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## Next generation repositories: Scaling up repositories to a global knowledge commons

### Conference or Workshop Item

#### How to cite:

Shearer, Kathleen; Rodrigues, Eloy; Bollini, Andrea; Cabezas, Alberto; Castelli, Donatella; Carr, Les; Chan, Leslie; Humphrey, Chuck; Johnson, Rick; Knoth, Petr; Manghi, Paolo; Matizirofa, Lazarus; Perakakis, Pandelis; Schirrwagen, Jochen; Smith, Tim; Van de Sompel, Herbert; Walk, Paul; Wilcox, David and Yamaji, Kazu (2016). Next generation repositories: Scaling up repositories to a global knowledge commons. In: Open Repositories 2018, 4-6 Jun 2018.

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# Next Generation Repositories

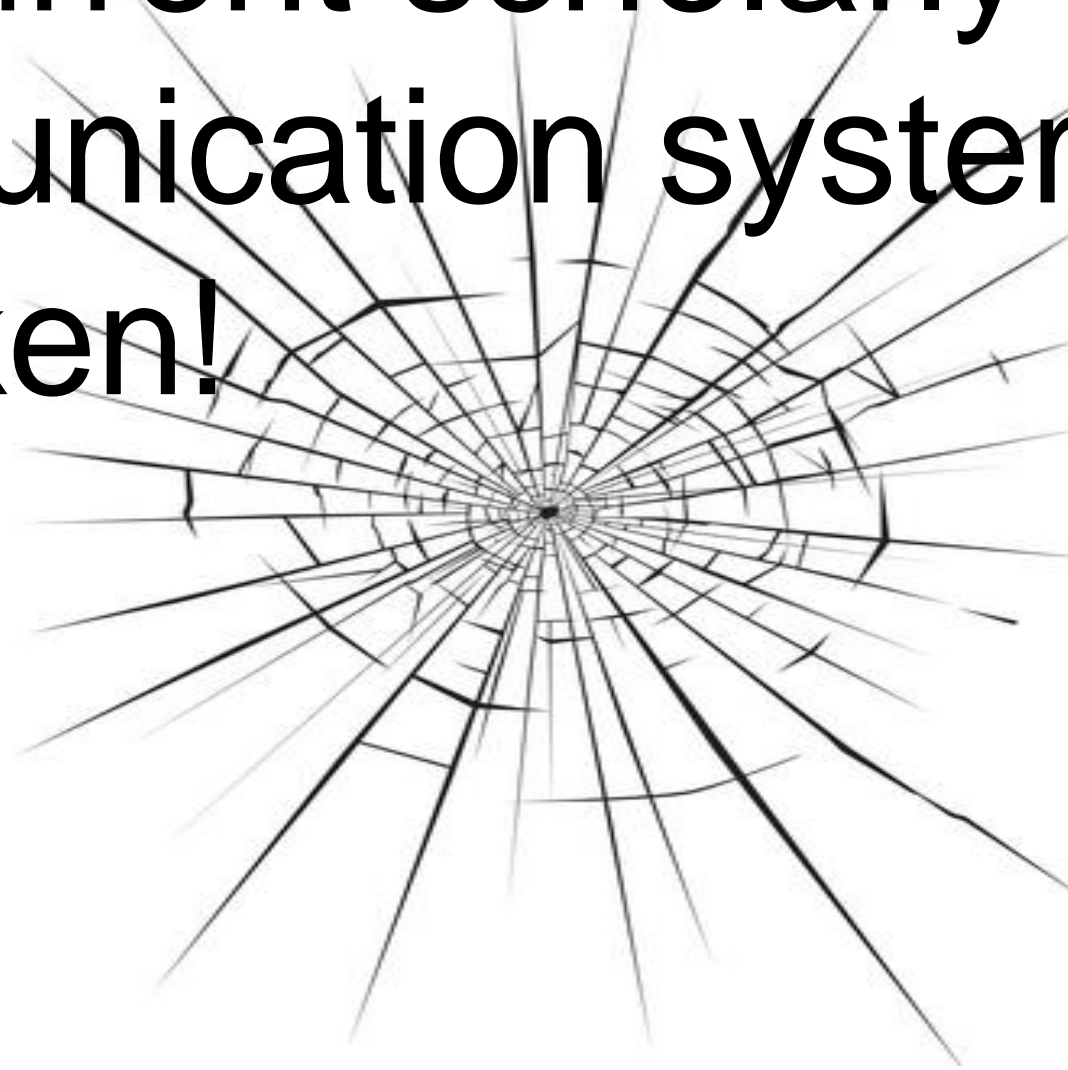
## Scaling up repositories to a global knowledge commons

**Kathleen Shearer**, Eloy Rodrigues, Andrea Bollini, Alberto Cabezas, Donatella Castelli, Les Carr, Leslie Chan, Chuck Humphrey, Rick Johnson, Petr Knoth, Paolo Manghi, Lazarus Matizirofa, Pandelis Perakakis, Jochen Schirrwagen, Tim Smith, Herbert Van de Sompel, Paul Walk, **David Wilcox**, Kazu Yamaji



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**The current scholarly  
communication system  
is broken!**



# COAR's Vision



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But... repository systems are using old technologies developed over 15 years ago that do not support the functionalities we need.



