EUROPEAN SCIENCE FOUNDATION
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Basic Requirements for Research Infrastructures in Europe

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A contribution by the working group 1 “Access and Standards” of the ESF Member Organisation Forum on Research Infrastructures.

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Introduction

This document and the requirements listed herein aim at identifying a minimum quality standard for access to research infrastructures (RIs) at the European level. The criteria and issues identified in Part I are independent of the size or kind of RI under consideration. Part II contains specific requirements addressing access to instrumentation and access to data bases / repositories.

The requirements described here are a consensus result of the *Member Organisation Forum on Research Infrastructure*[1] and as such can only be seen as a minimum quality standard that should provide orientation both to funders and to managers of RIs. The requirements are meant to provide a basis for the development of evaluation procedures, but they are not evaluation criteria by themselves.[2] More specific requirements cannot be made on this level as RIs of all kinds and all sizes are addressed.

Not all aspects of establishing, managing or operating an RI are dealt within this set of requirements and recommendations, but rather those that have a direct impact on the external use.

It is important to stress that this list is meant to be a first attempt at collecting relevant issues for the shared use of RIs and that it is anticipated that the ongoing European and national discussions on RI will lead to a continuous update and refinement.

National agencies and European initiatives, first of all the ESFRI projects[3], have partly established or are currently developing specific access models and associated quality assurance procedures. It is hoped that this document is close to a common denominator for all of them and, thus, can also serve as a basis for new models or procedures to be established. The general requirements of this document are meant to be valid for all scientific disciplines and should, therefore, be applicable to all RIs. A common understanding of how RIs can optimally support scientific communities will certainly help in overcoming some problems of fragmentation and heterogeneity in Europe without sacrificing the benefits of diversity and flexibility.

[1] See http://www.esf.org/activities/mo-fora/research-infrastructures.html

[2] An illustrative example is the first requirement that asks for the description of an existing management structure, but does not contain any hints how to assess the answer provided by an RI – the later being a part of the evaluation procedure. Only the existence of a management structure (and a description of it) is required, but no attempt is made at prescribing specific governance models.

[3] See http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri-roadmap

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Technical Foreword

Basic requirements for shared access were grouped into the three categories *management*, *regulations* and *information*. The most important part is certainly the management section. One of the requirements under this heading is the definition of the access model. The relevant aspects of an access model are described later in the second information section where it is required that the RI must inform the potential users on all relevant aspects of the access model. The regulations part contains legal issues and good scientific practice and the necessity to adhere to these rules is self-evident. The general information part might seem trivial, but experience shows that by no means all facilities that offer external access do provide this basic information on their web pages.

The specific requirements for access to instrumentation can be divided in a similar manner, and they constitute largely requirements in addition to the general case. For the data repositories the specific requirements are mostly more detailed and differentiated descriptions of general aspects, so that for data repositories they more or less replace the items L1, I4, I9 and I11 of the general list.

This kind of structuring is foreseeing a procedure where the compliance of a facility with this set of requirements is to be checked. The information part can easily be transformed into a questionnaire where, for instance, for the individual aspects of the access model internet links can be required that point to the respective information on the RI web pages. The regulations part requires only the confirmation of the RI that they adhere to these requirements without further description. The management part, finally, would require some more detailed explanation of the RI to address these aspects. For access to instrumentation the same approach would apply, only with an expanded set of requirements. Data repositories might require a slightly different procedure.

Part I: Basic requirements for all RIs with shared access

Management

No.	Required	Recommended
M1	The management structure must be adequate for the size and kind of RI	Dedicated (technical and administrative) manager are recommended for RIs with many projects/users
M2	Skilled staff, both scientific and technical, must support the RI and the user	Career options should be considered / supported. Training should be offered.
M3	The RI has to define an access model that is consistently applied in sharing access with external users (cf. section *Information on the access model*). An explicit or implicit contractual relationship has to exist.	The access model should be optimized for the needs of the users. Feed-back analysis should be made for all aspects including training. Signed agreements should define rights and responsibilities.
M4	RIs have to be able to estimate their total costs	RIs should be able to prove their total costs of providing access by full cost accounting.
M5	The environmental impact of the RI is the responsibility of the RI management	

Good Scientific Practice and legal issues

No.	Required	Recommended
L1	Use of a facility has to be acknowledged by the user in appropriate ways, e.g. in publications.	Co-authorship on publication or patents is only warranted when substantial scientific input contributes to the publication. Users should be obliged to inform RIs about publications and patents based on the use of the RI.
L2	RI must know and inform users about local (and other applicable) law and regulations relevant for access to the RI, also for incoming users from other countries. (Examples: In the country of the RI: Data protection laws, importing samples, ethical regulations, liability, licensing etc)	RI can help users by collecting and presenting laws and regulations for the countries users come from. (Examples: In the country of the user: Data protection laws, export of samples, liability, licensing etc)
L3	The RI management is responsible for adequate safety measures and users must be informed and obliged to adhere.	
L4	Applications for access must be treated confidential	

