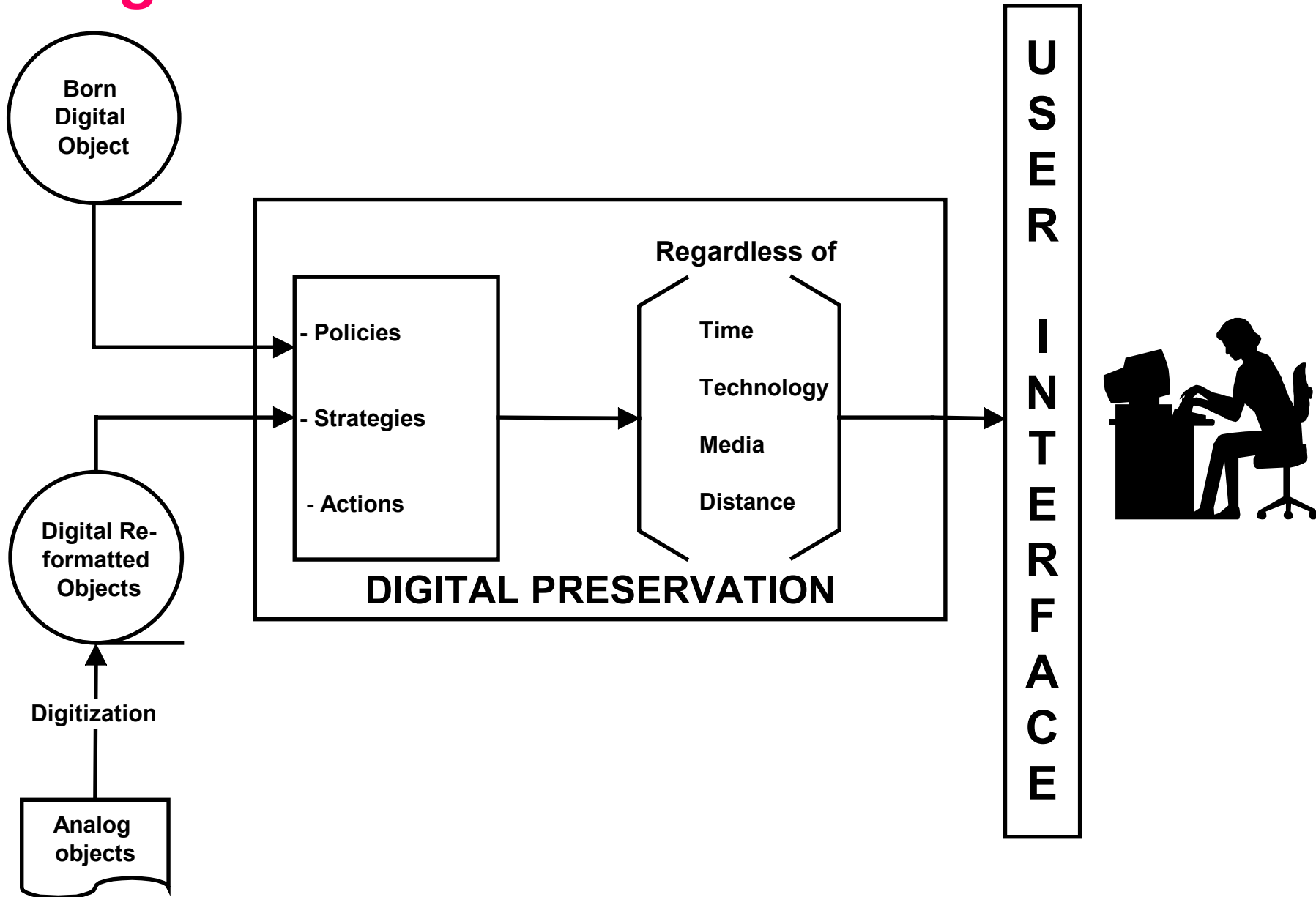
Varanasi

aditya@bhu.ac.in

adityatripathi@hotmail.com



Digital Preservation



Digital Preservation – Policy Statement

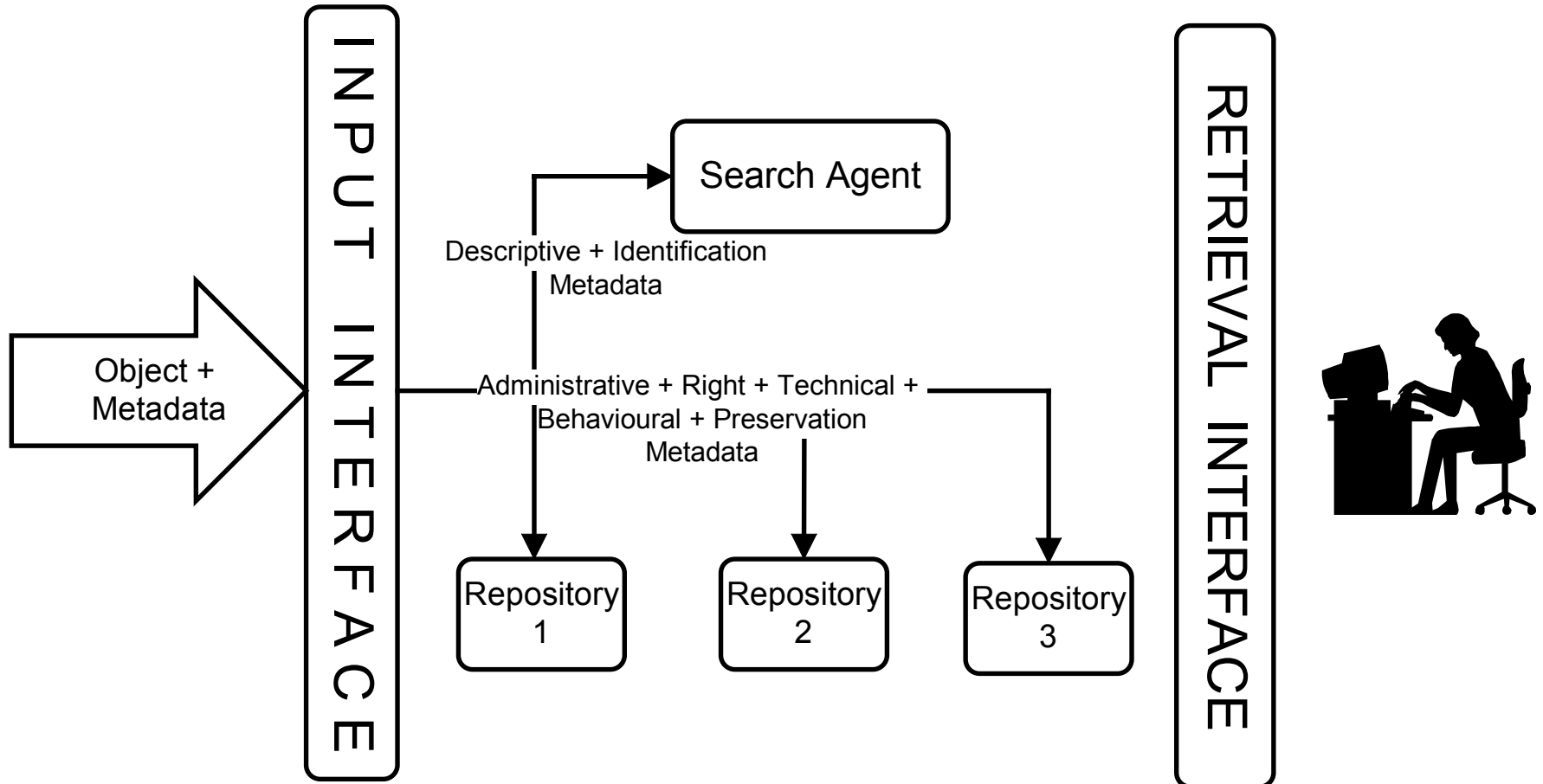
- ❑ Developing a cultural archive of available collection of
 - *Micro films/fische/CDROM*
 - *Rare books and personal collections*
 - *Images/Slides*
 - *Music and videos*
 - *IGNCA publications etc.*

