

Quality Management at HZB

for User Beamtime Projects

Introduction

The Helmholtz-Zentrum Berlin für Materialien und Energie (HZB) describes its quality management of beamtime projects in this present manual.

HZB operates BESSY II, an internationally acclaimed infrastructure for research with photons. Beamtime is offered to the international scientific community. Therefore, one of the main goals of quality management at the HZB is to support the synchrotron community.

In accordance with the rules of BMBF and the Helmholtz Association, access to the facilities is open to all scientists based on a transparent peer-reviewed proposal system, with rankings purely based on scientific quality.

Objectives of Quality Management

HZB addresses four **major challenges** in user service at BESSY II:

- **Maintenance of high scientific output**
- **Provision of outstanding infrastructure**
- **Achievement of high user satisfaction**
- **Creation of user demand**

Therefore, appropriate and open application procedures, fair and transparent beamtime allocation, efficient tools for managing the proposal and project workflow, as well as feedback tools have been installed.

Beamtime process

An overview of the workflow and interrelationships for a user beamtime campaign, from application to reporting, as well as the persons and units involved is depicted in Figure 1. Ideally, the **output** of this process chain is publications and **new scientific questions**.

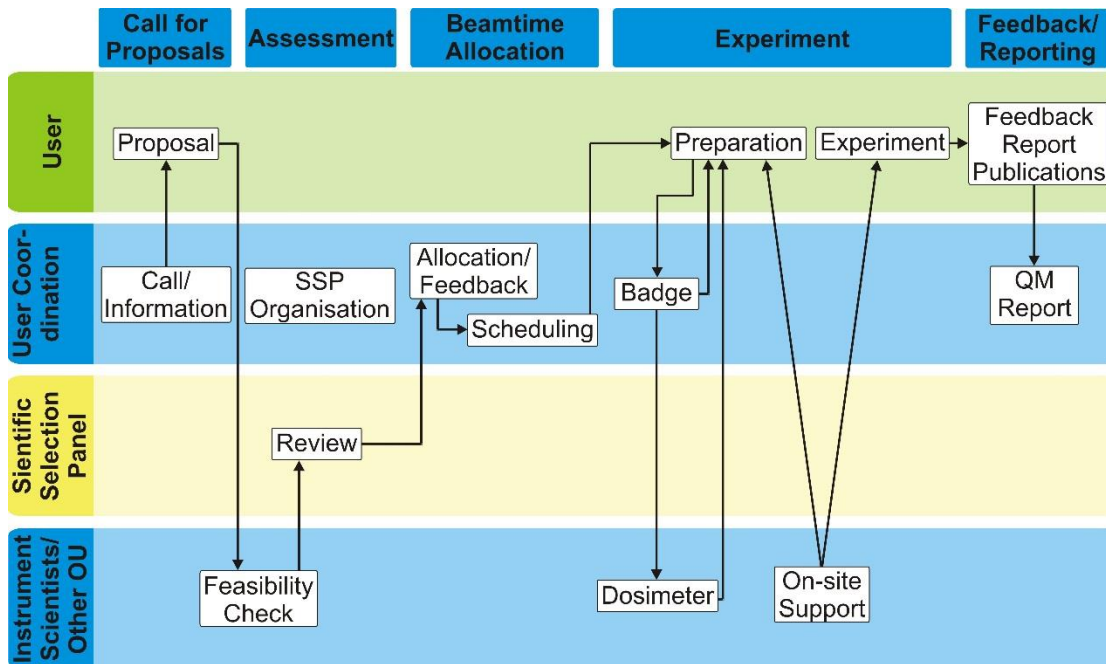


Figure 1: Interactions with users for proposal submission and beamtime campaign.

Phase 1: Call for Proposals

Calls for proposals are distributed to registered users as well as in scientific portals (lightsources.org, wayforlight.com etc.). Users are encouraged to contact User Coordination and the instrument scientists for help and advice on any issue related to the preparation and submission of a proposal. **The proposals must be treated with absolute confidentiality by all those involved.**

Phase 2: Assessment of technical feasibility and scientific review of proposals

After a **technical feasibility** check of each proposal¹, the scientific quality of the submitted proposals is peer reviewed by external referees and discussed within the meeting of the **Scientific Selection Panel (SSP)**. These referees are international experts in the specific scientific area of the proposals submitted.

During the **review process**, the referees evaluate the proposals with the main emphasis on the criteria: “scientific importance of the proposed project” and “necessity of the probe”.

Phase 3: Allocation of beamtime

The result of the review process is a **prioritised list** of proposals, with an appropriate **amount of beamtime** to be allocated. This defines the priorities for providing beamtime to the proposals. The HZB Board of Directors decides on allocation of beamtime for each proposal by means of this list. As a result of this process, a schedule or rejection note consisting of the priority rank, the public referee comments, and the allocation or rejection of beamtime² is send out to the applicant.

¹ In case of an experiment that is not feasible, feedback to the applicant is given and alternatives are suggested (e.g. appropriate instrument, beamline, operation mode, etc.). User Coordination contacts the applicant group for detailed discussions.

