QUALITY MANAGEMENT IN USER SERVICE

Taking into account the changing user community and their requirements

Antje Vollmer,

Helmholtz Zentrum Berlin für Materialien und Energie

Introduction – a few numbers, facts, and developments

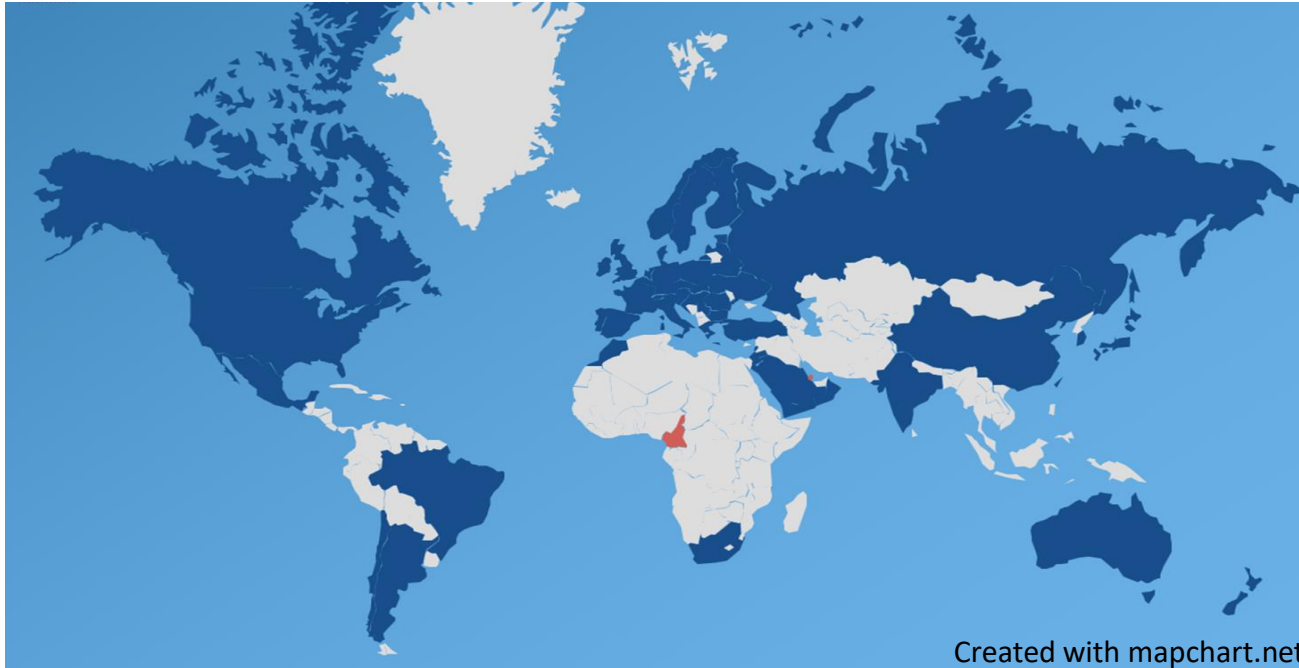Beamtime from alpha to omega, what do we monitor

Quality Management
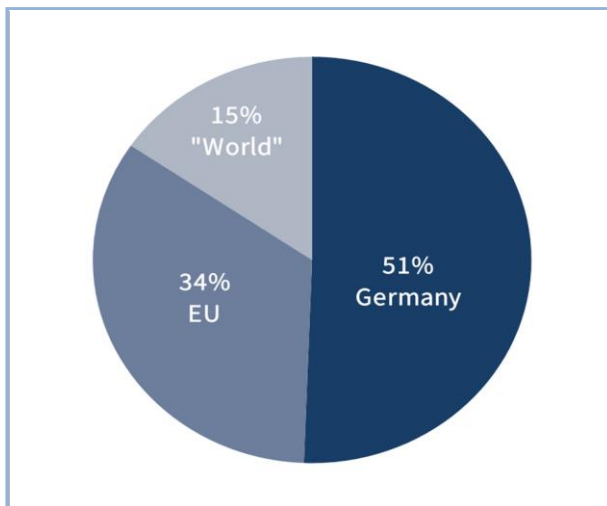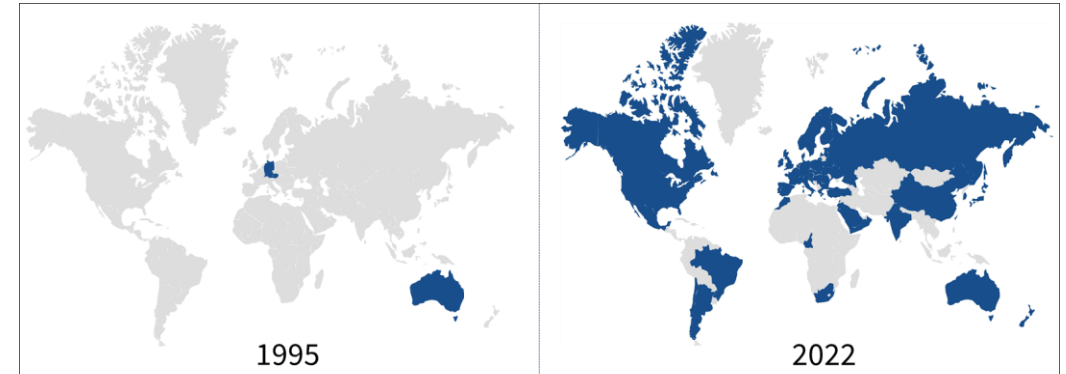
Feedback schemes and feedback handling

Communication with users

The worls is visting BESSY

Created with mapchart.net

Origin of proposals BESSY II (2014 - today)

1995

2022

15% "World"
34% EU
51% Germany
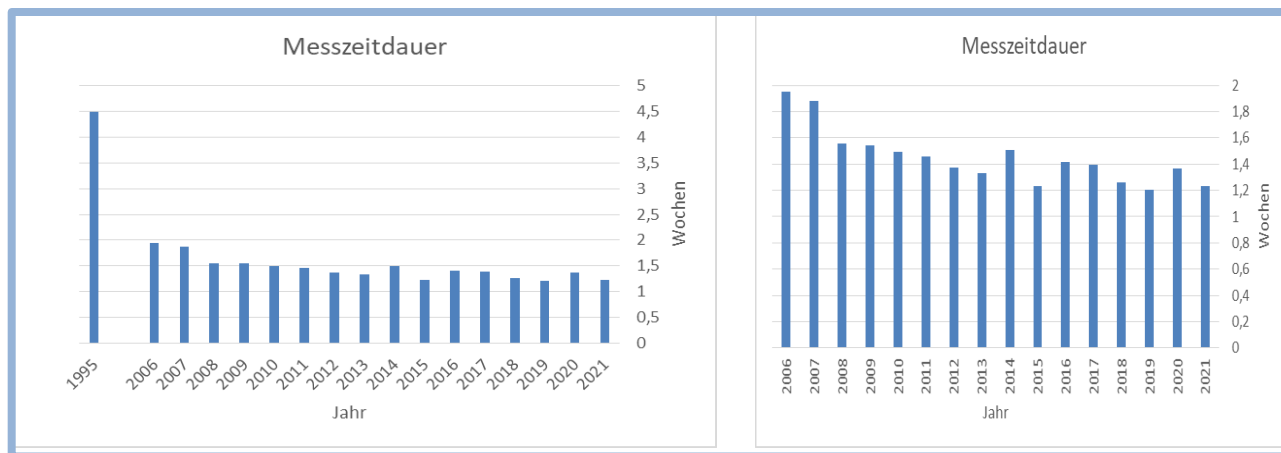
Average numbers per year (before Corona):
- More than 1200 proposals per year
- About 800 beamtime campagnes
- Up to 3000 user visits
- More than 11000 registered users
- 12000 overnight stays in the guesthouse
- More than 500 verified publications

