BAM
Bundesanstalt für
Materialforschung
und -prüfung

October 2025

Management Handbook of BAM

Contact:
Sebastian Hein
Phone: +49 30 8104-5844
sebastian.hein@bam.de

www.bam.de

Table of contents

1 Bundesanstalt für Materialforschung und -prüfung (BAM)

1.1 Description

The Bundesanstalt für Materialforschung und -prüfung (BAM) is a senior scientific and technical Federal Institute with responsibility to the Federal Ministry for Economic Affairs and Energy (BMWE). We test, research, and advise on the protection of people, the environment, and material goods. Our legal status and tasks result from the Decree on BAM (OHB-A100) as well as the Legal Bases.

In performing our tasks, we pursue the goal of ensuring and further developing safety in the fields of technology and chemistry. We have defined this goal more clearly in our Mission Statement.

From an organizational perspective, BAM is divided into Departments and Divisions or Sections. This is shown in an Organizational Chart. BAM is headed by the President, who is supported in his tasks by the Board of Directors. Details are laid down in Rules of procedure (OHB-A301) and a Business Distribution Plan (OHB-A200).

Department 1 Analytical Chemistry; Reference Materials ensures innovation and reliability in analytical chemistry. It ensures the accuracy and precision of chemical analysis methods and quality assurance in chemical-analytical laboratories. It also develops and certifies reference materials and establishes analytical procedures through standardisation and interlaboratory comparisons. (bam.de)

Department 2 Process and Plant Safety deals with explosive, flammable or otherwise dangerously reactive substances, material systems and objects and their national, European, and international regulations. Essential work is carried out at the BAM Test Site for Technical Safety. (bam.de)

The task of Department 3 Containment Systems for Dangerous Goods; Energy Storage is the testing and approval of dangerous goods containment, which includes various packaging and containers for dangerous goods, including radioactive materials. In addition, the department conducts research into new materials for energy storage and improves testing regulations at national and international level. (bam.de)

Department 4 Materials and the Environment researches the long-term interactions of products and materials with the environment. It develops concepts for material protection, processes for the recovery of industrial recyclable materials and for the non-destructive analysis of art and cultural artefacts. It also analyses pollutant inputs and material damage to develop sustainable safety standards. (bam.de)

Department 5 Materials Engineering produces, characterises and validates structural materials. Research is focused on the relationships between processes, structure, properties, and performance of structural materials. The focus is on failure analysis, high-temperature oxidation, thermo-mechanical fatigue, polymer fiber composites, additive manufacturing of ceramics and automated glass synthesis. (bam.de)

Department 6 Materials Chemistry develops and characterises multifunctional materials using sustainable methods. These are tailored to specific functions. The department offers solutions for material science issues and supports material development and characterisation. Its strength lies in the rapid collation of data to increase the safety and reliability of materials. (bam.de)

Department 7 Safety of Structures develops innovative building materials and construction methods for structural and civil engineering. It analyses the safety and durability of building materials, components and structures under various stresses and the effects of fire over their entire life cycle. Further focal points are the mechanics of building materials for analysing damage processes and the evaluation of fire and explosion events. (bam.de)

In Department 8 Non-destructive Testing, non-destructive testing methods ensure the safe condition of materials, products, plants, and systems. The tasks include the application of radiological, acoustic, electromagnetic, optical, fiber-optic, thermographic and sensor-based methods as well as the development, improvement and combination of methods and their regulations. (bam.de)

Department 9 Component Safety conducts materials research and testing with the aim of further developing the safety of technical components, particularly in mechanical, plant and apparatus engineering and in the transport sector. In particular, the interactions between material, design and stress in the production and operational phases are analysed. (bam.de)

Department S Quality Infrastructure is involved in national and international committees in the areas of conformity assessment, accreditation, eco-design and energy labelling and carries out scientific studies to ensure the high standards of the quality infrastructure. It coordinates BAM's standardisation work, quality management, certifications, and reference products. (bam.de)

Department Z Central Services supports all departments at BAM with the personnel and technical infrastructure, including personnel management, organisation and procurement. (bam.de)

BAM has several notified bodies. These are authorised to carry out conformity assessments of products based on EU directives and regulations. BAM's notified bodies are listed in the NANDO database (Body number 0589; europa.eu).

BAM is recognised as a testing, inspection, and certification body (PÜZ body) in accordance with the German Construction Products Act and thus contributes as an impartial third-party body to ensuring that construction products comply with national requirements and can be used safely. The Deutsches Institut für Bautechnik (DIBt) publishes all PÜZ bodies in the PÜZ directory (Body number BER01; dibt.de)

Our accredited bodies prove that we have the expertise, reliability, independence, and integrity required for our work. The bodies monitored by the German Accreditation Body (DAkkS) are:

- Reference Material Producer / RM-11075-01 (Head: P, Deputy: AL 1)
- Testing Laboratory Dep. 1 / PL-11075-14 (Head: AL 1; Deputy: deputy AL 1)
- Testing Laboratory Dep. 4 / PL-11075-02 (Head: AL 4; Deputy: deputy AL 4)
- Testing Laboratory Dep. 5/9 / PL-11075-16 (Head: AL 5; Deputy: AL 9)
- Testing Laboratory Dep. 6 / PL-11075-03 (Head: AL 6; Deputy: deputy AL 6)
- Testing Laboratory Dep. 7 / PL-11075-01 (Head: AL 7; Deputy: deputy AL 7)
- Testing Laboratory Dep. 8 / PL-11075-08 (Head: AL 8; Deputy: deputy AL 8)
- Calibration Laboratory Div. 8.1 / K-11075-08 (Head: head KL, Deputy: deputy KL)
- Inspection Body TPED / IS-11075-21 (Head: head TPED-IS; Deputy: deputy TPED-IS)
- Certification Body BZS / ZE-11075-22 (Head: head BZS; Deputy: deputy BZS)

The scope of the accreditations can be found in the accreditation certificates and the overviews of the flexible scope on the BAM website (bam.de).

