

Status and Way Forward Science Support Systems

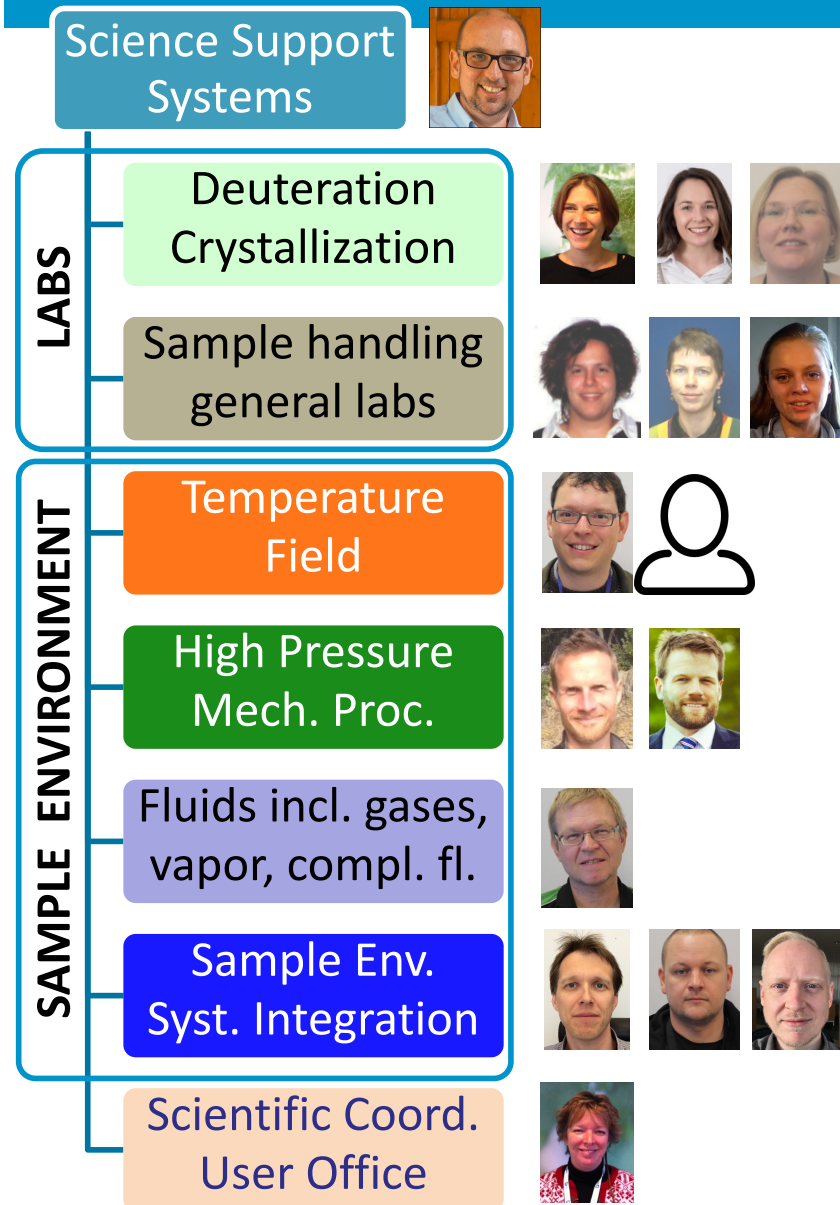
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Charge to the STAP – Q1 2018



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Mission: Delivering Science Support Systems