The user community changes

Chemistry/Catalysis/Energy
Information
Life (without MX)
Life (MX)*
Other
Physics

* 2019 with new BAG proposal, behind which stand consortia
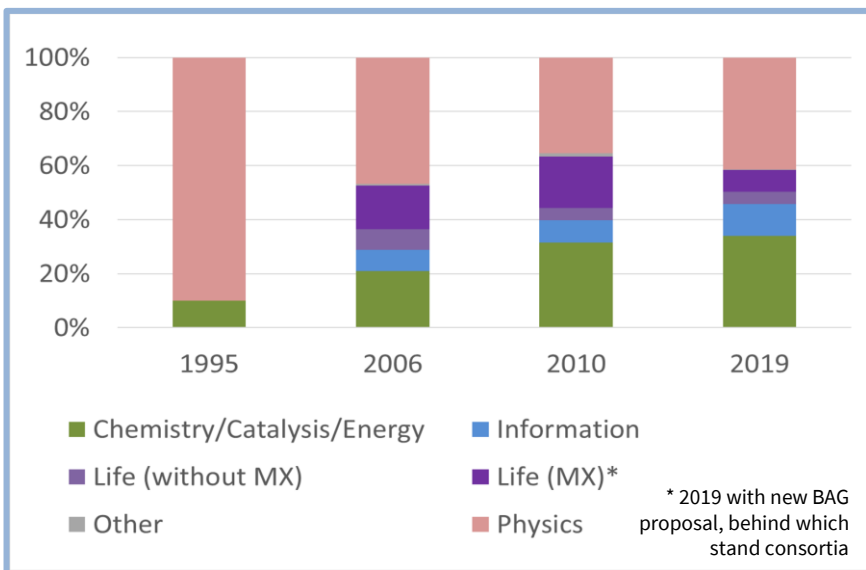
more „non-synchrotron-expert-user"
more off-line infrastructur
more user support
more flexibility

Messzeitdauer

Messzeitdauer

Challenge accepted → BESSY II upgrade in progress

The requirements change
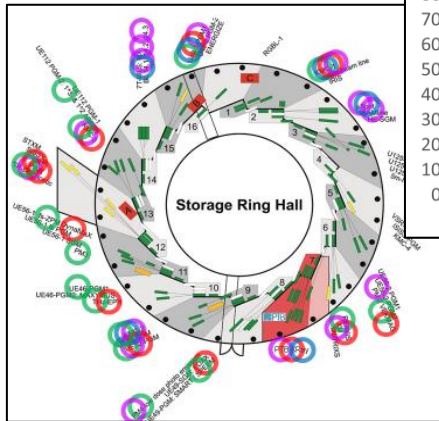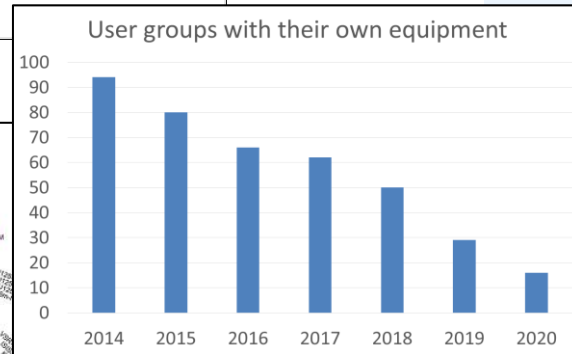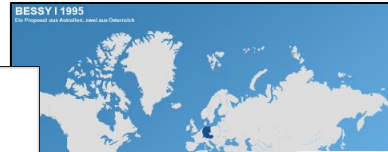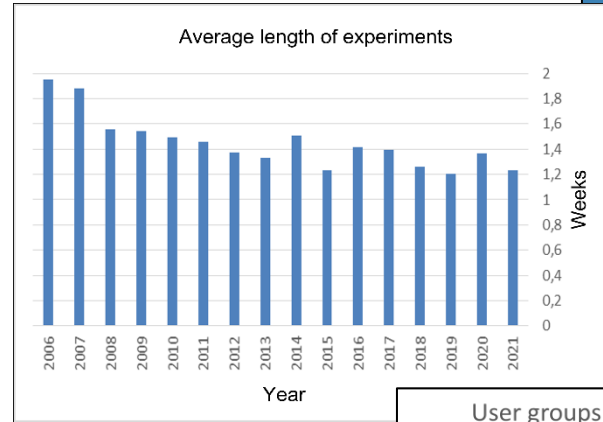
New scientific challenges

Shorter and more efficient beamtimes

Declining use of own equipment

Demand for custom made sample environment

Requirements:

More support

More "IT"

More (and more flexible) infrastructure

BESSY II – the science landscape

Leads to new user requirements

Energy & Energy Storage

Physics

Space

Metrology

Cultural Heritage

Information

Medicine & Biology

Environment

Chemistry & Catalysis

The User Coordinations are the interfaces between users, staff, boards, directors… and they have the best overview

However, to convince people you need to

- follow the developments,
- know the facts and statistics,
- retieve, store and archive the respective data, and
- underline everything with numbers, numbers, numbers…

HZB GATE
Oracle Database

IGAMA · Usertool · Calendar · Referee tools · Admintool · Database Access

Proposal, Evaluation, Beamtime allocation, Scheduling, Feedback, Statistics, Funding etc. are managed in GATE

QM

Certification and

The BESSY II User Coordination has established and applies a Quality Management System for the

Coordination of and service for the use of scientific infrastructures.

The Quality Management is certified According ISO 9001:2015 (TÜV SÜD Service GmbH).