1.2 Impartiality

We are committed to providing all our services in an objective, transparent and impartial manner. The Rules on Integrity of the Federal Ministry of the Interior form the basis for our internal rules (bmi.bund.de).

Regulations on corruption prevention have been established (OHB-D300). A Representative for corruption prevention has been appointed to support the management.

Our employees declare their compliance with BAM's External Funding Code as part of the application process for externally funded R&D projects, according to the External Funding Guideline (OHB-L300).

Our employees are obligated to disclose any conflicts of interest, e.g., due to relationship, membership, or cooperation. They are sensitized to act with integrity by their superiors during their induction and in regular briefings, following their functions and relationships within the framework of service provision.

Impartiality is an integral part of the risk assessment following BAM's Risk Policy (OHB-K200).

1.3 Independence

As a Federal Higher Authority, we receive our basic funding from the federal budget and are therefore economically independent. Earnings of scientific and technical services are transferred according to budgetary regulations. BAM is subject to financial control of the Bundesrechnungshof (Financial Audit Office).

Our employees provide their services free from undue internal and external commercial, financial, and other influences.

1.4 Confidentiality

We ensure that information and data of customers or third parties, which are dealt with in the course of our service provision, are handled confidentially and securely. Precautions have been taken within the organization to counteract any loss or misuse of data.

BAM's data protection management system (OHB-D400) guarantees and protects the fundamental freedoms of data subjects, in particular their right to the protection of personal data.

With the help of the guideline on information security (OHB-D100), we ensure that the protection goals of information security are achieved in the provision and use of information and communication services and in the handling of information.

The classified information instruction (OHB-D200) regulates the handling of information requiring secrecy in the public interest.

Data protection, information security and confidentiality officers have been appointed to support the management.

If confidential information is exchanged with third parties in research projects, the aim is to conclude a Non-Disclosure Agreement. In the case of services based on a contract, these contain confidentiality agreements with the customer.

Our employees are bound by their duty of professional secrecy following § 61 BBG (Official secrecy), § 3 (1) TVöD (Official duty of confidentiality), and § 353 b StGB (Violation of official secrecy). They are sensitized to the topic of confidentiality by their superiors as part of their induction and in regular briefings.

1.5 Liability

The Bundesanstalt für Materialforschung und -prüfung (BAM) is a Federal Institute under public law with no legal capacity and with responsibility to the Federal Ministry for Economic Affairs and Energy (BMWE); it is a higher federal authority.

As part of the direct federal administration, BAM is subject to the principle of self-insurance. Risks for damage to persons, property and assets of the Federal Government are generally not to be insured in accordance with No. 11 sentence 1 of the Administrative Regulations (VV) to Section 34 of the Federal Budget Code (BHO). If damage occurs, the expenses incurred are paid from the federal budget. However, this only applies if there is no insurance obligation by law or local statute.

2 BAM QM System

2.1 Quality mission statement

The basis of our QM system is the Quality Mission Statement, which defines our strategic quality objectives. These are

- the fulfillment of the requirements placed on our services, considering the demands of our customers and stakeholders from the fields of business, science, politics, and society,
- ensuring the technical quality of our results and their national and international acceptance,
- the continuous improvement and optimization of our processes and
- the maintenance and development of the skills of our employees.

2.2 Control

The President, together with the Board of Directors, determines BAM's strategic quality objectives as outlined in the Quality Mission Statement. To support him, he appoints the Quality Management Representative of BAM (QMB-BAM) and sets up the Quality Management Committee (AQM).

The Quality Management Representative of BAM (QMB-BAM) is responsible for the further development of the QM system. Their tasks include the management of the AQM, the revision of the central QM documentation, advising the President, the Board of Directors, and the Departments, the training of the employees as well as the external representation of the QM system. The QMB-BAM is supported in their tasks by employees in the central QM team.

The Quality Management Committee (AQM) is composed of the chair, manager, and the quality management representatives of the Departments. The chair is appointed by the President. The AQM supports the Board of Directors in implementing the quality mission statement, develops central QM documents and processes, and serves as an exchange between the Departments on QM issues. The minutes of the AQM are published.

The heads of the Departments, Divisions, and Sections are responsible for the implementation and application of the QM system in their working areas and the associated proper and safe execution of the processes. They ensure that the necessary resources are made available and that employees are competent and familiar with the processes and standard operating procedures relevant to them. An overview of the managers and their deputies can be found in the organisational handbook (OHB-A302).

