Umbrella for
Photon / Neutron Community

PaNdata Partners

- Alba, Spanish National Sychrotron Facility
- Diamond UK Synchrotron facility
- European Synchrotron Radiation Facility (ESRF)
- Deutsches Elektronen Synchrotron (DESY)
- Institut Laue–Langevin (ILL)
- Max IV Laboratury Lund
- ISIS STFC Neutron source
- HZB, Helmholtz Zentrum Berlin
- Paul Scherrer Institut (PSI), hosting SINQ and SLS
- Soleil, French National Synchrotron Facility

CRISP IT Partners

- European Synchrotron Radiation Facility (ESRF)
- Deutsches Elektronen Synchrotron (DESY)
- European Organisation for Nuclear Research (CERN)
- European Spallation Source (ESS)
- GSI Helmholtz Centre for Heavy Ion Research (GSI)
- Institut Laue–Langevin (ILL)
- European X-ray Free Electron Laser (XFEL)
- Paul Scherrer Institut (PSI)

What are the coming challenges and requests?

- ❑ *Huge datasets*
  - ✓ Novel 2D detectors, quantum leap in data quality, but also data volumes
  - ✓ Multi-image techniques (tomography, lens-less imaging)
  - ✓ Molecular movies at FELs
  - ✓ 'Petabyte' 'normal' unity; time over for 'hard-disk in the trouser pocket'

- ❑ *Trans-facility experiments*
  - ✓ Single Sign On (SSO)
  - ✓ Standardize proposal procedures on EU scale

- ❑ *Remote data access*
  - ✓ Analyze data remotely at facility
  - ✓ Combine datasets taken at different facilities
  - ✓ Clouds (commercial, community-based)
  - ✓ Respect confidentiality restrictions

- ❑ *Remote experiment access*
  - ✓ Basic: passive online access to measured data
  - ✓ Advanced: active control

- ❑ *PR Issues*
  - ✓ Improve corporate identity
  - ✓ Improve public lobbying

Umbrella as Prototype

- ☐ *Incorporate confidentiality aspects*
  - ✓ High competition, especially structural biology
  - ✓ Proposal based access to experiments and data

- ☐ *Rely on existing local user office structure*
  - ✓ Great experience
  - ✓ DIY (Do It Yourself) operation
    - ▪ Users: manage their personal entries
    - ▪ User offices: supervising; manage authorizations

- ☐ *Base system on professional authentication standard*
  - ✓ Shibboleth, federated Single-Sign-On System (SAML), widely used
  - ✓ Special photon / neutron user federation
  - ✓ Only one identity provider
  - ✓ Supervising by local User Offices

- ☐ *Concept*
  - ✓ Unique user identification on EU scale
  - ✓ Hybrid information storage, i.e. only minimal information is central
  - ✓ No possibility for cross-facility information pull
  - ✓ Allow for simple to strong identification systems
  - ✓ Couple to data protection system

Operation concept

□ *Facilities*
- ✓ Keep existing administration structures as much as possible
  - o Proposal workflow
  - o Guest house / restaurant, access badges, stock room, …
- ✓ During implementation parallel operation
  - o smooth transition
  - o No time-zero

□ *Users*
- ✓ DIY (Do It Yourself) operation
  - o Users: manage their personal entries
  - o User offices: supervising; manage authorizations

□ *Collaborations*
- ✓ Self organization of data access via collaborations
- ✓ Principal investigator / main proposer controls who is allowed to access data