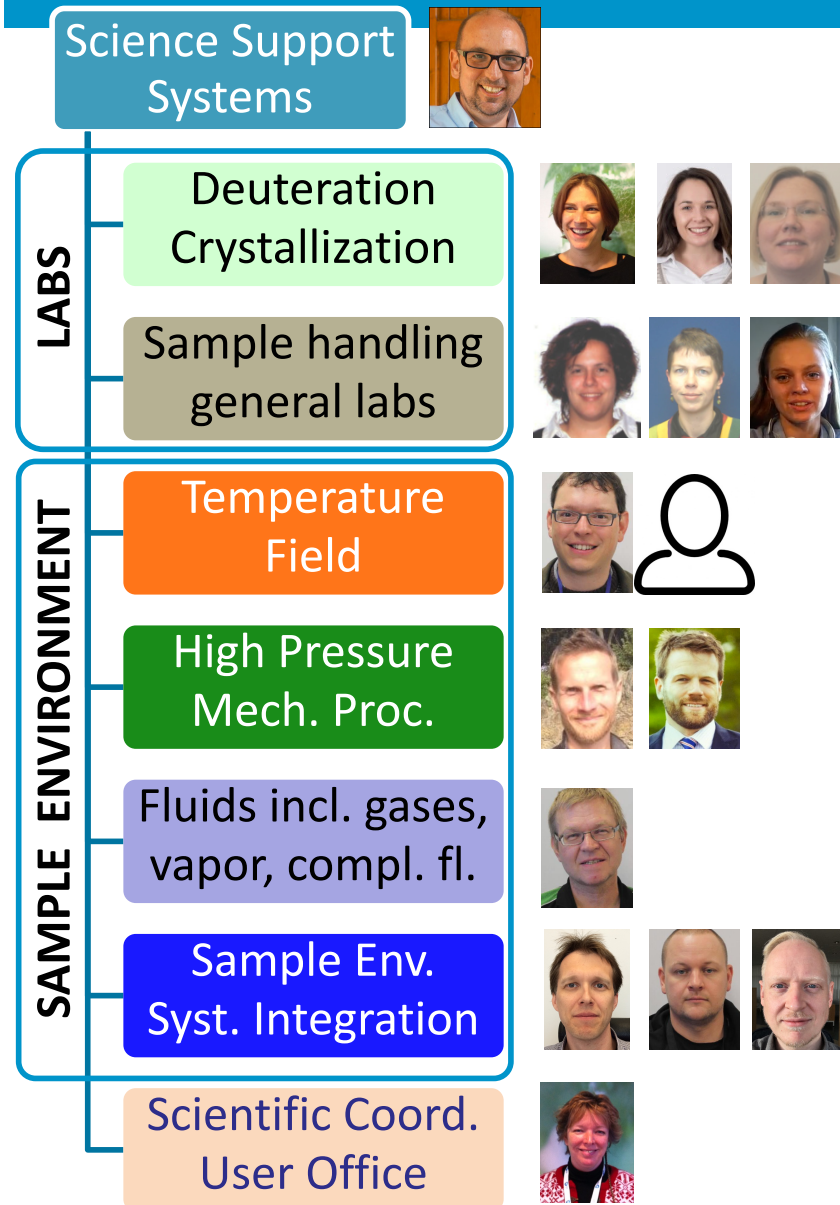


Scientific Activities Division
delivers

Science Support Systems:

- **sample environment (SE)**
 - **scientific labs and**
 - **(future) user office**
- for first 8 instruments*

Mission: Delivering Science Support Systems



Scientific Activities Division
delivers

Science Support Systems:

- **sample environment (SE)**
- **scientific labs and**
- **(future) user office.**

Coord: 2.0 FTE NSS incl. Safety Coordination

Labs: 2.5 FTE NSS, 1.5 FTE SINE2020

S Env: 6.5 FTE NSS, 1.0 FTE SINE2020

Interact.: 1.0 FTE NSS, 0.5 FTE Design

Key SSS Milestones – *considering potential MS for new baseline*



Milestone	Date	Description
DEMAX ready for initial users	End 2018	Move DEMAX into initial operation
<i>Access E buildings</i>	<i>Late 2019 TBC</i>	
First on-site laboratories and sample env. workshops ready	End 2019	Move SULF into initial operation. RML not ready but on track for Beam on Target (BOT).
<i>Access D buildings</i>	<i>Late 2020 TBC</i>	
First sample environment systems SES ready	End 2021	Move TEFI, PREMP, FLUCO, MESI into initial operation SES for commissioning / demonstrating instr. perform.
<i>Beam on Target and Start hot commissioning first instruments</i>	<i>Mid 2022 TBC</i>	
Initial suite of laboratories and sample environment workshops	Mid 2023	Labs and workshops as needed for emerging user program / early science success on first instruments. End of SSS project within construction funding
Initial suite of sample environment systems	Mid 2023	SES as needed for emerging user program / early science success on first instruments End of SSS project within construction funding
<i>Start of User Program (SoUP)</i>	<i>Late 2023 TBC</i>	<i>Details need further refinement</i>

