de.NBI & ELIXIR-DE Guidelines for Node Services Selection and Deselection Process including Basic Quality Management

The de.NBI -German Network for Bioinformatics Infrastructure network also represents the German ELIXIR node (ELIXIR-DE) and is a bioinformatics service provider network that serves the life science research community throughout Europe. The de.NBI service portfolio contains bioinformatics tools including consulting and several internationally renowned databases, some of which are ELIXIR Core Data Resources. To ensure excellence and maximum benefit to life science researchers, de.NBI services need to be dynamic, relevant, up-to-date, and reflect the ever-changing needs of the users and the community they serve. Therefore, all services within the service portfolio undergo continuous assessment and maintenance to guarantee optimal performance and adherence to rigorous scientific standards.

Services selected for inclusion within the de.NBI network undergo a strict evaluation process.

Successful selection offers significant advantages:

- **Increased visibility** through listing on the de.NBI website (www.denbi.de) with descriptions and search keywords that improve the findability of your service for life science researchers
- **Access to a large user community**
- **Training courses** for the services organized and promoted by de.NBI
- **Increased credibility and endorsement** through association with the rigorous quality standards of de.NBI
- Opportunities to **demonstrate expertise and showcase services** to a wider audience, e.g. through contributing to the de.NBI Blog

To support de.NBI service providers in enhancing their offerings, de.NBI provides various forms of help and guidance. This includes assistance in creating high-quality training materials and documentation, as well as support through results of user feedback surveys to ensure that services meet the evolving needs of its users.

The de.NBI network implements a set of strict quality assurance criteria for the assessment and maintenance of its service portfolio. This structured evaluation procedure facilitates the continuous monitoring and assessment of current services, as well as the selection of potential new services.

The following criteria outline the requirements for maintaining a service within the de.NBI portfolio. The same criteria may also be applied to services offered by external service providers[1] to enable the integration of such services in the de.NBI service portfolio and their display on the de.NBI website.

[1] External service providers are scientists of a German university or a German research institution who are not de.NBI project partners and requested the inclusion of their services into the de.NBI service portfolio.

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A) Service Selection Criteria:

1 Ownership and Responsibility:

1.1 The service must be under the direct responsibility of at least one de.NBI service center or associated partner. This responsibility is defined in 1.2, 1.3 and 1.4.

1.2 The principal investigator (PI) of the de.NBI service center or associated partner acknowledges and supports the service's inclusion in the de.NBI service portfolio.

1.3 The service provider, as member of or associated with the relevant de.NBI service center, is accountable for the service maintenance.

1.4 A designated contact person at the service provider must be readily available and responsive to user inquiries.

2 Demonstration of Impact on the Scientific Community:

2.1 The service must address a clearly defined need within the community and provide a solution to a relevant research question through a scientifically sound methodology. Supporting publications will strengthen the service's evaluation.

2.2 The service must be aligned with the scientific goals of the de.NBI network and its mission in the field of bioinformatics (https://www.denbi.de/about) and shall complement or enhance the existing de.NBI service portfolio.

2.3 The service must demonstrate maturity and an active user community.

2.4 The service's benefits to the scientific community must be demonstrated through quantifiable usage indicators, as defined by relevant key performance indicators (KPIs) for its service category.

3 Technical and Scientific Quality Criteria:

3.1 The service must be in production state (e.g. if following SEMVER, then at least 1.0), accessible and/or contactable 24 hours / 7 days a week with minimal downtime.

3.2 The service needs to have functioning links displayed on the de.NBI website. Service provider must promptly report any changes to links or contact information to the de.NBI administration office.

3.3 The service must provide readily accessible user manuals, help pages, or guide tutorials. This also applies to offered consulting services.

3.4 The service must actively collect user evaluation through the de.NBI user satisfaction survey. Survey links should be clearly visible on the website and include an invitation text to participate, e.g. "Your feedback matters! Take our quick user satisfaction survey: [insert unique link]". Alternatively, survey links may be included in standard email communications with service results.

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3.5 The service (except consulting) must provide up-to-date data or code bases, reflecting the current scientific consensus in the respective field. The version of a tool / service (except consulting) should be documented and traceable to allow reproducible applications (code version). Continuous release databases must clearly indicate the latest content update (content version).

3.6 For services comprised of multiple microservices or workflows, aggregation into a single service entity is recommended if Key Performance Indicators (KPIs) can be reported at the aggregated level. This allows for more comprehensive tracking and evaluation of the service's overall performance and usage patterns.

3.7 For toolboxes that contain multiple individual tools, service providers may register either the toolbox as a whole or each individual tool separately as a de.NBI service, depending on the most suitable approach. In cases where individual tools are registered as de.NBI services separately, they must still be linked to the parent toolbox and provide clear information about their relationship to it. Conversely, if the toolbox is registered as a de.NBI service, it should provide access to its constituent tools and enable users to navigate between them seamlessly.

