

**TIB** LEIBNIZ-INFORMATIONSZENTRUM  
TECHNIK UND NATURWISSENSCHAFTEN  
UNIVERSITÄTSBIBLIOTHEK

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# TIB STRATEGY 2018-2022

// THE GERMAN NATIONAL LIBRARY OF SCIENCE AND TECHNOLOGY IN THE DIGITAL TRANSFORMATION ERA

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## THE GERMAN NATIONAL LIBRARY OF SCIENCE AND TECHNOLOGY IN THE DIGITAL TRANSFORMATION ERA

The mission of the Technische Informationsbibliothek (TIB) – German National Library of Science and Technology, as a research infrastructure facility, is to ensure the supraregional provision of literature and information for all areas of technology and their basic sciences – Mathematics, Physics, Chemistry, Computer Science and Architecture. In this respect, TIB faces two major challenges:

- » **BEING A NATIONAL SPECIALISED LIBRARY, IT OPERATES AT THE INTERSECTION OF DIGITAL PRODUCTION OF SCIENTIFIC WORK, DIGITAL PUBLISHING AND THE GLOBALISATION OF INFORMATION AND COMMUNICATION.**
- » **BEING AN INSTITUTE FINANCED BY THE GERMAN FEDERATION AND THE FEDERAL STATES, TIB INCREASINGLY CONDUCTS ITS OWN RESEARCH TO GENERATE NEW SERVICES AS WELL AS ADAPT AND OPTIMISE EXISTING SERVICES.**

These two aspects define the library's strategy, which seeks to strengthen TIB's role as the German information centre for the digitisation of science and technology. TIB, the world's largest specialised library of science and technology, provides scientific content, digital services and methodological skills to support scientific work of all target groups in research and teaching. In the process, it performs the essential classic tasks of a library. These include collecting, indexing, provisioning and archiving using state-of-the-art technology on the basis of national and international cooperation, taking into account the latest developments in scientific communication, open and quality-assured publishing and copyright requirements. In particular, TIB extends this remit to non-textual materials and research data. The library actively promotes information exchange in its subject domains by means of semantic models and digital services. By developing consortia and licensing models with right holders, it ensures the provision of scientific material, irrespective of its physical form.

At the same time, TIB is significantly expanding its research capacity in cooperation with higher education institutions to address contemporary research issues in the context of digital libraries and to generate new, innovative services for its target groups. Increasing digitisation and networking at all kinds of levels influences researchers' everyday work at all stages of the research cycle. As a result of its unique positioning as an information centre, with strong links to specialist communities as well as national and international initiatives, TIB acts as an initiator of and catalyst for interoperability and standardisation in the increasingly digitised world of science and technology. This is also done through supporting collaboration, exploitation of synergies and sustainability by pursuing a firm Open Science, Open Data and Open Access approach.

As a consequence this Strategy sets out five key, closely intertwined guidelines on TIB's path of development.

# FIVE CLOSELY INTERTWINED GUIDELINES ON TIB'S PATH OF DEVELOPMENT

1. PRESERVE KNOWLEDGE AND FACILITATE ACCESS
2. ENGAGE IN RESEARCH
3. STRENGTHEN COOPERATION WITH HIGHER EDUCATION INSTITUTIONS
4. INCREASE NATIONAL, EUROPEAN AND INTERNATIONAL COOPERATION
5. PREPARE TIB FOR THE FUTURE

Each guideline can be broken down into particular strategic objectives, which specify the various facets of the guideline and form the basis for preparing TIB's annual programme budget.

The guidelines and strategic objectives are flanked by the definition of a vision, a mission and values that determine our actions.

Taken as a whole, the Strategy 2018-2022 takes TIB further on its path towards becoming a research library. In this way, TIB performs essential functions in the provision, indexing and preservation of contemporary knowledge objects for science, business and society in the current digital transformation process. This productive combination of unique collections, high level of information literacy and research skills is special and significant for whole Germany.



# GUIDELINE 1: PRESERVE KNOWLEDGE AND FACILITATE ACCESS

## A HOLDING LIBRARY

Our unique collections make us indispensable within the system of scientific infrastructures in Germany. The relevance of our collections stems from science professionals in higher education institutions, non-academic research institutes and business organisations. Our content strategy is continuously adapted to the latest developments: we concentrate on the acquisition of textual and non-textual digital content. In this respect, we also put emphasis on the acquisition of grey literature.

