

Technical Helpdesk for National LCA Databases

Training on Advanced Dataset Development and Global Network Access – Setup and Operation of Online Databases and Portals

Content from: Reynaldo Felix and Juan Pablo Chargo, CADIS

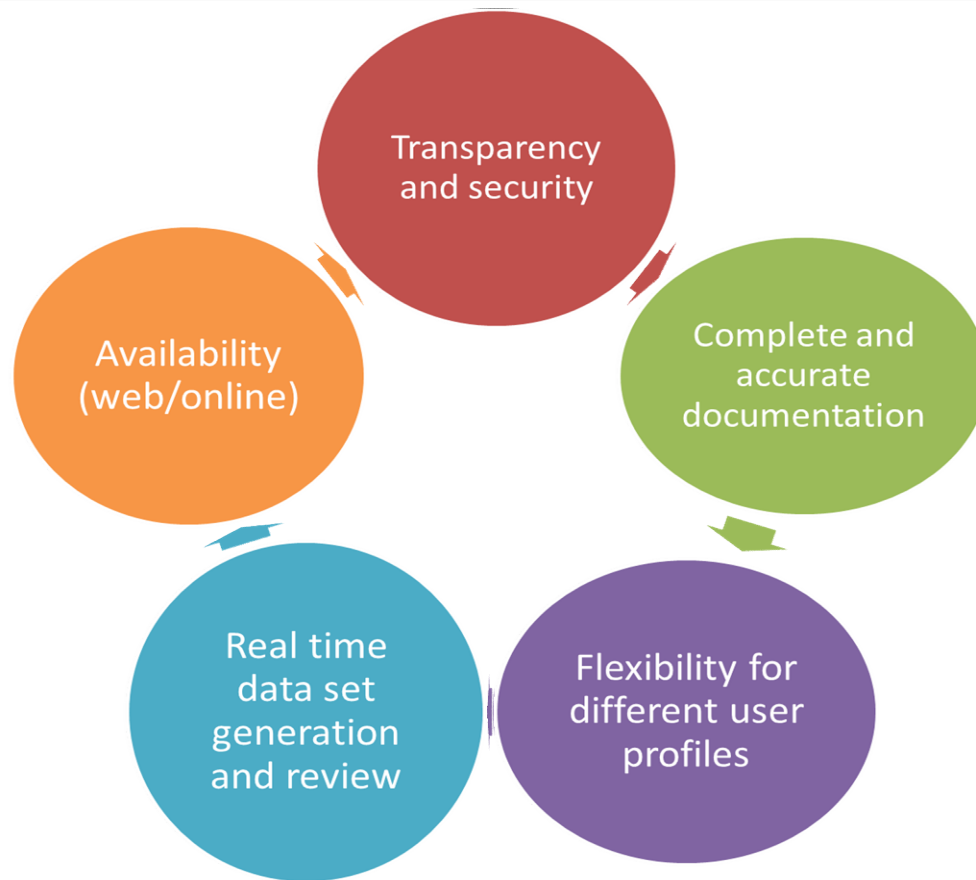
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Setup and Operation of Online Databases and Portals - Contents

- LCI System Characteristics
- Online and Web based Systems
 - ✓ Programming languages
 - ✓ Development frameworks
- Online and Web-based Systems Security
- Data protection and confidentiality
- User profiles (Author, Reviewer, Data provider), DB administration
- Dataset development phases: Data input, Review, Publishing
- Support databases availability
- Dataset searching criteria
- Compatibility with LCA software

LCI System Desirable Characteristics



System development

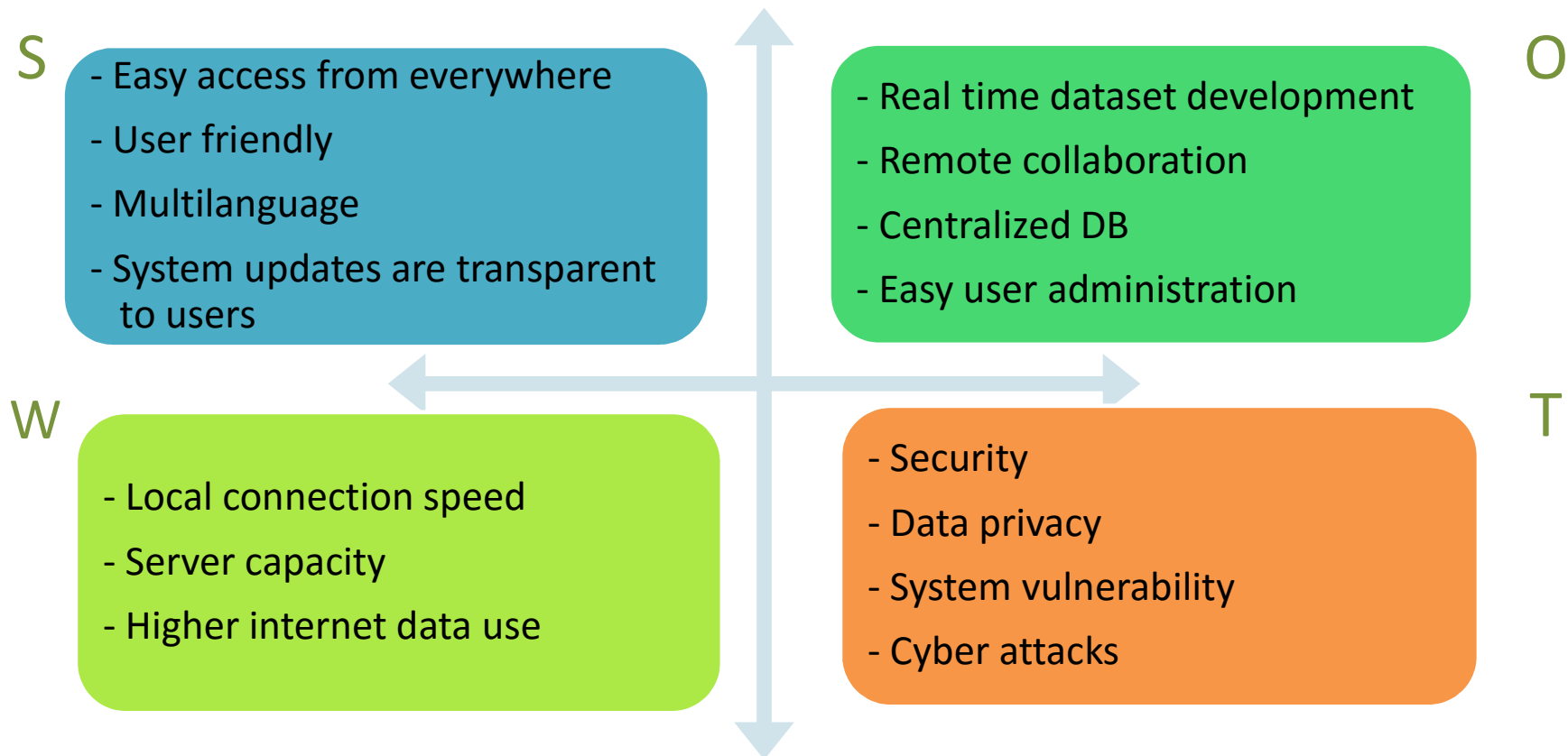
- Web-based or online?
- Programming language
- Development framework
- Database manager