To support them, the managements appoint QM Representatives for the Departments and - where necessary – for the Divisions and Sections. A form is used for the appointment and dismissal.

The QM representatives of the Departments are multipliers in QM matters and contact persons for QM-relevant issues. They advise the management and the other employees. The QM representatives of the Departments manage those working groups of the Departments in which the exchange with the QM representatives of the Divisions is ensured. Their further tasks result from the QM processes.

The QM representatives of the Divisions support the work of the QM representative of the Department e.g. by providing input and advice or updating the divisions' QM documentation. An overview of the Quality Management Representatives is published.

All employees are responsible for the quality of their work and at the same time are required to observe and apply the specifications of the quality management system and to actively participate in its further development. To sensitise employees according to their functions, the central QM regularly offers events on quality management (training courses, exchange of experience).

In cases of conflicts related to QM, problems and decisions are escalated starting at the operational level and, if necessary, through the next higher management levels up to the President. The QMB-BAM participates in his or her representative function at all levels.

2.3 QM documentation

The aim of the QM documentation is to describe our QM system and make it transparent, to clearly define tasks and competencies, to present work processes in a logical sequence, to define interfaces and clearly delineate responsibilities at the interfaces, to ensure traceability and reproducibility in all work steps, and to document scientific, technical, and administrative knowledge. It is created and maintained in the levels shown in Figure 1.

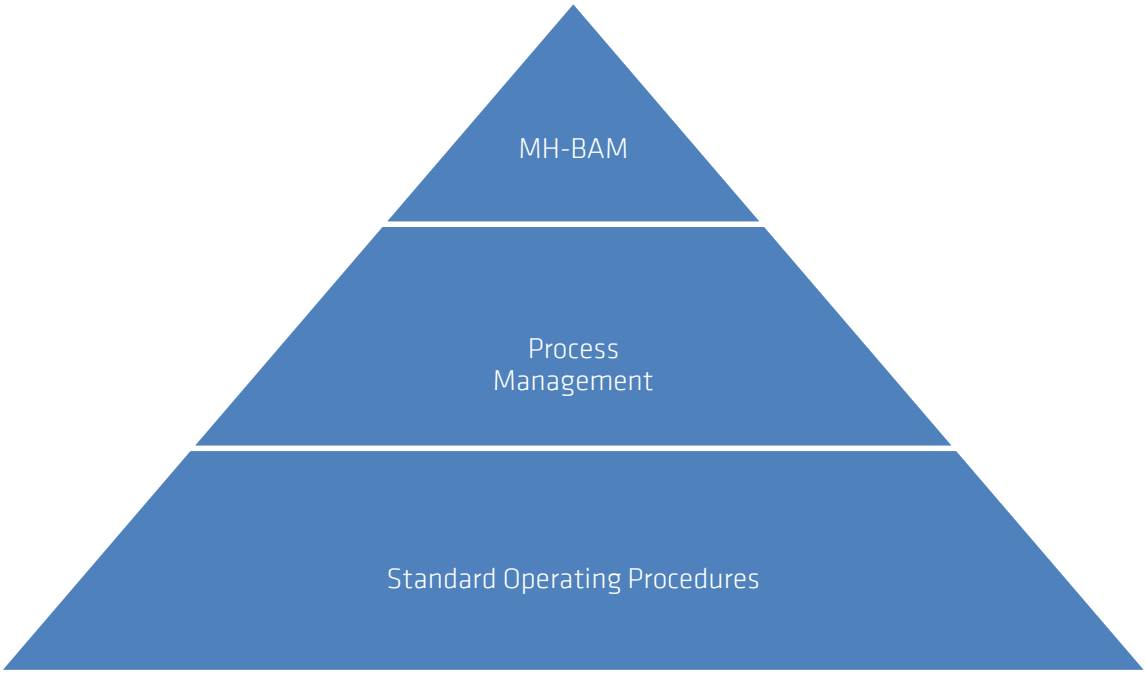

Fig. 1: QM documentation of BAM

The control of QM documentation is regulated in a process. Document Templates are available for a uniform appearance. The QM documents are clearly identified, adapted promptly in the event of current changes, and checked at least every two years to ensure that they are up to date. Changes to QM documents can be identified appropriately. Outdated documents are marked "invalid".

The Management Handbook (MH-BAM) includes the basic regulations of our QM system. It is available to the employees together with its Guidelines and Forms. They have a binding character regulating the entire organization. The QM Guidelines and Forms are released by the chair of AQM.

BAM's process management is governed by an In-house Regulation (OHB-C100). Our management, core, and support processes are shown in a process map (Fig. 2). It is accessible to all employees via the BIC Portal. A Process for handling processes is published.

