# *bdim*: the italian digital mathematical library

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# *bdim*

Project started by

- UMI: Unione Matematica Italiana

- SIMAI: Società Italiana di Matematica Applicata e Industriale

with a grant from Italian government (15.000 euro)

# Italian Math Journals

- We have decided to restrict to Journals owned and/or published by **Universities**, **Mathematics Departments** or by **Scholarly Societies**.

- In the last few years many of them have decided to go with a **commercial editor**.

- Some of them are now online with **other digitalization projects**.

- Most of them have some kind of online version, at least for the most recent issues.

# The Italian Math Journals

### now with commercial editors

- Annali di Matematica Pura ed Applicata, **Springer** since 2001, online on SpringerLink

- Rendiconti Lincei - Matematica e Applicazioni, **EMS Publishing House** since 2005, online with the publisher from 2005

- Ricerche di Matematica, **Springer** since 2006, online on SpringerLink from 2006

- Annali dell'Università di Ferrara, **Springer** since 2006, online on SpringerLink

- Rendiconti del Circolo Matematico di Palermo, **Springer** since 2008, online on SpringerLink

# The Italian Math Journals
## which joined other digitalization projects

- Annali della Scuola Normale Superiore di Pisa. Classe di Scienze, with **Numdam**

- Rendiconti del Seminario Matematico della Università di Padova, with **Numdam**

# The Italian Math Journals
## in our project

- **Bollettino Unione Matematica Italiana** (since 1922 ∿100.00 pages)

- **Rendiconti di Trieste** (since 1969 ∿11.000 pages)

- **Le Matematiche**, Catania (since 1945 ∿23.000 pages)

- **Rivista di Matematica**, Parma (∿23.000 pages)

- **Ricerche di Matematica**, Napoli (up to 2005)

- **Rendiconti Lincei** (up to 2004)

- **Rendiconti dell'Accademia delle Scienze Fisiche e Matematiche**, Napoli

# The Italian Math Journals
## other possible acquisitions

- Note di Matematica, Lecce

- Rendiconti di Matematica e delle sue Applicazioni, Roma

- Atti del Seminario Matematico e Fisico dell'Università di Modena

- Istituto Lombardo. Accademia di Scienze e Lettere. Rendiconti

- Università e Politecnico di Torino. Seminario Matematico. Rendiconti

# Aims of *bdim*

- To rise the money needed for the digitization

- To give the italian math journals a commun repository, wider diffusion and more international visibility

- To integrate with DML

- To integrate with the Biblioteca Digitale Italiana

# What has been done

- digitization of the Serie 3 of Bollettino dell'Unione Matematica Italiana

- implementation of the repository

- implementation of the web server and the oai sever

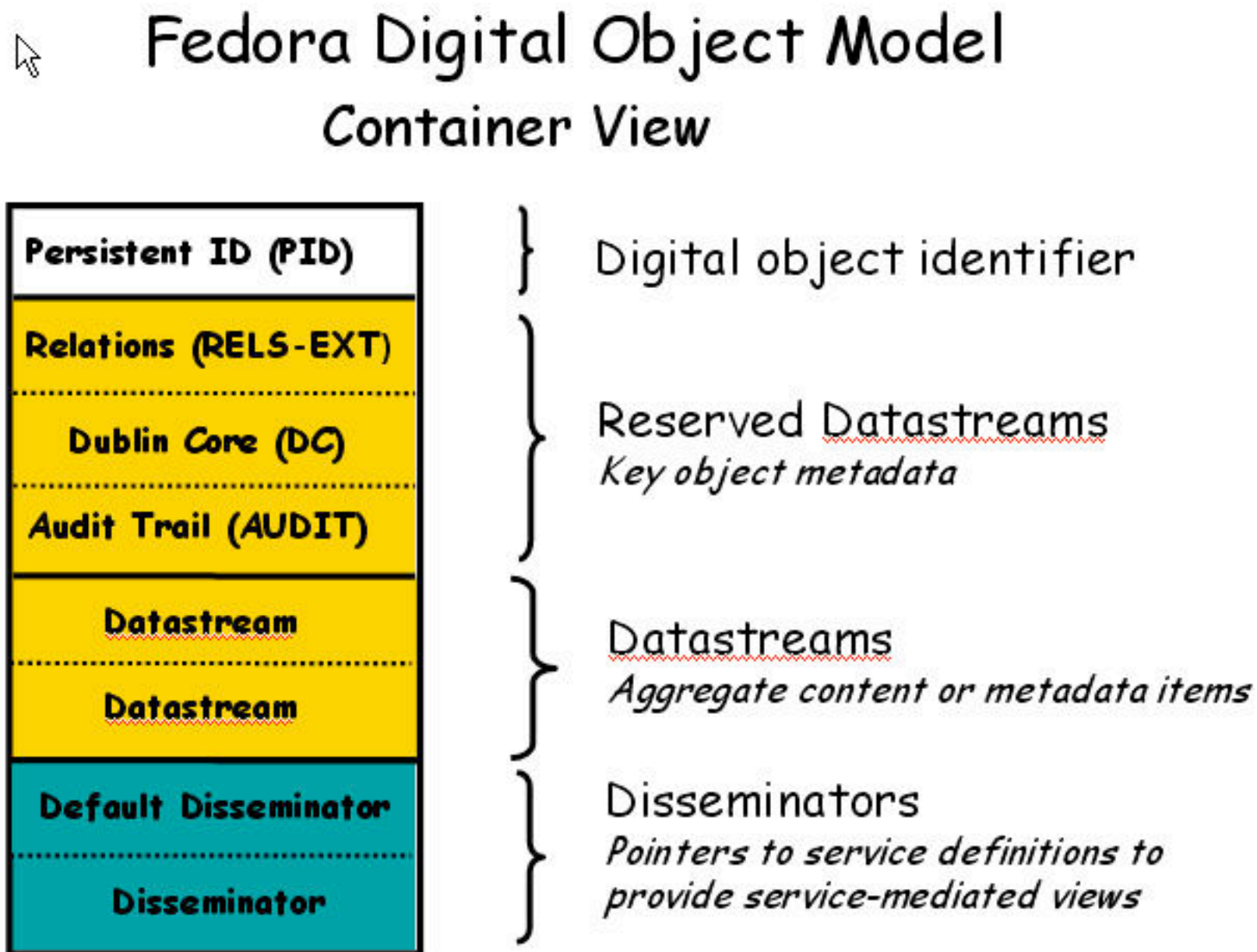*We thank Numdam for the help in realizing this*