Online and Web-based Systems

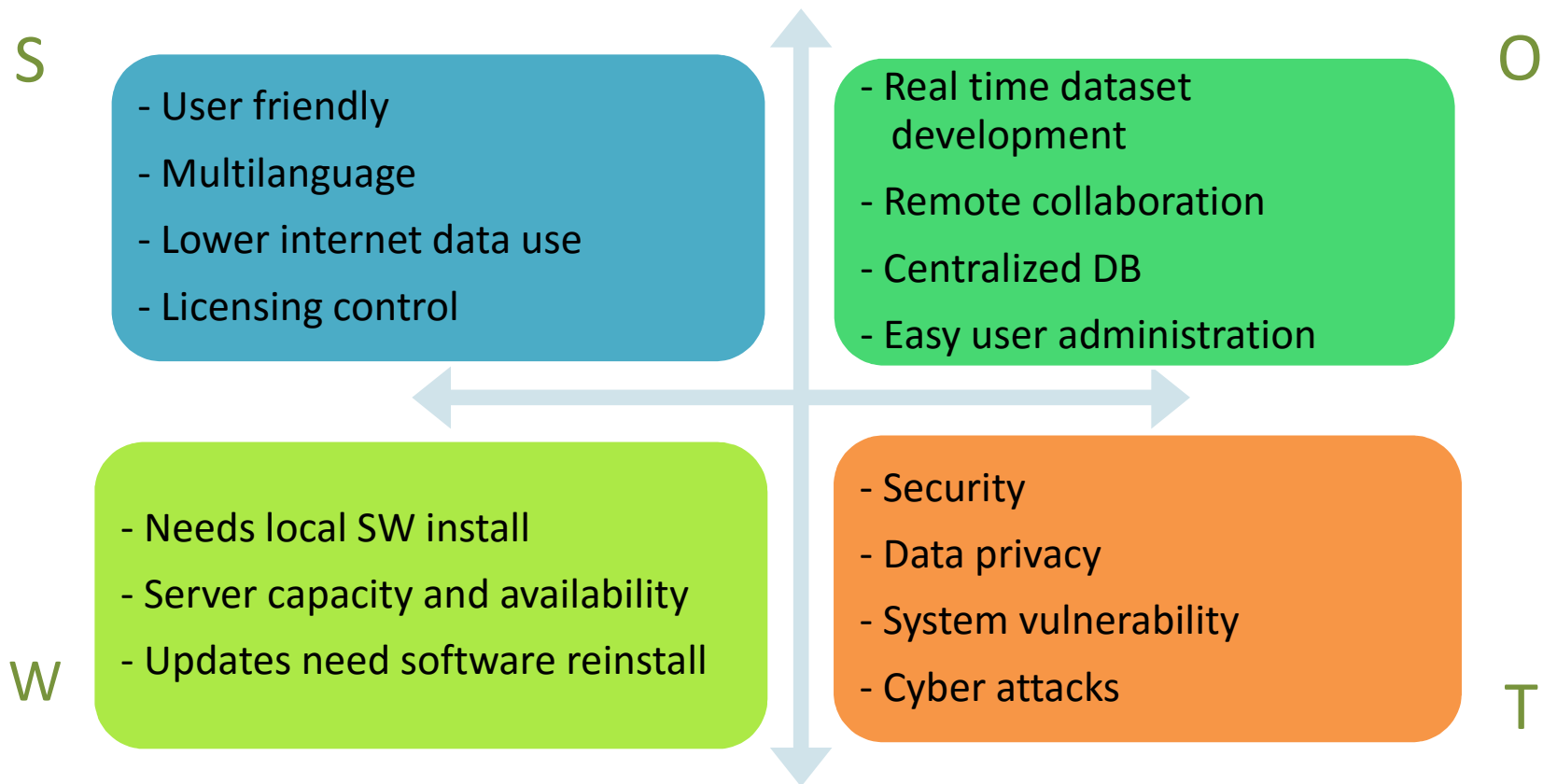
- A **web-based system** runs from a browser, on an outside server using the Internet.
- An **online system** uses an Internet connection to access the information it needs. It doesn't necessarily need to make use of a browser.

It's important to note that a system can be both. Any web-based system is also an online system. But not every online system is web-based.

