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**Open Science and Research Initiative  
and services provided by CSC**

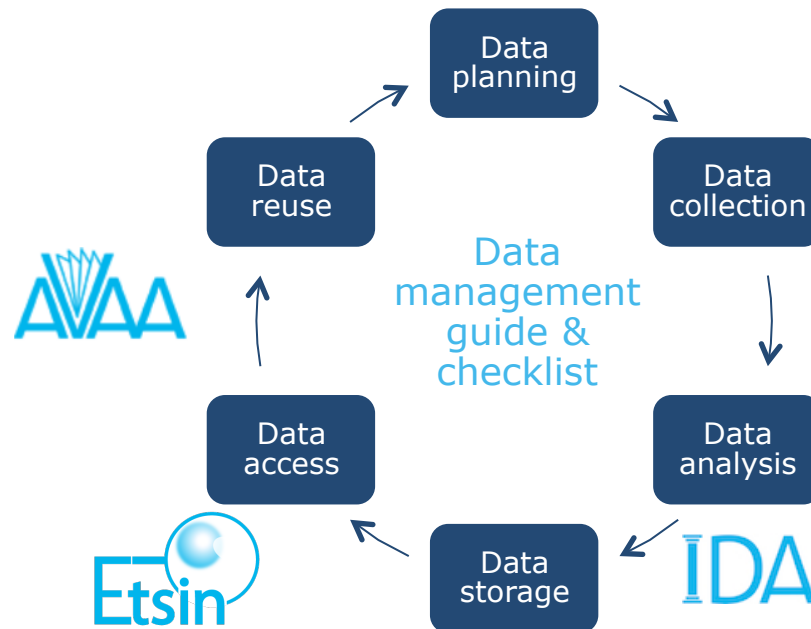
## The Open Science and Research Initiative

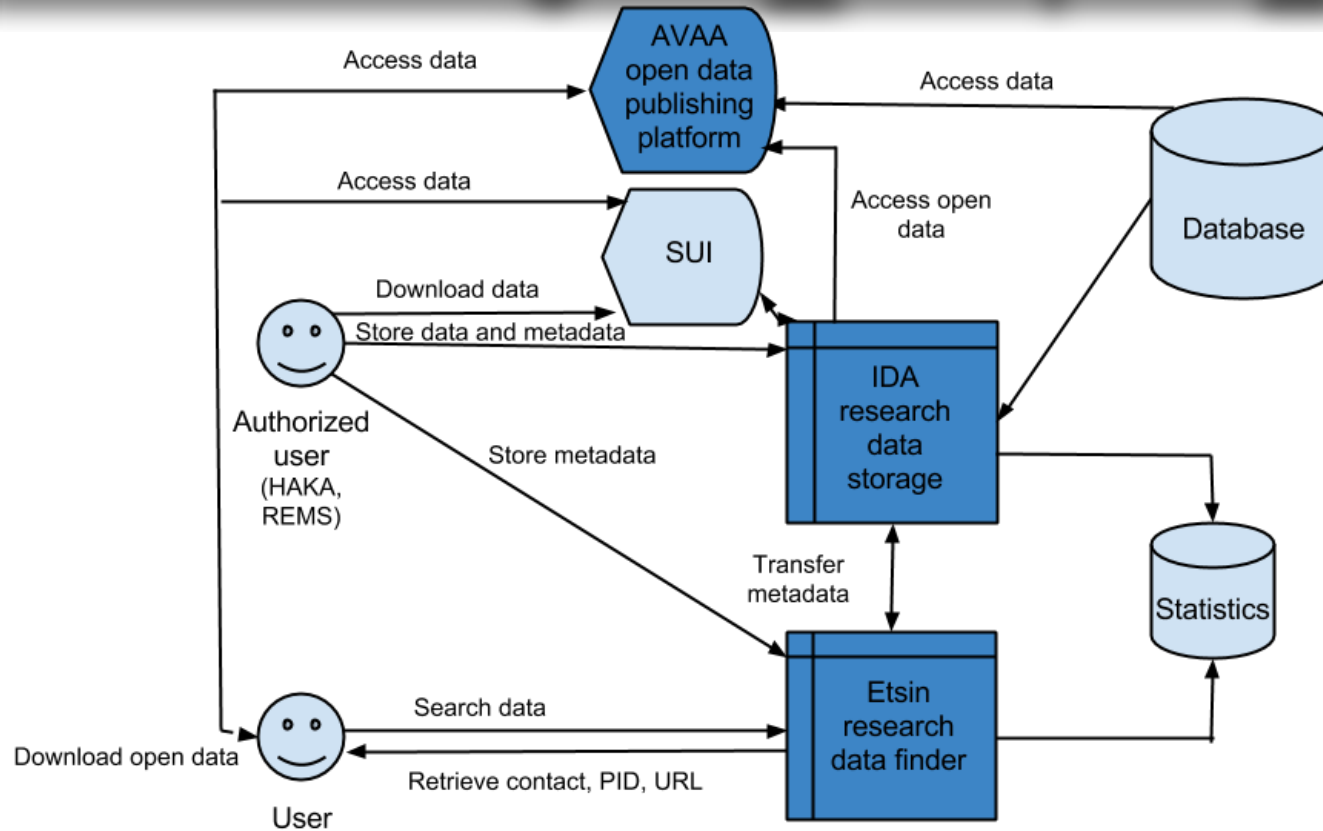
- **The Ministry of Education and Culture has launched the Open Science and Research Initiative, for the promotion of information availability and open science for years 2014–2017.**
- The Initiative will implement the national political agenda in a way that increases the competitiveness and quality of the Finnish research system
- The Initiative will promote the reliability, openness and societal impact of science and research
- The aim is to provide researchers with practical knowledge in how they as individuals can implement open science
- Scope of the initiative includes publications, research data, and methods
- Goal to make Finland a leading country in openness of science and research