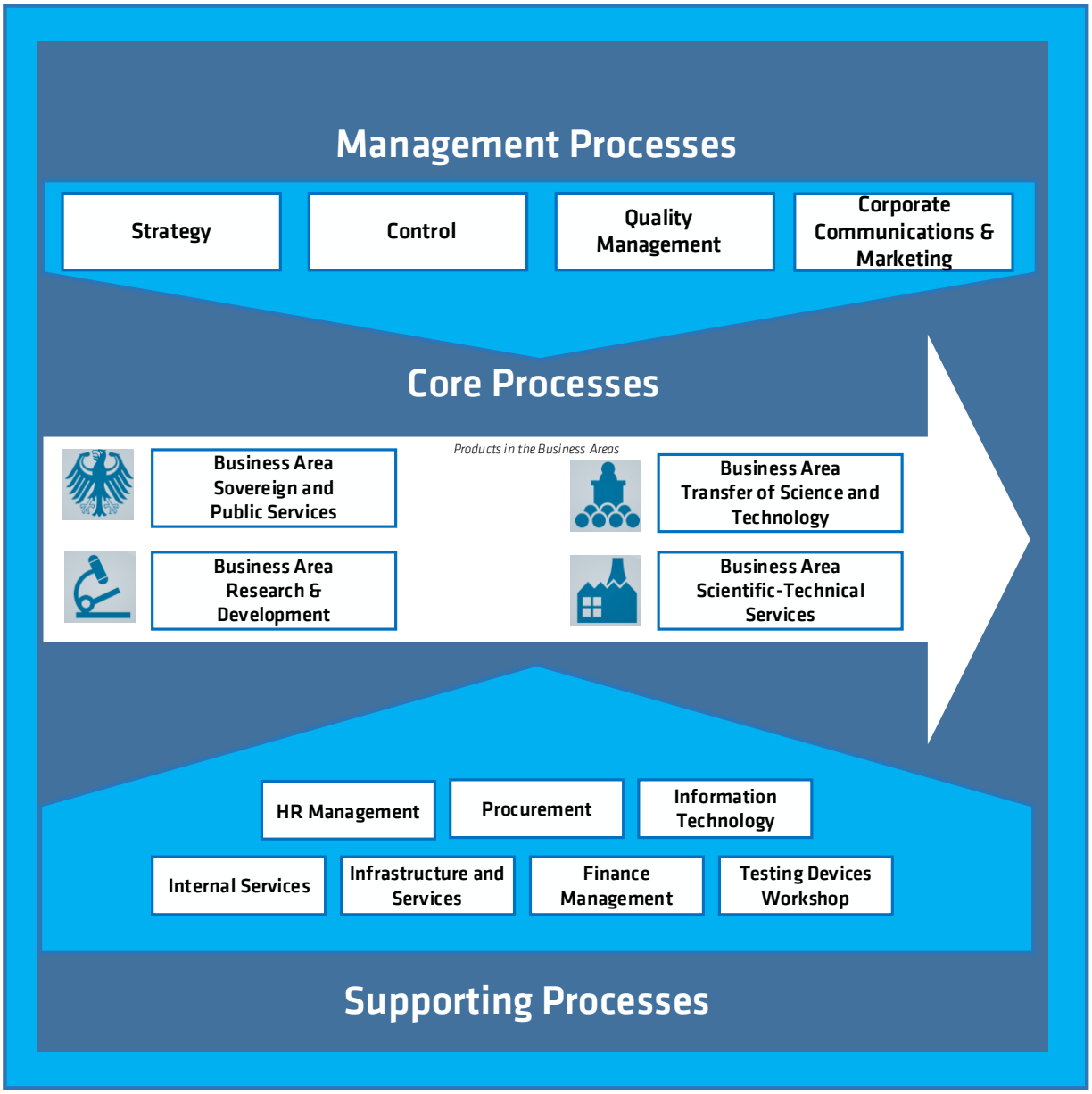

Fig. 2 BAM process map

Standard Operating Procedures (SOPs) and procedural instructions describe the performance of recurring activities, such as the performance of tests or the handling of test equipment. They are created and kept up to date by the respective experts.

The QM documentation is mapped and maintained in the document management system E-Akte in an audit-proof manner. All employees who have a role in the QM system are given write access within their area of responsibility, and all other employees are given read access. The release regulations are implemented in electronic workflows. Only the last released version in the E-Akte is the valid version of a document. Decentrally stored electronic copies or paper

versions must be checked for validity before they are used. Further regulations are set out in the guideline "Document control in the E-Akte" (QM-L014).

There is a process in place to ensure that BAM is informed about the laws and regulations to be observed. This provides for the maintenance of overviews of the relevant regulations and an annual update check as part of the management review.

The Nautos system is available for obtaining and monitoring the up-to-dateness of standards and informs employees of any changes. If new versions of standards are published, the Division or Section checks whether they must or should be applied and whether the procedures in place are affected by these changes. The release of new standard versions is regulated in a process.

The employees affected are informed about the relevant changes.

2.4 Internal audits

The aim of internal audits is to check compliance with requirements in a systematic manner and to record errors and possible mistakes to avoid them in the future. With their help, the strengths and potentials of the organization can be identified, and improvements can be stimulated.

The central QM team prepares an audit program that defines the internal audits for the current year. BAM's audit program considers the main services of BAM and the requirements placed on these services (e. g. Good Research Practice or ISO/IEC 17025).

Internal audits are conducted by qualified internal auditors. They conduct audits in all Departments of BAM according to their professional expertise, thus stimulating the interdisciplinary exchange.

The procedure for conducting internal audits is defined in a process.

2.5 External assessments

Wherever it is necessary for our tasks, if customer requirements exist, or if it seems sensible to build trust, we use external assessments.