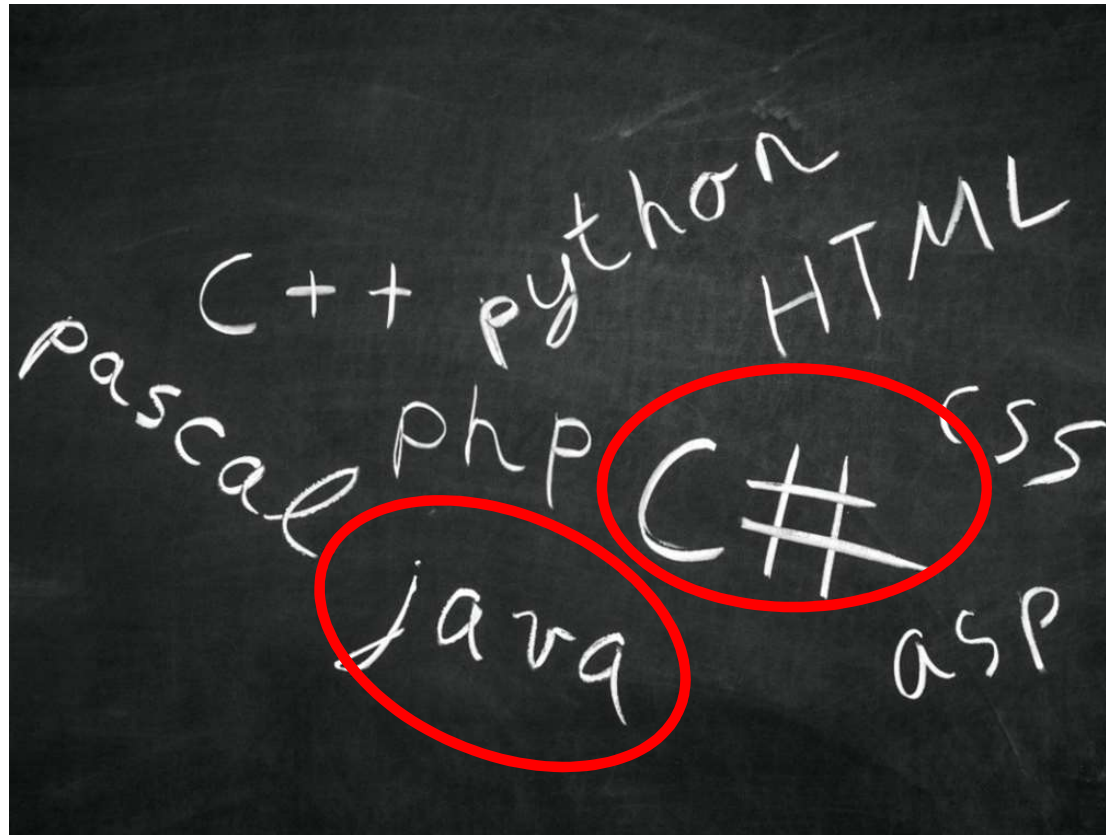
Web-based systems – SWOT analysis



Online systems – SWOT analysis



System development - Programming languages



System development - Development framework

Provides *libraries* of *objects* (buttons, Windows, controls, etc.) and *processes* (math, file management, etc.) to speed up application development (web, stand-alone and/or mobile).

Struts²



Spring



and many others...



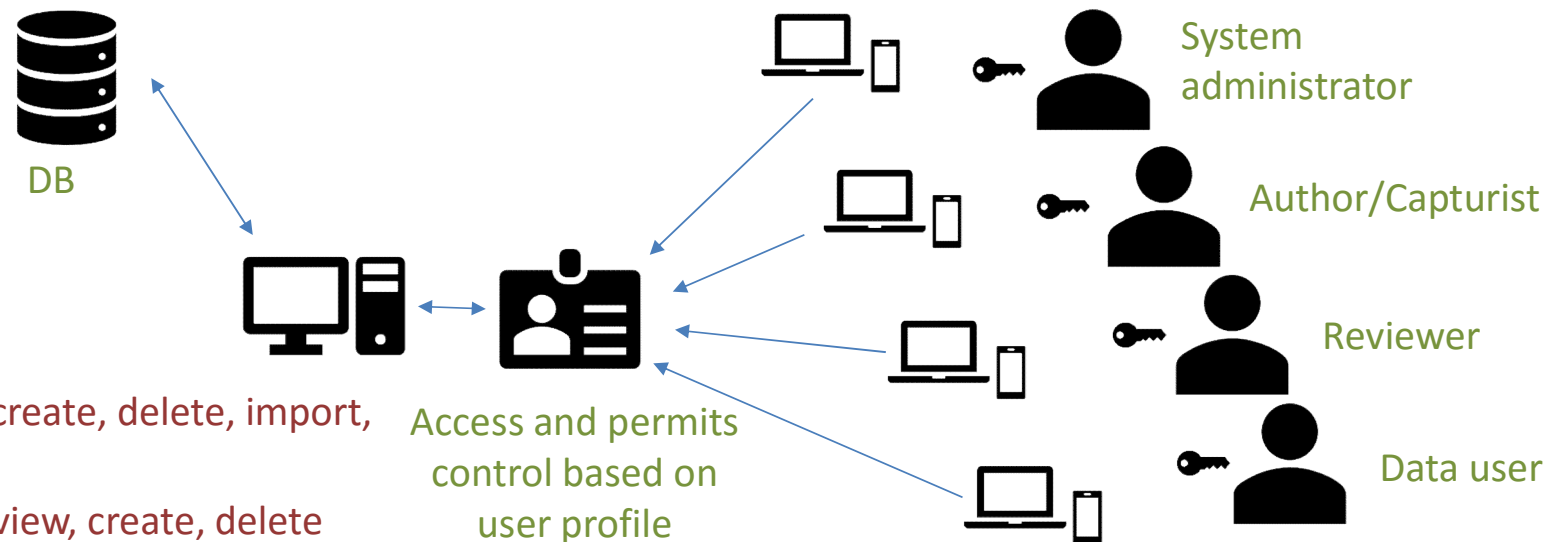
Database management

- Administrate resources in the database.
- Maintains safety of data, access control, and allows backup, among many other tasks
 - MS-SQL server
 - ORACLE
 - MySQL
 - PostgreSQL