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# Next Generation Repositories

Major strategic priority for COAR

Working Group launched in April 2016

**Aim:** to identify functionalities and architectures for the next generation repositories within the context of scholarly communication

# Next generation repositories working group

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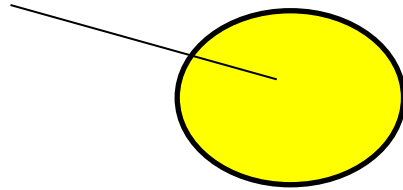
*The aim of this activity is to develop a **global network** of repositories that allows **frictionless access** to open content and encourages the creation of **cross-repository added-value services**.*

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# Current repositories

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Services we can  
develop with  
repositories  
today



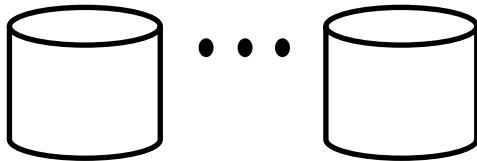
Conceptual layer

Batch  
disco  
very

Metadata

Interoperability

Persistence layer

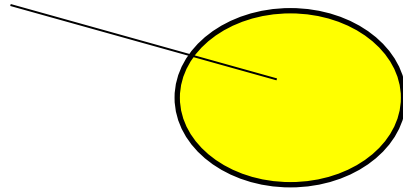




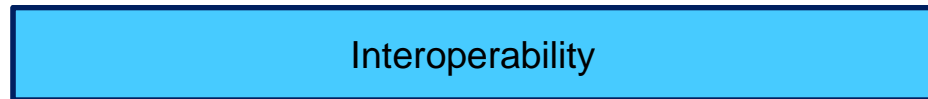
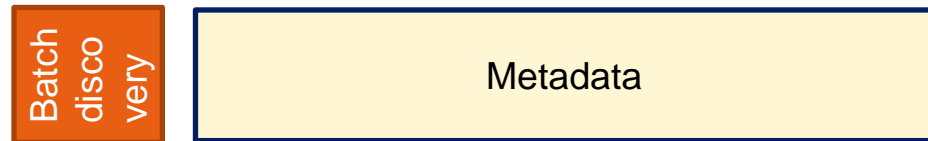
# Current repositories

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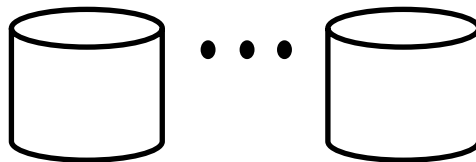
Services we can  
develop with  
repositories  
today



Conceptual layer



Persistence layer



Interoperability CORE to the  
IRs mission. (*Crow, 2002 -  
SPARC's position paper on  
IRs*); (*COAR, 2011 - The Case  
for Interoperability for Open  
Access repositories*)

# Importance of interoperability

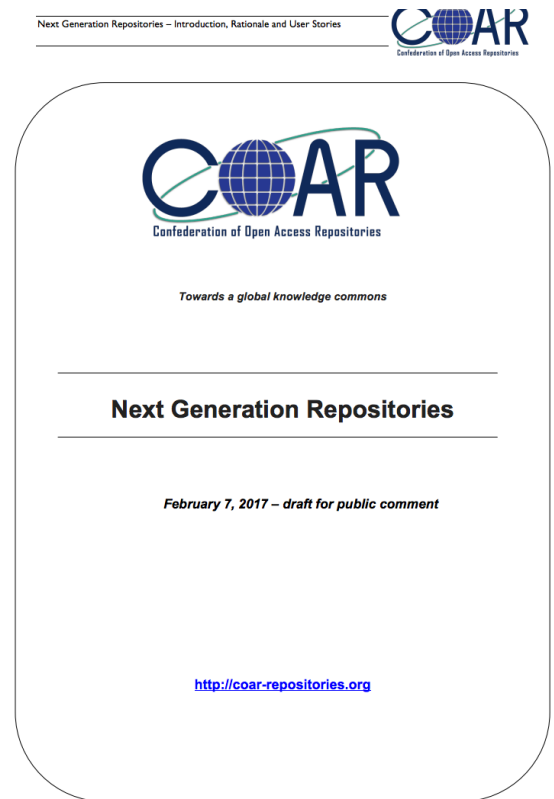
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*Lack of interoperability in the scholarly communication system is a major barrier to innovation.*

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# User stories

- Data mining
- Discovering metadata that describe a scholarly resource
- Discovering the identifier of a scholarly resource
- Discovering usage rights
- Resource syncing and notification
- Recognizing the user
- Commenting & annotating
- Providing a social notification feed
- Recommender systems for repositories
- Preservation
- Peer-review
- Comparing usage



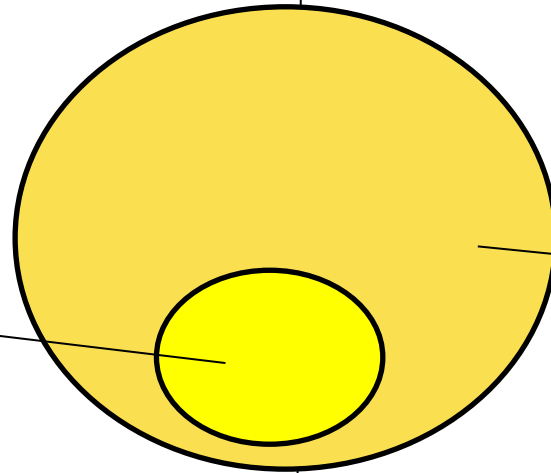
<https://www.coar-repositories.org/files/COAR-Next-Generation-Repositories-February-7-2017.pdf>

