List of Requirements

Library Services Platform & Discovery System

No. 24/00647

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1 BACKGROUND AND INFORMATION

1.1 About the Customer

This procurement is carried out by Sikt on behalf of libraries and institutions within the broad knowledge sector in Norway.

Sikt - Norwegian Agency for Shared Services in Education and Research, is a body that develops, procures, and delivers digital services for education and research. Our mission is to ensure that all individuals in the education sector have access to secure, stable, and integrated services and infrastructure.

We cater to over 220 institutions involved in research and education providing a wide range of services and systems, in addition to consultancy. Our goal is to transform ideas into solutions, creating secure, stable, and coherent services that enhance both education and research.

Sikt and the libraries are contributors towards the institutions' objective of supporting open science and foster innovation and transparency in research, through promoting the sharing of research data and publications, facilitating collaboration and knowledge exchange across disciplines and institutions, and encouraging researchers to contribute to open source projects.

Sikt acquires and administrates library services on behalf of the BIBSYS Consortium. The consortium consists of approximately 80 institutions within the knowledge sector in Norway, comprising all Norwegian university libraries, the National Library, university college libraries, medical libraries, museums and a number of research libraries and institutions. The sizes of the different consortium members range from institutions with a few employees to large institutions (e.g. universities) with many employees and a hierarchical structure. See appendix 1 for a list of the current members of the consortium.

Key figures for the consortium (pr June 2024):

Number of institutions in the BIBSYS Consortium	77
Number of circulations desks	198
Number of bibliographic records	11.3 million
Physical inventory (items)	19.1 million
Electronic inventory (subscriptions) (books and journals)	21.2 million
Digital inventory (digital items)	1.5 million
Staff users	2.700
Patrons	1.3 million
ILL partners	6.500

Vendors	53.300
Patron loans year 2023	2.9 million
ILL loans year 2023	105.700
Searches in discovery last year	12.3 million (11.2 basic search, 1.1 advanced search)
Number of sessions in discovery last year	8.6 million

In this document, Sikt will be referred to as the Customer. The objective for Sikt is to provide cost-effective and high-quality information services through cooperation between the institutions within the consortium on joint solutions.

1.2 Current status for LSP in the BIBSYS Consortium

Today, the BIBSYS Consortium uses Alma from Clarivate as the Library Services Platform (LSP) and Primo from Clarivate as the discovery tool. In addition, a subset of the consortium uses Leganto (from Clarivate) as a reading list system. The topology of the system consists of a central instance for the consortium level, and a single instance for each of the institutions. The consortium started to use Primo in 2013 and migrated to Alma at the end of 2015 from a home-grown library system.

Delivering high-quality, cost-effective systems through collaborative solutions is the cornerstone of Sikt's strategy. These joint solutions not only enhance operational efficiency, but also encourage a culture of collaboration, which is fundamental to our consortium.

A core element in this is the joint, mandatory catalogue. If one institution creates or modifies a bibliographic description this is automatically reflected to all institutions using the same description. Currently the BIBSYS catalogue consists of around 11 million bibliographic records (print, electronic, digital) and approximately 40 million inventory records.

The consortium also has a shared pool of vendors, vendor licenses and ILL partners, as well as configuration-tables and rules.

There are about 1.3 million active patrons and 1.800 active staff users across the consortium.

Sikt acts as the primary focal point for support to the institutions within the consortium. All communication with the supplier goes through Sikt. Sikt arranges webinars, establishes relevant documentation and guidelines and provides general support for the consortium related to the products.

Sikt is central in facilitating the LSP on behalf of the consortium by maintaining shared configuration.

Sikt also establishes and maintains various integrations, both internally and externally, with other services and systems related to library services. There are ca 30 different integrations, that are in active use today, see appendix 2. Having a system that has an open infrastructure that allows access to all necessary API’s, imports and exports and the use of established

protocols for the web in general and within the library domain especially is a key success criterion.

For additional information about the current library services please visit:

https://sikt.no/omrade/bibliotektjenester (Norwegian)

1.3 How to answer

The requirements and needs in this document should be answered in the corresponding sections of Tender document *3 Supplier's Answers and Descriptions to Requirements*. This will constitute the main part of the supplier's response.

This document has an introductory chapter "BACKGROUND AND INFORMATION", then a chapter for "DESCRIPTIONS OF NEEDS", then four chapters 3 – 6 with functional REQUIREMENTS, then chapters 7 – 9 for "SERVICES", "OPTIONS" AND "PRICE".

These chapters 3 - 9 contain the separate award criteria in the competition:

3 REQUIREMENTS GENERAL

4 REQUIREMENTS LSP

5 REQUIREMENTS DISCOVERY

6 REQUIREMENTS NATIONAL LIBRARY

7 SERVICES

8 OPTIONS

9 PRICE

In addition, there are several appendixes that contain more extensive information about certain aspects of our current ecosystem, integrations and requirements.