Information for potential users

General information

No.	Required	Recommended
I1	Detailed information is available via WWW	All relevant information is both in English and national language(s)
I2	General description of the RI	examples of usage, publications
I3	Contact details	online submission of access requests

Information on the access model

No.	Required	Recommended
I4	Availability at what times and with what service? Continuity of access and service in the future?	RI should offer reliable service with long term perspective
I5	Information about training and specific assistance, also for subsequent data analysis	Provision of training and specified assistance
I6	Definition to whom access is allowed (industrial research/users?)	Granting access to the private sector is encouraged, but industry should pay at least the full operational costs
I7	Are there costs for access? What cost models exist for public research, for industrial research?	Define the cost model and/or its available options No disclosure Agreements (NDA) might be linked to higher costs for using publicly funded RIs
I8	Description of the selection process for access requests: • Who is doing it? • What are the criteria? • How long will it take?	The procedure should be adequate for the size and type of RI. Confidentiality should be explicitly confirmed.
I9	Handling of results from data management to publication has to be clearly described. Standardized data formats have to be supported.	Service and support with data handling (storage / access / transfer / processing) and presentation of models/examples is recommendable
I10	Expectations of the RI regarding citation or acknowledgement of the use of the RI.	Clear policy on co-authorships by members of the RI
I11	Responsibilities of owners and users need to be defined (e.g. for correctness, authenticity, storage, contribution and distribution of data)	RI should support quality control
I12	Treatment of intellectual property, data ownership, confidentiality (competition between scientific teams).	Presenting models or examples is helpful

Part II: Specific requirements depending on the kind of RI:

Access to instrumentation, possibly including investigation of samples

Management

No.	Required	Recommended
1	If access is (physically) limited (e.g. access to instrumentation) and access requests compete, a fair and transparent selection procedure is needed.	Feasibility checks, e.g. by the RI management, are useful. A review panel (independent from the RI management) should decide in a fair and fast procedure on granting access to instrumentation. Constructive feedback should be given to declined applications
2	Facilities must provide basic laboratory space for sample preparation and/or immediate set-up	

Good Scientific Practice and legal issues

No.	Required	Recommended
3	The sample has to remain the property of the experimental team; the RI management must guarantee returning samples unless they are destroyed during the measurements or the users give an explicit consent to a different procedure.	The use of a MTA (Material Transfer Agreement) is recommended.
4	Property and license rights about experimental arrangements made on the occasion of the investigation (sample environment, preparation, detection, data treatment, etc) have to be shared appropriately between the user and the RI team.	Ideally, an agreement should be in place beforehand; In unexpected cases parties should convene and decide upon sharing of “innovation paternity” as soon as possible.

Information for potential users

No.	Required	Recommended
5	Facilities must inform the user about measurement conditions and in what form samples need to be prepared.	Special attention should be given to the handling of harmful or hazardous material. Users should be informed and instructed, if applicable.
6	Information on any training or assistance that is provided for sample preparation and instrument use	Training and assistance should be provided
7	If physical presence is needed for access, RIs should inform users about possible accommodation	Support for accommodation is commendable.

In the case of publicly funded research infrastructures for scientific use the access for users from industry should not compromise scientific use. A time share of up to 10% is usually acceptable.

Access to RIs that are data bases / data repositories

No.	Required[4]	Recommended
1	The data repository ensures that research data is provided in suitable standardized formats and with sufficient information for others to assess the scientific and scholarly quality of the research data and compliance with disciplinary and ethical norms	The data producer should be obliged to provide the required meta data
2	The data repository ensures the integrity of the digital objects and the metadata	
3	The data repository ensures the authenticity of the digital objects and the metadata	
4	The data repository assumes responsibility for access to and availability of the digital objects Provisions for continuity of access and service in the future are described by the data repository.	
5	The data repository defines access regulations respecting licenses, copyrights, personal data protection etc and obliges the data user to comply	
6	The data repository enables the users to utilize the research data and refer to them	
7	The data repository applies documented processes and procedures for managing data storage with defined workflows for archiving across the data life cycle.	
8	The data repository has a plan for long-term preservation of its digital assets	stable funding should be secured

[4] This list is largely derived from the list of requirements defined by the Data Seal of Approval (www.datasealofapproval.org).