Performance Indicators

Goals

Provision of Large Scale Facilities for an International Community

Scientific Output (O)	Outstanding Infrastructure (I)	High User Satisfaction (S)	Creation of Demand (D)	State of the Art Technology

Key Figures

O1 Beamtime per Publication [1]	**I1** Threshold Rate [2,3]	**S1** Recommendation Rate [2]	**D1** Number of New Departments [1]
O2 Publications multiplied by Impact Faktor [1]	**I2** Satisfaction with Infrastructure [1]	**S2** Satisfaction with Administration [2]	**D2** Overbooking [1]
O3 Number of Theses [1]	**I3** Down Times/ Reliability Rate [1]	**S3** Allocation Transparency [2]	**D3-5** Institutes (EU, non-EU, De) [1]
O4 Citation Rate [1]		**S4** Comparison with Other Facilities [2]	**D6** Departments [1]
		S5 Satisfaction with Beamtime [1]	**D7** Fields of Work According to DFG [2]
		S6 Publication Rate with HZB Co-Authors [1]	**D8** Number of Proposals [2]

1 BESSY II Beamline Station

2 BESSY II

3 Beamline

O: Scientific Output		
O1 Beamtime (Shifts≙8 hours) per Publication	21.7	
O2 Publications multiplied by Impact Factor	2381	
O3 Number of Theses	14	
O4 Citation Rate for Publications from 2013	12,8	
Publications	519	

I: Outstanding Infrastructure		
I1 Threshold Rate (external/internal)	6.1/5.7	
I2 Satisfaction with Infrastructure	91% (1.92)	very good
I3 Down Times / Reliability Rate	98%	excellent
I4 Beamshutter Opening Time	-	not suitable

S: High User Satisfaction		
S1 Recommendation Rate	94% (1.62)	very good
S2 Satisfaction with Administration	92% (1.84)	very good
S3 Allocation Transparency	90% (2.02)	very good
S4 Comparison with Other Facilities	91% (1.92)	very good
S5 Satisfaction with Beamtime	91% (1.94)	very good
S6 Publication Rate with HZB Co-Authors	0,33	

Rating Scale				
Points	Percentage	Text	Range	NPS
1	100%	Excellent	<1.5	Promotor
2	90%	Very good	1.5-2.49	Promotor
3	80%	Good	2.5-3.49	Passive
4	70%	Above medium	3.5-4.49	Passive
5	60%	Upper medium	4.5-5.49	neutral
6	50%	Lower medium	5.5-6.49	Detractor
7	40%	Below medium	6.5-7.49	Detractor
8	30%	Poor	7.5-8.49	Detractor
9	20%	Very poor	8.5-9.49	Detractor
10	10%	worst	>9.5	Detractor

D: Creation of Demand	
D1 Number of New Departments	146
D2 Overbooking	+180% (1.80)
D3 EU-Institutes (accepted)	132
D4 Non-EU Institutes (accepted)	58
D5 German Institutes (accepted)	96
D6 Departments (altogether)	409
D7 Fields of Work According to DFG	yes
D8 Number of Proposals (submitted)	1195

Overview to Key Performance Indices (KPI) 2016 -2021

User feedback ration

2016:   80 %

2017:   68 %

2018:   64 %

2019:   48 %

2020:   39 %

2021:   64 %

Surveillance audit successfully passed in 2018, 2019, 2021

Recertification audit sucessfully passed in 2020

ISO 9001
Certified
Quality Management System
www.tuv-sud.com/ms-cert

A2 Overview to Key Performance Indices (KPI) 2016 - 2021

O: Scientific Output	2016	2017	2018	2019	2020	2021
O1 Beamtime (Shifts≙8 hours) per Publication	21.7	26.9	20.3	20.9	15.7[2]	39.7[3]
O2 Publications multiplied by Impact Factor	2381	1896	2317	2228	2493	2770
O3 Number of Theses	14	15	42	27	23	17
O4 Citation Rate for Publications from 2013-2018	12.8	14.3	16.0	15.2	16.7	15.7
I: Outstanding Infrastructure						
I1 Threshold Rate (external/internal)	6.1/5.7	5.7/5.6	6.4/6.7	6.5/6.4	6.5/6.6	6.7/7.2
I2 Satisfaction with Infrastructure	91% (1.92)	95% (1.50)	96% (1.41)	95% (1.45)	96% (1.36)	96% (1.37)
I3 Down Times / Reliability Rate	98.0%	99.6%	96.0%	94.0%	97.0%	96%
S: High User Satisfaction						
S1 Recommendation Rate	94% (1.62)	95% (1.54)	95% (1.46)	95% (1.47)	96% (1.42)	96% (1.38)
S2 Satisfaction with Administration	92% (1.84)	95% (1.53)	94% (1.57)	94% (1.56)	95% (1.53)	95% (1.53)
S3 Allocation Transparency	90% (2.02)	90% (2.01)	90% (1.97)	91% (1.85)	89% (2.11)	90% (2.00)
S4 Comparison with Other Facilities	91% (1.92)	92% (1.84)	92% (1.79)	93% (1.71)	91% (1.94)	92% (1.82)
S5 Satisfaction with Beamtime	91% (1.94)	93% (1.68)	94% (1.63)	93% (1.67)	93% (1.70)	93% (1.67)
S6 Publication Rate with HZB Co-Authors	33%	32%	28%	30%	44%	43%
D: Creation of Demand						
D1 Number of New Departments	146	116	119	124	114	63
D2 Overbooking	180%	196%	197%	209%	193%	179%
D3 EU-Institutes	132	157	161	168	170	107
D4 Non-EU Institutes	58	78	98	95	112	86
D5 German Institutes	96	96	89	94	90	83
D6 Departments	409	396	412	403	405	306
D7 Fields of Work According to DFG	Yes, see D7 (page 45)					
D8 Number of Proposals (submitted)	1195	1199	1178	1559	1417	818[4]

[2] Due to the pandemic lockdowns the amount of beamtime available in 2020 was significantly lower than in previous years, while the number of publications stayed constant. This results in more publications per beamtime.

[3] Compared to 2020 the amount of beamtime in 2021 more than doubled. This results in a higher number of shifts per publication since the publications also include previous years beamtimes.

[4] In 2021 one proposal round was limited to urgent access due to corona backlog, which results in a smaller number of proposals.

Overview I2	2016 Sa-tisf.	2016 Mean	2017 Sa-tisf.	2017 Mean	2018 Sa-tisf.	2018 Mean	2019 Sa-tisf.	2019 Mean	2020 Sa-tisf.	2020 Mean	2021 Sa-tisf.	2021 Mean	# Answ.
I2 - Satisfaction with Infrastructure BESSY II	**91%**	**1.92**	**95%**	**1.50**	**96%**	**1.41**	**95%**	**1.45**	**96%**	**1.36**	**96%**	**1.37**	**1931**
I2-1 - Storage Ring Operation (Q 2.3)	93%	1.71	94%	1.62	96%	1.41	95%	1.51	95%	1.55	96%	1.42	402
I2-2 - Beamline Operation (Q 2.4)	93%	1.69	95%	1.52	95%	1.52	95%	1.51	96%	1.38	96%	1.37	401
I2-3 - End-Station Operation (Q 2.5)	92%	1.81	93%	1.71	95%	1.48	94%	1.58	96%	1.36	95%	1.48	393
I2-4 - Used Sample Environment (Q 2.6)	85%	2.51	96%	1.34	97%	1.34	97%	1.27	97%	1.26	96%	1.42	97
I2-5 - Scientific Support (Q 2.7)	96%	1.44	97%	1.30	97%	1.29	96%	1.63	98%	1.20	98%	1.21	398
I2-6 - Technical Support (Q 2.8)	90%	2.01	96%	1.35	97%	1.35	98%	1.42	98%	1.24	98%	1.24	164
I2-7 - On-Site Lab Support (Q 2.9)	79%	3.15	97%	1.31	96%	1.43	95%	1.46	95%	1.49	93%	1.71	58

Remarks & Conclusions: The user satisfaction with infrastructure is excellent (1.45). In average 96 % of the possible satisfaction points were given. Especially the rating for the scientific support improved dramatically due to the immense efforts of the beamline scientists to offer remote or assisted beamtimes which is also shown in the comments of the feedbacks, e.g.:

- the remote support provided by Dr. [Beamline Scientist] and his colleagues was outstanding (Several Feedbacks like this)
- excellent performance of beamline staff under COVID-19 conditions
- the local team has provided an enourmous effort to provide a very effective solution for remote control of the experiment. Thanks to their work, the beamtime was a great success.
- excellent support from the local contact. They did all they could to make the remote-control beamtime successful, and I hope to work further with them in future.
- all the experiments were carried by the beamline scientists
- the experiments were conducted by collaborator, as the limitations due to the pandemic did not allow me to access the facilities.

