



PREMIS Implementation at The Royal Library of Denmark

by Eld Zierau



Factors influencing use of PREMIS

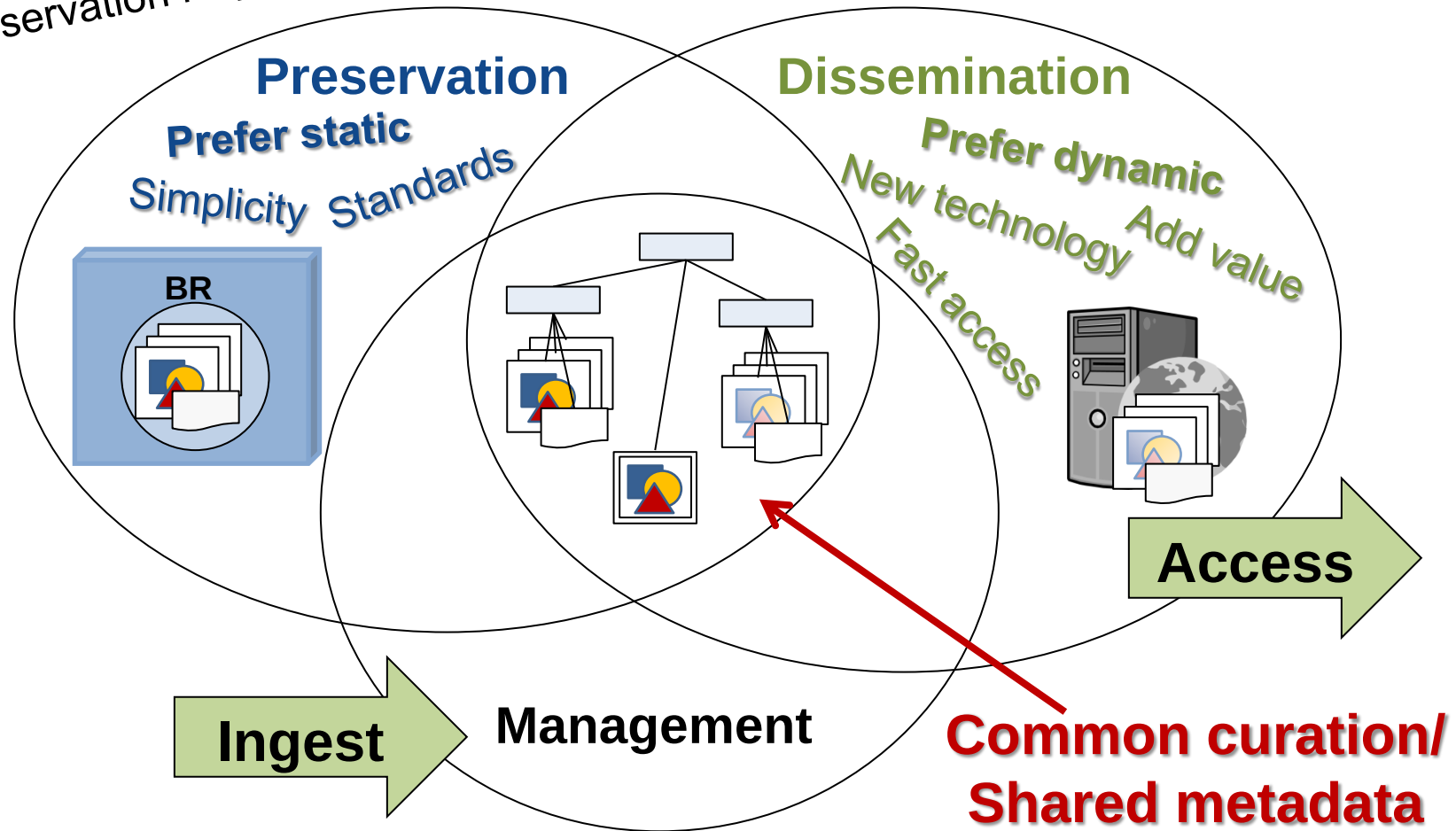
- **New digital library infrastructure**
Management, dissemination and preservation
Metadata data model and referencing Intellectual Entities
- **Bit Preservation (including metadata)**
Packaging and re-packaging
for new Bit Repository
Strategy - repository independent technology
using metadata standards, WARC and identifiers