² Due to the large number of proposals, no intense individual discussion of the allocation decisions can be performed. In case the user feels inadequately assessed, he/she can appeal for a more detailed referee comment. This appeal must be addressed to User Coordination, who involves the responsible SSP Scientific College chair and the two main referees in formulating a more detailed assessment report.

Phase 4: Procedure for realisation of experiment

After scheduling, the **User Office** is the central service point for **logistic and administrative support** (e.g. invitation letters, support with visa formalities, travel arrangements, lodging, and allowance for travel support). The **Radiation Protection Office** takes care of the radiation safety provisions needed to access BESSY II.

Proactive support, i.e. contact between the user and the instrument scientist prior to beamtime is provided.

At the beginning of the beamtime, the **beamline scientist** will give an introduction to the experimental setup and its operation. The beamline scientist normally accompanies the experiment until the user has learned to conduct it autonomously. A continuous discussion of experimental and scientific issues during beamtime is highly desirable. In addition to the instrument scientist, the on-call service ("**Hallendienst**") can provide technical support, assisted by specialized **on-call services** on a 24/7 basis.

Phase 5: Feedback, reporting, publications

After the experiment, direct feedback is requested from the user in several forms:

- **Scientific experiment reports**
- **Comments on beamtime in the User Feedback**
- **Information on resultant publications**

User support scheme

The user is in direct contact with User Coordination (Fig. 2) both before and after beamtime. The main contact person for scientific discussions and support before, during, and after beamtime is the instrument scientist with his or her organisational unit. Feedback from all parties is collected by User Coordination and reported to the BESSY II Committee.

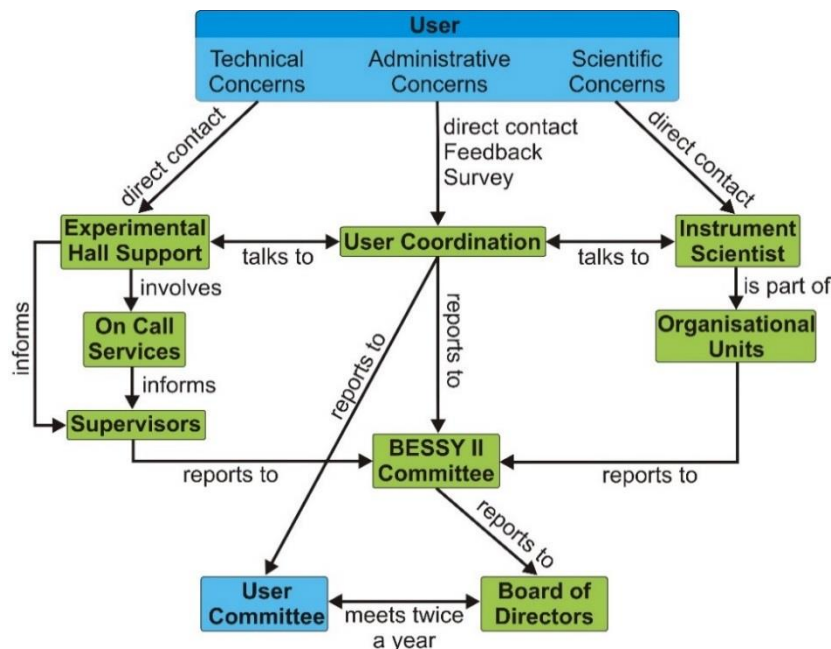


Figure 2: Relationships in user support scheme at BESSY II.

Response Procedures

While it is impossible to prevent or totally monitor every problem or difficult situation, immediate solutions need to be found and appropriate, transparent measures need to be taken. This process is moderated by User Coordination.

Level 1³

- **Administrative issues** will be discussed with the corresponding person and, if needed, with the respective unit or body.
- **Storage-Ring Operation** will be discussed by the BESSY II supervisor round.
- **User Operation, Experiments** problems should be solved in direct conversation with the beamline/station or instrument scientist as a first step. If the problem cannot be smoothed out, the instrument scientist or User Coordination should contact either the supervisor round at BESSY II or the respective organisational unit (OU).

Level 2

If no solution is found, the BESSY II Committee will get involved, with representatives from all OUs and bodies concerned with the operation of the storage ring.

Level 3

If no solution has been found, the problem will be presented to the Board of Directors.

Monitoring of beamtime process quality

To monitor, evaluate, and improve the beamtime process, HZB relies on feedback for every step in the process. This feedback comes from the proposers (proposal review feedback), the experimenters involved (beamtime feedback), the instrument scientists, and general user surveys.

A response to all critical feedback is given in a timely manner.

The annual evaluation of the feedback comprises main criteria such as

- Evaluation of the proposal process
- Quality of infrastructure
- Satisfaction with the services provided
- Publications
- Requests for beamtime

The Quality Management report will be discussed in several internal and external boards of the HZB and will lead to constant improvements of the services and infrastructure.

³ Any person involved in the problem can address the head of OUs, the committees or officers in charge (ombudsperson, safety officer, Works Council, User Committee and others).