

# *Exploring Open Source: a Solution for Records Management?*

*An InterPARES 3 General Study*

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# Outline

- InterPARES Project – background & context
- IP3 – General Study 08
- What, why & how of Open Source Software – Definitions, Landscape and Licensing
- Who is using OSS?
- OSS in Libraries and Archives – a success
- OSS for Records Management – is this also a success?



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# *InterPARES Project*

- International Research on Permanent Authentic Records in Electronic Systems (InterPARES)
- Developing knowledge essential to the long-term preservation of authentic records created and/or maintained in digital form
- Providing the basis for standards, policies, strategies and plans of action to ensure longevity and trust in records' authenticity



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# *InterPARES Project*

- IP1: preservation of authentic records created and/or maintained in databases and document management systems
- IP2: reliability, accuracy, authenticity throughout records' lifecycle, emphasis on complex digital environments
- IP3: puts theory into practice



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# *InterPARES 3 & General Study 08:*

- GS08: identify and discuss open source software options for records management (EDRMS)
- Literature review – features, problems, concerns
- Map functionality of existing OSS RM to InterPARES Creator and Preserver Guidelines and RM standards (MoReq 2, ISAD(G) and ISO 15489)



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# OSS – Assumptions & Concerns

- Free, but no vendor backup or installation support
- Poor security because code is freely available
- Inconsistent support dependent on peer user groups
- Hidden costs: implementation, support, interoperability
- Issues with intellectual property rights
- Perpetuated by Microsoft's video criticizing Open Office

(<http://www.youtube.com/watch?v=kzdykNa2IBU> )



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# *Proprietary – Assumptions & Concerns*

- Source code is unavailable, hidden behind binaries (object code) – preserves developer control
- Development is secretive, slow, cumbersome
- High cost to use the software, costs to support and upgrade
- Promotes dependency on one provider – “the addiction model of software procurement”\*

\*<http://www.redhat.com/about/whyopensource/>



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# Comparison: Proprietary v. OSS

## Proprietary model

- Users do not have access to source code
- Restrictive licenses
- Costs associated with startup, support, leaving
- Software purchase implies vendor lock-in

## Open source model

- Users have access to source code, can modify, reuse, redistribute
- Permissive licenses
- Different model of costing
- No vendor lock-in

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*“A technology revolution driven by market demand”\**



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# *Evolution...*

- “Imagine if all past knowledge was kept hidden or its use was restricted to only those who are willing to pay for it. Education and research would suffer. Publishing books or sharing information of any sort would become difficult. Yet this is the mentality behind the proprietary software model. In the same way shared knowledge propels the whole of society forward, open technology development can drive innovation for an entire industry.”

<http://www.redhat.com/about/whyopensource/>



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# *Revolution...*

“Just as the Copernican revolution was part of a broader social revolution that turned society away from hierarchy and received knowledge, and instead sparked a spirit of inquiry and knowledge sharing, open source is part of a communications revolution designed to maximize the free sharing of ideas expressed in code.” (O'Reilly, 2008)