Digital Library infrastructure



Snapshots
Preservation requires control

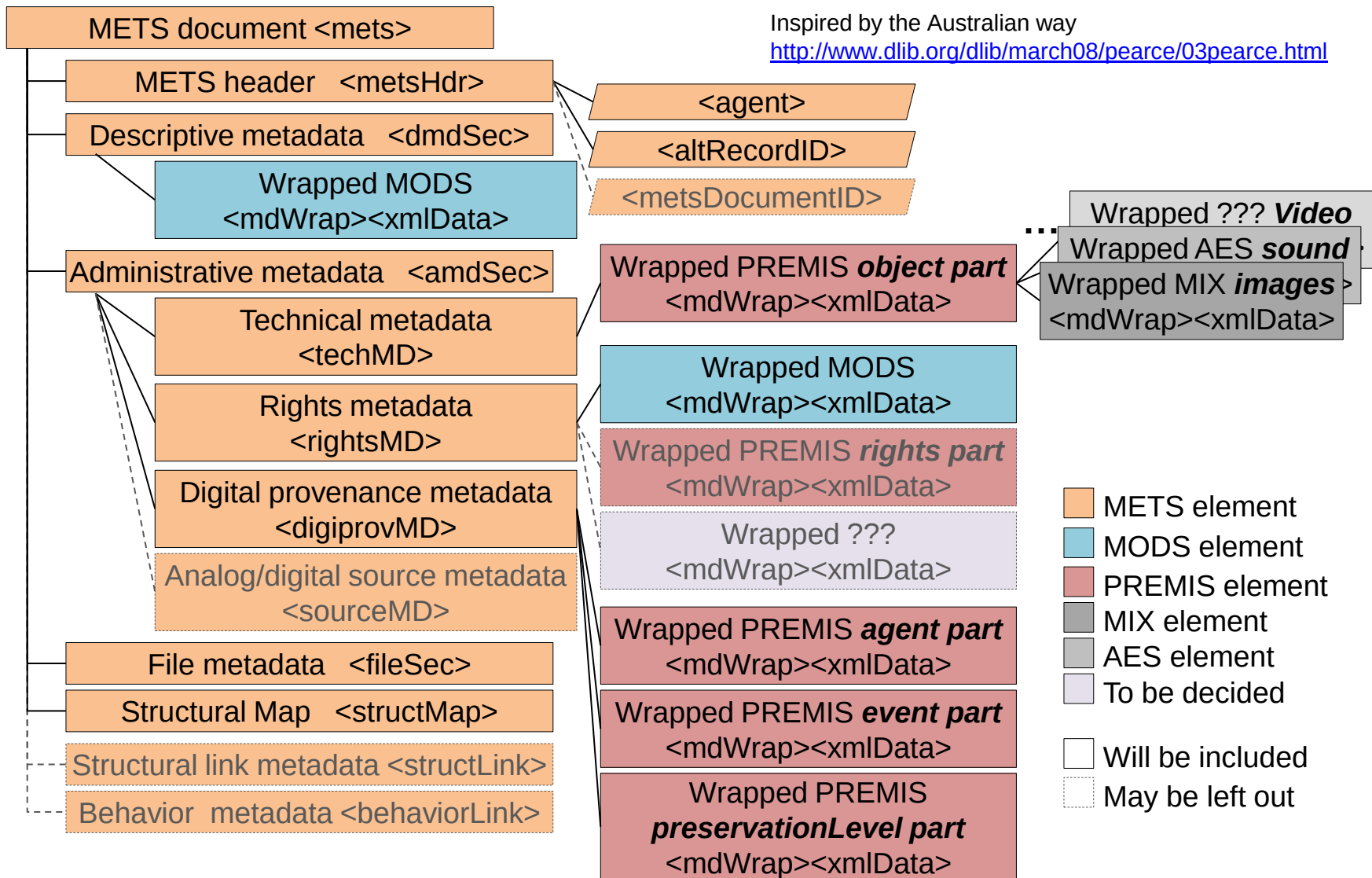


Metadata Standards and use in Preservation



Inspired by the Australian way

<http://www.dlib.org/dlib/march08/pearce/03pearce.html>



Metadata Standards and use in Preservation



example.warc

```
<?xml version="1.0" encoding="UTF-8"?>
<mets xmlns:mets="http://www.loc.gov/METS/" xmlns:premis="info:...">
  <metsHdr CREATEDATE="2013-01-18T19:28:01.025+01:00">
    ...
  </metsHdr>

  <dmdSec CREATED="2013-01-18T19:28:01.035+01:00" ID="Mods1">
    <mdWrap MDTYPE="MODS">
      <xmlData>
        <mods xmlns:xlink="http://www.w3.org/1999/xlink" version="3.4" xsi: ...">
          <genre type="KB Samling">
            F: substitutions-digitaliseret samlings-materiale (som ikke er fortroligt)
          </genre>
          ...
        </mods>
        ...
      </dmdSec>
```