## Benefits of open science

- Gaining funding in accordance to funder's rules and suggestions
  - The Academy of Finland encourages researchers to publish open access and make their data available. Project funding can also be used to cover costs of open access publishing.
  - EU Horizon2020 has open access as underlying principle, including open access publishing and a pilot for open research data
- Greater visibility and recognition for the research work
- Merit through citations to open access publications and open datasets
- Openness makes it possible for a researcher to receive feedback
- Increased interaction and new possibilities for collaboration
- Increased trust in science and promotion of innovation

# Research data lifecycle and open science services



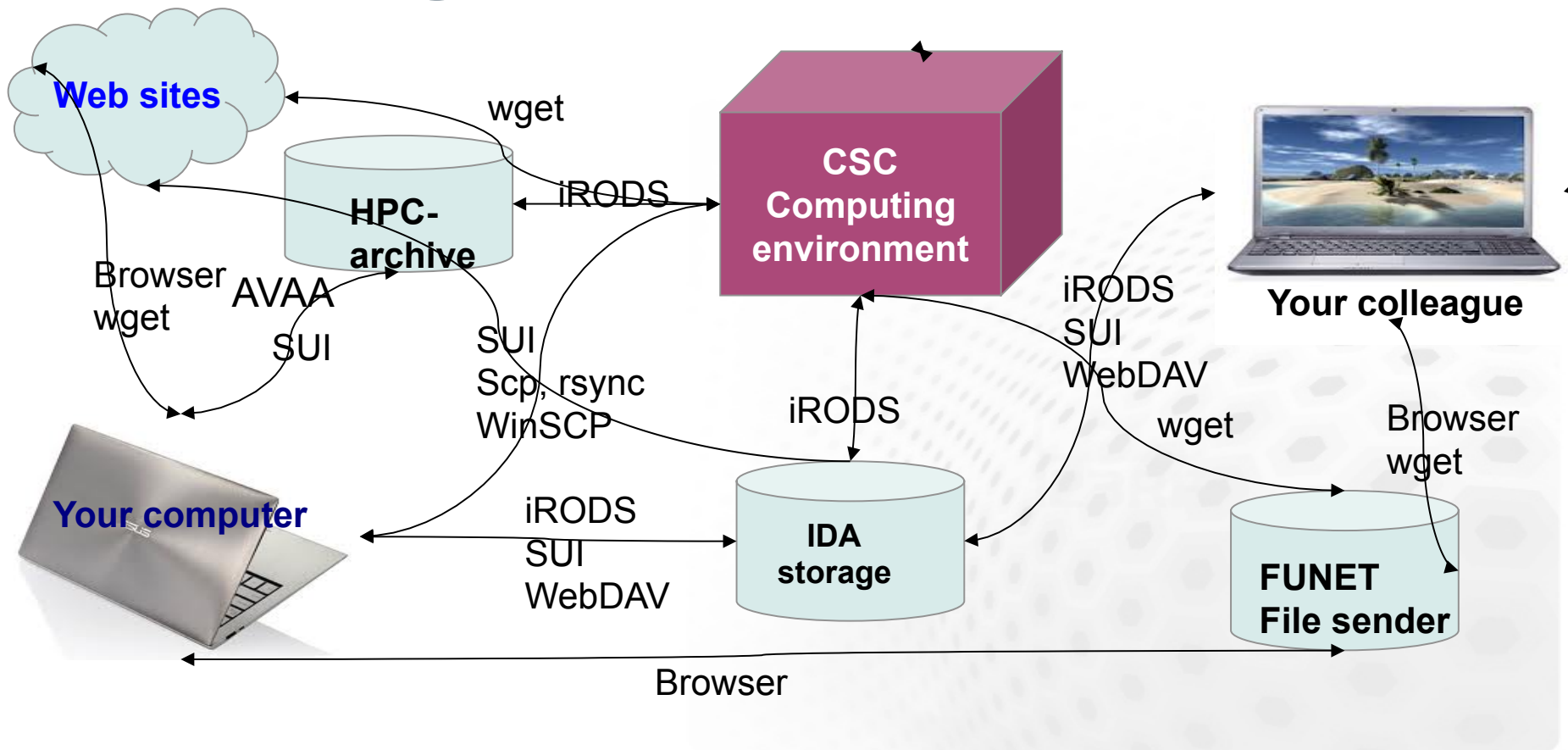


## Integration of open science services

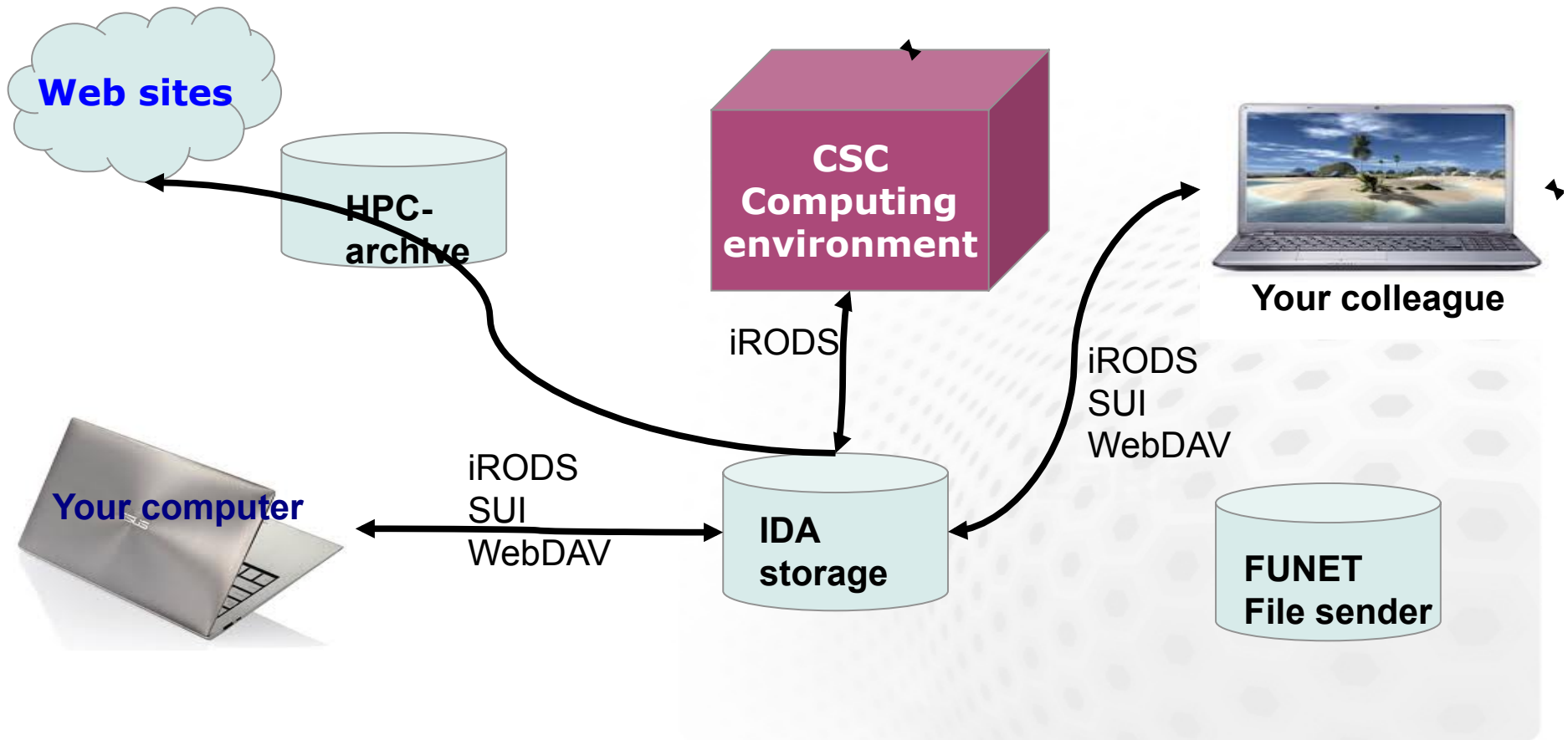
## Promoting openness

- Agree on ownership and copyright issues
- Favour open assessment and publishing
- Take care of licencing the research results
- Use open source, standards and interfaces
- Produce rich metadata
- Utilise service infrastructures e.g. IDA, Etsin, AVAA, PAS (2015-)