As a departmental research organization, BAM is evaluated for its R&D operations by the German Science and Humanities Council.

For our industrial services, we use an accreditation performed by the German Accreditation Body (DAkkS). For this purpose, we have published the process „DAkkS Assessment". The rules on which the accreditation is based are documented in the E-Akte.

For further services, the fulfillment of further requirements is supervised externally, e.g. the supervision of administrative actions.

Regular peer reviews and re-evaluations are carried out by EURAMET within the framework of the Mutual Recognition Agreement between national metrology institutes (CIPM-MRA). Further details can be found in the QM Guide „Metrological State Tasks of BAM" (QM-L013).

2.6 Correction management

In dealing with nonconformities and errors, we strive for an open error culture. Nonconformities obtained from internal and external audits, complaints, and internal errors are collated and documented in centrally kept collective lists in the frame of the Correction Management process.

2.7 Management review

Each technical Department conducts an annual Management Review. The Heads of Departments and Divisions evaluate the status, appropriateness, and effectiveness of the QM system in terms of the fulfillment of requirements and operational quality objectives, as well as the implementation of measures and opportunities for improving the QM system. New operational quality objectives are defined, measures are scheduled, and responsibilities are defined. The heads of the Departments are supported by the Departments' QM representatives. The management review takes place at the beginning of the year so that its results can be incorporated into the Concept and Strategy Meetings (see BAM strategy cycle).

Departments' risks and opportunities are also recorded and updated as part of the management review. Risks are assessed following BAM's Risk Guideline (OHB-K200).

BAM's QM representative is responsible for the annual presentation on the status, adequacy, and effectiveness of the QM system to the Board of Directors. The Presentation is based on the reports from the Departments collated in the so-called Q-Report, which provides information on the achievement of quality objectives, innovations in the QM system, the conductance and results of internal audits and external assessments, customer feedback, and QM events. The Board of Directors evaluates the Q-Report and sets new operational quality objectives.

The procedure for conducting the management review is shown in a process.

2.8 Internal communication

BAM maintains an open communication culture. This takes place at all and across all levels. Various communication channels and media such as email, telephone or web conferencing software are used. Contact details of BAM employees can be researched quickly and easily via the BAM telephone and e-mail address book. A functional e-mail has been set up for each department for communication between the QM representatives.

Extensive information about the organization, the rules and regulations, and central projects of BAM are published in the Infoportal. In addition, there is regular dialogue on specialist topics and quality management at various levels, e.g. in meetings of the Board of Directors, the heads of divisions or sections, service meetings, assemblies, colloquia, or workshops.

The QMBs of the departments report at least once a year to the department management teams on the status of quality management. Appropriate evidence is kept for this purpose.

The relevant contents are documented and made available to all employees. This ensures that all employees receive the information they need to perform their tasks.

3 Resource Requirements

3.1 Personnel

In order to live up with the diverse and demanding tasks of safety in technology and chemistry, we ensure the competence and qualification of our employees.

Requirements for the competence and qualification of employees are documented for defined roles within the process management and for specific technical requirements in the Standard Operating Procedures. All requirements flow into the personnel recruitment process described in the „Personnel Recruitment Process“. Personnel is selected in accordance with the guideline „Personnel Recruitment Process“.

The induction of new employees into the organizational and technical principles of working at BAM is based on the Induction Plan and described in a Process. The induction by experienced employees is a basis for good scientific work.

The regulations for the supervision of young scientists pursuing a doctorate are laid down in the Framework for PhD students of BAM and their supervisors (OHB-P430). This stipulates the conclusion of a supervision agreement.

Upon completion of the induction process, the employee fulfills the competence requirements for the activities to be performed. The direct superior confirms the fulfillment in the induction plan and assigns and communicates the corresponding responsibilities and authorities to the employee.

The Divisions and Sections maintain personnel lists showing the assigned responsibilities. In addition to the specialist areas of expertise, they also describe the assumption of other roles, such as QM or safety representatives or data stewards.

Qualification measures are part of the individual professional development and are made possible for employees in dependence on the annual allocations. In the Annual Meeting for Employees (OHB-P530), the need for qualification is recorded and transferred to the Qualification Lists.

To implement the qualification measures, BAM makes use of internal and external expert offers. Participation in training courses is documented and evaluated. Evidence of participation in qualification measures is handled in accordance with the procedural instructions for qualification measures (OHB-P400).

Where necessary, management uses Personnel Competence Sheets to monitor the competence of personnel and document corresponding evidence, when new responsibilities and authorities are transferred to an employee, especially concerning the products Testing/Analysis, Calibration, Reference Materials, Inspection, and Certification. Personnel Competence Sheets are updated annually. Role-specific authorities are documented within process management.

Employees are sensitised to all relevant topics, such as Good Research Practice or occupational safety, through regular instruction. The instruction obligations are documented in the organisational handbook (OHB).

When an employee leaves BAM, the superior ensures that knowledge is secured and transferred with the help of the Knowledge Transfer Guideline (OHB-Q101). The transfer of knowledge is regulated in a Process.

Before an employee leaves, superiors are provided with a Checklist containing requirements for retaining knowledge and ensuring the traceability of data and records. Details are governed by a Process.