SSS TOTAL '13 -'23 25.1 M€
SSS spent '13 - '15 3.9 M€

**Available
'16 - '19**

Management; Inst. Interaction 1830 k€

Scientific Coordination 1190 k€

Science Support Systems – budget



Nov 2016

	Available '16 – MS	IK %	Coordination Interaction	Labs and Equipment	MS complete move OPS
Sample and User Labs	2081 k€	70	385 k€	1696 k€	12 / 2019
Deuteration & crystallisation incl. bench fee + chem. deut.	885 k€	55	115 k€	770 k€	12 / 2018
	Available '16 – '23	IK %	Coordination Interaction	Workshops	Equipment Projects
Mechatronics & Software	1857 k€	35	908 k€	557 k€	392 k€
Fluids incl. Gases Liquids ...	2506 k€	60	903 k€	231 k€	1372 k€
Pressure & Mech. Process	3739 k€	70	783 k€	1122 k€	1834 k€
Temperature & Fields	7170 k€	80	980 k€	895 k€	5295 k€

Supporting Instrument Teams – Ensuring Interconnectivity and Usability.



- Improved **visibility on new web** site for SAD team and SSS project but **team coherence / cross-linking** remains challenging.
- Input to various TG2 Meetings – based on Reference Requirements.
- Updated Reference Documents and **Checklist for TG3** on
 - * Mechanical Interfaces
 - * Control Systems
 - * Supplies
 - * Samples & Sample Handling
- Prototypes built and successfully demonstrated at Utgård Workshop.
- Universal Coordinate System for **Sample Alignment and Mounting**.
- Design Efforts on Top-Loading Systems now converging.

- Discussions on **Helium Management** with MAX IV, LU, SVS on-going.

- Work on **licensing, conventional and radiological safety** intensified: what we need, how we do it, who does it – including training.