- ❑ Curative measures for data recovering and repair

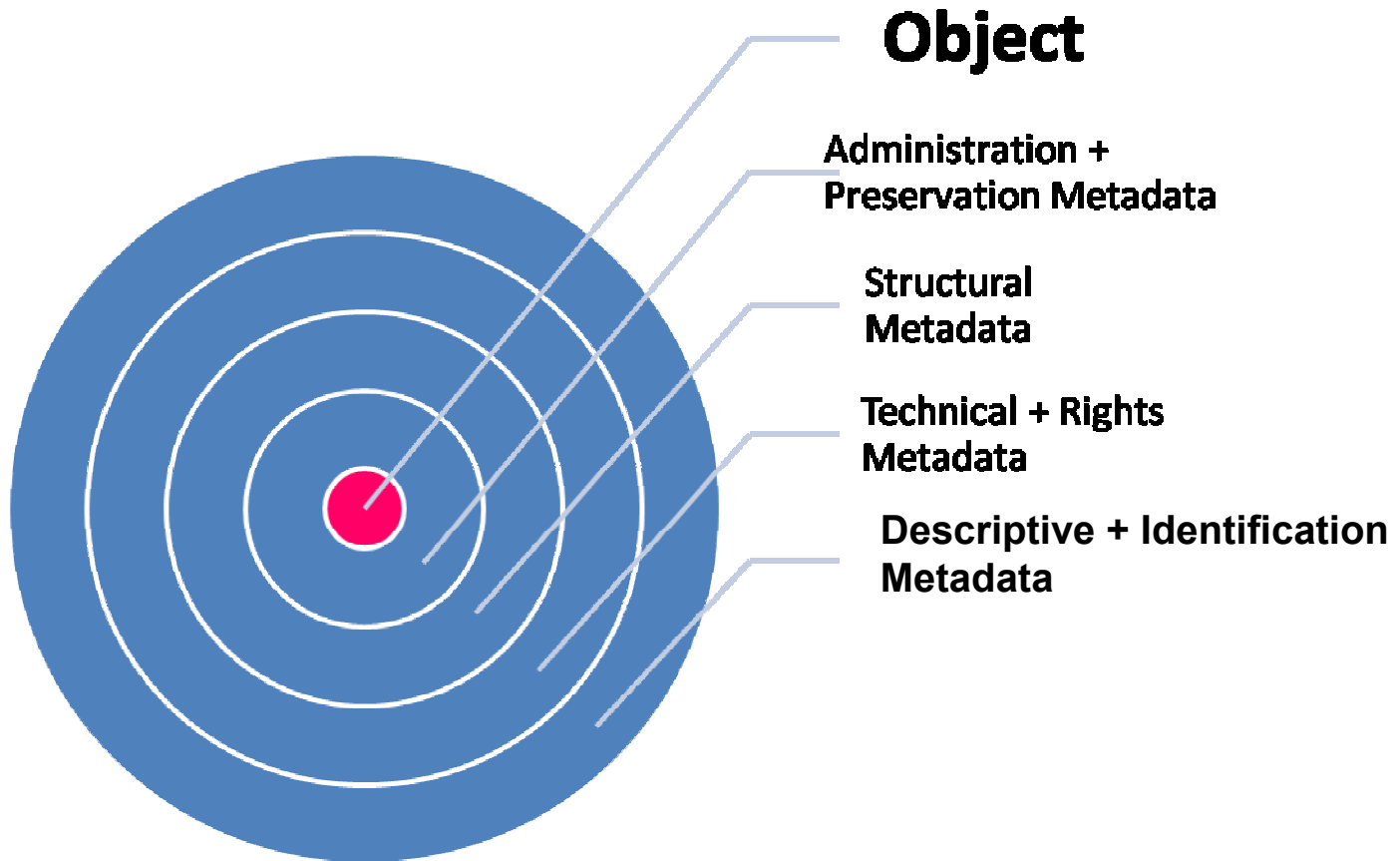
- ❑ Preventive measures for long term archiving