pandata
Photon and Neutron
Data Infrastructure

CRISP

EuroFEL
FREE ELECTRON LASERS OF EUROPE

Umbrella

The Umbrella Concept
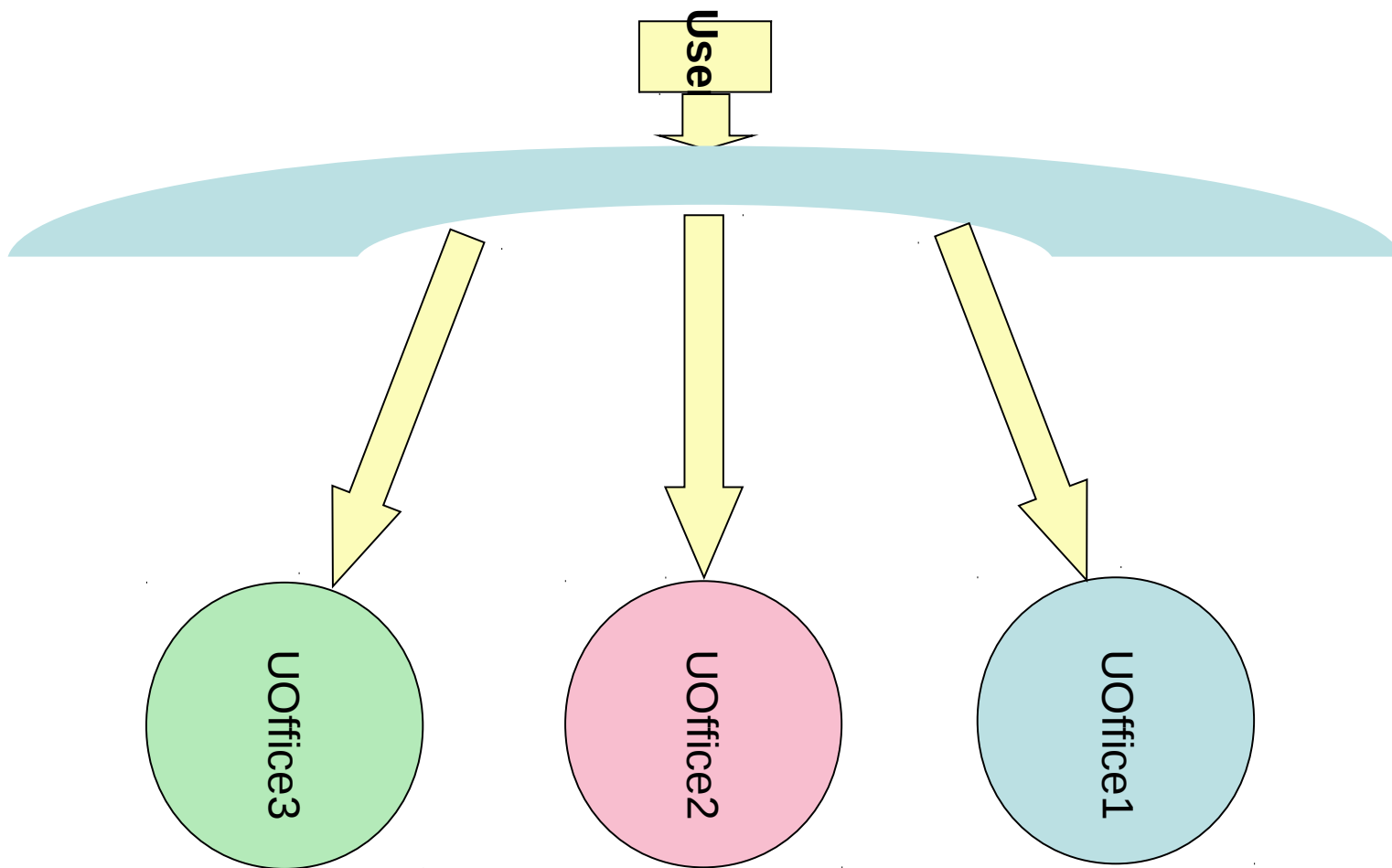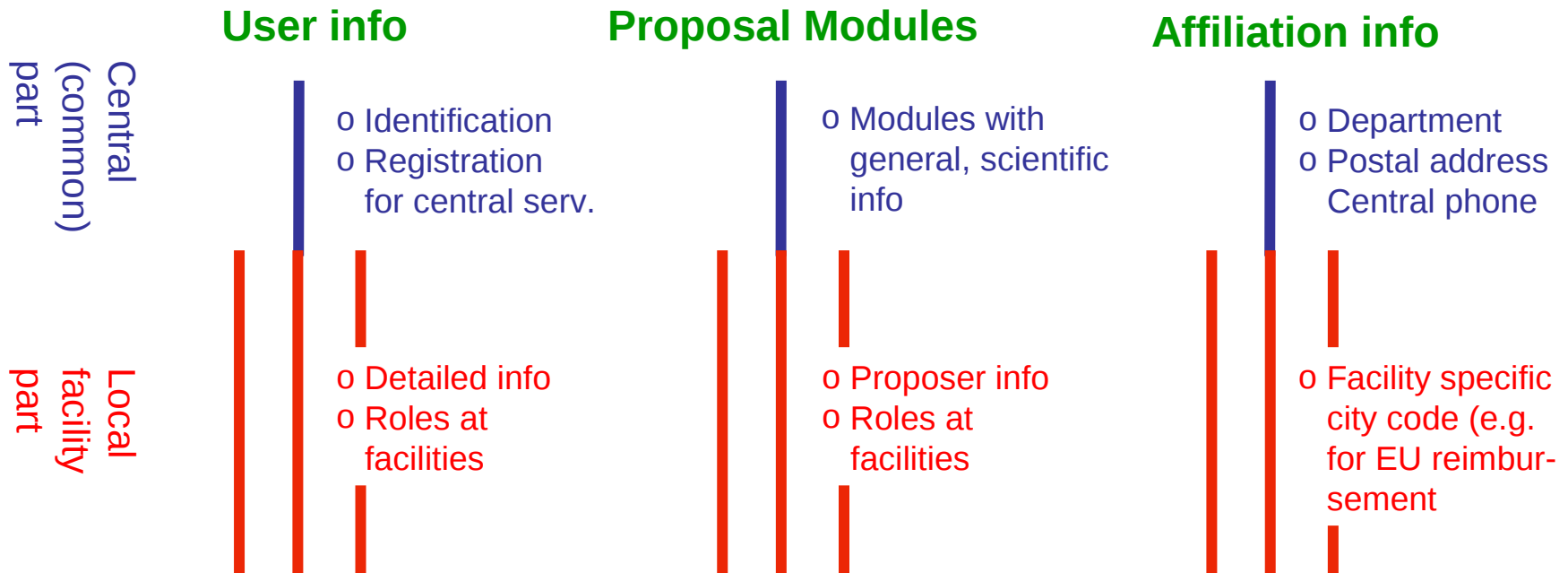