Sample Environment Reference Suite



https://1drv.ms/x/s!AuCQb_HPf3b9g8g2HHqvybpQKix-Lg

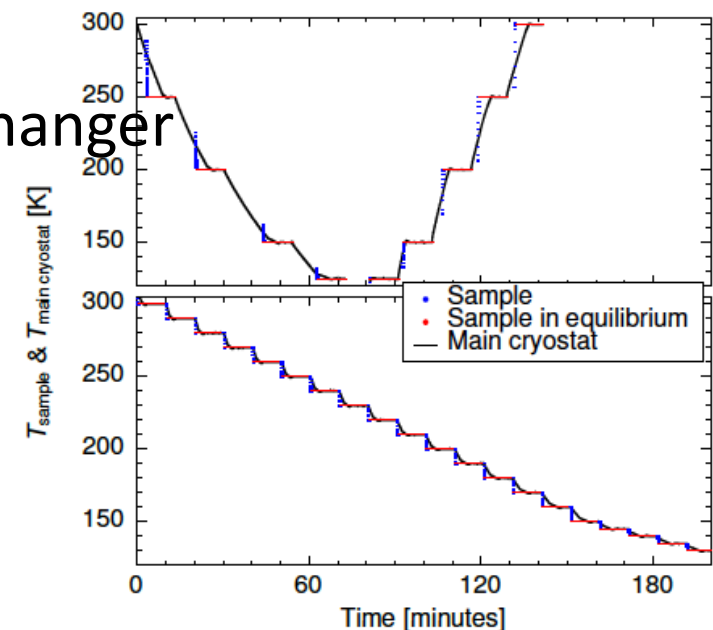
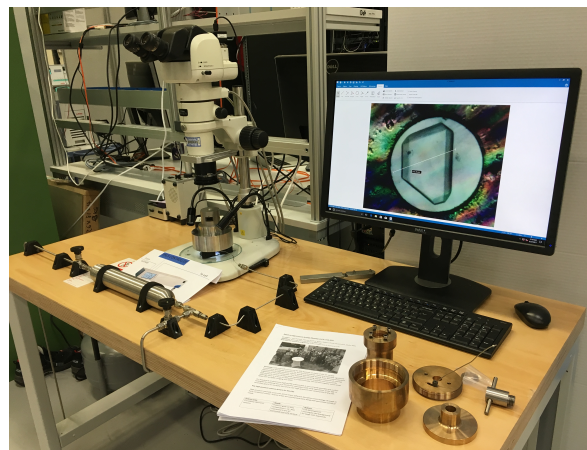
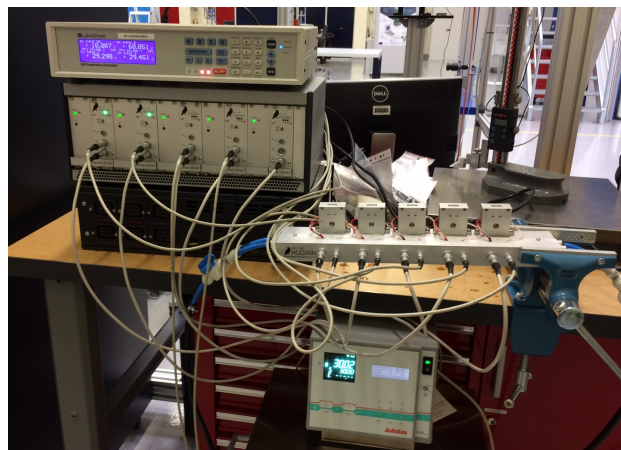
SYSTEM	LABEL	DETAIL	UNIT COST	BUDGET	RESPONSIBLE BUDGET	RESPONSIBLE EXECUTION	READY
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- Sample Environment Reference Suite based on instrument needs / priorities / timelines. Updated when needed. **Additional needs (continuously) identified.**
- Scope of all major In-Kind Contributions ‘agreed’: Magnets, Pressure, Fluids.
- Discussions on used / refurbished Equipment from HZB ‘converging’.
- Several IK SE Systems already completed: Peltier Sub-Cryo and T-Ctrl SANS.
- Following Hi-P and magnet meetings, **prioritization symposia** with instr. Teams identified:

Soft matter sample env.	Gases & chem. Reactions (5/18)	changers & alignment
Magnets (2 nd iteration)	Low-T	In-situ characterization
Mech. processing (5/18)	high pressure (2 nd iteration)	furnaces / levitation

Sample Environment Workshops and Development Activities

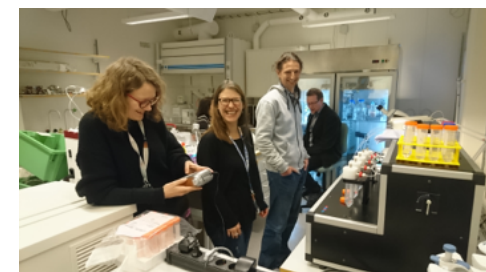
- Utgård Workshop in regular Use; **Planning on-site WS**
- Control over EPICS; SECoPs activities resumed.
- Automatic Gas Control of Diamond Anvil Cells. PE press arrived; **TA FR IK converging**
- Peltier Sub-Cryostat in CCR - refurbished HZB. **TA FR IK on magnet systems converging**
- Manufacturing rotating SANS Cells; T-Ctrl. Changer commissioning; **IK EE progressing**