Satisfaction with Administration

	2016 Sa-tisf.	2016 Mean	2017 Sa-tisf.	2017 Mean	2018 Sa-tisf.	2018 Mean	2019 Sa-tisf.	2019 Mean	2020 Sa-tisf.	2020 Mean	2021 Sa-tisf.	2021 Mean	# Answ.
S2-1 - Information on experimental infrastructure	93%	1.69	95%	1.53	95%	1.47	95%	1.49	95%	1.45	95%	1.46	410
S2-2 - Information on administrative procedures	93%	1.74	95%	1.48	95%	1.53	95%	1.50	94%	1.58	95%	1.52	411
S2-3 - Information on radiation protection	92%	1.81	95%	1.54	94%	1.60	94%	1.63	95%	1.46	95%	1.48	403
S2-4 - Proposal submission process in GATE	94%	1.65	95%	1.49	95%	1.51	95%	1.52	95%	1.52	94%	1.55	409
S2-5 - Preparing beamtime in GATE	93%	1.67	96%	1.44	95%	1.45	96%	1.44	95%	1.50	95%	1.48	408
S2-6 - Accommodation	84%	2.62	92%	1.82	90%	1.99	91%	1.88	91%	1.93	90%	2.02	152
S2 - User satisfaction with administration (mean S2-1 to S2-6)	**92%**	**1.84**	**95%**	**1.53**	**94%**	**1.57**	**94%**	**1.56**	**95%**	**1.53**	**95%**	**1.53**	**2193**

Remarks & Conclusions: The user satisfaction fluctuates on a very good level, between 90% and 95% of the possible satisfaction points we given. For accommodation it was raised significantly since 2016 due to improved service.

Beamtime feedback (C O N F I D E N T I A L)   16204037-ST-1.1-P

Experiment title:
Magnetic microstructure of Nd-Fe-B sintered magnets: role of Nd-rich grain-boundary layers

Beamline
UE49_PGM SPEE

Principal Proposer:

I certify that the beam ti
If no, comment:

1. Administrative feed
1.1 Information on expe
1.2 Information on and procedures
1.3 Information on and protection
1.4 Proposal submissio
1.5 Preparing beamtime
1.6 Accommodation

1.7 General comments improvement:

2. Technical feedback
2.1 Did you experience
2.2 Please specify the c
2.3 Storage ring operat
2.4 Beamline operation
2.5 End-station operatic

2.6 Used sample enviro
2.7 Scientific support (l
2.8 Technical support (gases, workshop, on-call service (Hallendienst))   does not apply
2.9 On-site lab support   does not apply
2.10 Please specify the lab used:

2.11 General comments and suggestions for improvement:

We feel that we did not use very efficiently the time due to the night shift operation. It should be say that we were first time users in the beamline, and we had excellent support from the local contact up until 11 pm (as this is the norm). The rest of the night we were on our own, thus in case of minor technical issues or doubts we could not make the right decision until the day shift. Additionally we would like to stress that due the the nature of the experiment/end-station operation it requires full scientist attention during the whole shift, the sleep b/cyrcadian rythms) reduces a lot itical in the case of first time portant if you already had already recommend this in the future as it beamtime use as a whole.

we were able to meet most of the ed in the proposal, we might not completed experimental data to pectroscopy and composition due to the facts mentioned above comments section.

GATE – Admin

Feedbacks

16103466-EF

Review feedback from:
Többens, Daniel, HZB Berlin, DE
daniel.toebbens@helmholtz–berlin.de

Feedback	
The Information on experimental infrastructure	Excellent (1) ○ ○ ○ ○ ○ ○ ○ ○ ○ Poor
The proposal submission in GATE	Excellent (1) ○ ○ ○ ○ ○ ○ ○ ○ ○ Poor
The transparency and comprehension of the HZB allocation process	Excellent (1) ○ ○ ○ ○ ○ ○ ○ ○ ○ Poor
The HZB facilities compared to other international facilities	Excellent (1) ○ ○ ○ ○ ○ ○ ○ ○ ○ Poor
Comments and suggestions	

ery
m by the

BESSY II coffee HZB Helmholtz Zentrum Berlin

Friday, 14.10.2016

Please join us for coffee, snacks and discussion at 2:30 pm in front of the control room

What can we do for you? This time: Sample Environment at BESSY II Presentation, questions and answers Klaus Kiefer and the sample environment team 2pm, room 3303 "Aquarium"

Do you have any questions? Please come by for information and discussion

Before Corona

80 participants every 2-3 weeks; accompanied by a seminar „What can we do for you"

Feedbacks

14100402-EF-1.1-P

Termin: 21.04.2014 – 27.04.2014
Beamline: KMC–2 / KMC–2 XANES
feedback from Maria Brzhezinskaya

Feedback	
Was the user group resonable experienced in the safe handling of the experiment?	yes
Did the user group provide sufficient qualifies manpower to conduct the experiment?	yes
Amount of allocated beamtime used?	1 weeks
Loss of allocated beamtime?	0 weeks
Was the allocated beamtime sufficient qualified for the requirements of the user group?	yes
Does the service ptovieded by the corresponding instrument scientist(s) justify his/their co–authorship in a potential publication by the users according to the HZB rules/DFG–rules of publication?	no

QUESTIONNAIRE

To improve our user support your opinion and evaluation of our work is very important to us!

In addition to the feedback and beamtime report we would like to ask you today for a rather informal feedback, for ideas, suggestions, criticisms, and (positive) comments.

Of course you can participate anonymously.