Fig.1

Hybrid concept (central and federated)

Answer to conflicting requests:

➢Efficient technology
➢Confidentiality
➢Consequent distinction of authentication and authorisation

User info

Proposal Modules

Affiliation info

Central (common) part

o Identification
o Registration
  for central serv.

o Modules with
  general, scientific
  info

o Department
o Postal address
  Central phone

Local facility part

o Detailed info
o Roles at
  facilities

o Proposer info
o Roles at
  facilities

o Facility specific
  city code (e.g.
  for EU reimbur-
  sement

Remote data access, concept proposed

❑ *Embargo vs. post-embargo period*
- ✓ Here only embargo (most critical, confidentiality)

❑ *Standard access rights rule to allow for automatization*
- ✓ manual central authorization probably too difficult with 1'000s of experiments, 10'000s of users

❑ *Identity by Umbrella*
- ✓ Unique, EU-wide user authentication
- ✓ Allows trans-facility actions, Single Sign On

❑ *Keep Role of proposal as organizing element*
- ✓ Who participates in experiment, has access right to data
- ✓ Principal investigator / main proposer
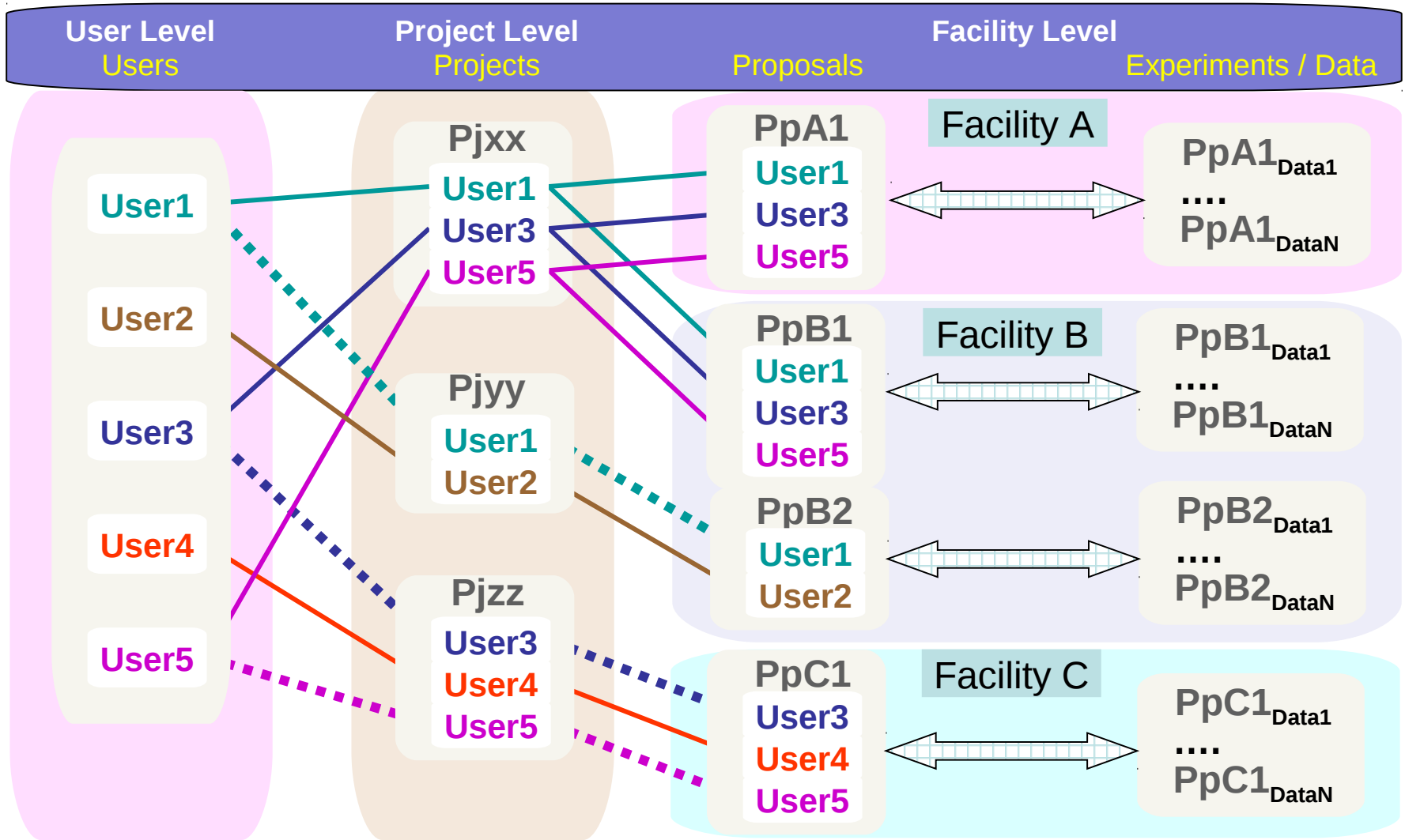
Bridging to other User Authentication Activities

❑ ***Umbrella Plus***

    ❖ Proposal-based user administration

        ➢ Linking via Umbrella to local WUOs: includes full user services

        ➢ Remote file access, remote experiment access + …

    ❖ Non-proposal-based user administration
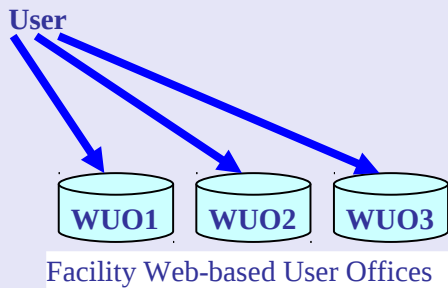
        ➢ HEP-type operation (very long-term proposals)