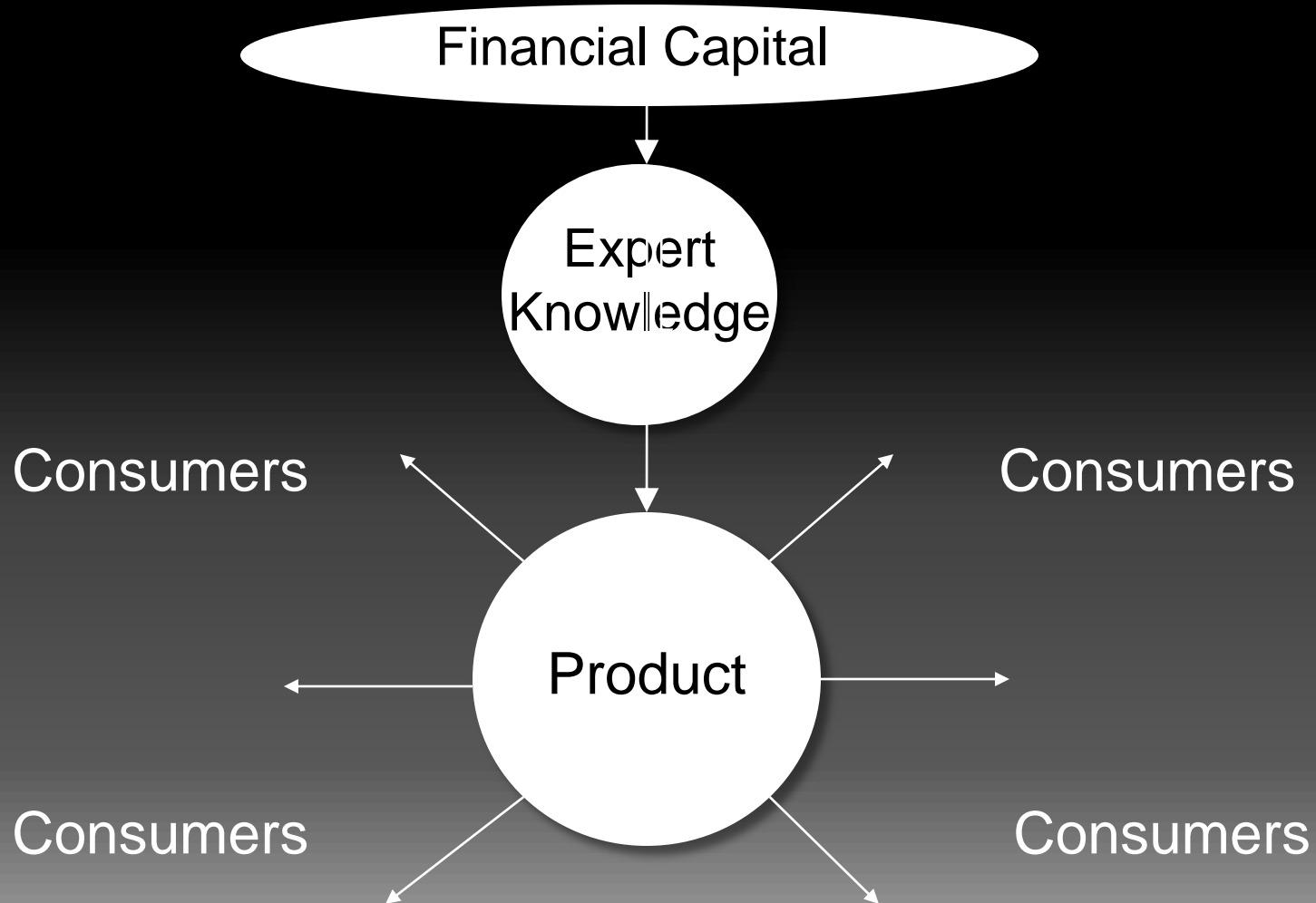


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# *From the Industrial Model ...*