# Current repositories

# Next generation repositories

Services we can develop with repositories today

Services we can develop with the next generation repositories



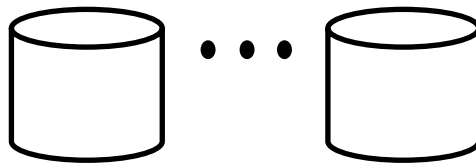
Conceptual layer

Batch  
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Metadata

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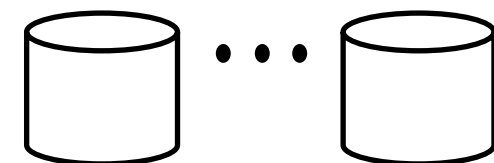
Conceptual layer

Discovery mechanisms  
- Batch  
- Navigation  
- Notification

Usage interactions and metrics	Comments	Peer-reviews	Messages
Global sign-on			
Metadata	Content	Links between resources	Notifications

Interoperability

Persistence layer



# Next generation repositories working group

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“...making the **resource**, rather than the repository, the **focus** of services and infrastructure.”

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# Behaviours and Technical Recommendations

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- Exposing Identifiers
- Discovery Through Navigation
- Interacting with Resources (Annotation, Commentary, and Review)
- Resource Transfer
- Batch Discovery
- Collecting and Exposing Activities
- Identification of Users
- Authentication of Users
- Exposing Standardized Usage Metrics
- Declaring Licenses at the Resource Level
- Preserving Resources

## Next Generation Repositories

Behaviours and Technical Recommendations of the COAR  
Next Generation Repositories Working Group

November 28, 2017



Northern lights, Norway

#nextgenrepositories

@COAR\_eV

[office@coar-repositories.org](mailto:office@coar-repositories.org)



COAR: Building a Global Knowledge Commons

<https://www.coar-repositories.org/files/NGR-Final-Formatted-Report-cc.pdf>

November 28, 2017

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# Supporting technologies

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- **Notification protocols:** AMQP, Kafka, WebSub, Webmention, Linked Data Notifications, Activity Streams
  - **ResourceSync**
  - **Signposting**
  - ETag
  - HTTP Signatures
  - IPFS
  - ORCID
  - OpenID Connect
  - Activity Streams 2.0
  - SUSHI
  - SWORD
  - Sitemaps
  - Social Network Identities
  - Web Annotation Model & Protocol
  - WebID
  - WebID/TLS
  - WebSub
  - Webmention
  - IIF
  - COUNTER
  - Creative Commons Licenses
-

# User stories and priority areas

Discovery and exposing resources	Batch	<ul style="list-style-type: none"><li>• Data mining</li><li>• Discovering metadata, identifiers, usage rights that describe a scholarly resource</li><li>• Resource syncing and notification</li></ul>
	Navigation	
	Notification	
Research workflows and lifecycle	Annotation	<ul style="list-style-type: none"><li>• Recognizing the user</li><li>• Commenting, annotating, social notifications</li><li>• Recommender systems for repositories</li><li>• Preservation</li></ul>
	Commenting	
	Social interaction	
Research evaluation	Peer review	<ul style="list-style-type: none"><li>• Peer-review</li><li>• Comparing usage</li></ul>
	Metrics	