Your Ideas:

Your Suggestions:

Your Criticisms:

Your Comments:
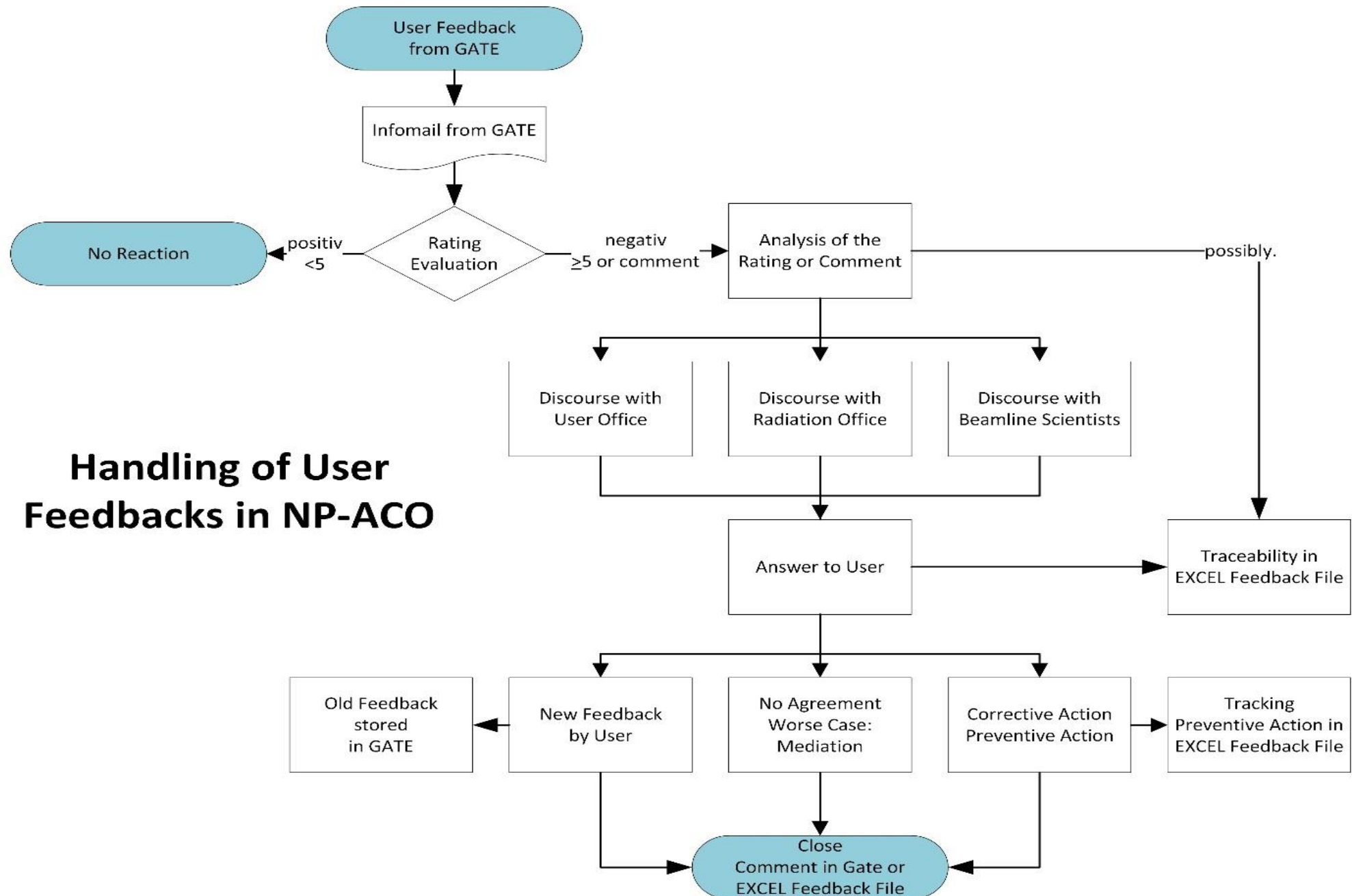
Your overall impression:

Would you recommend the use of BESSY II to a colleague or friend?

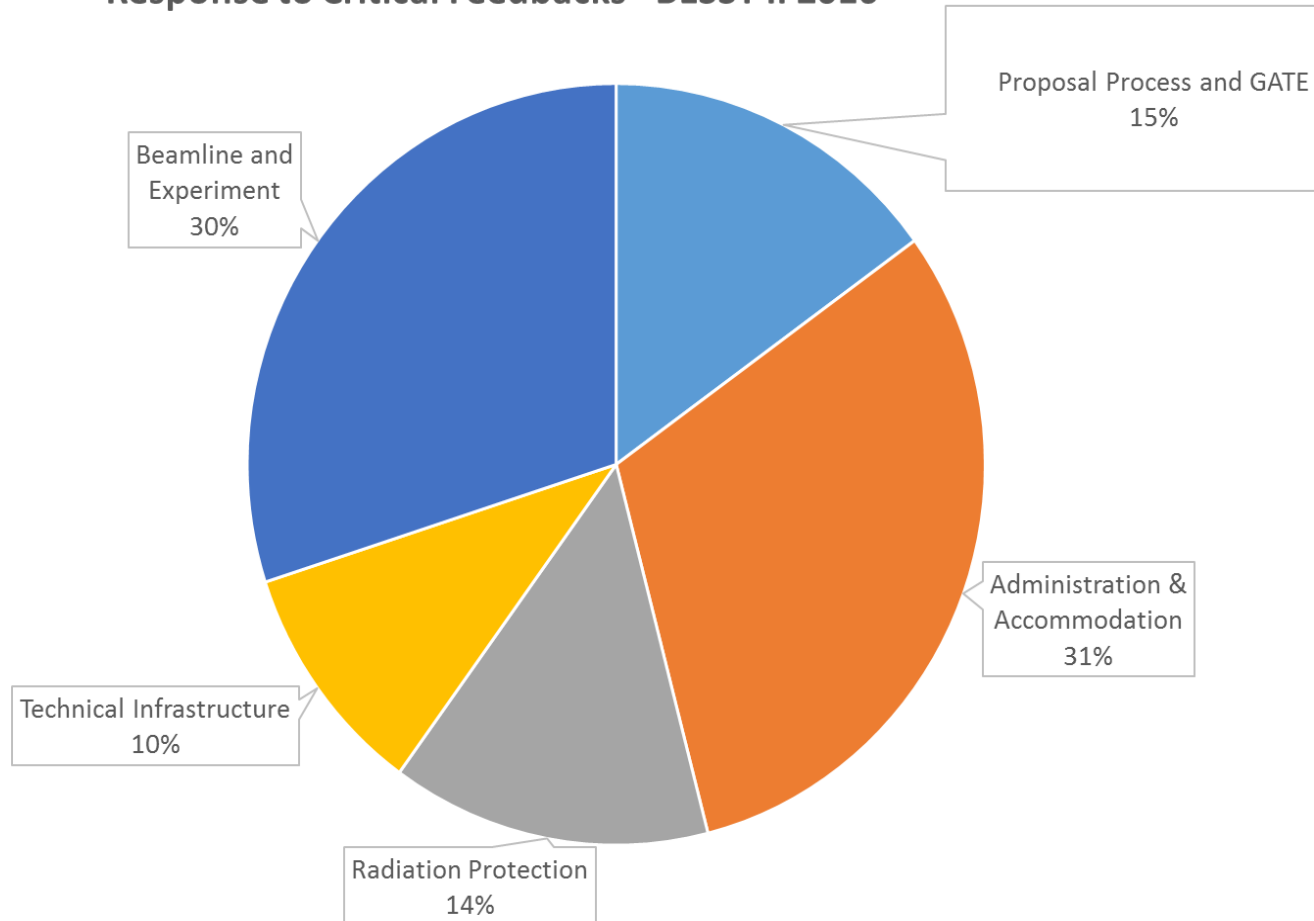*Not at all* 0   1   2   3   4   5   6   7   8   9   10   *absolutely yes!*

Why?

If you like, tell us your name and/or your experiment

Thanks a lot! Your help is very much appreciated!