User Laboratories and Deuteration & Crystallization



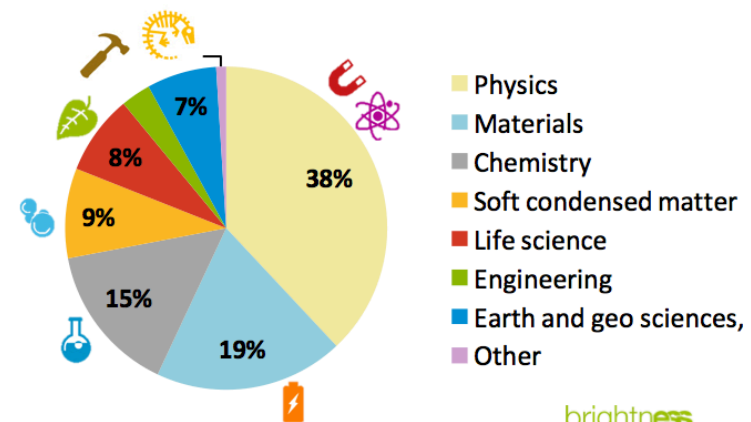
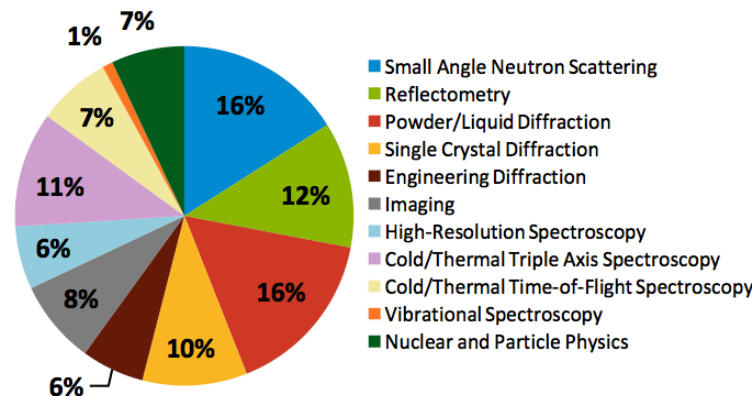
- Temporary MV Laboratories operational & well-used; Safety Procedures.
- On-site Laboratories: CDR completed, tendering Lab Fitting by IK Partner.
- RML Laboratories: Critical for BoT (Target); Licensing Doc.; IK Deliveries ok.
- Providing Advice on Instrument Laboratories incl. Safety.



- Chemical Deuteration on-going incl. SINE2020.
- Crystallization & Bio Deuteration: IK equip. commissioned; LP3; SINE2020.
- Focus on future (initial) user program.

Scientific Coordination und User Office

- Brightness survey of neutron usage completed based on facility data



- Science Focus Teams SFT: collaboration, network, science day, web presence but science seminars remain rare. Currently no ESS 'science' PhD students.
- 'Strategy for Science Success' updated incl. Success Criteria & SFTs.
- Work on Access Policy and Procedure progressing in line with ESS Statues and European Charter of Access to RIs. **New EU proposals**
- Workshop in Industry Usage jointly with SINE2020, Calypso+, EUCALL, ...
- User Office Software: Recruitment; Mapping; MAX IV collaboration.
- Joint ILL / ESS booth at ICNS in 2017; Joint ILL / ESS user meeting in 2018.

Supporting Instrument Teams: Ensuring Interconnectivity and Usability

Standards incl. Univ. Coordination System established, demonstrated and agreed.

Safety and Licensing: ***Supporting Radiological Safety & OHS efforts***
Licensing work on well-defined but tight Schedule.

Sample Environment Suite: **In-kind Projects, Integration & Development**
Reference Suite updated; IK Projects 'agreed', running or completed; HZB 'converging'.
Developmental Activities successfully demonstrated.

Laboratory Activities: **Providing Labs and Deuteration Support**
On-site Laboratories incl. RML and DEMAX Activities progressing. Prepare for 'usr prg'.

Scientific Coord. / User Office: Enabling early Science Success
Linking Access Policy, Neutron Usage, User Service and Science Success.

Charge to the STAP – March 2018



- **SAD organization and SSS project execution:** common challenges
- Review of the **ESS baseline:** impact on staffing, in-kind, procurement
- **Conventional and radiological safety:** what, how, who ...
- Sample **orientation / alignment** incl. off-line stations / test beamline
- **Day 1 priorities SES and Labs** for early science success.
- **Completion plan SES and Labs** beyond construction.
- **DEMAX initial operation.**
- **User Office Software** and **priorities for access.**
- **Way Forward:** membership; SAC presence to SAC, autumn meeting