System Security

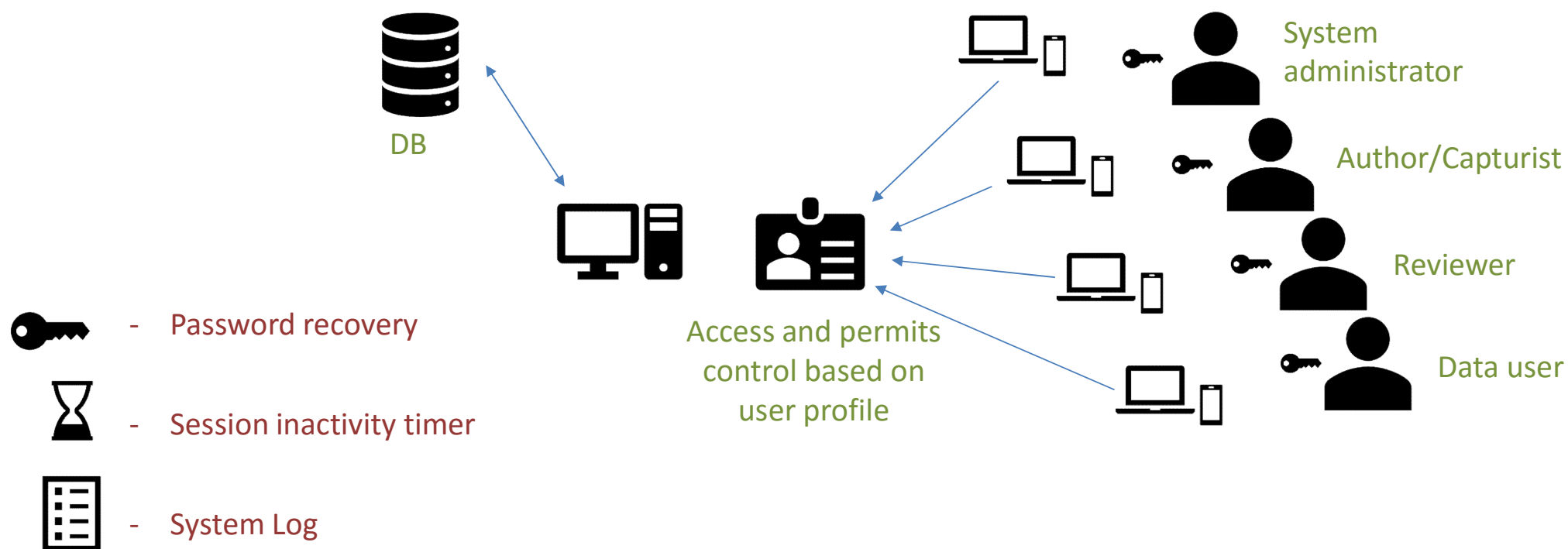
- Licensing
- User profile
 - Access control
 - Password management and recovery
- Data protection and confidentiality
- Database management
- Database backups
- Version control

User profile



- Datasets: view, edit, review, create, delete, import, export
- Catalog inputs: view, edit, review, create, delete
- Users: add, remove, dataset assignment, group management
- User profiles: permits management