Handling of User Feedbacks in NP-ACO

Response to Critical Feedbacks - BESSY II 2016

- Proposal Process and GATE 15%
- Beamline and Experiment 30%
- Administration & Accommodation 31%
- Radiation Protection 14%
- Technical Infrastructure 10%

Do not underestimate the effort
In less than 6 years we received almost 9000 feedbacks

Rate of needed response from the user office 10-15%

If you do not reply to feedbacks, the rate drops drastically

Communication is crucial

We collect feedback

- From beamtime applicants – no matter if they get beamtime
- From users for each beamtime
- From beamline scientists for each beamtime
- During user coffee (on paper, anonymously if wished)
- At workshops
- At the User Meeting
- From all beamline scientists via the weekly experimantal floor meeting
- From our elected User Committee

Conferences

Social media

Virtual tools

Tutorials

Schools

Highlights der Physik

Science in the City

Boards (ERF, LEAPS)

Committees (KFS...)

BESSY@HZB User Meeting

Before Corona

Live Events - on site

Joint BESSY II & BER II meeting
3 days
500 participants
200 posters
50 vendors
Public lecture
Young scientist session
Bestowal of prizes

Comparison (in detail)
2015 / 381 participants
2016 / 416 participants (+9%)
2017 / 470 participants (+12%)
2018 / 522 participants (+11%)
2019 / 463 participants (-11%)

During Corona

Virtual Meetings

1 day
Public lecture
Networking carousel (new topic)
Poster session
Poster slam (new topic)
Bestowal of prizes
Vendor exhibition

2020	461 participants
	45 Vendors
	112 poster

2021	370 participants
	31 vendors
	102 poster

From now on

First Hybrid User Meeting

December 7 to 9, 2022

Live events
New virtual formats
Country of honour (new topic)
Public lecture
Poster session
Poster slam
Young scientist session
Bestowal of prizes
Vendor exhibition
Sustainable "Berlin Buffet"

…and more to come

Remote Use during the pandemic and in the future
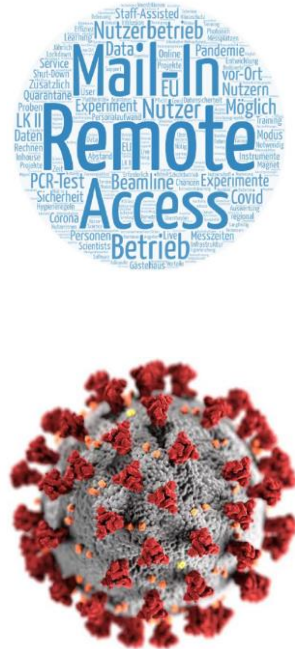
Blue: HZB, light green: users from the Berlin area, dark green: external users (except Berlin), yellow: staff assisted beamtime, red: remote beamtime
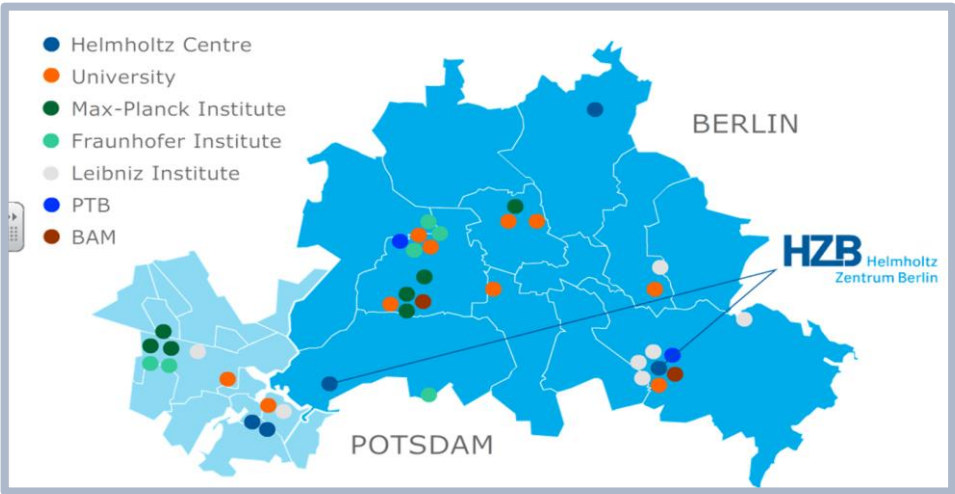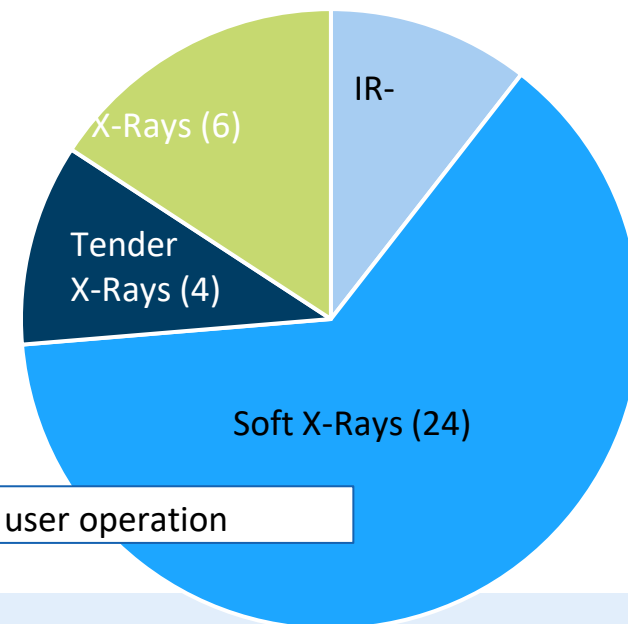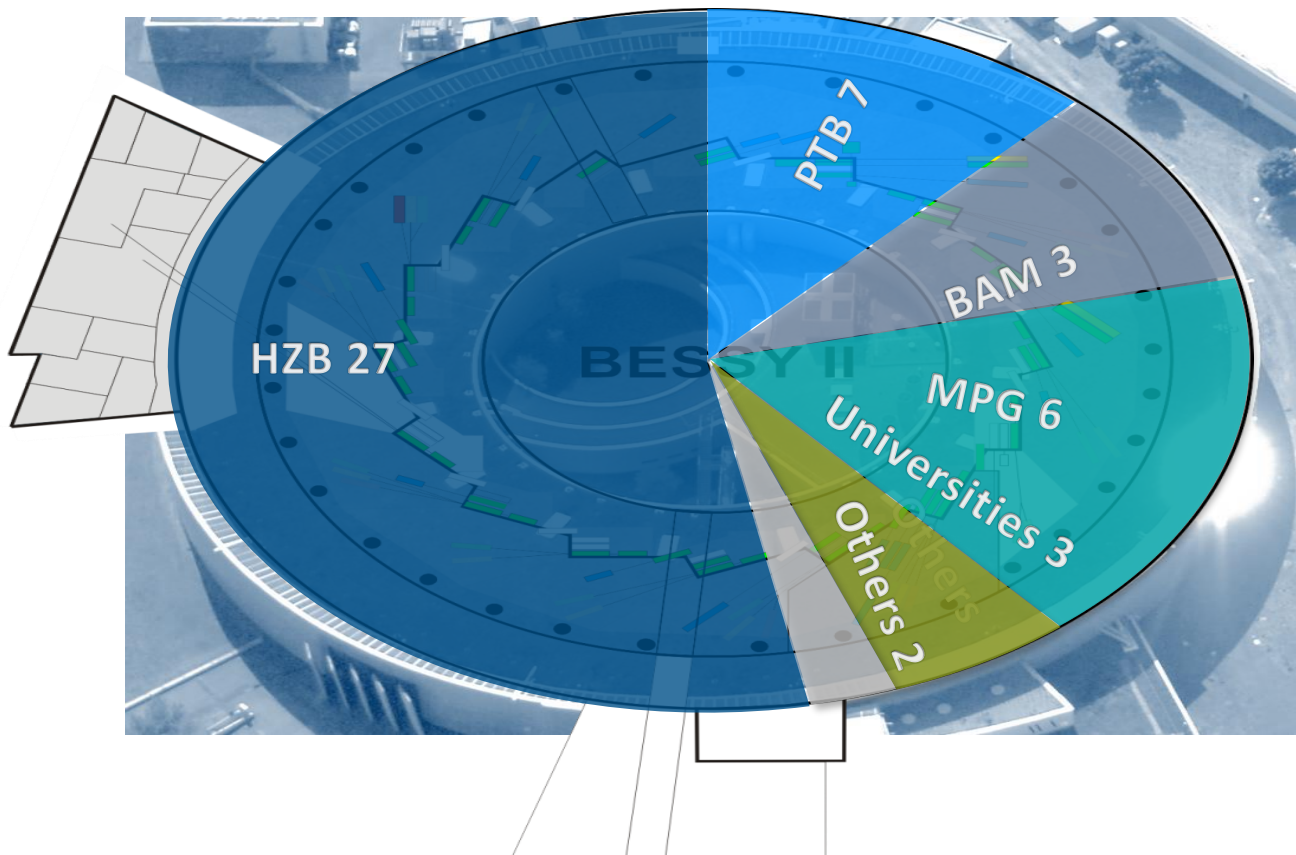
Thank you!