# Digitization of BUMI

- Serie 3, 22 volumes (1946-1967), 1358 articles, 11390 pages, 2328 bibliographic references

- xml catalogs of the articles created by *bdim*

- digitization done by Diadeis

- bibliographic references done by Diadeis

- Numdam standards (600dpi, PDF, DJVU, OCR, etc.)

- informations from the society, obituary, reviews

# Implementation of the repository: Fedora

- We have decided to use the Fedora open-source digital repository system (http://www.fedora-commons.org/) for its flexibility and portability

- A Fedora repository is designed to store digital objects, metadata as well as relationships between different objects

# Fedora Objects: the abstract model

# Our "objects"

- The entire collection

- Journal(s)

- Volumes

- Issues

- Articles

- Authors?

# Fedora object: an article:

| | |
|---|---|
| PID | BUMI_1948_3_3_3_248_0 |
| Relations | <rel:isMemberOf BUMI"/> |
| DC | <dc:title>Risoluzione di un classico problema</dc:title> |
| Audit Trail | History of the object |
| PDF | PDF file of the article |
| DJVU | DJVU file of the article |
| BDIM | XML file with the metadata |
| OCR | OCR file of the article |

# Fedora object: a Journal:

http://www.bdim.eu:8080/fedora/get/bdim:BUMI

| PID | BUMI_1948_3_3_3_248_0 |
|---|---|
| Relations | `<oai:setSpec xmlns:oai='http://www.openarchives.org/OAI/2.0/'>BUMI</oai:setSpec>` |
| DC | `<dc:description xmlns:dc='http://purl.org/dc/elements/1.1/'>Bollettino dell'Unione Matematica Italiana</dc:description>` |
| Audit Trail | History of the object |
| BDIM | XML file with the metadata |
| SetInfo.xml | Description of the OAI set |

# Getting data from the repositry

- **PDF:** http://www.bim.eu:8080/fedora/get/bdim:BUMI_1948_3_3_3_248_0/pdf

- **medatada:** http://www.bdim.eu:8080/fedora/get/bdim:BUMI_1948_3_3_3_248_0/FILE_BDIM

- **oai:** http://www.bdim.eu:8080/oaiprovider/?verb=ListMetadataFormats

- **search** (will change)**:** http://www.bdim.eu:8080/fedora/search

# The metadata format

- metadata is contained in the XML file

- according to a XML schema (partly based on Numdam DTD, taking also into account the BDI requirements)

- contains all (?) the relevant information

- redundant (to minimize the number of requests to the repository)

# the bdim schema structure

**oggettoBDIM**

- general information on the project
- bibliographic information
- structure of the object
- information on datastreams

# Management of Fedora

- tools to batch modify or insert objects

- web based interface: https://127.0.0.1:8443/fedora/admin

- access control

# The web server

- location: http://www.bdim.eu

- written in php

- gets the information from the repository (applies an XSLT transformation to the relevant XML metadata file, eventually gathering more then one file)