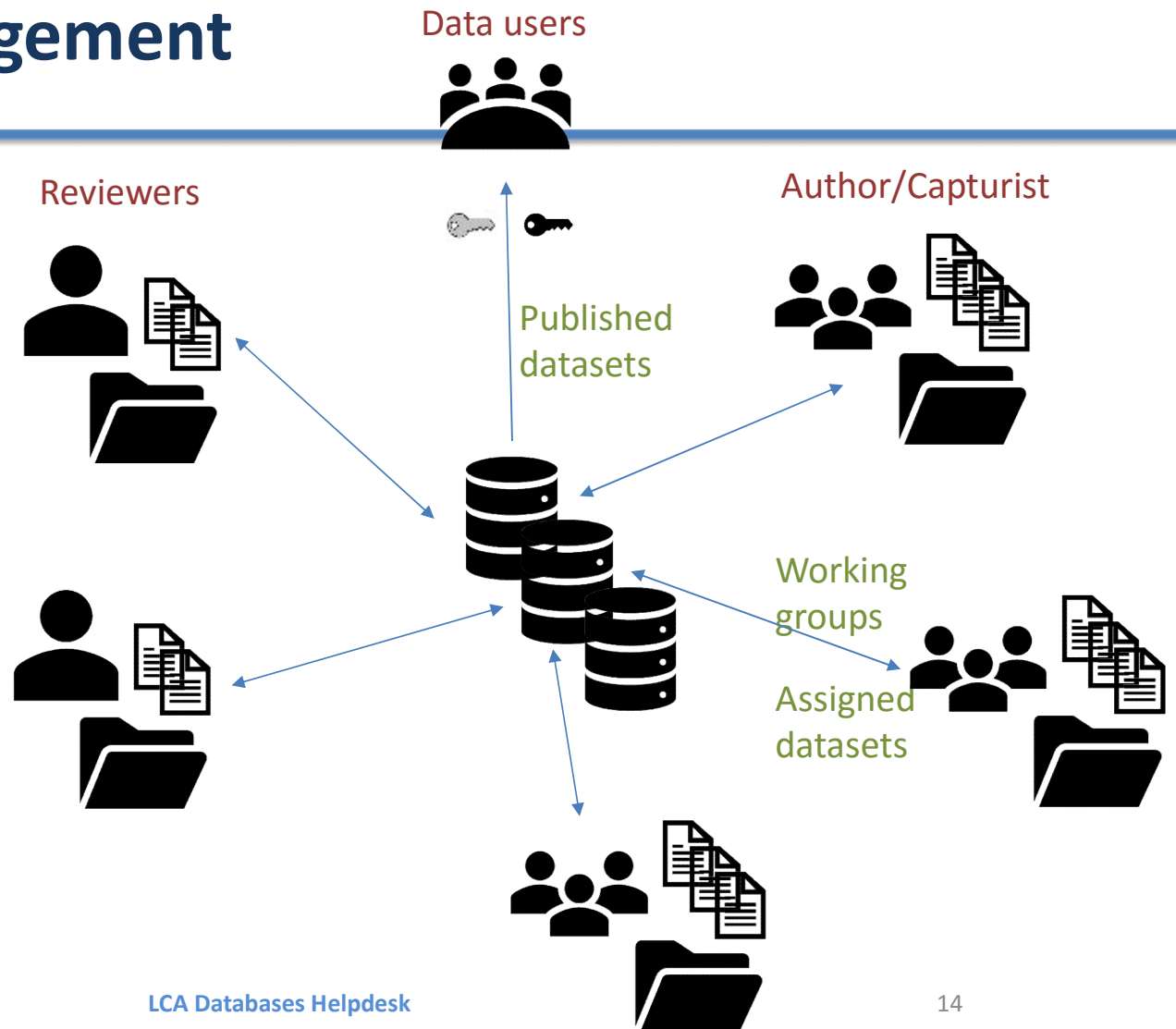
User profile



Data protection and confidentiality

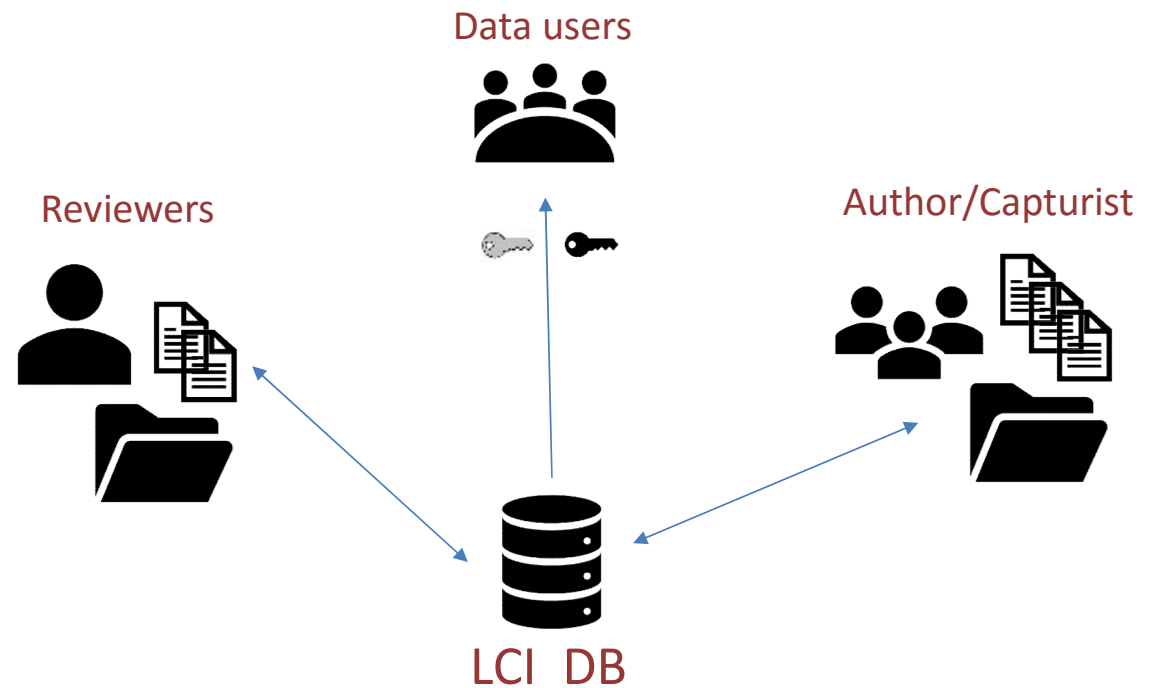
- Maintaining data privacy
- Working groups
- Dataset assignment (individual, group)
- Dataset publication, general or restricted access