Documents relating to the training and qualification of employees are part of the personnel file, for which the human resources department is responsible. Access is regulated by law. The QM personnel documents are documented in the divisions or sections. The confidentiality of this information is guaranteed by restricting access.

Further personnel management instruments are described in the Personnel Development Concept.

3.2 Premises and environmental conditions

Activities are carried out in premises with appropriate environmental conditions. It is ensured that results are not distorted or adversely affected in their quality. Effective separation is provided between areas where incompatible activities are performed. Where necessary, relevant influencing factors are monitored, regulated, and recorded. Such requirements are documented in the Standard Operating Procedures.

The legal requirements covering Occupational Health and Safety are taken into account.

Access Regulations for the different areas of BAM are documented (OHB Sec. H). Customers and co-operation partners are granted access to laboratories as well as presence during the

performance of the services they have commissioned. In this context, all measures are considered which come into play in the case of confidentiality agreements.

In iTWO fm room lists can be viewed by superiors and Department secretariats. Location and Access Maps for all BAM sites are published. Accredited areas maintain separate room lists.

The regulations of the QM system also apply if services are provided at locations or premises outside BAM.

3.3 Test and measurement equipment

To provide our services, test and measurement equipment shall be used that is suitable for the proper performance of the intended applications. They achieve the required measurement accuracy or uncertainty, thus meeting the specifications relevant to the applications concerned.

The facilities are supervised by equipment responsibles, who provide documented instructions for the users. For the proper use of the other facilities the employees inform themselves through current instructions for use and maintenance. All test and measurement equipment are therefore only operated by competent personnel.

The equipment responsibles are also responsible for maintaining the operational readiness of the equipment assigned to them. They ensure that the manufacturer's instructions for safe handling, calibration, transport, storage, and maintenance are adhered to. They are responsible for decommissioning defective devices and for recommissioning repaired devices.

Before they are used, test and measurement equipment are checked for their functionality. The use and handling of the equipment is documented in the laboratory documentation.

We ensure the metrological traceability through a documented, unbroken chain of calibrations, if the characteristic values have a significant influence on the test and measurement results. Whenever possible, traceability is to the International System of Units (SI). Calibrations can be performed internally or externally by competent suppliers. The requirements to be taken into account are documented in the Guide Metrological Traceability (QM-L004). Required intermediate checks to maintain confidence in the calibrations are performed out according to documented procedures.

Test and measurement equipment are clearly marked. Their hardware and software are secured against changes to the settings that could falsify the results. Testing and measuring devices

have records in a device folder, which can be kept in digital or paper form. It contains at least the following documentation:

- procurement documents (performance requirements, specifications, initial inspection, etc.)
- results of the metrological traceability (calibration certificates)
- proof of verification or validation
- traceability of software versions and their validation (e.g. use of known reference objects, data, or characteristic values)
- results of device-specific quality assurance measures (intermediate tests, comparative measurements, aspects of measurement uncertainty, corrective measures if necessary, etc.)
- other deviations from normal operation

Test or measurement equipment that operates incorrectly or provides questionable results is immediately taken out of service upon discovery and marked as unusable. Possible effects on previous investigations are dealt with using the Corrective Action Management process. Only when documented evidence has been provided that the equipment is producing satisfactory results it will be returned to service.

Test or measuring equipment developed at BAM and designed for permanent use complies with the provisions of the Product Safety Act. Depending on the type of testing or measuring equipment, other EU directives (e.g. Machinery, Pressure Equipment or Low Voltage Directive) must be considered. Further information can be found in the document 'Construction of Scientific Equipment - Machinery Directive' (OHB-B106) and in the Infoportal under Central workshop - Scientific equipment construction.

In cases where Divisions use test or measurement equipment that are not under their constant control, it is ensured that the requirements described here are met.

Each Division maintains an overview of available equipment in their QM documentation. The overview is maintained by the respective QM representative.

3.4 Externally provided products and services

Specific requirements for products and services that have an influence on the test and measurement results are defined in the Standard Operating Procedures (SOPs). They are based on the competence and experience of the employees and are fit for purpose. The selection and evaluation criteria are included in the performance specification of the purchase order application.

The procurement of products and services is subject to national and European procurement legislation as well as BAM's Internal Procurement Rules. The procurement office's procedure is documented in the Procurement process.

A suitability assessment of the suppliers is carried out by the procurement office in accordance with the Procurement Ordinance (VgV), the Act against Restraints of Competition (GwB), and the Federal Budget Code (BHO). Due to procurement law, no supplier rating list shall be maintained. Concerning adherence to deadlines and diligence, the procurement office monitors suppliers and acts in the event of overruns.

When subcontracting services, it is ensured and can be demonstrated that the subcontractors have the necessary expertise and meet the requirements placed on the service provision (e.g. compliance with the requirements for testing and calibration as specified in ISO/IEC 17025:2017). These requirements are also taken into account when subcontracting internally via the Subcontract form.

The Divisions inform the procurement office about the receipt and quality of the delivered products and services. In the positive case, the delivery bill is marked „Goods properly received" and forwarded to the procurement office.

The quality of the products and services is monitored and evaluated by appropriate quality assurance measures. Records of the implementation of these measures are kept in the laboratory or equipment books.