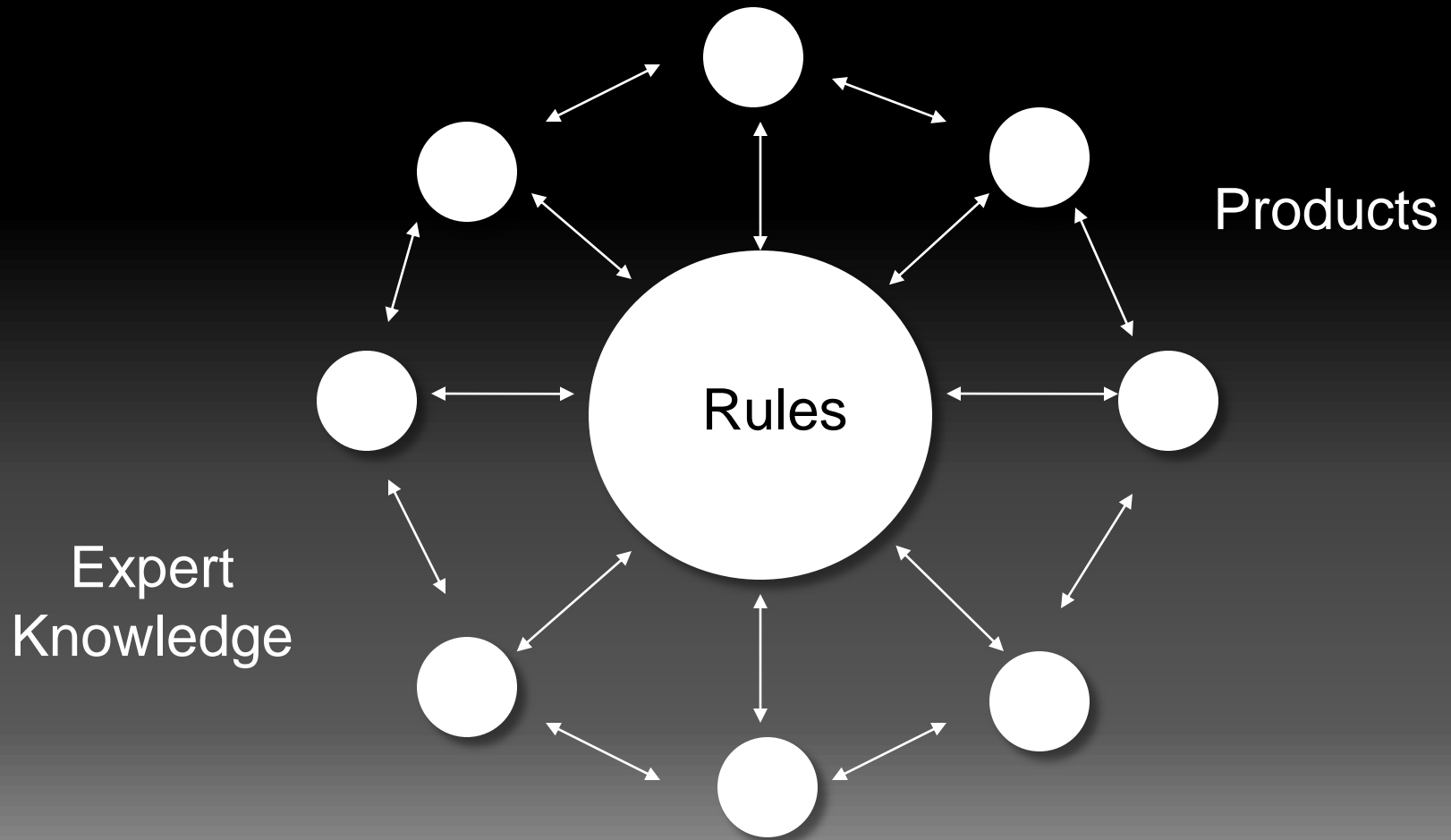


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...to *Connected Intelligence*



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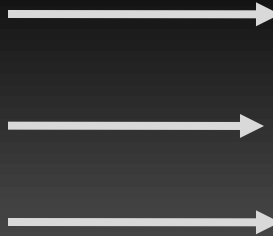
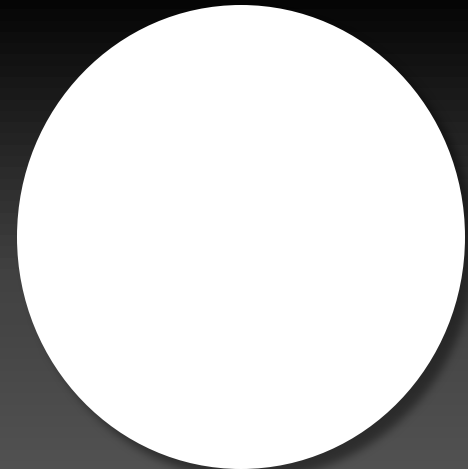
# *Transformation of Culture*

How do we classify knowledge?

Centralization



Decentralization



Assymetry

Commodification

Interdisciplinarity

Service



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# *Open Source Software: a model for the new paradigm?*

Source code

- Distributed peer network
- Transparency of process
- Code can be used, modified and redistributed
- Code is licensed to make it available to the public

Licensing

Community



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# *Open Source Initiative*

- Stewards of the open source definition
- Review and approval of licenses as OSD-compliant
- Community-building
- Education
- Public advocacy



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# Open Source Definition

1. Free Redistribution
2. Source Code
3. Derived Works
4. Integrity of Author's Source Code
5. No Discrimination Against Persons or Groups
6. No Discrimination Against Fields of Endeavor
7. Distribution of license
8. Licenses not specific to a product
9. Licenses do not restrict other software
10. Licenses are technology-neutral

Source code

Availability

Licensing



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# Open Source Licensing



- All licenses must be in compliance with the OS definition
- Licenses are approved through a review process
- Purposes are consistency & transparency



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# *Types of licenses*

- Permissive - permit software to become proprietary (MIT, new BSD)
- Weakly protective (weak copyleft) - prevent the software component from becoming proprietary but permit it to be part of a larger proprietary system (LGPL, Mozilla Public License 1.1)
- Strongly protective (strong copyleft) - prevents the software from becoming proprietary (FLOSS - GPL)