- ❑ Object delivery without any data loss from the original form

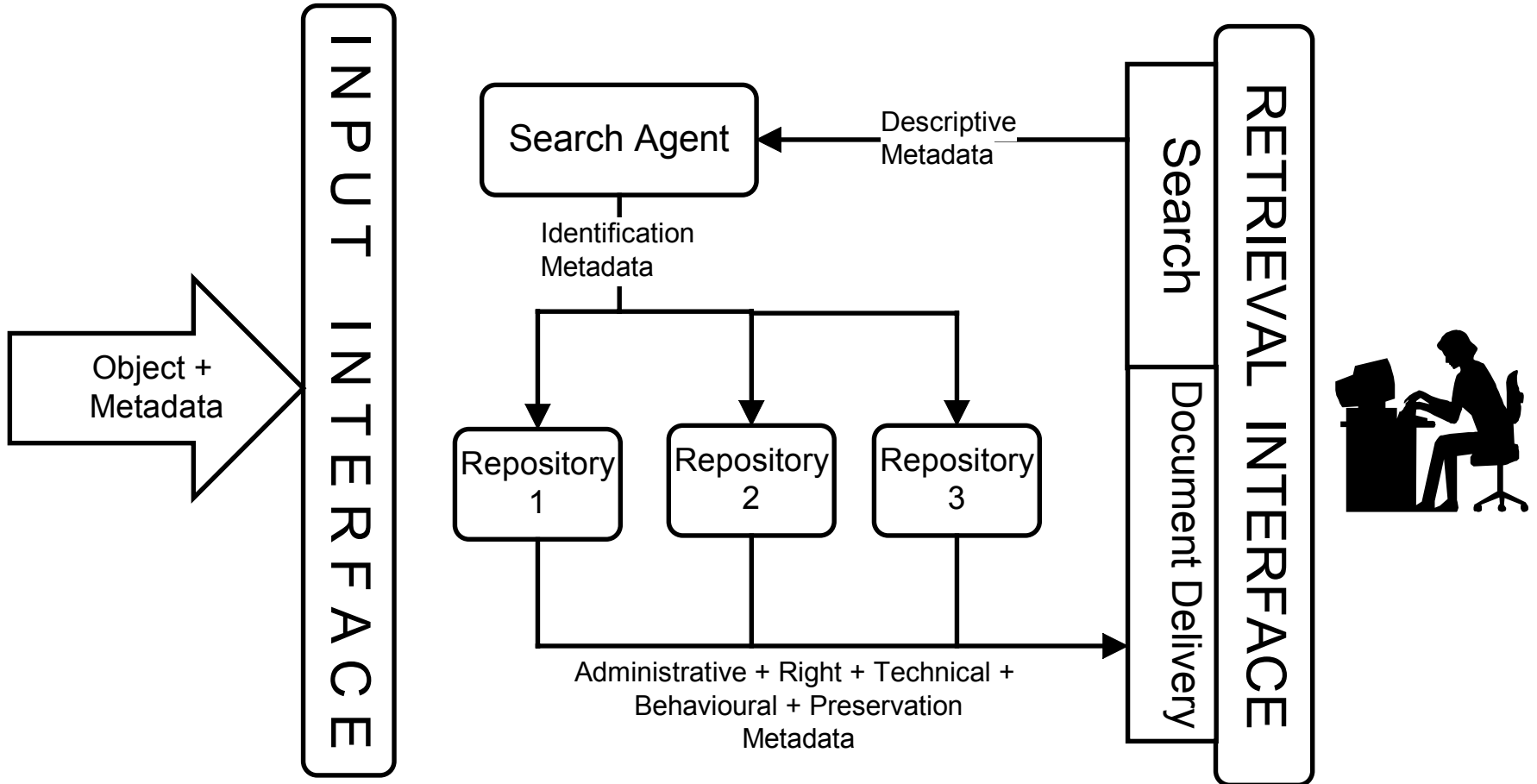
Object Ingestion Module



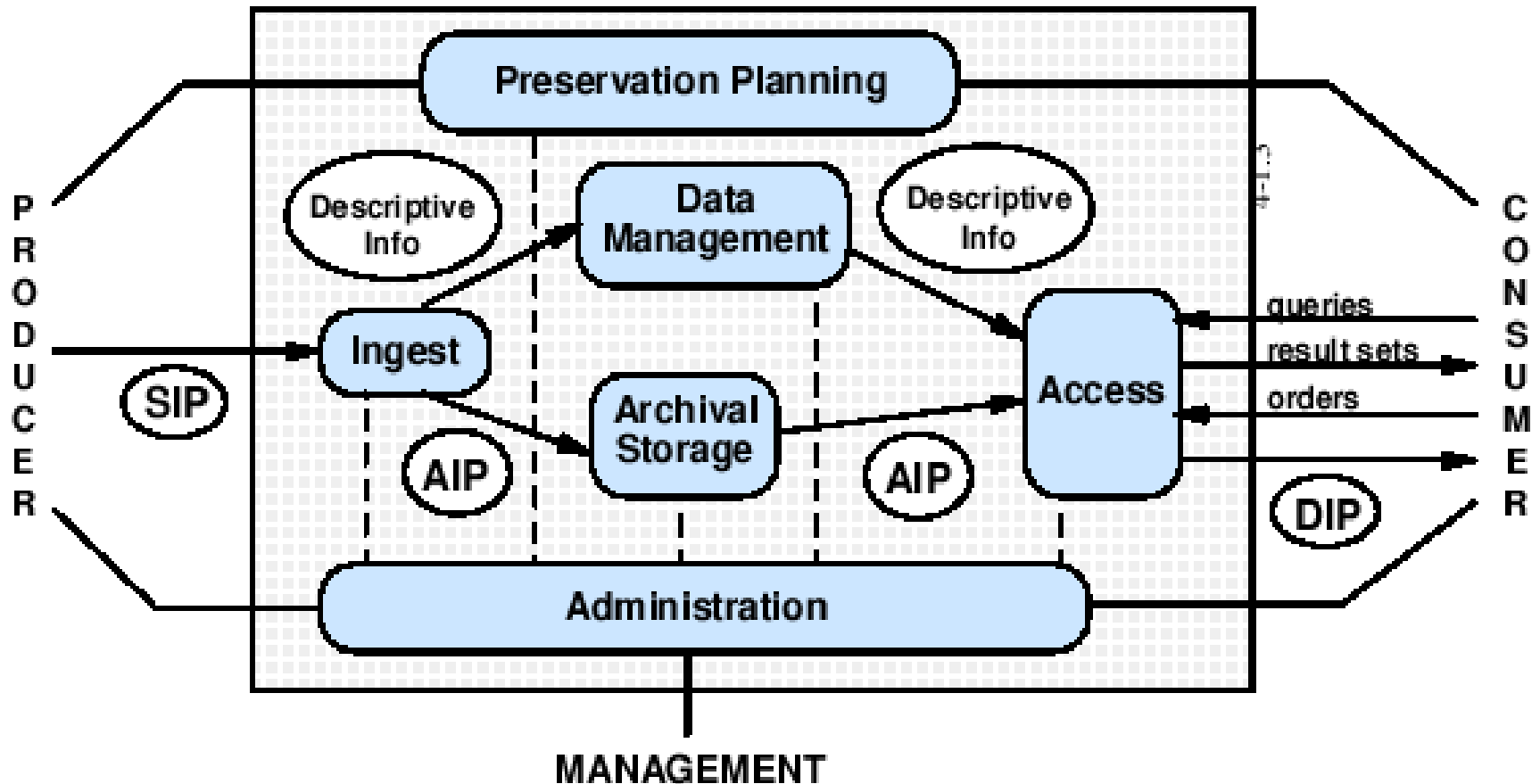
Object + Metadata



Object Retrieval Module



OAIS Conformance



SIP – Submission Information Package

AIP – Archival Information Package

DIP – Dissemination Information Package

Objects & Media

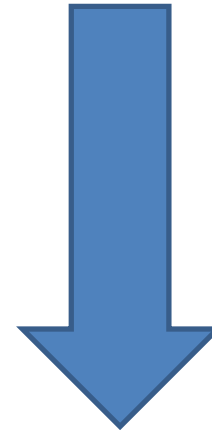
➤ Text

➤ Audio

➤ Video

➤ Graphics

Key issue is



Defining the suitable file format with special reference to data compression

File format - Text

File format	Organisation	Nature
ASCII/UNICODE		Open and free
DVI		Open and free
LaTeX		Open and free
PostScript		Open and free
Rich Text Format	Microsoft	Open and free
HTML/XHTML	W3C	Open and free
OpenDocument	OASIS and ISO/IEC	Open and free
Office Open XML	ISO/IEC	Open and free
PDF	ISO	Open and free
XML	W3C	Open and free