Data and user management

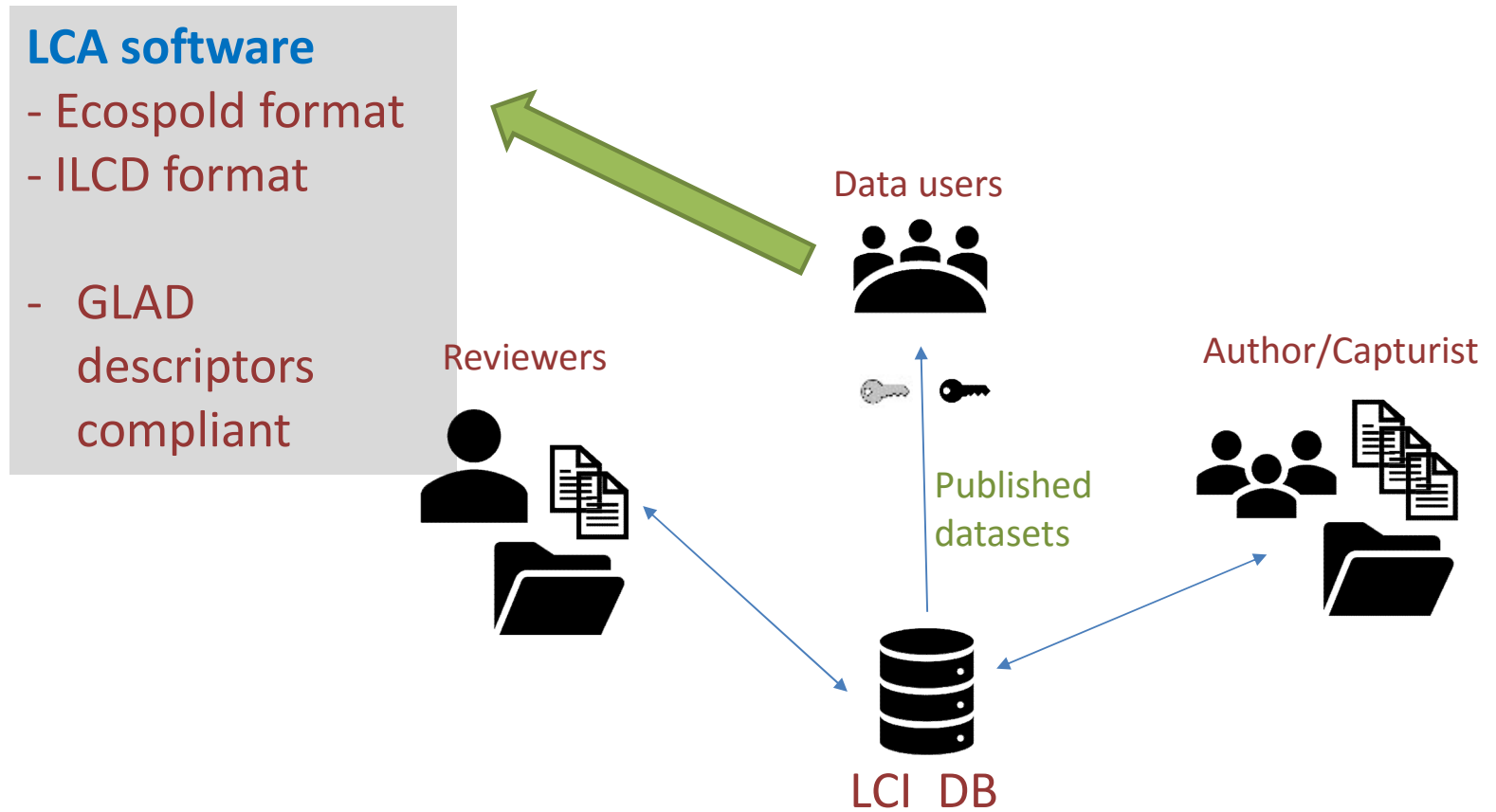


Dataset development phases

- Data input
- Reviewing
- Publishing

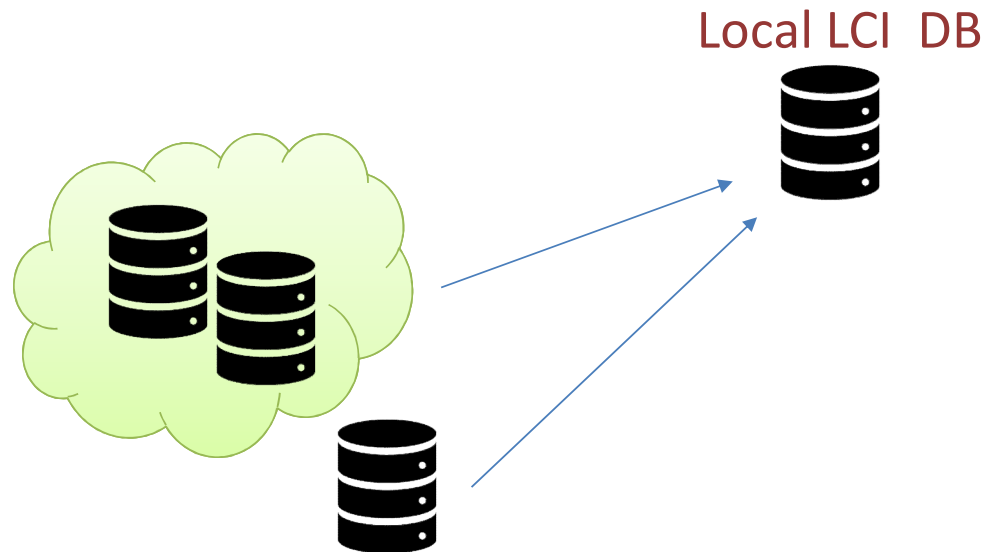


Dataset development phases



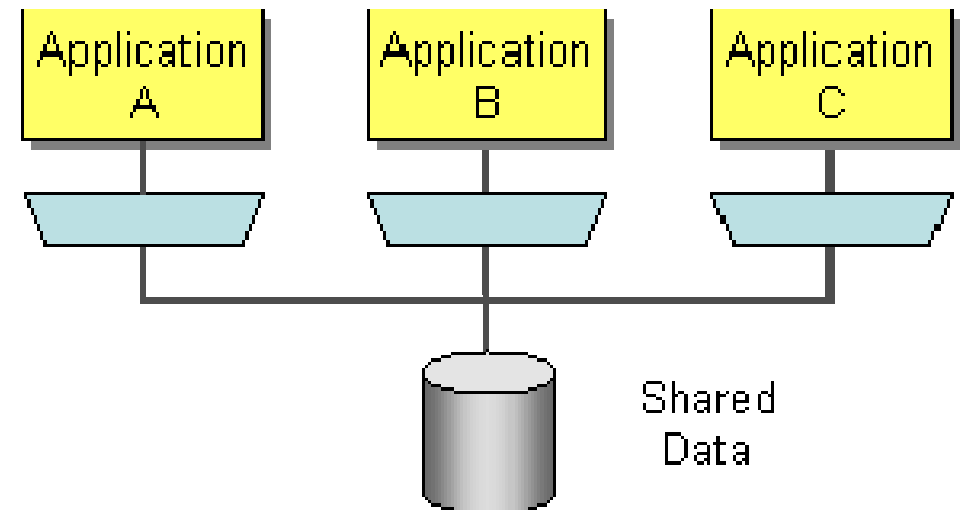
Support databases

- Open and commercial LCI databases
- Using dataset references and metadata from other databases



Databases

- Ecoinvent
- ELCD
- Needs
- Bioenergiedat
- USDA_crop_data_1_1
- Mexicaniuh



Support databases

- Elementary flows are available in most of databases and can be used.
- Databases have different Intermediate flows depending on their scope and application, geography, etc.
- Both commercial and open databases can be referenced through metadata descriptors.

Dataset searching

- Built-on searching tools
- Important to provide with search tools in the LCI database:
- Find text, Filter, Ordering, etc
- Searching criteria
- Using GLAD Meta Descriptors and/or other attributes used for dataset documentation would assure future compatibility with search engines and other databases.