## COLLECTION DEVELOPMENT PRIMARILY ON A DIGITAL BASIS

In order to implement our e-preferred strategy, we team up with national specialist libraries in the “Licence Network” as well as publishers and other licensors to develop new licensing, usage models, and advise scientists and researchers on this topic. We prefer open licences and advocate an appropriate reform of copyright. We act as chief negotiator for national and international consortia. In the course of digitising our content, we pay attention to current priority themes in science. In the course of indexing and digitising our extensive microform collections, we focus on exclusive possession by TIB.

## SIMPLE USABILITY OF OUR COLLECTIONS

TIB is the world’s largest specialised library in its subject areas and possesses a unique wealth of scientific information. We optimise our search services and metadata using, for example, text and data mining, ontologies and special visual methods. We work on the development of automated processes to be able to index our collections as extensively as possible. We offer our content in our own, partly

media-specific, portals and foster the usability of the objects by pursuing an optimised search engine and social media strategy. We promote the linked open data movement by making our metadata freely available. We boost the acceptance of our information offers by conducting usability studies and integrating our data into customer applications.

## PRESERVE CULTURAL HERITAGE

Our statutory mandate to provide literature and information on a supraregional basis is linked to the need to ensure the long-term availability of TIB’s content. We preserve media in their original form and make them digitally accessible. Therefore, in cooperation with other infrastructure facilities, we develop and actively implement an archiving strategy. For this purpose, TIB operates its own digital preservation system in which textual and non-textual knowledge objects are stored. This system acts as an interface to national and international services provided to preserve cultural heritage. TIB conducts research and provides advice on the topic of archiving, participates in international, national and state initiatives such as Europeana, the Deutsche Digitale Bibliothek and Kulturerbe Niedersachsen, and offers digital preservation services to third parties.

## SUPPORT AND ENGAGE IN OPEN SCIENCE

Science is currently undergoing a transformation towards more open and collaborative digital working practices. Due to new opportunities in communication and collaboration, traditional research and publishing processes are changing rapidly. This digital transformation is making a profound impact on how researchers, teaching staff and students work. One important element of this transformation is Open Access, which ensures that everyone has unlimited access to research publications via the Internet. By adopting our Open Access strategy, we actively support associated process of change as well as developing and evaluating various transformation models. We expand our Open Science Lab and conduct research on innovative services and forms of communication within networks such as Leibniz Research Alliance “Science 2.0”.

## AN INDISPENSABLE PARTNER OF RESEARCH INFRASTRUCTURE

TIB is an indispensable partner in the system of national and international provision of literature and information. Whereas the provision of scientific publications focuses on German science and research, we offer an internationally networked infrastructure that enables an international target group to undertake efficient research data management. We generate innovative infrastructures within international networks such as DataCite in order to reference data collections, and represent the German research system in initiatives such as ORCID with an aim to achieve unique identification and linking of metadata in the digital world. We promote the idea of Open Access to texts and research data, and make our own data freely available.

## UNDERTAKE KNOWLEDGE AND TECHNOLOGY TRANSFER

We establish our own infrastructure for knowledge transfer and supply academic and industrial research with current specialist information. We actively involve small and medium-sized enterprises as a new customer group and support spin-offs and start-ups in TIB’s areas of expertise.

## RESEARCH-FRIENDLY COPYRIGHT

We advocate contractually non-mandatory limitations to copyright for the benefit of research in science, business and libraries. We are involved in debates and consultations on copyright issues at the national and European level, and support events focusing on copyright to promote research-friendly copyright in national and international discourse.



# GUIDELINE 2: ENGAGE IN RESEARCH

## DEVELOPING RESEARCH CAPACITY

We sustainably develop research skills and capacities in areas relevant to TIB. Of particular relevance in this context are research topics that make a sustainable contribution to the digitisation of scientific communication and facilitate the creation of new, innovative or advanced TIB services. We shape the transition from document-centric forms of publishing to forms based to a greater extent on data and knowledge.

## KEY RESEARCH AREAS

The “Data Science & Digital Libraries” research area focuses on the areas of semantic data management as well as analysis, data networking, integration and fusion, knowledge extraction from unstructured and (semi-)structured sources, semantic information retrieval and question answering, as well as user interaction, crowdsourcing and data visualisation.