File format - Image

File format	Organisation	Nature
JPEG 2000	ISO/IEC	Open and free
PNG	ISO/IEC	Open and free
SVG	W3C	Open and free

File format - Audio

File format	Organisation	Nature
wav	Microsoft and IBM	Open and free
ogg	Xiph.org	Open and free
Musepack or MPC		Open and free
Flac (free lossless audio codec)	Xiph.org	Open and free
Aiff	Apple	Open and free
au	Sun	Open and free
Mid (Musical Instrument Digital Interface)		Open and free

File format - Video

File format	Organisation	Nature
FLV (Flash video)		Open and free
ogg	Xiph.org	Open and free
Mpeg	ISO	Open and free
Theora	Xiph.org	Open and free

Digital Preservation - Preventive

To increase the life expectancy of digital object

- Control of temperature
- Control of humidity
- Control of light
- Packaging of object – encapsulating the object with storage media from physical attacks and deteriorations
- Securing from physical damage

Digital Preservation - Curative

Restoration of damaged digital object

Methods	Description
Refreshment	Copying the bit-stream into a state of art storage or changed storage media
Migration	Conversion of either a more current version of its own file format, or to another, which is easier to handle and access
Emulation	Creation of a duplicate environment in order to play the digital object
Replication	Bit-stream mirroring or object mirroring
Validation	Testing the trust worthiness of object
Repair	Recreating the lost bit-stream

Digital Preservation – Documentation

- Object identification
- Ownership
- Date of receipt
- Number of files
- Media
- Extent or size
- Resolution of graphics if any
- Decibel of audio if any
- File format
- Additional requirements of software or hardware
- Compatibilities
- Problems -- needs to be elaborated
- Plan for curation
- Schedule for curation

Metadata - PREMIS

Preservation metadata supports

Initially developed by OCLC and RLG

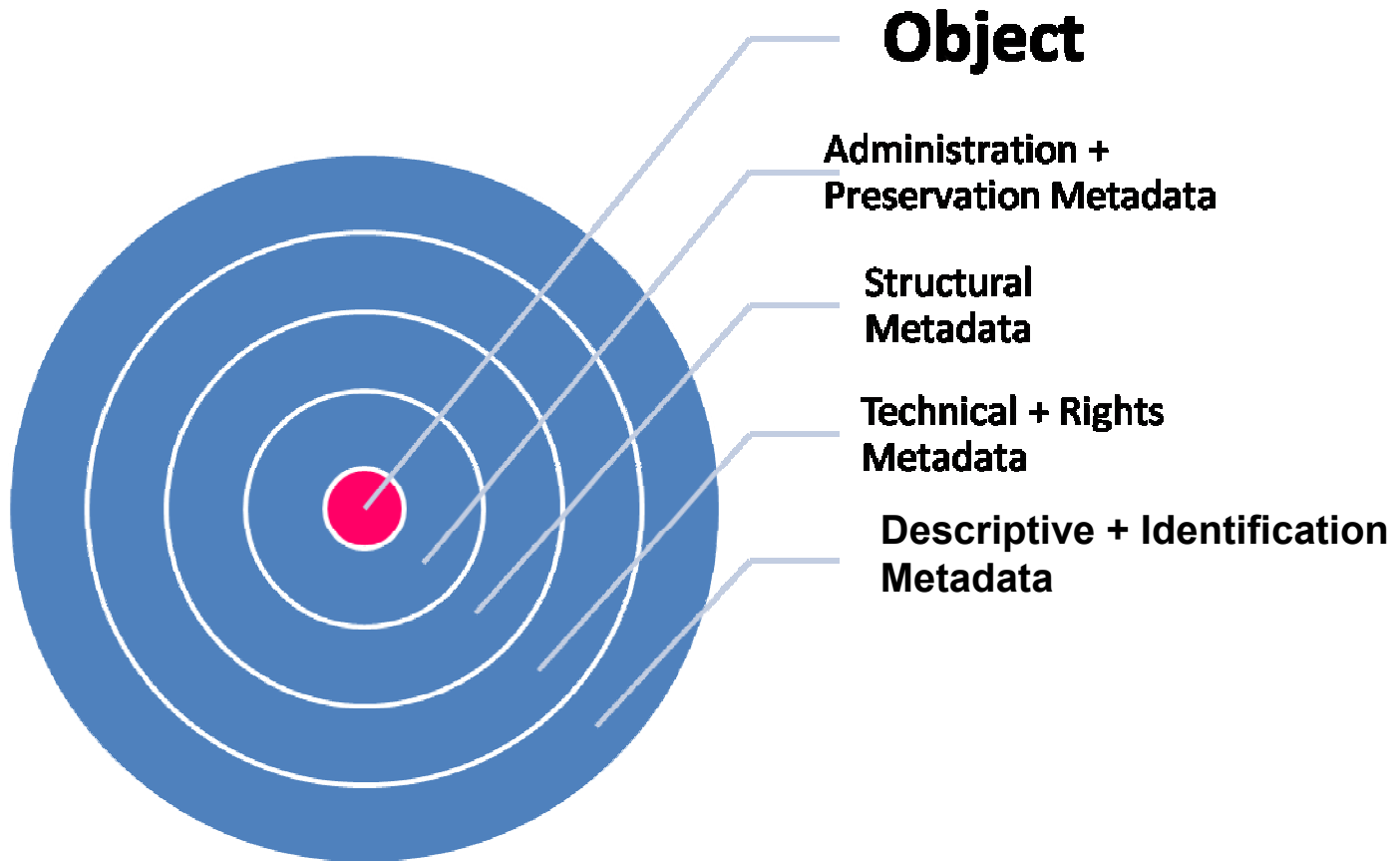
- Administrative metadata
- Technical Metadata
- Structural Metadata
- Digital provenance (the history of an object) or version control metadata
- Relationship Metadata