LCA software

LCA software supports different data formats and most of them have some variations in the format.

Also some differences in modeling concepts and features can be found.

But most of them have a common core of features and models.



thinkstep
GaBi



umberto®

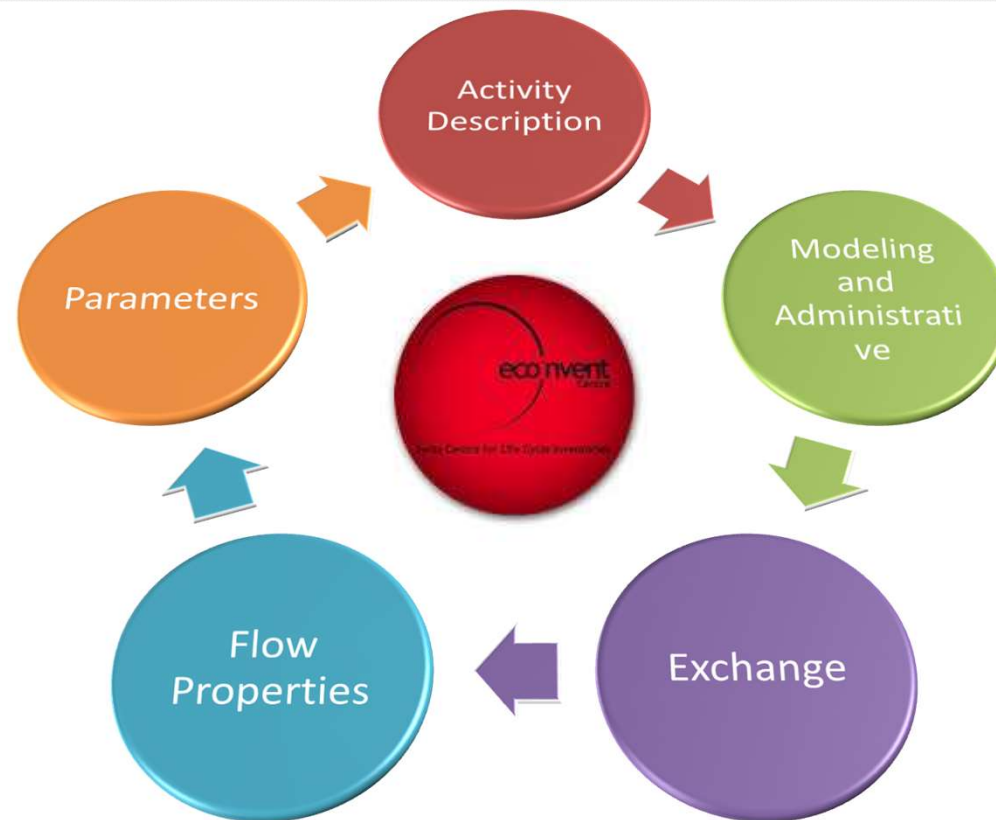
Source: Training on Data Acquisition and Dataset Development – Part 8 –Linking datasets, databases, and LCA software.

August 2017 Version. (Content: Andreas Ciroth, GreenDelta and Amir Safaei, ecoinvent), Location: LCA Databases Helpdesk – www.spcclearinghouse.org

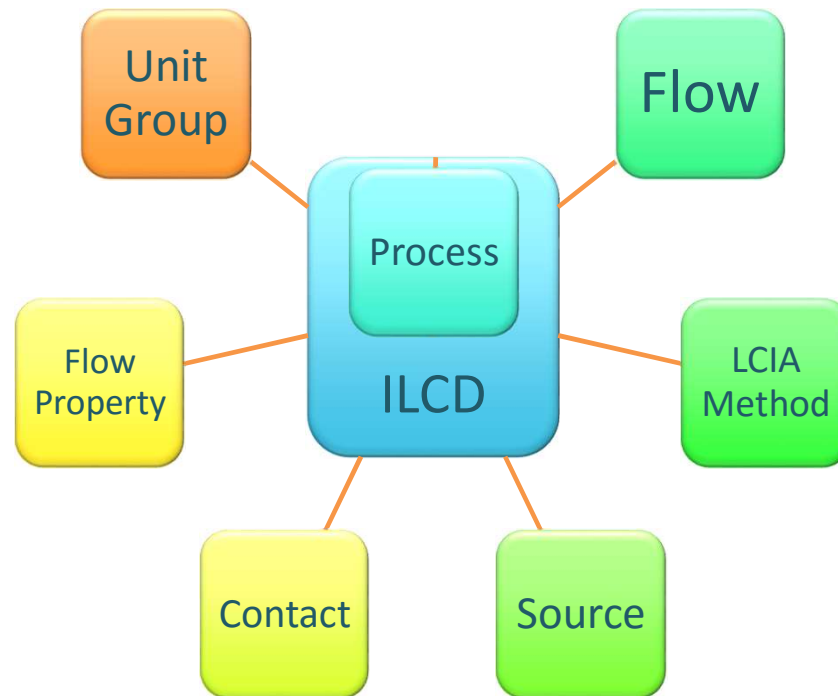
Data Formats

- Define how data is stored and how data is exchanged between different applications.
- The most widely used formats are Ecospold and ILCD.
- Most LCA software supports these formats with specific adaptations for which documentation is often not publicly available.