If quality deficiencies are found, the product is marked and handled in such a way that its further use is excluded. The Division informs the procurement office that acts in accordance with contract law.

4 Product Requirements

4.1 Customer focus

We strive to meet the requirements and expectations that our stakeholders place on our services. We, therefore, work closely with our customers as part of the service delivery process.

Our key target groups are:

- Federal ministries, the European Commission, and international organizations
- Trade associations, industrial companies, especially small and medium-sized enterprises
- Universities, non-university research institutions, scientific organizations, scientific associations
- Standardization bodies and rule-making institutions
- Authorities, courts, and statutory bodies
- Consumer organizations

Through regular exchanges with the Federal Ministry for Economic Affairs and Energy (BMWE), the Advisory Council, and the Scientific Advisory Boards, we receive feedback from our stakeholders in science, business, politics, and society and can thus respond to their expectations in our strategic orientation. Further requirements are determined in the form of customer surveys or customer conversation.

If feedback is received from customers that indicates satisfaction or dissatisfaction with the services or cooperation, this is analysed and used to make improvements where necessary. Negative customer feedback is responded to professionally after an internal review. The procedures are defined in the customer-orientation process, which takes into account the handling of complaints and objections. This process is made available to customers on request. Text Modules are available to employees for communication in complaint situations.

BAM's Rules of Procedures (OHB-A301) set out further regulations on communication and cooperation with authorities and external parties.

4.2 BAM services

Our services are presented in a systemized form derived from the Decree on BAM, which is divided into three levels: Business Fields, Product Groups, and Products. Each product is presented in the Process Map as a core process. BAM's four business fields are

- Research and development

- Sovereign and public services
- Scientific and technical services
- Knowledge and technology transfer.

4.3 Research and development

Research and development form the basis for our scientific-technical, sovereign, and public services. This includes basic and applied research as well as the development of new products and processes. Our Research Program serves as a link between strategy development and implementation. It provides an overview of current research work and sets the framework for future research tasks.

Our research and development work is subject to the Code to ensure the Scientific Integrity of BAM (OHB-A110) which refers to the Code of the German Research Foundation (DFG) with the Guidelines for Safeguarding Good Scientific Practice. We have supplemented the BAM Code with a Data Policy (OHB-L115), Open Access Policy (OHB-V100) and Open Source Policy (OHB-L110).

Two ombudspersons of BAM have been named. They can be contacted in all questions of good scientific practice and in suspected cases of scientific misconduct. The handling of scientific misconduct is published in a process.

4.4 Sovereign and public services

Sovereign and public services are tasks assigned by law. This includes approvals and authorizations as well as policy advice and participation in national and international committees, especially for rule-making and standardization. The application portal provides customers with access to key sovereign services. All committee activities with an external impact are recorded in a database.

Our approval, certification, and expert activities are based on international conventions and standards, European directives, and national law.

Procedures and regulations for the implementation of sovereign and public services are published in the BIC portal or in the QM documentation of the responsible departments and in the organizational handbook (OHB).

4.5 Scientific and technical services

Scientific and technical services are remunerated services we offer based on proven knowledge and methods. In addition to performing tests and analyses and the preparation of expert reports, we also contribute to quality assurance through conformity assessments (certification and inspection) and the provision of reference materials, reference procedures, and reference data.

In this business field, we comply with the requirements set out in the international ISO 17000 series of standards. This concerns ISO/IEC 17025:2017 for testing and calibration activities, ISO 17034:2016 for the production of reference materials, ISO/IEC 17020:2012 for activities as an inspection body, and ISO/IEC 17065:2012 for activities as a certification body.

Procedures for the provision of our scientific and technical services are documented in the corresponding core processes in the BIC portal or in the QM documentation of the responsible departments.

4.6 Knowledge and technology transfer

Through efficient knowledge and technology transfer, we make our findings, technologies, and processes available to interested stakeholders. Together with our partners, we develop research results into innovative products, processes, services, and suitable transfer offers in line with our production model. We engage in technology transfer in our national and international networks by passing on our own findings. At the same time, we utilise the expertise and valuable impulses from our networks for our current work and the future direction of BAM. A description of all transfer channels and transfer products can be found in the Transfer@BAM guideline.

4.7 Quality assurance

The quality assurance measures listed below are used for a large part of our services.

Test and measurement procedures applied or developed in the context of service provision are suitable for their intended purpose and generate valid data. This is evidenced by a description of the procedure (project documents, publication, standard operating procedures) and further documented evidence. The Guideline “Verification and Validation” (QM-L002) supports the implementation of the topics.

Suitable quality assurance measures are selected and implemented for all test and measurement procedures. The results are checked for plausibility. The Guideline “Quality Assurance Measures” (QM-L001) describes the most common methods.

Measurement results are traceable to a reference, preferably the International System of Units (SI). The Guideline “Metrological Traceability” (QM-L004) describes how metrological traceability is ensured.

Evaluations and interpretations of the results are carried out according to the state of the art and take into account the measurement uncertainty. In research and development, this is part of our scientific self-understanding. Procedures for deriving measurement uncertainties are presented in the Guideline “Determination of Measurement uncertainties” (QM-L005).

In the QM Toolbox, we have compiled further tips and links on these topics.