Metadata Encoding – METS

Metadata Encoding and Transmission Standard

The METS schema is a standard for encoding descriptive, administrative, and structural metadata regarding objects within a digital library, expressed using the XML.

Object + Metadata



METS + PREMIS

METS & PREMIS - Implementation

```
<mets:amdSec>
<mets:digiprovMD ID="DP_0755ad93-5fd1-11da-b211-
19e7a5cf4814"
  CREATED="2006-11-27T21:37:13">
  <mets:mdWrap MDTYPE="PREMIS">
    <mets:xmlData
xmlns:premis=http://www.loc.gov/standards/premis/v1>
<!---using PREMIS with namespace for digital preservation--
>
      </mets:xmlData>
    </mets:mdWrap>
  </mets:digiprovMD>
</mets:amdSec>
```

Digital Object Storage

- Determination of suitable and scalable storage media
- Data readability speed
- Permanence of media
- Autorecovery of data like Redundant Array of Independent Disks
- Managing the storage hierarchy
- Establishment of backup mechanism or mirroring based on sequential and nonsequential storage
- Test for object intactness
- Periodical review of storage medium
- Recovery and restoration plan

A separate Storage media review policy should be established for time to time review the storage media and intended migration

Quality Control

- Documentation of Curative Digital Preservation
- Testing the semantic and syntactic value of the information content of the object
- Establishing procedure manual for each of the preservation activity
- Periodically testing the procedure on the floor according to the procedure manual
- Recording the reference to the related objects or environment or version control information
- Establishing the method of testing the intactness of the object
- Periodical review of reports of preserved object, ingestions in the repository, stock of digitally stored objects
- Periodical review of equipments used for preservation process

Risk preparedness and Disaster Management

- Identification of potential, moderate and remote risks
- Establishing communication channel regarding information communication during disaster control operation
- Display the conducts towards controlling disaster on a visible place
- Automatic data recovery through RAID
- Backup on site (offline) and off site (online mirror and offline mirror)
- Security issues – use of firewall hardware based and software based
- Digital certification and password encryption
- Installation of fire alarms
- Regular testing of electrical appliances and equipments for short-circuit
- Constitution of Disaster Management Team with designated responsibility to individuals

Thank You



Can ping me @
aditya@bhu.ac.in
adityatripathi@hotmail.com