EcoSpold v1 structure



ILCD v1.1 structure



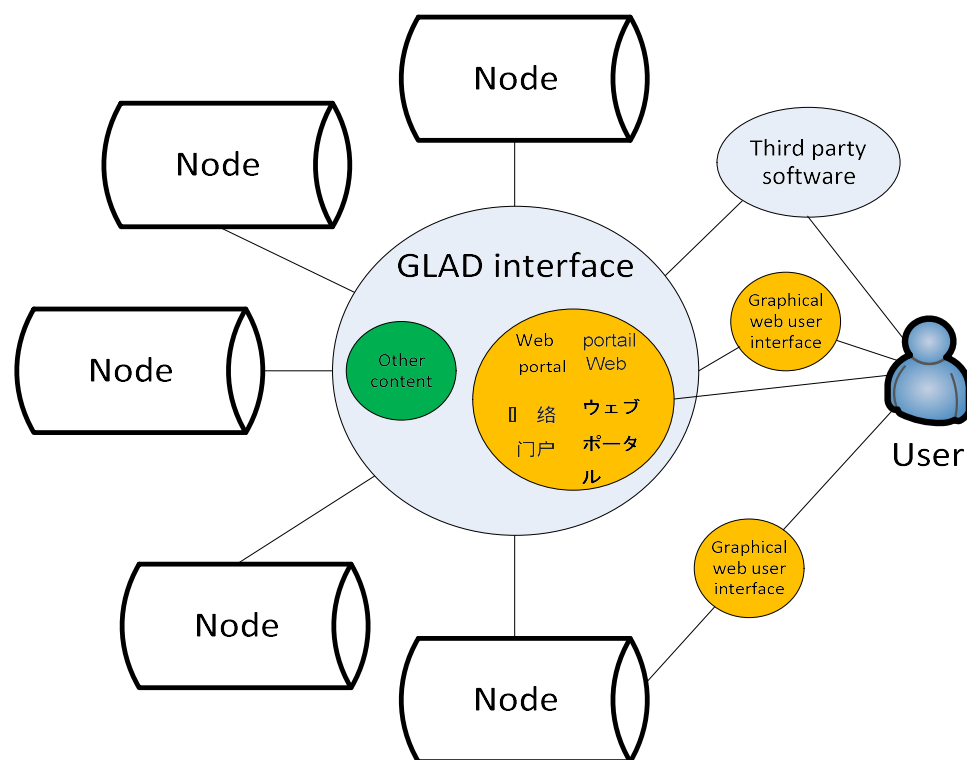
XML formats

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2 <ecoSpold xmlns="http://www.EcoInvent.org/EcoSpold02">CRLF
3 <activityDataset>CRLF
4 <activityDescription>CRLF
5 <activity id="1a091cc1-8544-4509-92f7-0c8b59d04d82" activityNameId="b606483a-3de2-4599-85e8-eb065d97c756" inheritance
6 type="1" specialActivityType="0">CRLF
7 <activityName xml:lang="en">mango production</activityName>CRLF
8 <includedActivitiesStart xml:lang="en">from preparing the field</includedActivitiesStart>CRLF
9 <includedActivitiesEnd xml:lang="en">with harvesting the mangos</includedActivitiesEnd>CRLF
10 <generalComment>CRLF
11 <text xml:lang="en" index="1">This dataset refers to the production of Mango in Sri Lanka.</text>CRLF
12 </generalComment>CRLF
13 </activity>CRLF
14 <geography geographyId="0c13823c-7d7e-11de-9ae2-0019e336be3a">CRLF
15 <shortname xml:lang="en">LK</shortname>CRLF
16 </geography>CRLF
17 <technology technologyLevel="3" />CRLF
18 <timePeriod startDate="2016-01-01" endDate="2016-12-31" isDataValidForEntirePeriod="true" />CRLF
19 <macroEconomicScenario macroEconomicScenarioId="d9f57f0a-a01f-42eb-a57b-8f18d6635801">CRLF
20 <name xml:lang="en">Business-as-Usual</name>CRLF
21 </macroEconomicScenario>CRLF
22 </activityDescription>CRLF
23 <flowData>CRLF
24 <intermediateExchange id="bc72e57d-5045-482f-85d6-066eaccfdcb8" unitId="487df68b-4994-4027-8fdc-a4dc298257b7" amount=
25 intermediateExchangeId="1c819f15-1202-4fa9-8ef9-72196c2dfb85">CRLF
26 <name xml:lang="en">apple</name>CRLF
27 <unitName xml:lang="en">kg</unitName>CRLF
28 <property propertyId="6d9e1462-80e3-4f10-b3f4-71febd6f1168" amount="0.83" unitId="487df68b-4994-4027-8fdc-a4dc29825
29 <name xml:lang="en">water in wet mass</name>CRLF
30 </unitName xml:lang="en">kg</unitName>CRLF
31 </property>CRLF
32 </intermediateExchange>CRLF
33 </flowData>CRLF
34 </activityDataset>CRLF
35 </ecoSpold>
```

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GLAD interface concept



Central, multi-lingual, user interface, enabling access to **nodes worldwide**, ensuring interoperability through agreed **nomenclature** and **metadata descriptors**

Training on Advanced Dataset Development and Global Network Access – Part 3 – GLAD Node Interface and User Access
Content: Bruce Vigon, Breveja Environmental and Andreas Ciroth, GreenDelta, Location:

Content provider

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- Become a Helpdesk member:
 - To access the Helpdesk exchange space (or any other Clearinghouse area), you will need to create an account in the Clearinghouse (www.scpclearinghouse.org):
 - Toward the bottom of the homepage you will see a button labeled 'Join the Community now'. Click on this link and open a form to allow you to create a login and profile.
 - Once logged in, you can modify or update your profile or explore the various SCP topic areas.
 - Go to 'About' and then to 'Exchange Spaces' where you will see Lifecycle Approaches in the drop down menu and one menu level below that is the Technical Helpdesk.
 - The Technical Helpdesk space will be available to any visitor, logged in or not. Without being logged in and joining the helpdesk space, any visitor can look at the various sections of the helpdesk space, but cannot contribute any content.
 - In order to become a member of the helpdesk space, on the homepage under the summary, is "Request space membership". Click here, you will automatically be given rights of a members to contribute content, since it is a public group.
 - For your next login, you go directly to <http://spaces.scpclearinghouse.org/> and then choose the Technical Helpdesk space in the dropdown list.
- Helpdesk Manager - Bruce Vigon, Consultant to SETAC,
- Helpdesk Coordinator – Kristina Bowers, UN Environment, Economy Division