4.8 Publication of results

Research results are generally published, provided there are no contractually agreed confidentiality obligations. We use different refereed and non-refereed forms of publication, presentations, and research data sets. Our library provides hints for publishing. The Open Access Policy (OHB-V100) applies. All publications are published in the Publica database.

Results reports for scientific and technical services as well as for sovereign and public services are created based on central templates that are kept in BAM's corporate design (BAM-CD). They are suitable for transmission in paper form as well as for electronic transmission.

4.9 Signing and sealing

Regulations on signing and sealing are laid down in BAM's Rules of Procedure (OHB-A301). The rules for signing are specified in more detail in the Signature Regulations (OHB-A311) and, if necessary, in processes. The „Regulation on Electronic Signing of Documents“ (OHB-A325) applies to the signing of electronic documents. Documents are sealed following the Official Seal Guideline (OHB-A320).

4.10 Records and data

We ensure that records are kept for all relevant activities that lead to the provision of services or serve to ensure the QM system. These records contain sufficient information to make it as easy as possible to identify factors that affect results and to allow repetition under the documented conditions. Original observations, data, and calculations are recorded at the time they are made and attributed to the specific task. Records include the date and identity of the individuals responsible for each activity and result.

Changes to records can be traced back to previous versions or original observations. Both the original and modified data and files are retained, along with the date of the modification, an indication of what was modified, and the person responsible for the modification.

All employees who generate data are responsible for backing up this data. The basis for this is the Data Backup Concept.

The structure of the data folder is designed logically and in a way that is comprehensible to third parties. After completion of the processes, the data folders are backed up in such a way that they are protected against unintentional modification. In addition, documentation is kept which allows clear assignment of the respective raw data to the corresponding metadata and samples.

All those involved in the process, including the superior, have access to the data folders. Access by unauthorized persons is precluded, especially in the case of data requiring protection (e.g., General Data Protection Regulation [DSGVO] or non-disclosure agreements). All divisions and sections maintain an authorisation concept in accordance with BAM's data protection management system (OHB-D400).

Wherever possible, research work is recorded in the Data Store, the central infrastructure for storing (meta) data, displaying the laboratory inventory and standardised documentation of experiments in an electronic lab book. The Data Policy (OHB-L115) must be observed, which defines the handling of research data within BAM and in cooperation with partners.

In principle, the Guidelines for electronic document management (OHB-A330) apply to the processing of business transactions.

4.11 Software handling

Self-developed or modified software, templates or macros are validated before they are used. The aim of validation is to prove that the software works without errors. The procedure is described in a process. Commercial software that is used in its intended area of application is considered to be sufficiently validated.

As part of BAM's Open Source Strategy (OHB-L110), the extent to which software created in-house can be made available to the general public is examined, provided there are no legal obligations or reasonable grounds to the contrary.

4.12 Archiving

All records and data created in connection with the provision of services and the QM system are kept for at least 10 years. Longer periods may result from legal or contractual requirements. These are documented in the corresponding processes.

Archived records and data are indexed to allow for proper retention and quick retrieval. They are annotated with the specified retention period, protected from unauthorized access, secured against manipulation and loss, and stored in an environment that ensures their preservation during the retention period.

Sample materials are stored under comparable requirements, considering their stability and shelf life. The handling of the samples is agreed with the customers and project partners.

The Regulation on Electronic Records Management (OHB-A330) applies to the archiving of business transactions and the associated issues of segregation and submission of documents to The Federal Archives.

Each division and each section maintains a deletion concept in accordance with the requirements of BAM's data protection management system (OHB-D400).

5 Applicable Documents

Abbreviation	Title
GO-BAM	Rules of Procedure of BAM
OHB	Organisational Handbook of BAM
	QM-Guidelines
	QM Forms
	Glossary

6 Amendments

Date	Amendment
June 2024	Additions and amendments to sections 2.3 QM documentation (QM documentation process, E-Akte guideline, laws and regulations process), 2.5 External assessments (management of accredited bodies) and 4.11 Handling of software (software validation); editorial adjustments
August 2025	Additions and amendments: 1.1 Description of BAM (text shortened, brief introduction of the departments, notified bodies, PÜZ bodies, accredited bodies); 1.5 Liability (new); 2.2 Control (tasks of the QMB of divisions, functional addresses); 2.3 QM documentation (binding nature of the E-Akte, monitoring deadline for documents, SOP lists deleted); 2.5 External assessments (DAkkS regulations); 2.6 Corrective management (corrective action sheet deleted); 2.7 Management review (link to strategy process); 2.8 Internal communication (telephone directory, communication channels); 3.1 Personnel (E-Akte, instruction obligations); 3.2 Premises (customers in the laboratory, room lists); 3.3 Facilities (equipment folders and responsibles); 4.1 Customer orientation (process, target groups); 4.4 Sovereign services (application portal); 4.6 Knowledge transfer (databases); 4.9 Signing (GO-BAM); 4.10 Records (authorisation concept, Data Store); 4.12 Archiving (deletion concept; segregation); 5 Applicable documents; editorial changes
October 2025	Additions and amendments: 1.1 Revocation of accreditation Dept.3, 2.2 Escalation process, 2.3 Standards management system Nautos, 2.8 Reporting obligations of QMBs of departments in management meetings