# User stories and priority areas

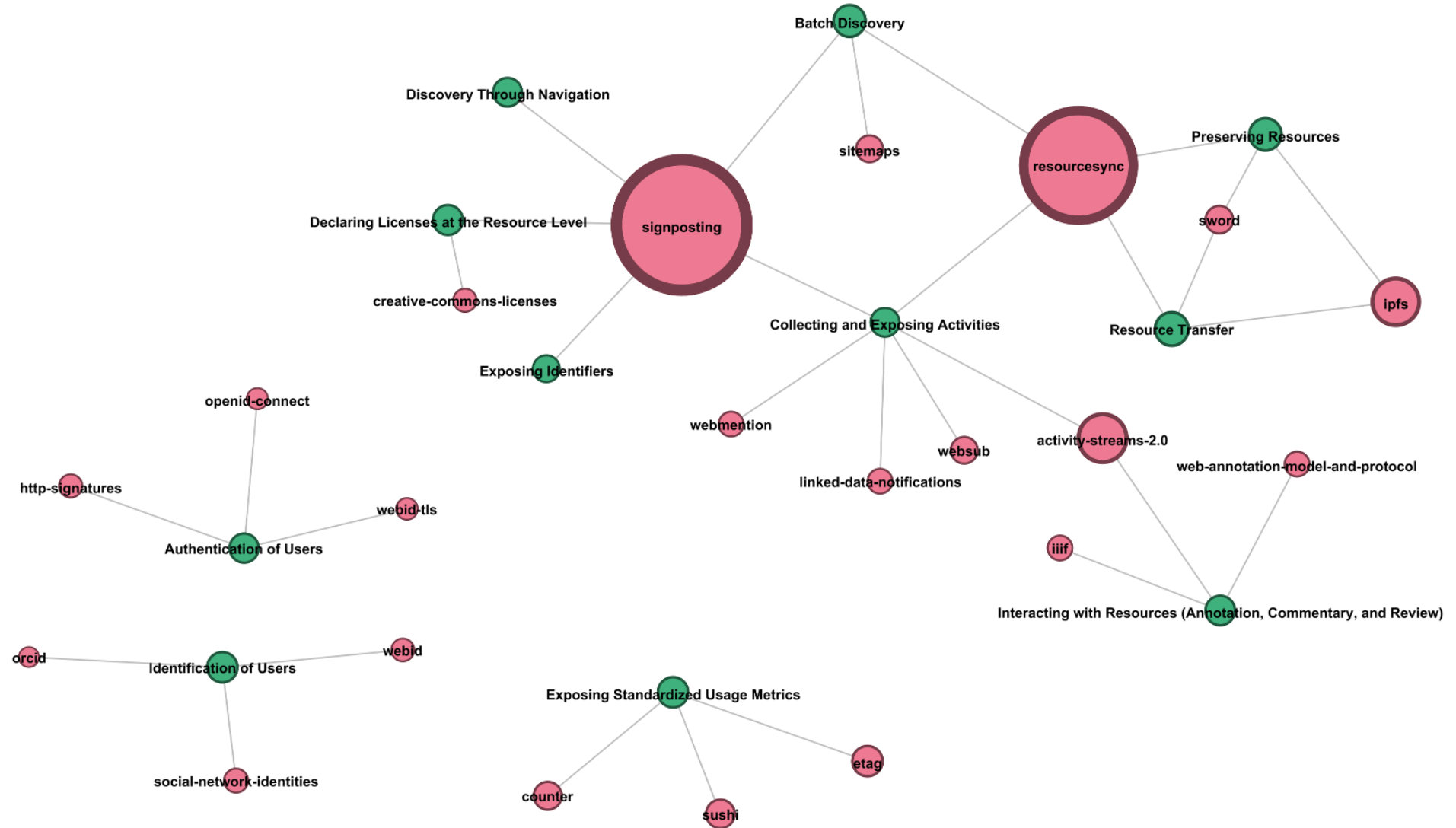
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	Commenting	
	Social interaction	
Research evaluation	Peer review	<ul style="list-style-type: none"><li>• Peer-review</li><li>• Comparing usage</li></ul>
	Metrics	

# Three vertical discovery mechanisms

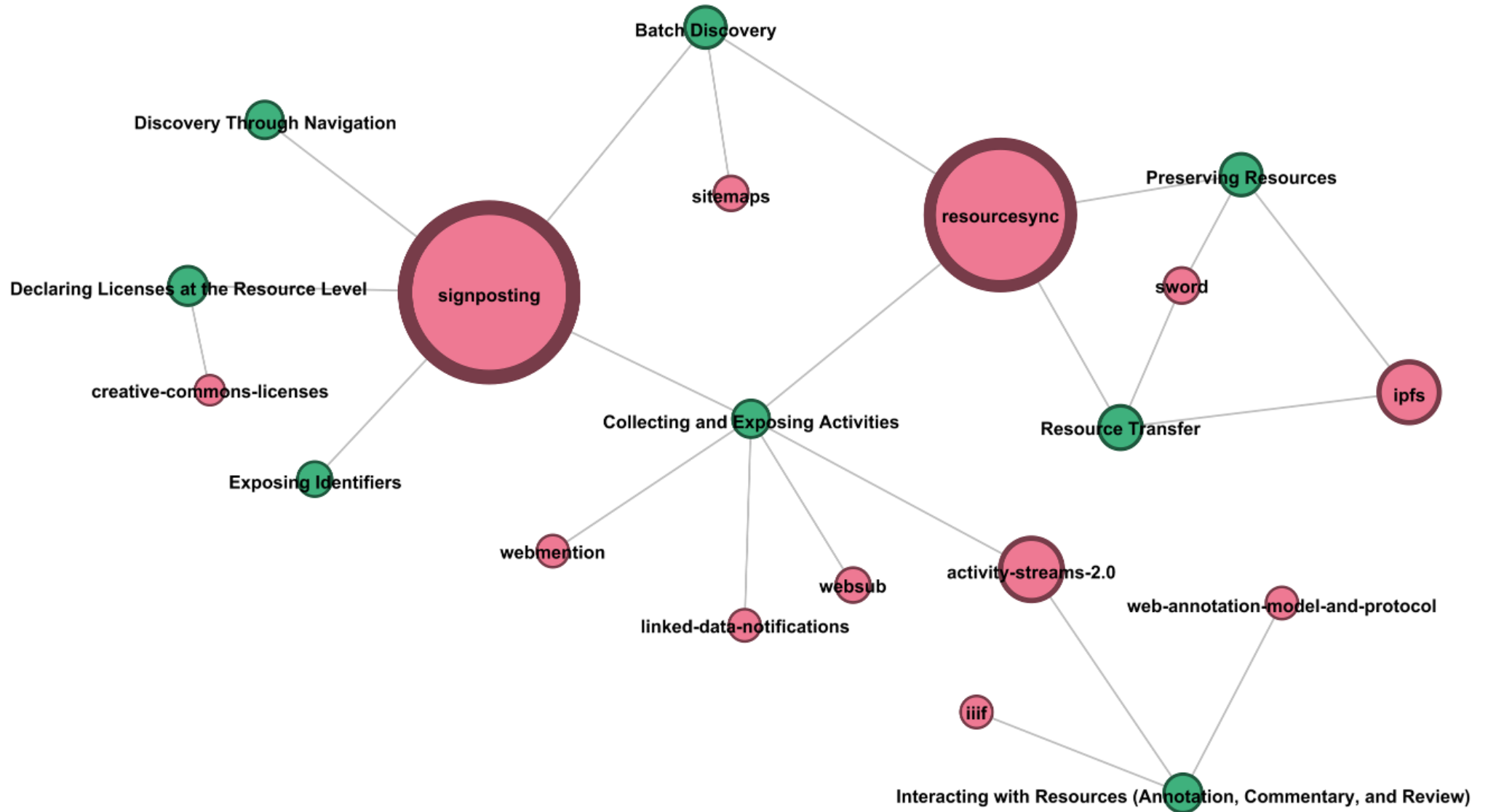
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- » **Batch** – Transferring bulk data
- » **Navigation** – Helping robots to find resources in repositories by means of navigation
- » **Notification** – Enabling robots to subscribe to changes in repositories