In the context of the Competence Centre for Non-Textual Materials and the professorship in “Visual

Analytics”, research focuses on the areas of multimedia retrieval, visual search, automatic indexing, semantic analysis, linked data engineering and semantic applications, the long-term availability of non-textual materials as well as usability and user experience.

The professorship in “Linked Data in Information Science”, established jointly by TIB and Hannover University of Applied Sciences and Arts, focuses on the application of linked data in the area of scientific infrastructure as well as on open, collaborative working practices and communication between researchers and teaching staff.

## INNOVATIVE SOLUTIONS FROM THE OPEN SCIENCE LAB

Acting in the capacity of a trend radar and test lab for innovative Open Science applications, the Open Science Lab generates ideas for and from the communities relevant to TIB and implements sustainable and needs-based solutions in the context of the digitisation of science, business and society.

## COLLABORATIVE RESEARCH WITH L3S RESEARCH CENTRE

L3S, operated by Leibniz Universität Hannover and Technische Universität Braunschweig, is an interdisciplinary research centre that undertakes basic and application-oriented research in the area of Web Science. In collaboration with L3S researchers, TIB develops new,

future-oriented methods and technologies that offer smart, seamless access to information via the web, that link individuals and communities in all areas of the knowledge society – including science and education – and that connect the internet to the real world and its institutions.

## SUSTAINABLY TRANSFER RESEARCH RESULTS TO OPERATIONS

The strategic objective of research conducted at TIB is to create productive services for the library’s target groups, building on the demonstration of innovative applications using prototypes, and to combine them with measures for developing information literacy in TIB’s target groups. In the process, TIB implements the recommendations of the German Council for Scientific Information Infrastructures and cooperates closely with other national and international specialist libraries, information centres and initiatives, especially concerning interoperability, standards and synergies.

## TRAIN EARLY CAREER RESEARCHERS

It is particularly important to train early career researchers. TIB supports a variety of career paths and implements a supervisory, mentoring and training programme for PhD students and post-docs at TIB. At Hannover University of Applied Sciences and Arts, TIB provides training in the subject areas of Digital Research Infrastructures and Digital Libraries.

# GUIDELINE 3: STRENGTHEN COOPERATION WITH HIGHER EDUCATION INSTITUTIONS

## CENTRAL INSTANCE FOR THE DIGITISATION OF SCIENCE

The digitisation of science is not just a technical challenge, but also a challenge in the humanities and social sciences. As a result of its close relationship to the humanities and social sciences, TIB acts as a mediator and central instance for a variety of activities such as interdisciplinary research projects. Cooperation with the interdisciplinary L3S Research Centre also ensures the broad cross-linking of TIB's working areas with various disciplines. TIB benefits from its dual role as a national information centre and university library, and its associated entrenchment in both areas – science and technology, and the humanities and social sciences.

## JOINT PROFESSOR APPOINTMENTS

Joint Professor Appointments strengthen TIB's development into a research library. By conducting applied research, it generates new services in the context of its national responsibilities as a scientific infrastructure facility and exploits its connection to higher education institutions to recruit staff. By training PhD students, the library also makes a considerable contribution to the education of early career researchers.

## LEIBNIZ JOINT LAB DATA SCIENCE & OPEN KNOWLEDGE

In collaboration between TIB, Leibniz Universität Hannover and L3S Research Centre, new methods and systems for data integration, search and exploration of large data volumes are investigated and developed within various projects. This Joint Lab acts as a nucleus for further initiatives in the area of research and innovation.

## UNIVERSITY LIBRARY

TIB operates the University Library for Leibniz Universität Hannover, ensuring the comprehensive provision of literature and information for students, teaching staff and researchers. Its needs-based and user-oriented offerings add to the university's locational advantages. TIB advises the Presidential Board

and other university bodies, and cooperates closely in the topics of research data management, Open Access, publishing and the operation of current research information systems. Extensive synergies are exploited with the University IT Services, such as in the operation of networks and computer centres. TIB represents the interests of Leibniz Universität Hannover in supraregional networks such as the nine leading Institutes of Technology in Germany (TU9). Encompassing collections from TIB, Leibniz Universität and its predecessor institutions, the TIB Archives/Hannover University Archives maintain historic documents as a basis for scientific and private research.

## PROXIMITY TO USERS

By cooperating closely with Leibniz Universität Hannover, TIB obtains detailed information about the needs of students, teaching staff and researchers. The library develops and evaluates services oriented to target groups by undertaking user monitoring, evaluation and usability methods.