        ➢ Small facilities (e.g. university labs, …)

        ➢ May have need for user db, but not for the rest

        ➢ Umbrella + stripped-down version of a WUO

            o Core user db

            o Shibboleth communication

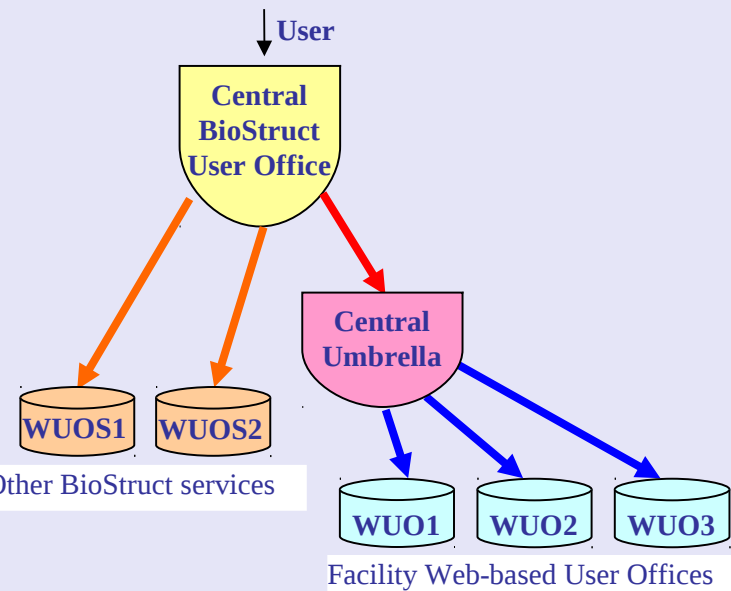   o Green / red lamp at the output

❑ ***Umbrella Bio***

    ❖ Currently 2 decoupled user review/access schemes

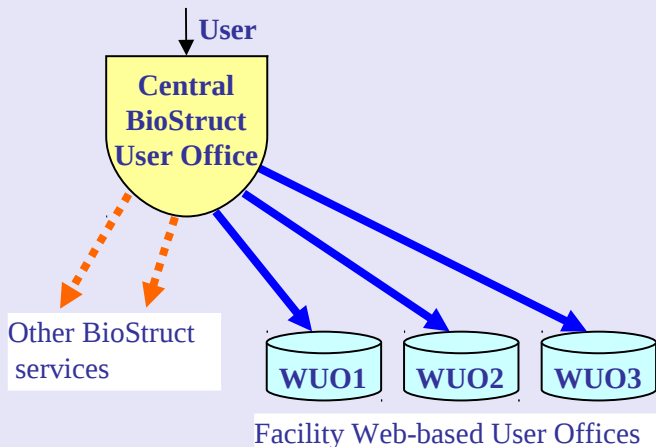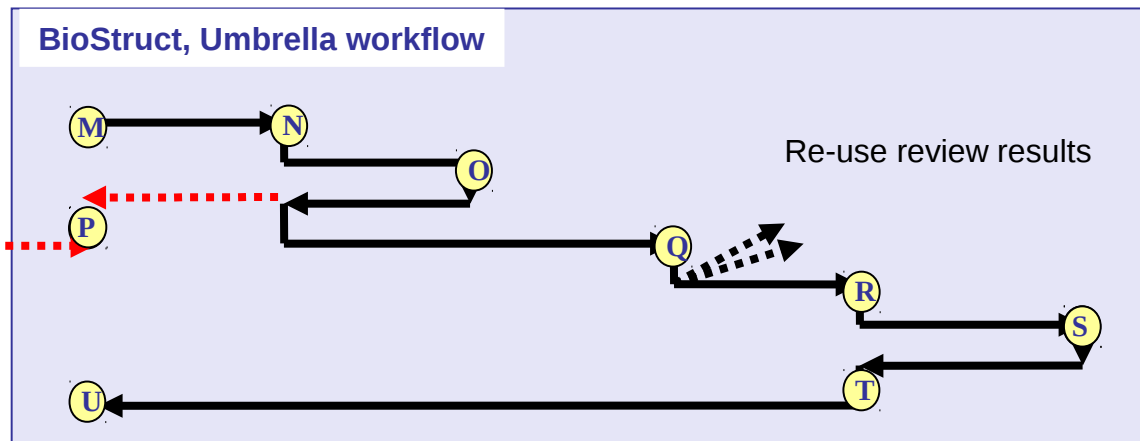   ❖ Combine Umbrella + BioStruct