# Visualize technologies and behaviour



# Priority technologies: Signposting & ResourceSync

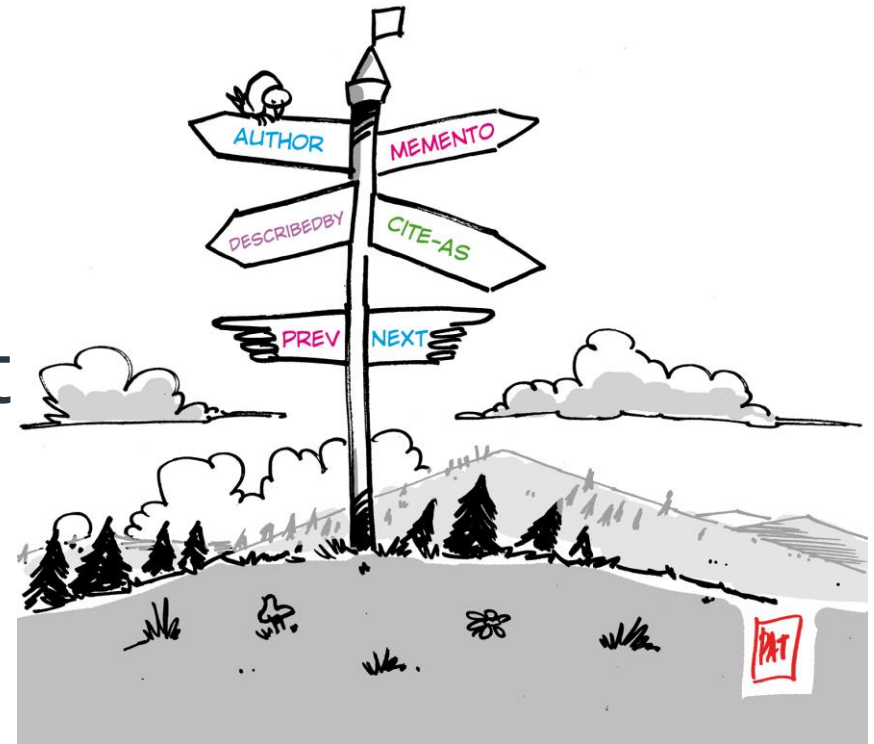


# Signposting - <http://signposting.org/>

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» **Signposting** is an approach to make the scholarly web more friendly to machines by exposing relations as Typed Links in HTTP Link headers

» Signposting is now implemented in DSpace-CRIS and OJS. DSpace 7 plans to provide Signposting support





### Influência da garantia institucional sobre o risco de crédito

Nascimento, Marcos Aurélio (2009)  
**Publisher:** Contabilidade, Gestão e Governança  
**Journal:** Contabilidade, Gestão e Governança  
**Languages:** Portuguese  
**Types:** Unknown  
**Subjects:**

O presente artigo discute a análise do crédito ao consumidor sob os aspectos pessoais - caráter e capacidade -, passando pelos demais "cs" do crédito - capital, condições e colateral - como complemento da análise. Com base em uma pesquisa de campo, buscou-se identificar fatores que justifiquem um tratamento diferenciado para consumidores que dispõem de garantias institucionais. Este tratamento diferenciado poderia ser materializado por taxas de juros menores ou linhas de crédito mais atraentes para o cliente de menor risco. Trata-se de uma pesquisa sob a ótica do tomador de recursos que, invariavelmente, vai de encontro ao interesses das instituições financeiras. A política de crédito das instituições financeiras deve ser estabelecida de forma a recompensar, também, a garantia institucional, na medida em que esta concorre para a redução do risco de crédito. Admitindo-se que há uma relação direta entre a taxa de juro e risco de crédito, pode-se inferir que quanto menor o risco menor a taxa de juro, portanto, a recompensa esperada pelo menor risco é aplicação de uma taxa menor.