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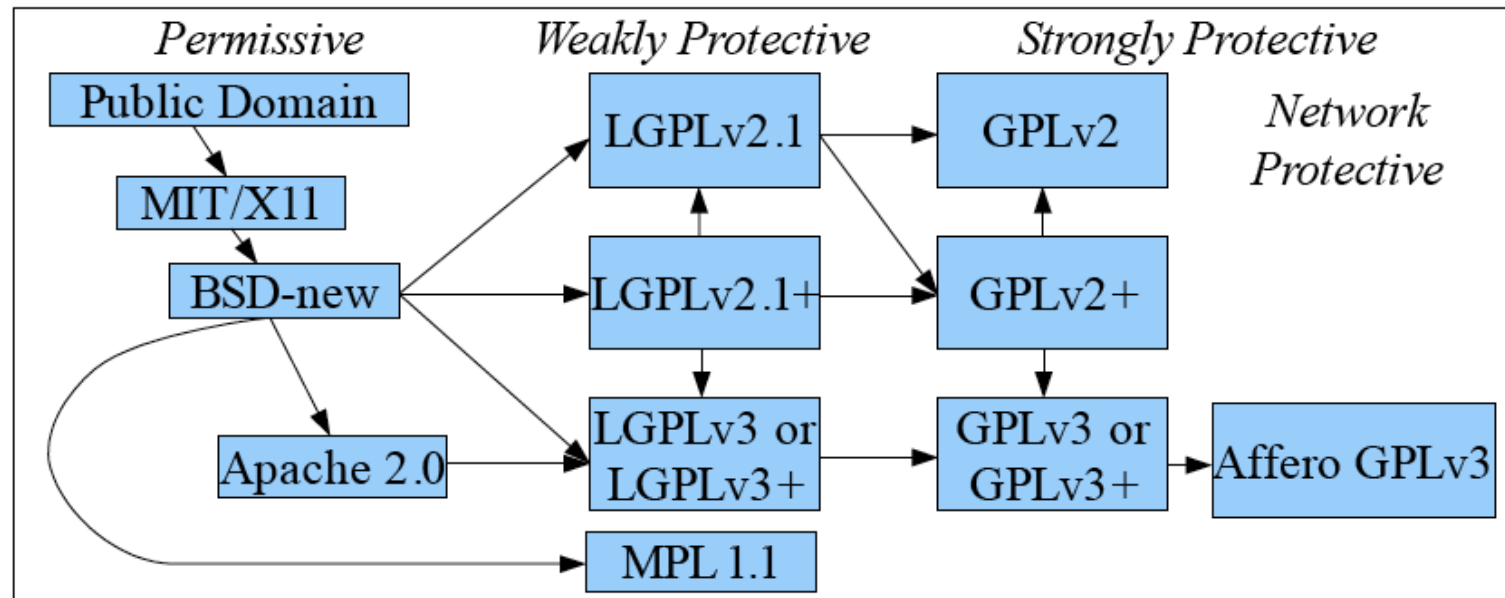
# Types of licenses

## The Free-Libre / Open Source Software (FLOSS) License Slide

by David A. Wheeler

September 27, 2007

There are a large number of Free-Libre / Open Source Software (FLOSS) licenses, but only a few are widely used. The widely-used licenses tend to be compatible, i.e., the software can be combined to produce a larger work. The following “license slide” figure makes it easy to see when common licenses can be combined:



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# *Licensing: Copyright v. Copyleft*

Copyright: Protects the individual creator from unrestricted distribution of his/her work

CopyLeft: protects the right to freely distribute a work without restrictions

## *Controlled access v. Free access*

*Open source licenses exist along a continuum:*

Open - Proprietary

Open in Proprietary

Always Open

Public domain

Weak copyleft

Strong copyleft



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# *Intellectual Property & Open Source*