Umbrella and BioStruct

a) Standard

User

WUO1   WUO2   WUO3

Facility Web-based User Offices

b) BioStruct as present present

User

Central BioStruct User Office

Other BioStruct services

WUO1   WUO2   WUO3

Facility Web-based User Offices

c) BioStruct with Umbrella

User

Central BioStruct User Office

Central Umbrella

WUOS1   WUOS2

Other BioStruct services

WUO1   WUO2   WUO3

Facility Web-based User Offices

Umbrella and BioStruct II

| User | BioStruct User Office | BioStruct Committee | Umbrella | Facility User Office (WUO) | Facility Committee |

BioStruct, present workflow

BioStruct, Umbrella workflow

No additional proposal needed

Re-use review results

B. Abt, S. Egli, M van Daalen, H.J. Weyer, PSI   13

Friendly user phase

❑ *Goal and duration*
- ❖ Test of the system by future users
- ❖ February 1 – March 31

❑ *Central Applications*
- ❖ Prototype of central web site
- ❖ EAA: registration, mutation
- ❖ Alfresco, Indico, Issue tracker, Wiki

❑ *Federated applications*
- ❖ Umbrella + WUO clone versions

❑ *Participants*
- ❖ Facilities
  - o DESY
  - o Diamond (iCAT service, Moonshot?)
  - o ESRF
  - o PSI
- ❖ 'Friendly' users
  - o ~30, all over EU
  - o External expert users (ESUO, ETH, BioStruct, ??)
  - o Local facility experts (DESY)

Umbrella road map

- ❑ *till January, 31: Umbrella preparation*
  - ❖ Definition of active participants
  - ❖ Definition of elements to offer to users
  - ❖ Definition of web portal
  - ❖ Documentation
  - ❖ Final developments

- ❑ *from February 1, Friendly user phase*
  - ❖ Contact of users
  - ❖ Umbrella + WUO test versions (DESY, PSI, ESRF, Diamond)

- ❑ *from May 31*
  - ❖ Workshop with all participants
  - ❖ Concluding feedback document
  - ❖ Implementation of feedback
  - ❖ Legal work (trust issues, MoUs, …)

- ❑ *from September 1, Ready for implementation*

Proposal, PaNdata WP3 FtF meeting

❑ *Topics*

❖ Summary + conclusion 'friendly user' test
- o software
- o final document

❖ PaNdata/WP3 vs. CRISP/WP16 (vs. CALIPSO/wayforlight, vs. NMI3)

❖ PaNdata deliverables
- o 3.1 Specification of the A3 infrastructure (m6)
- o 3.2 Pilot deployment of initial A3 service infrastructure (m12)

❖ Umbrella next steps
- o Legal aspects (trusts, MoU)
- o Next implementation steps (sync with CALIPSO)

❑ *Date & venue*

❖ Proposal: satellite to SRI 2012, Lyon

❖ Options: (a) Monday, Jul 9 (before); Thursday, Jul 12, afternoon (in part parallel to poster session)

❑ *Opinions?*

Conclusion, PaNdata

☐ *Umbrella 'friendly user' phase ongoing*
- ✓ Until end of March
- ✓ Up to now real success
- ✓ General concept accepted, some improvements identified

☐ *Next steps before implementation*
- ✓ Legal issues (Mutual trust, MoU, Location(s) of server....)
- ✓ Affiliation DB (ESRF)
- ✓ Sync with other programs (PaNdata, CALIPSO)
  - o ILL iCAT meeting
- ✓ Define road map

☐ *Further work: Bridging to other communities*
- ✓ Large facilities and universities (educational sector)
- ✓ Large facilities and university labs