Metadata Standards and use in Preservation



```
<amdSec>
  <techMD CREATED="2013-01-18T19:28:01.426+01:00" >
    <mdWrap MDTYPE="PREMIS:OBJECT">
      <xmlData>
        <object xmlns:xlink="http://www.w3.org.1999/xlink" xsi: ...">
          <objectIdentifier>
            <objectIdentifierType>UUID</objectIdentifierType>
            <objectIdentifierValue>
              54d153d0-0099-11b2-9397-00505645645
            </objectIdentifierValue>
          </objectIdentifier>
          <significantProperties>
            <significantPropertiesExtension>
              <mix xsi:schemaLocation="http://www.loc.gov/mix/...">
                <BasicDigitalObjectInformation>
                  ...
                </mix>
              ...
            </significantPropertiesExtension>
          </significantProperties>
        </object>
      </xmlData>
    </mdWrap>
  </techMD>
</amdSec>
```

Metadata Standards and use in Preservation



```
<objectCharacteristics>
  <compositionLevel>0</compositionLevel>
  <fixity>...</fixity>
  ...
</objectCharacteristics>
<linkingIntellectualEntityIdentifier>
  <linkingIntellectualEntityIdentifierType>
    UUID
  </linkingIntellectualEntityIdentifierType>
  <linkingIntellectualEntityIdentifierValue>
    41d153d1-0099-11e2-9397-005056887b67
  </linkingIntellectualEntityIdentifierValue>
</linkingIntellectualEntityIdentifier>
</object>
</xmlData>
</mdWrap>
</techMD>
...
```

Metadata Standards and use in Preservation



```
<digiprovMD CREATED="2013-01-18T19:28:01.456+01:00" ID="Premis1">
  <mdWrap MDTYPE="PREMIS">
    <xmlData>
      <preservationLevel xmlns:xlink="http://www.w3.org/1999/xlink" xsi:...">
        <preservationLevelValue>bitSafetyHigh</preservationLevelValue>
        <preservationLevelDateAssigned>
          2013-01-18T19:28:01.458+01:00
        </preservationLevelDateAssigned>
      </preservationLevel>
      ...
    </xmlData>
  </mdWrap>
</digiprovMD>
...
```


Metadata Standards and use in Preservation



```
<digiprovMD CREATED="2013-01-18T19:28:01.460+01:00" ID="PremisEvent1">
  <mdWrap MDTYPE="PREMIS:EVENT">
    <xmlData>
      <event xmlns:xlink="http://www.w3.org....">
        <eventIdentifier>
          <eventIdentifierType>UUID</eventIdentifierType>
          <eventIdentifierValue>e0cc-0230-43aa66</eventIdentifierValue>
        </eventIdentifier>
        <eventType>ingestion</eventType>
        <eventDateTime>2013-01-18T19:28:01</eventDateTime>
        <linkingAgentIdentifier>
          <linkingAgentIdentifierType>kbDkInt</linkingAgentIdentifierType>
          <linkingAgentIdentifierValue>kbDkDBIngest (v4)</linkingAgentIdentifierValue>
        </linkingAgentIdentifier>
        <linkingObjectIdentifier>
          <linkingObjectIdentifierType>UUID</linkingObjectIdentifierType>
          <linkingObjectIdentifierValue>41d153d0-0099-1</linkingObjectIdentifierValue>
        </linkingObjectIdentifier>
      </event>
    </xmlData>
  </mdWrap>
</digiprovMD>
```

Metadata Standards and use in Preservation



```
</mdWrap>
</digiprovMD>
</amdSec>
<fileSec>
  <fileGrp>
    <file ID="fileId1">
      <FLocat LOCTYPE="URN"
        xlink:href="urn:uuid:41d153d0-0099-11e2-9397-005056887b67">
      </FLocat>
    </file>
  </fileGrp>
</fileSec>
<structMap TYPE="logical">
  <div DMDID="Mods1" ADMID="ModsRights1 Premis1 PremisEvent1 PremisObject1">
    <fptr FILEID="fileId1"></fptr>
  </div>
</structMap>
</mets>
```

Requirements to Packaging



- ... (from iPres 2012 'Package Formats for Preserved Digital Material')
- Must be able to include digital files unchanged **No conversion**

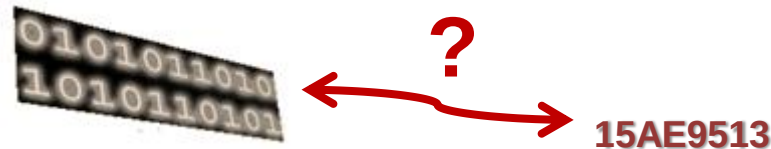
e.g. compression
needed in XML

<objectstream>

Fasdnigfndsgnjdfvknswlæg,åpw6i3s<v,LGKwev</objectstream>ImweklFMwlfme

</objectstream>

- Must facilitate identifiers for a file



Reasons for id. requirements



1. *Leave it 100% to the bit preservation solution*
 - Risk since it is *crucial* information in preservation – outsource of responsibility
 - Eliminate possible optimisation of packaging more files or files and metadata in the same packages



put the id. with the file

2. *Naming files with the identifier*
 - file name is not part of the file itself
 - restrictions to how files are named
 - may not make same sense in the future