- Copyright
- Patent
- Trade Secrets

- “Viral” nature
- 3<sup>rd</sup> party infringement
- Validity of OS licenses

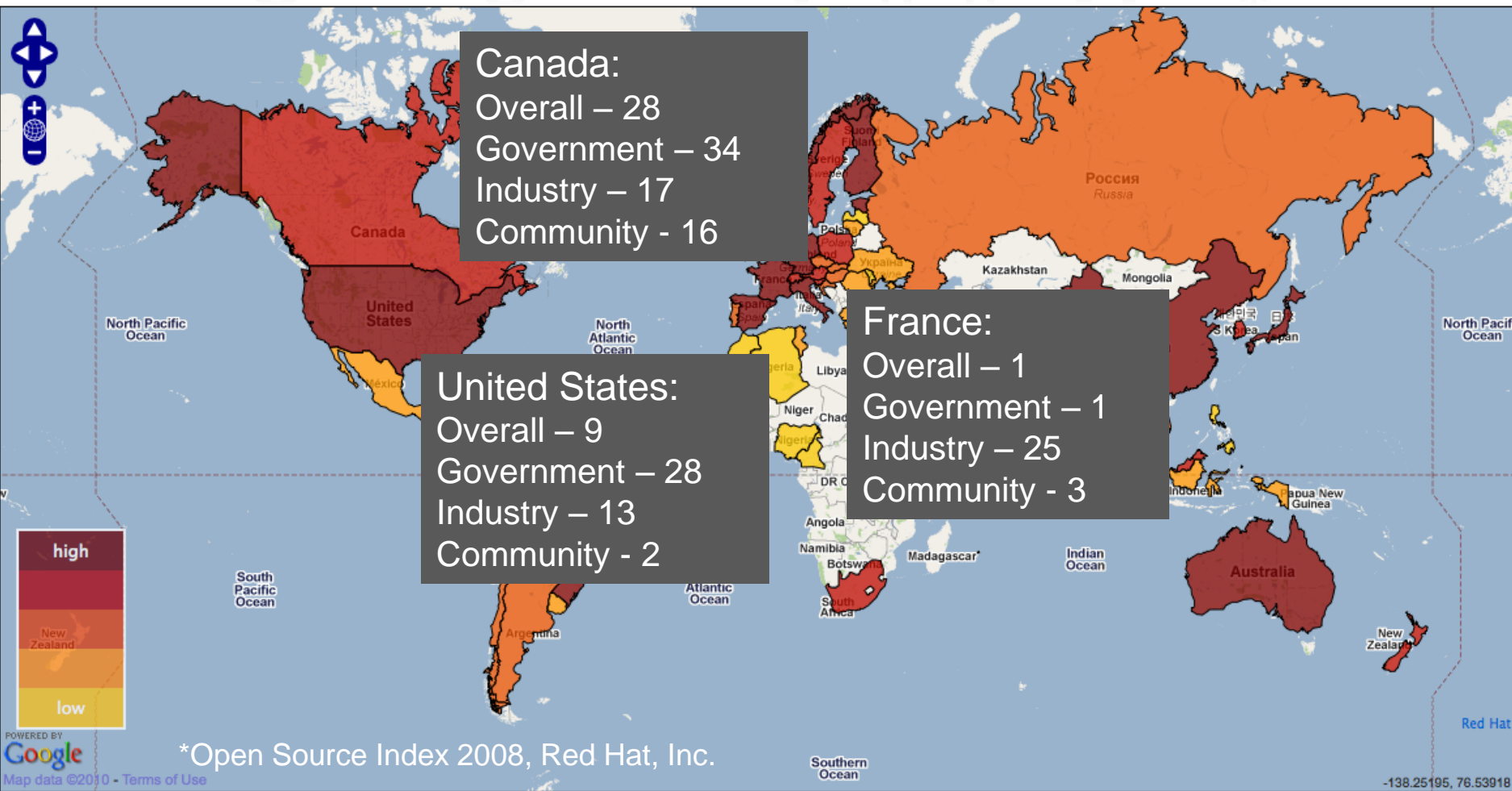


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## Open Source Activity Map



# *OS in Libraries & Archives*

What do Harvard, University of Florida, Stanford, Cornell, MIT, UC Berkeley and San Diego, the National Archives of the UK, Australia, the Netherlands and the Portuguese National Archives all have in common?



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# Open digital repositories



## DSPACE

### ABOUT DSPACE

- About DSpace
- **Why Use DSpace?**
- Who's Using DSpace
- Use Case Examples
- Supporting Organization
- Service Providers

### GETTING STARTED

### USERS / DEVELOPERS

### NEWS AND EVENTS

### RESOURCES

<http://www.dspace.org/why-use>

### Top Reasons to Use DSpace

"Largest community of users and developers worldwide"

"Free open source software"

"Completely customizable to fit your needs"

"Used by educational, government, private and commercial institutions"

"Can be installed out of the box"

"Can manage and preserve all types of digital content"

View or download our informational brochure / spec sheet.