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# INFLUÊNCIA DA GARANTIA INSTITUCIONAL SOBRE O RISCO DE CRÉDITO

Marcos Aurélio Nascimento

## RESUMO

O presente artigo discute a análise do crédito ao consumidor sob os aspectos pessoais - caráter e capacidade -, passando pelos demais "cs" do crédito - capital, condições e colateral - como complemento da análise. Com base em uma pesquisa de campo, buscou-se identificar fatores que justifiquem um tratamento diferenciado para consumidores que dispõem de garantias institucionais. Este tratamento diferenciado poderia ser materializado por taxas de juros menores ou linhas de crédito mais atraentes para o cliente de menor risco. Trata-se de uma pesquisa sob a ótica do tomador de recursos que, invariavelmente, vai de encontro ao interesses das instituições financeiras. A política de crédito das instituições financeiras deve ser estabelecida de forma a recompensar, também, a garantia institucional, na medida em que esta concorre para a redução do risco de crédito. Admitindo-se que há uma relação direta entre a taxa de juro e risco de crédito, pode-se inferir que quanto menor o risco menor a taxa de juro, portanto, a recompensa esperada pelo menor risco é aplicação de uma taxa menor.

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### SOBRE O AUTOR

Marcos Aurélio Nascimento  
AEUDF  
Brasil

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### PALAVRAS-CHAVE

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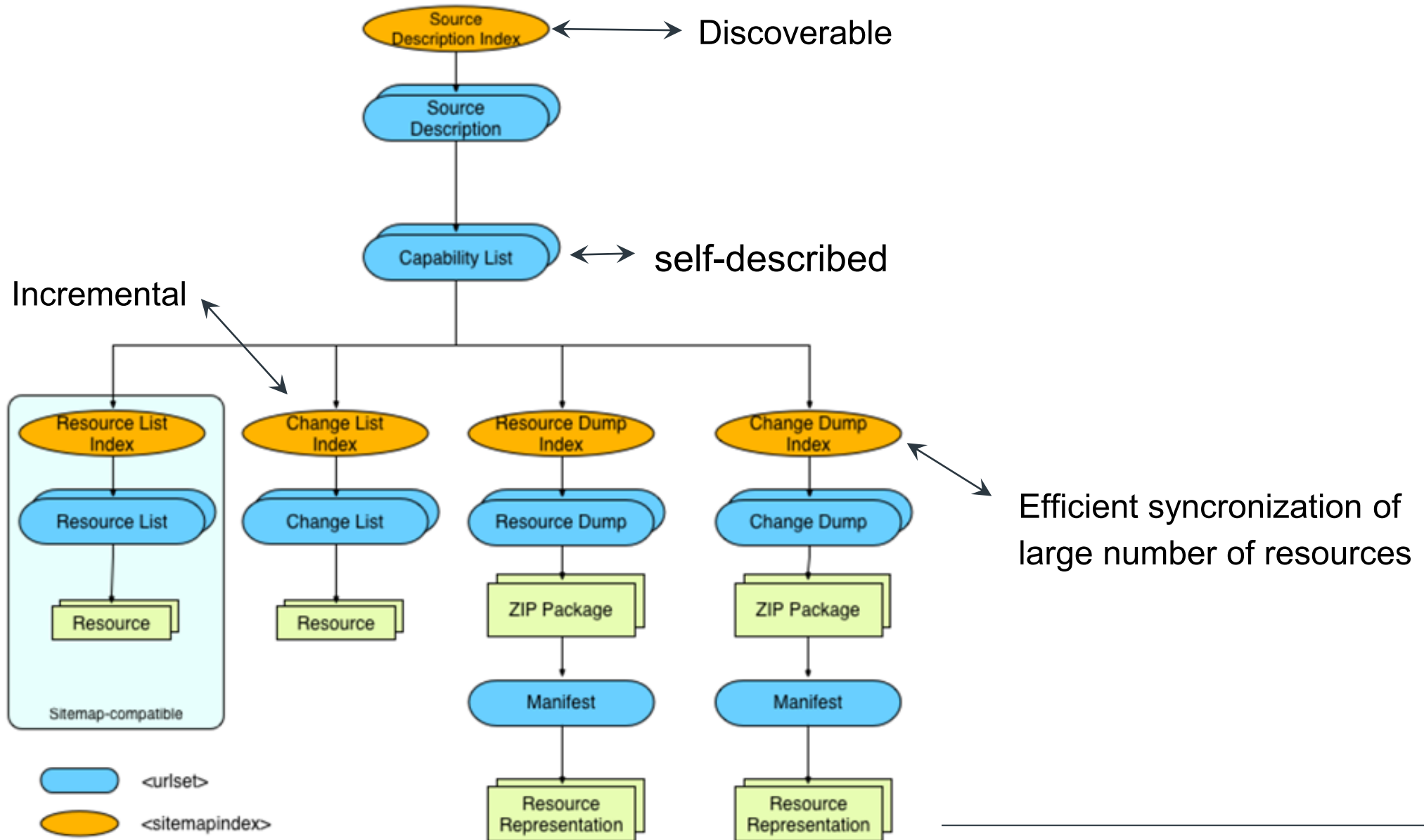
# ResourceSync - <http://www.openarchives.org/rs/toc>

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- » Successor of the OAI-PMH protocol and much more...
  - » Faster, reliable and scalable
  - » Allows real-time notification (and recovering of missed messages)
  - » Drives **resource synchronization**: content and metadata are both managed
-



# ResourceSync Framework Specification (ANSI/NISO Z39.99-2017)



# A Next Generation Repository...

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- » manages and provides access to a wide diversity of resources
  - » is resource-centric
  - » is a networked repository
  - » is machine-friendly
  - » is active (notify other systems, allow local active interaction)
-

# Active Repository Pattern

- Repositories as pro-active components in an event-driven scholarly system
- Publishing 'events' (e.g. adding a new item) to one or more notification hubs
- Third-party systems 'subscribe' to these notifications
- Modest software development

Paul Walk's Web



home presentations photos about

quick search....