# GUIDELINE 4: INCREASE NATIONAL, EUROPEAN AND INTERNATIONAL COOPERATION

## ACTIVE PARTNER IN STRATEGIC NETWORKS AND COOPERATION

Strategic alliances and global networking are essential requirements for ensuring TIB's future viability. The international orientation of our actions enhances visibility and reach, promotes cross-border thinking, and produces collective learning processes. In the context of our internationalisation strategy, we collaborate with scientific infrastructure facilities and research institutions to create innovative services and advance existing ones. We further intensify our successful cooperation at national level with national specialist libraries, FIZ Karlsruhe – Leibniz Institute for Information Infrastructure, WTI-Frankfurt and other part-

ners in the context of infrastructures for research data. At the European level, we considerably increase our involvement, for example in interplay with the European Open Science Cloud. In the global context – such as within DataCite – we gain additional data centres as partners.

## BUILD UP COOPERATIVE ACTIVITIES WITH BUSINESS

TIB has a vital interest in building up cooperative research activities with companies and associations. By jointly addressing interdisciplinary issues from the realms of business and information science, potential and resources are complemented, generating sustained synergetic effects.

## RECOGNISED TIB EXPERTISE IN THE SCIENCE POLICY DISCOURSE

TIB's core competencies make it a prominent and active partner in science policy discourse. Our expertise in the areas of the indexing and standardisation of metadata, research data management, handling non-textual materials, licences, information provision, digital

preservation and Open Access is acknowledged and indispensable. We serve on committees, bodies and work groups such as the "Digital Information" priority initiative of the Alliance of Science Organisations in Germany. We help shape EU funding programmes, and actively participate in scientific publications, lectures, conferences and projects, placing our own topics on the agenda. We organise events in the thematic context of our core competencies and participate in discussions on social networking sites and online communities, representing the interests of Open Science. In this way, we contribute to the development of the global knowledge society.

## GREATER VISIBILITY OF TIB EXPERTS

As active members on committees and in networks and alliances, our experts represent TIB's core competencies, acting also in this respect as an ambassador for the whole German scientific community. We raise our national and international visibility with a continually increasing number of publications and presentations, by attending congresses and by hosting our own specialised conferences. These activities raise our profile.



# GUIDELINE 5: PREPARE TIB FOR THE FUTURE

## HIGHLY COMPETITIVE

We work in a customer-oriented manner and develop our services and products to meet the needs of our target groups to the greatest extent possible. Product development uses and benefits from agile methods. The IT services offered by TIB are secure, robust and reliable. We steadily continue to develop our overall strategy within a participatory process, and implement it consistently. Our multi-project management facilitates the optimal use of internal resources and ensures operational excellence.

## STRATEGICALLY ORIENTED HUMAN RESOURCES AND ORGANISATIONAL DEVELOPMENT

We continue to build a learning organisation. We optimise internal communication, and encourage an open culture of feedback and employee participation. We cultivate an open, solution-oriented and learner-friendly corporate culture. We address the need for lifelong learning and enable all employees to develop their skills. We accompany change processes using change management methods and have defined processes for transferring projects to line structures. The establishment of innovation management ensures the realisation of future-oriented ideas. Knowledge management methods support our responsible handling of the resource knowledge.

## AS AN ATTRACTIVE EMPLOYER, ENCOURAGE AND APPRECIATE ALL EMPLOYEES

We are aware of how important all employees are to TIB's success. We ensure equal opportunities in compliance with equality directives. Embracing diversity management, we encourage open,

appreciative cooperation at TIB. We practice a cooperative style of leadership and specifically promote the development of leadership skills within the library. Measures to combine family and professional life are continuously expanded and new working arrangements developed. We counter demographic change by taking specific professional development measures. We also step up our support of early career researchers and needs-based apprenticeships in relevant occupations. We establish health management and offer services to promote occupational health.

## ENSURE STRATEGIC CAPACITY TO ACT

We have funds from our basic budget, external funding from projects and own revenue generated by providing services to customers. The adequate financial endowment of TIB is the foundation for the future-oriented development of the library – it must be safeguarded and adapted to new requirements. This also meets the need to guarantee TIB full financial flexibility of a scientific infrastructure facility financed by the German federation and the federal states.

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