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# Practical solutions in digital preservation



<http://planets-suite.sourceforge.net/>

Home

Planets Suite

Components

Download

Server

Contributors

OPF

## PLANETS (Preservation and Long-term Access through Distributed NETworkS)

Planets is a four-year project co-funded by the European Commission to address core digital preservation challenges. The project has developed a suite of software tools and services to support preservation and long-term access to digital content.

Planets: <http://planets-project.eu>

Enter Planets Suite **sourceforge**




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# Practical solutions in digital preservation

[LOCKSS](#) [Publishers and Titles](#) [PLNs](#) [About Us](#) [Contact Us](#)



HOME

### What is the LOCKSS Program?

LOCKSS (Lots of Copies Keep Stuff Safe), based at Stanford University Libraries, is an international community initiative that provides libraries with digital preservation tools and support so that they can easily and inexpensively collect and preserve their own copies of authorized e-content. LOCKSS, in its eleventh year, provides libraries with the open-source software and support to preserve today's web-published materials for tomorrow's readers while building their own collections and acquiring a copy of the assets they pay for, instead of simply leasing them. LOCKSS provides 100% post cancellation access.

The ACM award-winning LOCKSS technology is an open source, peer-to-peer, decentralized digital preservation infrastructure. LOCKSS preserves all formats and genres of web-published content. The intellectual content, which includes the historical context (the look and feel), is preserved. LOCKSS is [OAIS](#)-compliant; the software migrates content forward in time [🔄](#); and the bits and bytes are continually audited and repaired [🔧](#).

NAVIGATION

[Home](#)  
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[How It Works](#)  
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# Practical solutions in digital preservation



[page](#) [discussion](#) [view source](#) [history](#)

## Main Page

### What is Archivematica?

Archivematica is a comprehensive [digital preservation](#) system. Archivematica uses a [micro-services](#) design pattern to provide an integrated suite of free and open-source tools that allows users to process digital objects from ingest to access in compliance with the ISO-OAIS functional model. Archivematica uses METS, PREMIS, Dublin Core and other best practice metadata standards. Archivematica implements [media type preservation plans](#) based on an analysis of the [significant characteristics](#) of file formats.

The [overview](#) section provides a detailed description of Archivematica's functionality and technical architecture.

### Free and open source

Archivematica is free and open source software. The software applications integrated into Archivematica are each released under their own open source license. These are checked for license compatibility before they are integrated into the project. A full list of applications with their respective license is available on the [software](#) page.

Any new software code created for the Archivematica project is released under a GPL version 2 license. All the system documentation found on this wiki is released under a Creative Commons license.

The Archivematica system is available for download at [archivematica.org/download](http://archivematica.org/download).



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# *Open source records management?*

- Is there a similar movement in the world of records management?
  - What products are available?
  - Do they adhere to existing RM standards?
  - How are they supported?
  - What is the uptake?
- If there are few products available, why?



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# *Context of records management*

- Active records not cultural assets to be shared
- Traditional business model
- Institution-based rather than collaborative
- Operating in relative isolation
- Security and privacy paramount
- EDRMS must integrate with other software
- EDRMS development is lucrative
- Institutional IT departments often want backing of well-established and familiar vendors



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# *Requirements for RM applications*

- US Department of Defense DoD 5015.2-STD
- MoReq2
- National Archives of Australia, UK, NZ
- ICA Guidelines
- ISO 15489 & 23081

 Capture  Identify  Classify  Manage  
Retain  Dispose  Search  Retrieve  Render



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# Open source records management?

