How to use Open Source in Digitization Projects
Cooperative development between Institutions and Private Industry
The Kitodo Example

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Sales Manager Software Solutions
Board Member Kitodo Association
is now

KITODO

KEY TO DIGITAL OBJECTS
**Kitodo. Key to digital objects**

<table>
<thead>
<tr>
<th>Trade mark information</th>
<th>Owner information</th>
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<td>EUTM</td>
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The application fulfilled Fast Track conditions

Last publication

03/08/2016  B.1

2 search result(s) in 1 page(s) in 0.643 seconds
Digitization with Kitodo
Open Source Software for Culture Institutions
Libraries, Archives, Museums
Project planning
- Collections defining
- Metadata rules defining
- Tasks defining
- Workflows defining
- Workers assigning
- Objects collecting

Metadata-Takeover
- from existing catalogs
- from Central/Union Catalogs
- from external systems
- Individual Takeover
- Z39.50 (SRU)
- Automated Task creation

Presentation
- Integration in Institution-IT
- Inter-/Intranet
- OAI (METS/EAD)
- User Login
- Copyright Material
- others

Digitization with KITODO

Production and Metadata Creation
- Adding Metadata
- Structuring
- Pagination
- QA
- OCR
- Export METS/MODS

Scanning
- QA
- Reporting
- Controlling
- Automated data transfer
What is Kitodo?


2. A growing community of users, software developers and service companies.

3. A legal entity and association: „Kitodo. Key to Digital Objects e.V. “

• Production + Presentation (independently usable)
• Open Source – no license cost
• multi-client capability, flexible operating models
• Platform independent, web based
• International Standards, open interfaces (METS/MODS, OAI-PMH2 -> DDB, Europeana, DPLA, DFG-Viewer, Catalog)
• APIs for integration of additional services (OCR/OLR, LTP, NER, scan software, …)
Kitodo.Production

- Workflow Management
- Metadata Import from existing catalogs or other sources
- Structure-/Metadata Capturing
- Flexibility by Rule Set, Project Configuration, Workflows
- Automated and external workflow steps are possible and integrable (OCR/OLR, NER, Validation, …)
- granular right management
- Java-Web Application
Kitodo.Presentation

- Presentation Interface
- Collection Organization, Search Index (Lucene), (incl. Facetted Browsing, Full Text)
- Visualization of Meta- and Structure Data, Image-Viewer
- Flexibility by free field configuration (Index + Interface)
- Granular Right Management in the Backend
- Modern Templating-Engine, seamless Integration with Institution Website or Portal
- Modularization
- OAI-Interface, URN-Registration
- TYPO3-Extension (PHP5)
2. User Community

- Over 40 international Institutions and Service Providers
- Mutual Support via mailing lists
- Public Documentation
- Users meetings
- Common ongoing development and coordinated development orders
- Relevant creation of format standards
- Synergy effects towards aggregators
Media Types

- Address Books
- Archive Material
- Letters
- Prints
- Electronic legal deposit
- Photos
- Graphics
- Manuscripts
- Books

- Incunabula
- Maps
- Inheritances
- Parliaments Material
- School Books
- Drawings
- Newspapers
- Magazines
- Land Registers
Visions of the Community

- Archives, Libraries and Museums developing, sharing and using in multi-discipline manor tools for digitization and long term preservation.
- Kitodo is a widely used, sustainable standard solution for the production and presentation of digital collections – open source, platform independent and license free.
- Kitodo is a strong international community and a model for the cooperation of the public and private industry.
3. Kitodo. Key to Digital Objects e.V. - The Association

12/2010  4 big libraries and Zeutschel signed a Goobi Release Management Agreement and started regular meetings as a Goobi Community Board
03/2011  Begin of the half year open Goobi users meetings
05/2011  Agreement of the Goobi Community Board with intranda GmbH about future cooperation
09/2012  Establishment of the Goobi Association with 12 Libraries and private Companies
01/2013  Registration in the German Association Register
06/2016  Name change to Kitodo

www.kitodo.org
Kitodo e.V. Association contributions

- Legally clearly defined form with legal regulations - both internally and externally.
- Financial and political stability – Independency from single persons or institutions.
- Basically democratic Organization form with similar rights and duties for all members.
- Tax advantages (Sponsoring)
- Limitation of liability risks.
- Enhanced visibility of Kitodo and the Kitodo User Community
- Formal framework for regulated cooperation of the members.
Organization

- Association Board (5 members)
  - Political representation of members
  - Public Relations
  - Coordination of strategic decisions

- Release Management
  - Code administration on github.com
  - Coordination of developments
  - Controlling of formal development rules (Coding Guidelines)
  - Documentation of bugs and development wishes
  - Release-Planning and –Implementation
  - Technical consulting of the Kitodo Board

github.com/kitodo/
Future Developments: Archives

- METS/MODS-Profile for digitalized Archive material
  - EAD -> MODS-Mapping
  - Implementation in DFG-Viewer
  - Coordination with Software-Vendors archive Systems

