

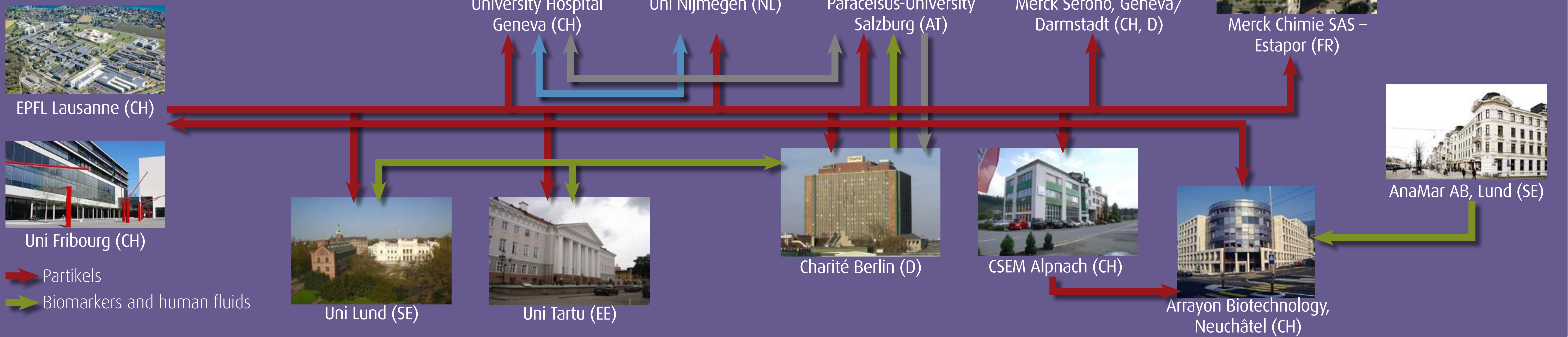
# Electronic Tool for scientific documentation, supervision and exchange in collaborative projects

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Research in collaborative projects is related to intensive exchange between partners. The EU-funded project NanoDiaRA (Development of novel nanotechnology based diagnostic systems for Rheumatoid Arthritis and Osteoarthritis) combines activities in nanotechnology with application in health areas like Rheumatoid Arthritis and Osteoarthritis and by this materials technology, nanotechnology, molecular biology and clinical investigations. It was an indispensable requirement to document all research and exchange activities between partners and to supervise the success of the work. To achieve that, an electronic platform was developed, comprising different tools for supervision, documentation and exchange.