15AE9513.ABC



15ae9513.abc

15αε9513.αβχ



Year 2052



3. *Put identifier into files as inherited metadata*
 - would need to change original bits
 - knowledge of how to extract identifiers from file formats



Year 2052

4. *Wrap files and identifier in a package format*
 - requirements for the abilities of the package format



Packaging the preservation metadata



WARC/1.0
WARC-Type: warcinfo
WARC-Date: 2013-01-18T19:27:59Z
WARC-Record-ID: <urn:uuid:21d07350>
Content-Type: application/warc-fields
Content-Length: 79
description: http://id.kb.dk/authorities/agents/kbDkDBIngest.html
revision: v4

← **WARC package ID**

WARC/1.0
WARC-Type: resource
WARC-Target-URI: urn:uuid:15AE9513
WARC-Date: 2013-01-18T19:27:59Z
WARC-Block-Digest: md5:3f349a40b0c47bb070ea6bdd2759a731
WARC-Record-ID: <urn:uuid:15AE9513>
Content-Type: image/tiff
Content-Length: 139803706
II*1214i
eeciRGB v2
P`p_i²ÃÔå,>PcuÃÕèü\$8Ma
...

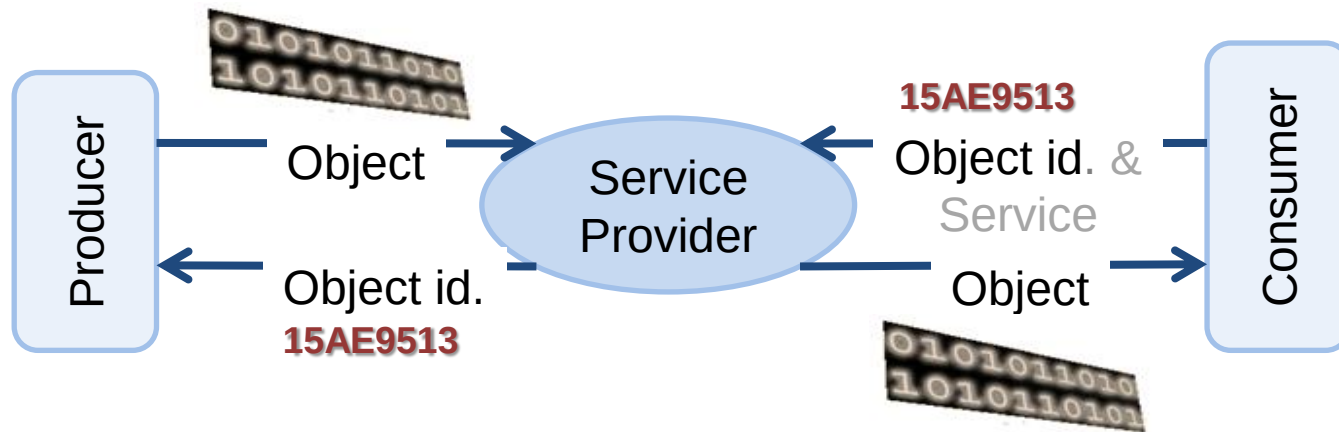
← **15AE9513**

← 

Requirements to Packaging



- Must facilitate identifiers for a digital object



Metadata Standards and use in Preservation



WARC/1.0

WARC-Type: metadata

WARC-Target-URI: urn:uuid:c9db2170-619c-11e2-911b-005056887b67

WARC-Date: 2013-01-18T19:27:59Z

WARC-Refers-To: <urn:uuid:15AE9513 >

WARC-Block-Digest: sha1:62cc454ef47c7d54b77f871ab1ffd3f580307414

WARC-Record-ID: <urn:uuid:c9db2170-619c-11e2-911b-005056887b67>

Content-Type: text/xml

Content-Length: 13926

<?xml version="1.0" encoding="UTF-8"?>

<mets xmlns:mets="http://www.loc.gov/METS/" xmlns ...>

...

<linkingIntellectualEntityIdentifier>

<linkingIntellectualEntityIdentifierType>UUID

</linkingIntellectualEntityIdentifierType>

<linkingIntellectualEntityIdentifierValue>

41d153d1-0099-11e2-9397-005056887b67

</linkingIntellectualEntityIdentifierValue>

</linkingIntellectualEntityIdentifier>

IE ID

**for 'landing page' of
different
representations**

...

</mets>

Questions and Comments





Id.kb.dk

As id.loc.gov

+ local ones

+ references to id.loc.gov