- Many content and document management systems, but not records management
- Only Alfresco offers a DoD-certified RM solution

*“Alfresco reduces your ECM costs by up to 96% compared to proprietary systems like Documentum, Open Text and SharePoint. It’s as simple to use as a shared drive or SharePoint and does not lock you in to a proprietary stack.”*

[www.alfresco.com](http://www.alfresco.com)



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- Community version vs Enterprise version
- Provides its software under several different licenses depending on the user
- GPL - free to use
- OSI-approved - free to use w/FLOSS exception
- Flexible OEM commercial license
- Commercial license - subscription service










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# Alfresco Records Management

	 Cloud Trial Try without installing. Many of our applications are available as a 1-day trial in the cloud.	 Alfresco Enterprise Alfresco Enterprise is tested and certified on open source and proprietary stacks, and includes full commercial support.	 Alfresco Community Alfresco Community runs on an open source stack, and is supported by the Alfresco Community via the developer forums.
 Document Management	<a href="#">Try Now</a>	<a href="#">Download 30-day Trial</a>	<a href="#">Download Now</a>
 Web Content Management	only available as a download	<a href="#">Download 30-day Trial</a>	<a href="#">Download Now</a>
 Records Management	<a href="#">Try Now</a>	<a href="#">Download 30-day Trial</a>	<a href="#">Download Now</a>
 Collaboration	<a href="#">Try Now</a>	<a href="#">Download 30-day Trial</a>	<a href="#">Download Now</a>



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# References

- O'Reilly, Tim (2008) "Open Sources 2.0/Beyond Open Source: Collaboration and Community/The Open Source Paradigm Shift" [http://commons.oreilly.com/wiki/index.php/Open\\_Sources\\_2.0/Beyond\\_Open\\_Source:\\_Collaboration\\_and\\_Community/The\\_Open\\_Source\\_Paradigm\\_Shift](http://commons.oreilly.com/wiki/index.php/Open_Sources_2.0/Beyond_Open_Source:_Collaboration_and_Community/The_Open_Source_Paradigm_Shift).
- Thomas, John R. (2004) "Intellectual Property, Computer Software and the Open Source Movement." Congressional Research Service. March 11, 2004. Available at [http://www.ipmall.info/hosted\\_resources/crs/RL32268\\_040311.pdf](http://www.ipmall.info/hosted_resources/crs/RL32268_040311.pdf).
- Tiemann, Michael (2009) "How Open Source Software Can Save the ICT Industry One Trillion Dollars per Year," November 1, 2009.

## Websites:

- <http://apache.org>
- [http://archivemata.org/wiki/index.php?title=Main\\_Page](http://archivemata.org/wiki/index.php?title=Main_Page)
- [http://en.wikipedia.org/wiki/Free\\_and\\_open\\_source\\_software](http://en.wikipedia.org/wiki/Free_and_open_source_software)
- <http://lockss.stanford.edu/lockss/Home>
- <http://www.alfresco.com/>
- <http://www.dspace.org/>
- <http://www.fsf.org>
- <http://www.interpares.org>
- <http://www.openplanetsfoundation.org/>
- <http://www.opensource.org/>
- <http://www.planets-project.eu/>
- <http://www.redhat.com/>



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# References

- The Open Source Definition (Annotated) - official definition of “open source software”, with some explanations. <http://www.opensource.org/docs/definition.php>
- Free Software Definition - official definition of “Free software” (aka libre software; note the unusual capitalization). <http://www.gnu.org/philosophy/free-sw.html>
- Frequently Asked Questions (FAQ) about the GPL - Explains many issues relating to the GPL, and includes a detailed compatibility matrix for various versions of the GPL and LGPL (including some details about how they can be combined). <http://www.gnu.org/licenses/gpl-faq.html>
- Various Licenses and Comments About Them - Legal commentary by the Free Software Foundation (FSF) about many licenses. <http://www.gnu.org/licenses/license-list.html>
- “Commercial” is not the opposite of Free-Libre / Open Source Software (FLOSS)” - Explains why most FLOSS is commercial software. <http://www.dwheeler.com/essays/commercial-floss.html>
- Why Open Source Software / Free Software (OSS/FS, FLOSS, or FOSS)? Look at the Numbers! - Large collection of statistics on FLOSS programs. [http://www.dwheeler.com/oss\\_fs\\_why.html](http://www.dwheeler.com/oss_fs_why.html)
- Make Your Open Source Software GPL-Compatible. Or Else - Explains why FLOSS should be released under a GPL-compatible license, and includes many statistics showing that the GPL is the most popular FLOSS license. <http://www.dwheeler.com/essays/gpl-compatible.html>
- Maintaining Permissive-Licensed Files in a GPL-Licensed Project: Guidelines for Developers by the Software Freedom Law Center. <http://www.softwarefreedom.org/resources/2007/gpl-non-gpl-collaboration.html>

This list available at <http://www.dwheeler.com/essays/floss-license-slide.html>



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*Last Thoughts*

*Questions?*

*Thank you*



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