- EAD-Import to Kitodo
  - Overtaking of metadata from find boooks
  - Import of existing structure data
  - Test with the Kalliope-Central Catalog

- Standardization of Rights Coding
  - granular Rights and License access on object level
  - Standardized Coding
  - Implementation to Presentation System
Future developments

- Kitodo.Publication
- Kitodo.Preservation
- Interface to docWorks (CCS) for article level workflow
- Re-engineering of the complete system (DFG)
Challenges of cooperative development in an open source community

- Development planning and controlling
- Programming guide lines
- Programming in institutions, companies and free developers
- Communication in a distributed environment
- Cooperation between public institutions, private companies and free programmers
- Cooperation between competing companies
- Sustainability – especially in sense of support, maintenance and updating
- Budget “finding”
- Crowd Funding
Kitodo. Production re-engineering as a common project in the next 3 years

- 1.3 Mio. EURO are agreed by the DFG
- 4 consortia partners:
  - Saxonia State Library, Dresden
  - Humboldt University, Berlin
  - State and University Library Hamburg
  - North Academy

Next steps:
- Definition of rolls and responsibilities
- Project management
- Tenders for packages
- Integration of companies and free developers in the project
- Controlling tools
Kitodo Production re-engineering

<table>
<thead>
<tr>
<th>Development package</th>
<th>Responsible</th>
</tr>
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<tbody>
<tr>
<td>1.1 Modularization and interfaces</td>
<td>SLUB</td>
</tr>
<tr>
<td>1.2 Kernel and Workflow-/Project Management</td>
<td>SLUB</td>
</tr>
<tr>
<td>1.3 Rights and roles system</td>
<td>SLUB</td>
</tr>
<tr>
<td>1.4 Data modularization</td>
<td>HUB</td>
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<tr>
<td>1.5 Data management</td>
<td>SLUB</td>
</tr>
<tr>
<td>2.1 Hierarchical relations</td>
<td>SUB Hamburg</td>
</tr>
<tr>
<td>2.2 Media typological expansion (TEI / EAD etc.)</td>
<td>SLUB</td>
</tr>
<tr>
<td>2.3 Support for additional image formats</td>
<td>HUB</td>
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<tr>
<td>3.1 Improved operating concept</td>
<td>NAK &amp; SUB Hamburg</td>
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<tr>
<td>3.2 Editor for Meta- and Structure Data</td>
<td>NAK &amp; SUB Hamburg</td>
</tr>
<tr>
<td>3.3 Localization and Administration</td>
<td>NAK &amp; SUB Hamburg</td>
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<tr>
<td>3.4 Documentation</td>
<td>HUB</td>
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<tr>
<td>3.5 Migration Scenarios</td>
<td>HUB + SUB Hamburg</td>
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</tbody>
</table>
Scrum – Central roles in the Scrum process

- **ScrumMaster**
  - The Scrum-Expert controls all processes and follow up of rules.
  - Complete frame and space for self-organized development team and eliminates any obstacles.
  - Ensures implementation and moderation of all meetings.
  - Supports the ProductOwner requirements management over the Product Backlog.

- **ProductOwner**
  - Does the purely technical perspective, has a vision of the product and activates all the skills available in the community to follow the arguments.
  - Organized the collection of requirements for the Product Backlog and commissioned refining steps in close cooperation with stakeholders and the development team.
  - Determined after consulting the binding order of the to be put in place items from the Product Backlog for the next development period ("Sprint") and communicates closely with the development team.
  - Reviewed the results of work of the development team after the end of a sprint from a business perspective.

- **Developer Team**
  - Completed in self-organization, the tasks of the current sprint and is responsible in comprehensive design, architecture and implementation.
  - Each Sprint executable functional parts need arise.
  - Supports the ProductOwner in the professional work through decision documents from a technical perspective.
Stakeholder Team

Representatives from Libraries, Archives and Service Bureaus for consulting the PO

Product Owner (PO)
SUB Hamburg

Distributed Developer Team

ScrumMaster
SLUB Dresden

System Architect
TU Braunschweig

Participants in Scrum Process

Kitodo-Board (KV)

Continuously updates by PO and consulting if needed

Consulting the PO to ensure the new system architecture
More information:

www.kitodo.org

https://github.com/kitodo

www.zeutschel.com
Digitization Goals

Multi-dimensional Fiction

BookPills
- 50 Shades of Grey
- Finnegans Wake
- Jamie's 15-Minute Meals

Libraries of the Future

Robot Librarians

Holographic Audiobooks

Nanobooks

Nanolibrarian

I'm overdue. Please take me back to the library.

Sentient Books

Tom Gauld