SYNCHROTRONS OF THE WORLD

BEAMLINES AT BESSY II

Pie chart segments:
- IR-
- X-Rays (6)
- Tender X-Rays (4)
- Soft X-Rays (24)

Beamlines in user operation

Ring labels:
- PTB 7
- BAM 3
- HZB 27
- MPG 6
- Universities 3
- Others 2
- BESSY II
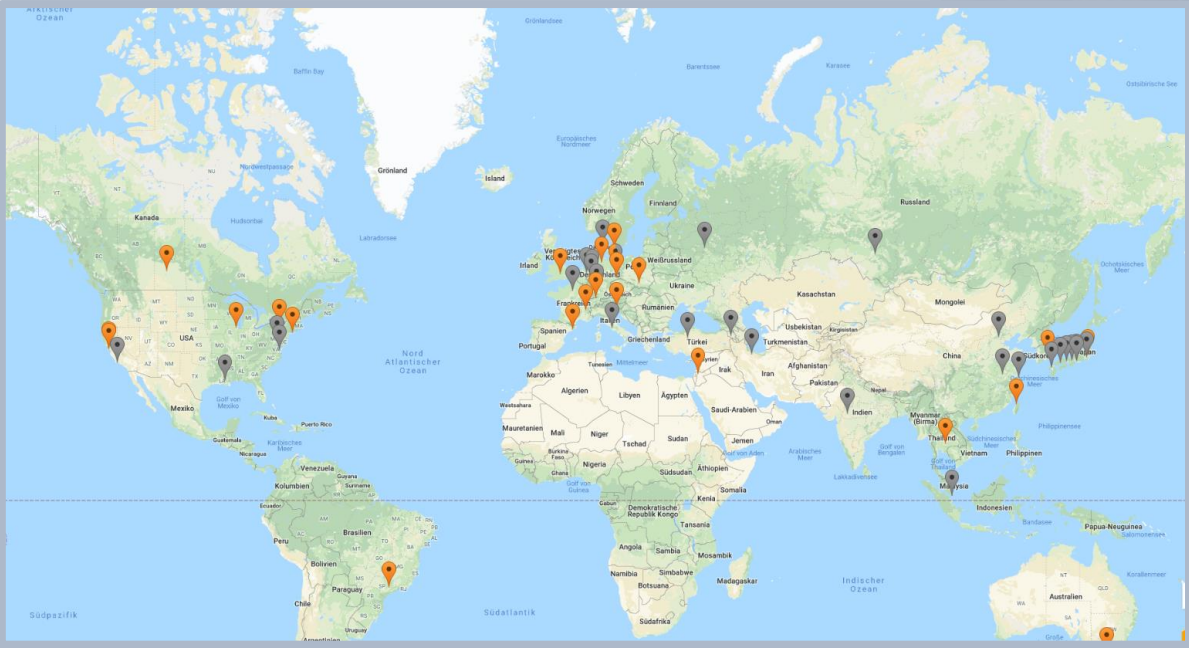
Beamlines:

48 beamlines in operation, thereof

38 beamlines in user operation

→ **BESSY II focuses on VUV to soft X-rays, but we offer radiation fromTHz to hard X-rays**

EU:
More than 270 Beamlines
More than 6000 beamtime campaigns
More than 30.000 users
More than 10000 publications