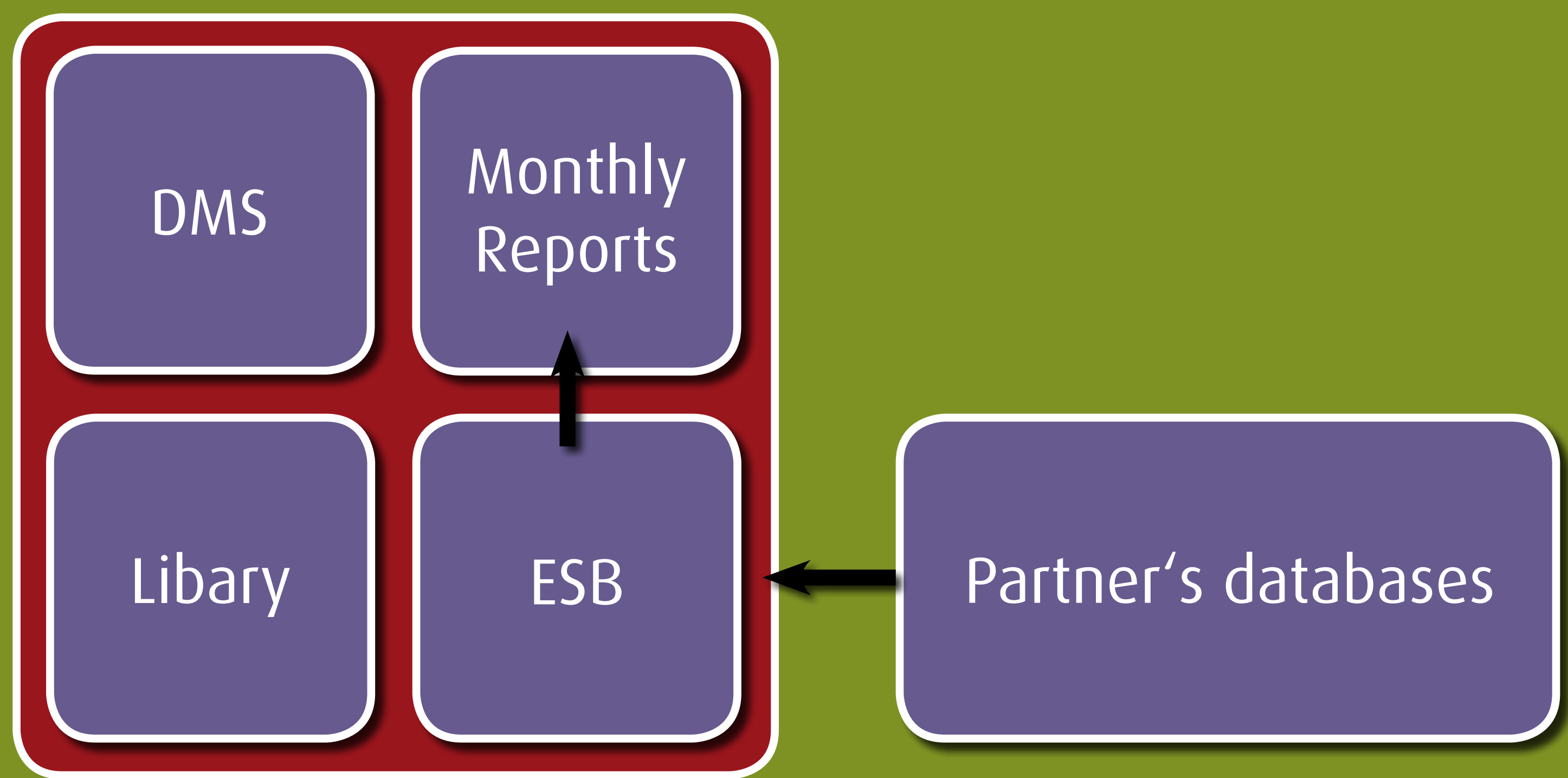
## Sample exchange (excerpt)



## One platform

Our system consists of different tools which are managed by a common user database (duplication for DMS) and interact with each other in a user-friendly way. By logging into the system with a defined user name, the affiliation is automatically recognized, so that partners can fill in the reports for their group and have an overview over the samples in their possession (see box Monthly reporting and Electronic Sample Book).

Data which is already collected by our partners can be imported into our system via a webservice that ensures data protection (in progress, pilot project with the clinical database of Charité).



## Electronic Sample Book (ESB)

One of the main tools of the intranet platform tracks the samples that are created, exchanged and modified by the partners. This tool allows to track and monitor scientific samples exchanged between research institutes and clinics at different locations in Europe. Technically, each sample is represented by a database record. Such a "sample record" can reflect different types, e.g. materials like specimen or cell cultures, but also documents like files, images or videos. Each sample record consists of different fields depending on its type. Types, their properties and associated processes for measuring and producing such a sample can be defined by the institutions involved, and the project administrator is able to add new properties and processes during the course of the project.

In our project, nanoparticles, MRI pictures, biological samples etc. can be created as records, and all necessary information useful for the partners are made available by the users who fill in the defined information regarding a specific sample. As the users chose the storable information for their specific samples, it is possible to create types for basically everything that can be developed and exchanged within a scientific project. Also, one type can be integrated into another (e.g. an MRI picture of an animal, or a blood sample containing particles), whereby all properties of the merged samples are still traceable.