## The Active Repository Pattern

Monday, October 19, 2015

(This is the first of two posts forming my contribution to [Open Access Week 2015](#).)

### Context

#### Institutional repositories

It is easy to overlook, or take for granted, the way in which the drive towards open-access (over the last decade or more) has succeeded not only in creating several viable "[institutional-repository software packages](#)", but also in encouraging libraries and IT departments in universities to deploy them. It should be recognised that individual universities have shown, and continue to show commitment to maintaining their repositories in spite of shrinking budgets.

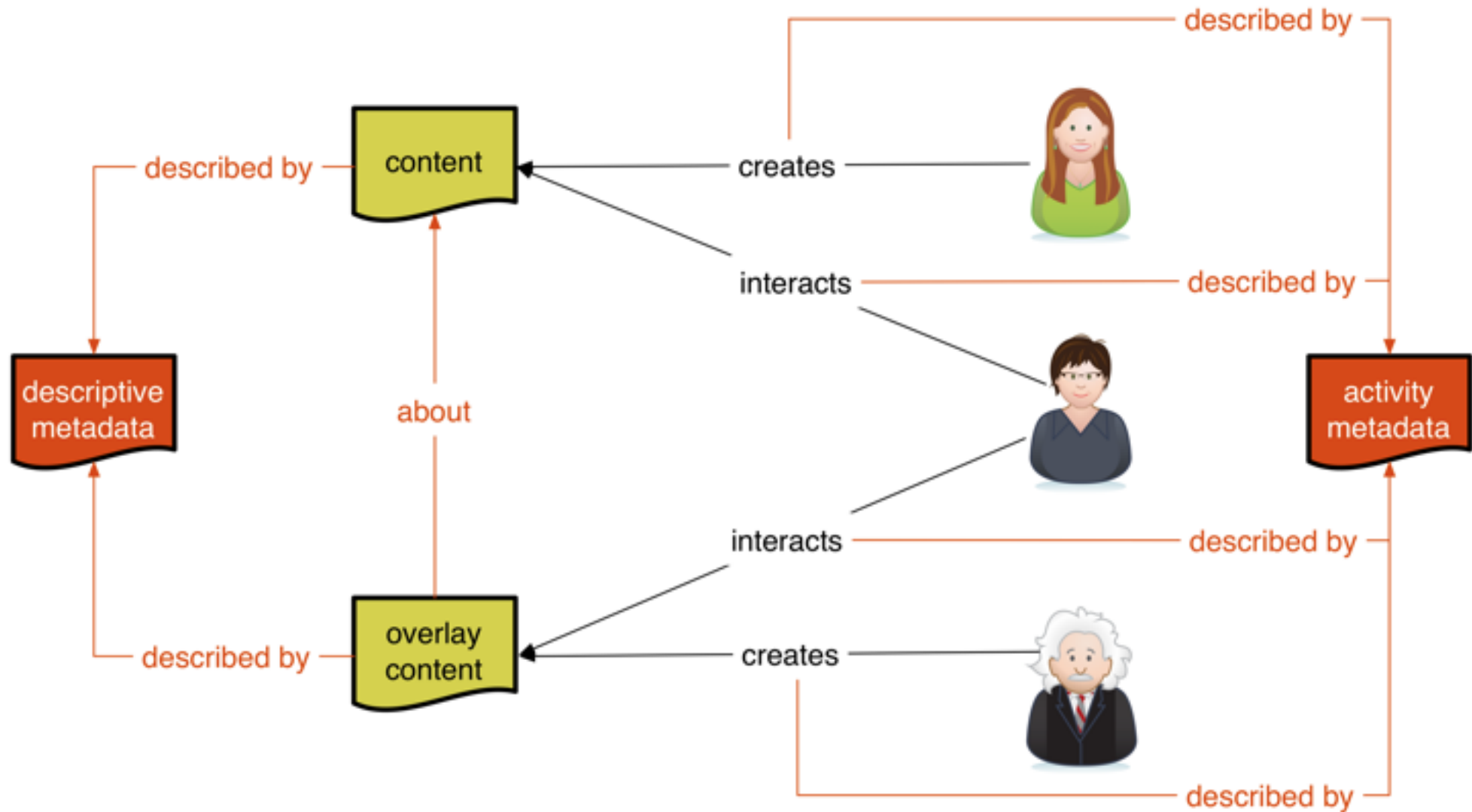
While these repository systems are various, they mostly adhere to certain standard protocols, common metadata formats and conventions, allowing for a degree of potential interoperability. It is this potential for interoperation which elevates the institutional repository from a local system, to a networked system.