User and user management
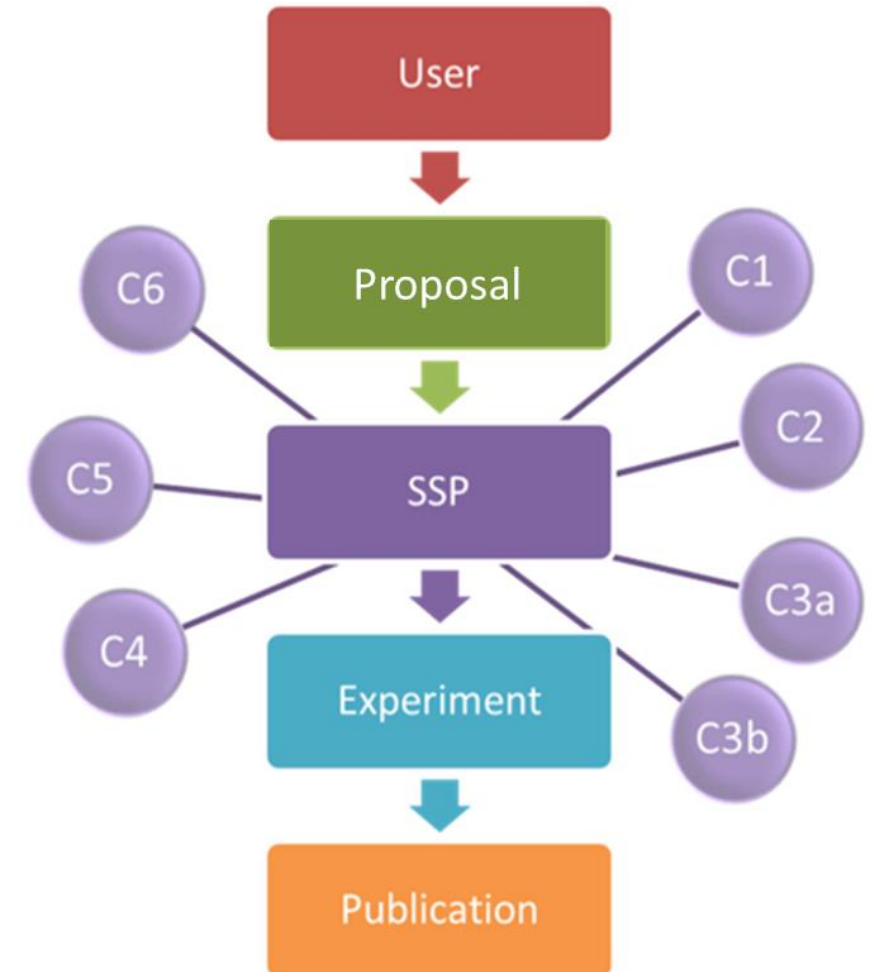
Proposal, Evaluation, Beamtime allocation, Scheduling, Feedback, Statistics, Funding etc. are managed in GATE
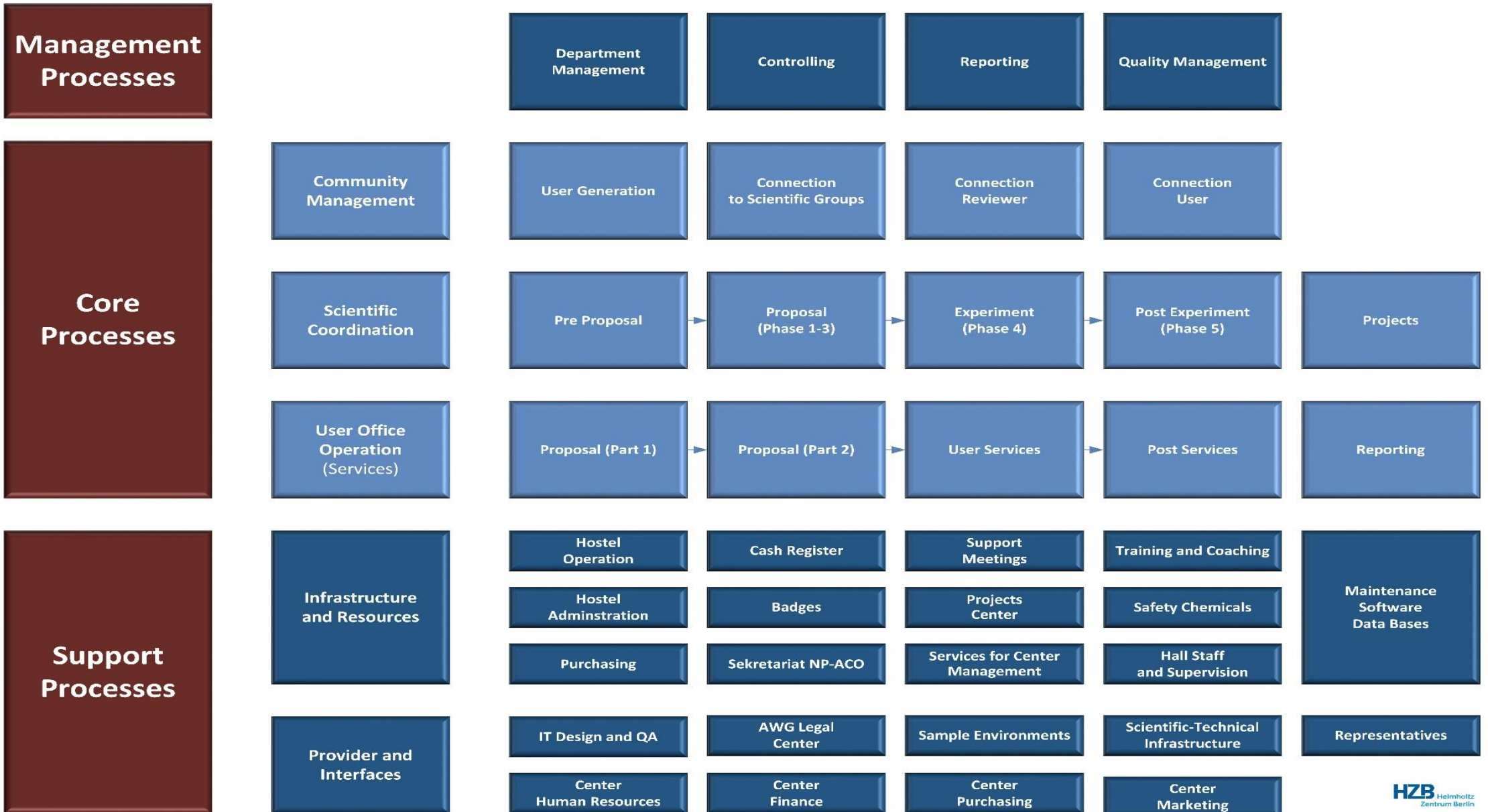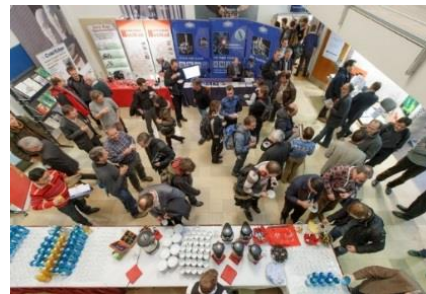
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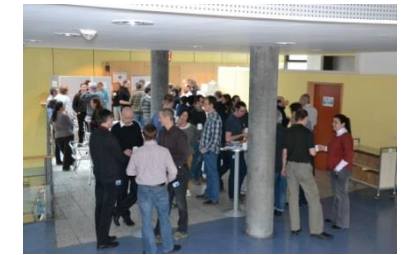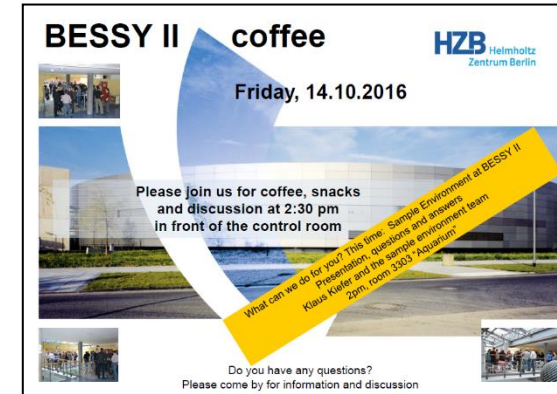**Workshops**

Until now more than 850 participants dicussed with us…

**Informal Coffee and series of talks:
"What can we do for you" –
Scientific Service for Users**

80 participants every 2-3 weeks

NEW: weekly experimental floor meeting

New filling pattern, new beamlines, enhanced sample environment and more…

Standards and novelties

The increasingly divers user community need flexible access

- Standard access
- Inhouse access
- CRG Access

- Fast track access

- Urgent request

- BAG and CDA

- Proprietary access

- Standard evaluation process, Scientific Selection Panel

- Ad hoc evaluation by external referees
- Direktors, Institutes

- Experts

- Contracts

For all typs of access: they should be possible on site, staff assisted as well as fully remote