4 Ethical and Privacy Compliance:

4.1 The service must provide a clear and publicly accessible statement outlining its terms of use and licensing policies, adhering to the criteria specified here: https://elixir-europe.org/services/tou.

4.2 The service must adhere to all relevant privacy policies and regulations, including but not limited to the General Data Protection Rules (GDPR) within Germany and Europe.

5 FAIR Principles and Open Science:

5.1 Services are encouraged to support FAIR principles (e.g. FAIR criteria for data and FAIR criteria for research software).

5.2 Services are encouraged to facilitate collaboration among de.NBI service providers through e.g. shared resources, joint training initiatives, or mutual development projects.

5.3 Services should be registered in a Tools and Service Registry, if appropriate.

B) Quality control Management:

6 Quality Control Process by de.NBI Coordination and Administration Unit (CAU):

The de.NBI CAU conducts annual evaluations to ensure the continued quality and relevance of de.NBI services, based on the following criteria:

1. Availability and clarity of documentation on the service's webpage.
2. Consistent accessibility of the service’s webpage and/or tool download functionality.
3. Demonstrated responsiveness to user inquiries, verified through test email communications.

4. Frequency and relevance of content updates, including news, social media activity, publications, published datasets, and release notes.
5. Active monitoring of Key Performance Indicators (KPIs).
6. Up-to-date entry in the de.NBI service list and on the official de.NBI website.

7 Deselection Process of Services Lifecycle Management:

7.1 Services that consistently fail to meet the established quality criteria will be designated as “Orphaned”. This designation initiates a formal review process, which may result in the withdrawal of the de.NBI service status and associated privileges. The service may continue to operate independently, but it will no longer be recognized as a de.NBI service.

7.2 Final decision regarding the withdrawal of the de.NBI service status will be made by the de.NBI Coordination and Communication Unit (CCU) based on recommendations by the Working Group Service and Service monitoring (Ag SAM).

For a description of this process, please see the following example:

If a service provider fails to respond to three consecutive emails (see section 5. step 3) within a three-month period, the service will be designated as 'Orphaned':

- *This status will be indicated on the de.NBI website, notifying users that the service is currently unavailable or under provisional maintenance.*

The CCU will review the situation after a hint of the Ag SAM at its next meeting (approx. after 3 months) and may consider:

- *Removing the service from the de.NBI portfolio*
- *Examine the provision of additional support to revitalize the service*
- *Reaching out to alternative providers to fill the gap*

The goal of this process is to ensure that users have access to reliable and well-maintained services, and to maintain the overall quality of the de.NBI portfolio.

7.3 Additionally, services may be retired by the service provider, if the service becomes obsolete or cannot be maintained anymore. In such cases, the possibility of transferring the service to another de.NBI partner should be explored.

Annex:

Registration Process for Bioinformatics Tools and Consulting as de.NBI Services

1. Prepare Documentation:
Ensure all necessary documentation, including service details, features, and technical specifications, is organized. The metadata needed for the registration are:

- Service name
- Description (50 - 500 words)
- Part of toolbox, standalone tool or consulting
- Link to the website (also a description for a consulting service)
- Host Institute
- Principal Investigator

- Year of Establishment
- Life Cycle state (M „mature“, E „emerging“, L „legacy“)
- ELIXIR Platform
- Service Center
- Service Category
- Part of toolbox, standalone tool or consulting
- Contact Person (Email, to be displayed on the de.NBI website) (if available, internal email in brackets)
- KPI Monitoring (yes/no)
- KPI Monitoring start date
- PMID(s) or DOI of corresponding publication(s), if applicable
- Link to Terms of Use document/website
- Registration in a Service Registry (e.g. Biotools.org, FAIR sharing, identifiers.org) (yes/no), if applicable
- optional:
    - Search keywords for citations not referencing the publication in the bibliography, but in material and methods by website link or by mentioning the tool name only
    - Search Keywords for SEO

2. Contact de.NBI:
Send an email to servicecoordination@denbi.de, expressing your interest in registering your bioinformatics tool / or consultation as a de.NBI service.

3. Compliance and Quality Proof:
To complete the onboarding process, please provide evidence that your service meets the de.NBI quality assurance criteria outlined in this document. Please submit the following information:

- Link to your service's webpage and relevant documentation
- Accessibility details (e.g., API, login requirements)
- Any additional data required for review

The de.NBI CAU will assess your submission against our guidelines. If approved, we will:

1. Add your service to the official de.NBI portfolio
2. Provide a unique link to integrate with the de.NBI user feedback survey

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This document substitutes the older Guidelines (DOI: 10.5281/zenodo.3967215) from 2020 – and Version v3 (DOI: 10.5281/zenodo.10245988) from 2023