Web–based resource sharing

The OECD guidelines and related activities

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Overview

- Background and motivation

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- The OECD Guidelines

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- The Neuroinformatics Portal Pilot

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- German activities

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- German activities
- Summary

Background and Motivation

- The challenge in Neuroscience: diversity of contributions

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- The challenge in Neuroscience: diversity of contributions
- The Neuroinformatics approach: knowledge integration

Background and Motivation

- The challenge in Neuroscience: diversity of contributions
- The Neuroinformatics approach: knowledge integration
- Various activities: individual, national, and international

Resource Sharing – Overview

- Current Web Technologies

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- Current Web Technologies
- The Big Picture

Resource Sharing – Overview

- Current Web Technologies
- The Big Picture
- Particular Guidelines

Current Web Technologies

- **Web Servers** deliver static pages (in HTML over HTTP)

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  (in HTML over HTTP)
- **Web Application Servers** deliver dynamic pages
  (linking databases to the web)
- **Web Services** deliver computations
  (linking software to the web)

Implications

- Data sets can be made web–accessible

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- Databases can be made web–accessible
- Services can be invoked via the web

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Prerequisit: Support the Web Standards

Resource Sharing – Big Picture

- Data Providers (laboratories) publish via

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- Software Developers publish via

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Guidelines help implementing
the necessary standards

Guidelines for Data Providers

- Ensure persistent storage of the data

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- Make the data publicly accessible

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- Avoid proprietary data formats

Guidelines for Data Providers

- Ensure persistent storage of the data
- Make the data publicly accessible
- Avoid proprietary data formats
- Provide appropriate annotation

Guidelines for Data Repositories

- Provide the necessary infrastructure

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- Provide the necessary infrastructure
- Support data providers

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- Support data providers
- Enable interoperability

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  - Rely on a common ontology

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Guidelines for Data Repositories

- Provide the necessary infrastructure
- Support data providers
- Enable interoperability
  - Rely on a common ontology
  - Expose the ontology used
  - Expose the metadata
  - Support existing technological standards

Guidelines for Software Developers

- Provide access to your software

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- Provide access to your software
- Provide documentation

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- Provide access to your software
- Provide documentation
- Support standard data formats

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- Support standard data formats
- Be platform independent

Guidelines for Software Developers

- Provide access to your software
- Provide documentation
- Support standard data formats
- Be platform independent
- Advertise your software

Guidelines for Computing Services

- Provide the necessary infrastructure

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- Provide the necessary infrastructure
- Support software developers

Guidelines for Computing Services

- Provide the necessary infrastructure
- Support software developers
- Enable interoperability

Guidelines for Computing Services

- Provide the necessary infrastructure
- Support software developers
- Enable interoperability
  - Register software products

Guidelines for Computing Services

- Provide the necessary infrastructure
- Support software developers
- Enable interoperability
  - Register software products
  - Implement technological standards

Guidelines for Portals

- Provide typical portal services

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- Provide typical portal services
- Maintain a metadata database

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Guidelines for Portals

- Provide typical portal services
- Maintain a metadata database
- Provide the necessary infrastructure
- Serve as central registry

The Neuroinformatics Portal Pilot

- Set up a web–accessible database to collect and disseminate meta data

The Neuroinformatics Portal Pilot

- Set up a web–accessible database to collect and disseminate meta data
- Meta data are structured data about data (here: about any resource)

The Challenges

- Data acquisition

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- Data presentation

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- Data quality

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- Data acquisition
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- Data structuring
- Data exchange

NIP's Approach

- Member–driven portal site

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- Member–driven portal site
- Anyone can contribute information about any resource

Solutions

- Acquisition: community involvement

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- Presentation: dynamic site

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- Quality: CMS supported Review

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- Presentation: dynamic site
- Quality: CMS supported Review
- Structuring: hierarchical classification
- Exchange: interoperability

Demonstration

The portal at

- http://www.neuroinf.de

Current German Activities

- Centers for Computational Neuroscience

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  - Start–up money from the Ministry

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  - Long–term: University commitment

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- Centers for Computational Neuroscience
  - Start–up money from the Ministry
  - Long–term: University commitment
  - Research Focus
  - Teaching programs

Summary

- Neuroinformatics: knowledge integration

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Thank You!