Possessed records can be sent to other groups. To track shipment of a sample, the record's state is changed to "on its way" and the addressed group is notified about the sample to arrive. If not received within a user-defined time-span, the tool sends automatic warning notifications that a sample may be lost.

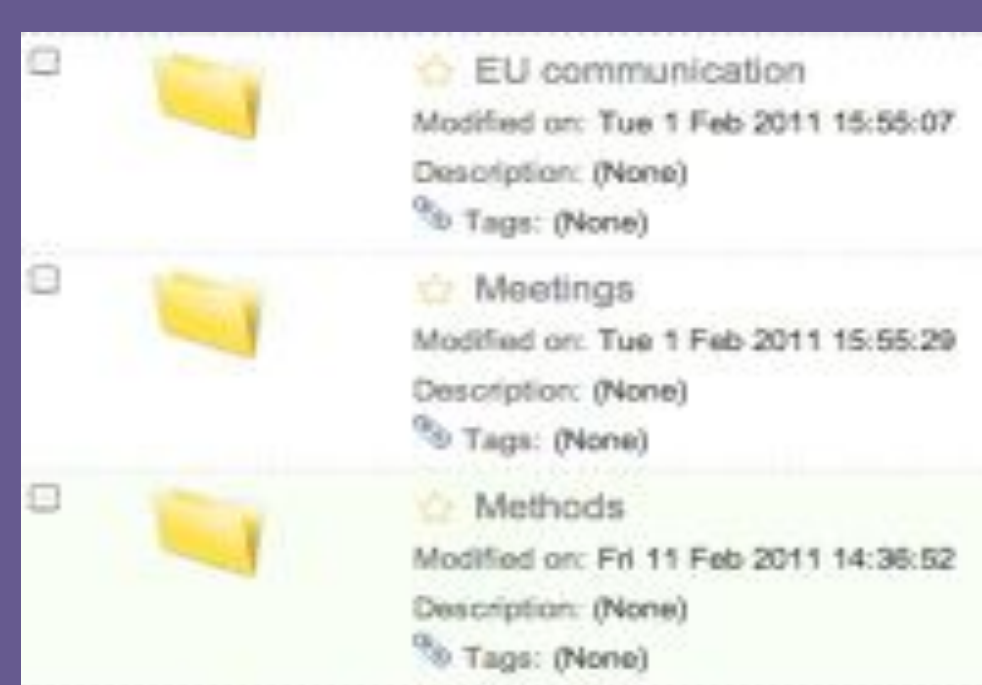
The Electronic Sample Book allows the Scientific Coordination of NanoDiaRA to monitor scientific actions and their results and secure that no sample gets lost. For samples underlying special data protection and for ethical reasons when working with dangerous or sensitive data - e.g. nanoparticles, biological samples of humans - the tool has special functions to e.g. secure that samples are sent back to the provider where they can be disposed safe and under control. Logging every data submission of logged-in users guarantees that each step is monitored.

## Monthly reporting

The monthly reporting is the basic tool in NanoDiaRA for documentation of lab and clinic work and reporting to the European Commission. We see this tool as a very effective instrument either for European Projects and other governmentally-funded projects or for global industrial exchange projects to be managed more simply, as the partners have their obligations to fill in their actions each month, and the results and deliverables can easily be correlated to the working time needed to achieve the goals. Issues in the work concerning ethical relevant topics are being covered without the need of the project coordination to ask for them on a regular basis. Samples documented in the ESB can automatically be integrated into the monthly reporting (in progress), so that double work is avoided and the different electronic tools are connected.

## Document Management

A Document Management System (DMS) allows NanoDiaRA partners to store and exchange files and mutually work on documents. Granular user rights allow specialized folders for designated members e.g. of defined partner groups or work packages.



## Library

To give the partners the opportunity to have an extended database with publications relevant for the project - also in the research fields which are not originally their topics - a library containing project-relevant literature was established. A direct import of large amounts of bibliographic data is possible for the administrator, e.g. using bibtext files. Partners can search the database, using titles, years, keywords and abstracts, and can download the articles that are helpful for their work.