# Moving data to and from CSC



# IDA storage service





## IDA storage service

- iRODS based storage system for storing, archiving and sharing scientific data
- Designed for stable data sets, not for data analysis (low speed / high safety and availability)
- Launched 2012
- Linked to other ATT services (AVAA, Etsin). Metadata!
- CSC hosts the service, but storage quotas are granted by the universities. (University of Helsinki: 1260 TB)
- Project based usage with personal accounts.
- Interfaces: iRODS commands, WWW (SUI), WebDav network disks
- <https://www.tdata.fi/ida>

## IDA

- Part of ATT
- Quotas granted by universities and Academy of Finland
- Several interfaces (WWW/SUI, network disk, i-commands)
- Internet accessible
- Project based structure
- Data can be made public through AVAA

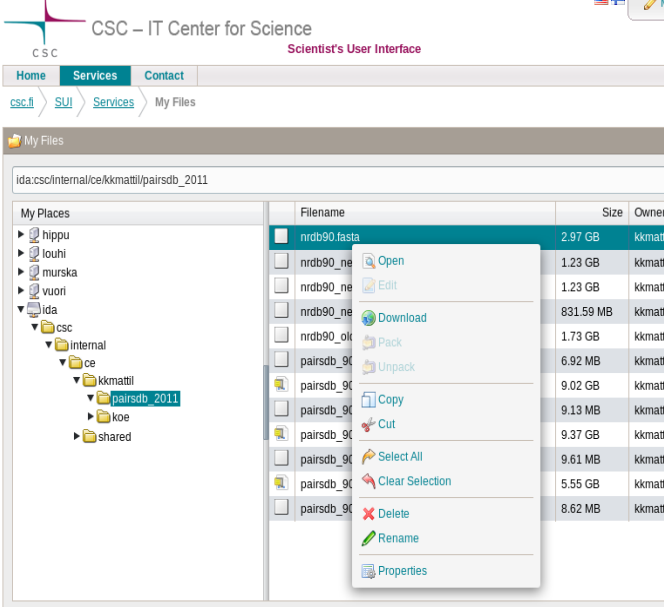
## HPC-archive

- Part of CSC computing environment
- 2 TB default quotas for CSC users
- Usage with i-commands
- Visible only to CSC environment
- Personal storage area
- Replaced the old \$ARCHIVE service

## iCommands

- `iput file`                    move file to IDA
- `iget file`                    retrieve file from IDA
- `ils`                            list the current IDA directory
- `icd dir`                    change the IDA directory
- `irm file`                    remove file from IDA
- `imv file file`            move file inside IDA
- `imeta command`        view and edit metadata
- `irsync`                    synchronize the local copy  
with the copy in IDA
- `imkdir`                    create a directory to IDA
- `iinit`                    Initialize your IDA account

## IDA in Scientist's User Interface



The screenshot shows the CSC - IT Center for Science Scientist's User Interface. The breadcrumb path is `ida:cscinternal/ce/kkmattil/pairsdb_2011`. A file browser table displays the following files:

Filename	Size	Owner
<code>nrdb90.fasta</code>	2.97 GB	kkmatt
<code>nrdb90_ne</code>	1.23 GB	kkmatt
<code>nrdb90_ne</code>	1.23 GB	kkmatt
<code>nrdb90_ne</code>	831.59 MB	kkmatt
<code>nrdb90_oi</code>	1.73 GB	kkmatt
<code>pairsdb_9c</code>	6.92 MB	kkmatt
<code>pairsdb_9c</code>	9.02 GB	kkmatt
<code>pairsdb_9c</code>	9.13 MB	kkmatt
<code>pairsdb_9c</code>	9.37 GB	kkmatt
<code>pairsdb_9c</code>	9.61 MB	kkmatt
<code>pairsdb_9c</code>	5.55 GB	kkmatt
<code>pairsdb_9c</code>	8.62 MB	kkmatt

A context menu is open over the `nrdb90.fasta` file, showing options: Open, Edit, Download, Pack, Unpack, Copy, Cut, Select All, Clear Selection, Delete, Rename, and Properties.