This achievement should be celebrated!

#### Repositories as infrastructure

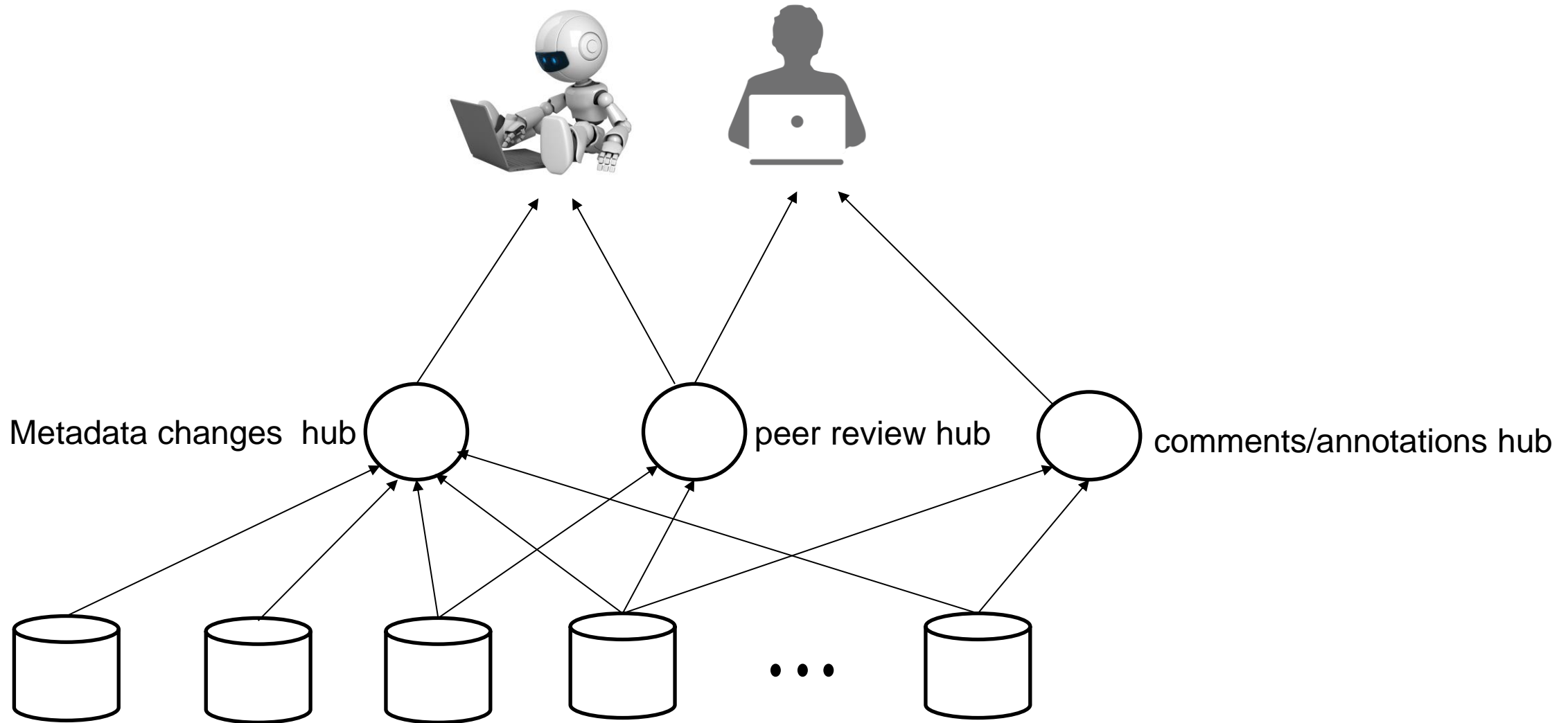
<http://www.paulwalk.net/2015/10/19/the-active-repository-pattern/>

# Notification services



# Repositories and notification hubs

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# Ongoing work and next steps

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1. Implementation of technologies in repository platforms
2. Development of network or hub services
3. Ongoing monitoring of new technologies, standards and protocols

# 1. Implementation of technologies in repository platforms

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- Already progress – several platforms are implementing NGR recommendations
  - **OpenAIRE** – Europe
  - **National Institute of Informatics (NII)** - Japan
  - **US Next Generation Repositories Implementers Group**
  - **CARL Open Repositories Working Group** - Canada
- Meeting of repository platforms at Open Repositories 2018



## 2. Support the development of network or hub services

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- 2 days of meeting of Repository Networks, May 14 & 15, 2018 in Hamburg, Germany to discuss NGR functionality and international alignment



- Pilot Projects 2<sup>nd</sup> half 2018 (Open Peer Review, Common Standards for Usage Statistics, Recommender Systems)



# 3. Monitoring of new technologies, standards and protocols

---

## COAR Next Generation Repositories Editorial Group

Andrea Bollini

Rick Johnson

Petr Knoth

Paolo Manghi

Eloy Rodrigues

Kathleen Shearer

Herbert Van

Paul Walk de Sompel

David Wilcox

Kazu Yamaji

# How to contribute?

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Support the implementation of the identified behaviours and technologies in your community (DSpace, Eprints, Fedora, Dataverse, Samvera, etc., etc.)

Join the conversation on GitHub

<https://github.com/coar-repositories/ngr>