List of appendixes:

- List of institutions
- List of current integrations
- User-stories
- BIBSYS Authority File
- National Library Statistics
- Online transactions definitions

Tender Document *3 Supplier's Answers and Descriptions to Requirements* repeats the requirements from the list of requirements below, with corresponding requirement numbers and text boxes where the supplier should give their answers. Some requirements that necessitate a written response may include additional guidance on how to answer in Document 3. The requirements are categorized in the following way:

Minimum requirements (M)

Minimum requirements are requirements that the Customer **strongly** prefers the chosen solution to comply with. The supplier must clearly state "YES" or "NO" for these requirements. Deviation from a minimum requirement does not automatically lead to rejection of the offer, but may affect the assessment of the corresponding award criterion. Deviations considered to constitute a significant change in the overall requirement specification will be subject to an assessment that may lead to rejection of the offer in accordance with Norwegian rules for public procurement.

Certain minimum requirements require a written description of how the supplier fulfills the requirement and is marked with “M*”. The written response will not be evaluated as part of an evaluation criteria, but used to document and review fulfillment of the minimum requirement it refers to.

The minimum requirements should be met by February 1st, 2025, meaning that a supplier can answer "YES" (compatible) if there is a timeline for compliance before this date. The supplier must clearly state "YES", "NO", or "IN DEVELOPMENT" for these requirements. If "in development" is checked, the supplier must provide the date when the development work is expected to be completed.

Evaluation Requirements (E)

Evaluation requirements should be answered in a clear and concrete way that meets the Customer's needs, requirements, and descriptions. Links to other external sources (brochures, extensive documentation, etc.) will not be acceptable.

There is a maximum limit on the length of the answer to each requirement, described in the tables below. To ensure quality and fairness in the evaluation, we ask that you do not extend it. The supplier can add illustrations, figures and screen captures. This does not count towards the maximum length requirement of answers.

In addition to the supplier's response to the requirements in writing, they will be invited to demonstrate and test the solution with user categories. This will be carried out through demo and testing. The suppliers will be invited to demonstrate their solution according to the cases provided with the invitations to submit an offer (see Tender regulations, 1.8). Testing will be carried out by representatives from the consortium, based on the test cases. The Bidder must make available a test environment and test data for testing purposes.

If functionality is offered or described that is not available in the current version of the solution offered, it should be clearly indicated, with an indication of when said functionality is expected to be available to the Customer.

The supplier will be asked to respond to certain requirements in separate documents. It will be clearly referred to how and in which attachment such requirements should be answered.

Desirable requirements (D)

Desirable requirements are requirements that the Customer wishes the chosen service to comply with. The supplier must clearly state "YES", "NO", or "IN DEVELOPMENT" for these requirements. If "in development" is checked, the supplier must provide the date when the development work is expected to be completed.

Desirable requirements will be evaluated as part of the evaluation criterion they are connected to.

A response that the system allows the Customer to develop the functionality themselves will not be considered a valid response to a requirement. The fact that a system has an open architecture and API’s, and thus gives the possibility to interact with the system in various ways will be given credit in the chapter that addresses this area, but not in the functional requirements to the system.

2 DESCRIPTION OF NEEDS

2.1 Definitions

Further in this requirement specification, we use these terms:

Administrator: An employee who performs tasks related to the management, configuration, or operation of the service in the solution.

AI: Artificial Intelligence

APC: Article processing charge

Base Bibliotek: Norwegian directory of ILL peer-to-peer partners, covering both Norwegian and foreign libraries, functioning as master database for ILL in Norway, containing URLs and open/closed information.

Bibliographic description: The term refers to a set of metadata elements and linked descriptions on many levels that together represents a bibliographic entity (traditionally a bibliographic record). In this document we use the term both for bibliographic records and for the description of bibliographic entities.

BIBSYS Consortium: Roughly 80 academic research institutions constituting a consortium managed by Sikt, covering about 200 circulation desks.

Central Index: Indexed material (metadata and possibly full text) of resources collected from a vast range of vendors for display in Discovery.

CRUD: Basic API operations on database records (create, read, update, delete).

DAM: Digital Asset Management

DEI/DEIA: Diversity, Equity, Inclusion and Accessibility

EHF: Elektronisk handelsformat (Electronic Trading Format). An EHF invoice is an electronic invoice which is sent directly from the sender's financial system to the recipient's corresponding system.

GDPR: General Data Protection Regulation. A comprehensive set of data protection laws enacted by the European Union to safeguard the privacy and personal data of individuals within the EU.

ILL: Interlibrary loan, involving both physical loan and electronic delivery of articles and book chapters.

Institution(s): The individual customer Institution of the BIBSYS Consortium, which will use the service under this agreement.

Joint catalogue: Shared database for bibliographic data, mandatory, with direct update by consortium members.

Knowledge Base: Database describing electronic resources and subscriptions. Used by Central Index to inform content in Discovery and Link Resolver for access to e-resources.

Legal deposit: Material published in Norway legally deposited with the National Library of Norway.

Link resolver: A tool that facilitates access to the full text of documents by connecting citation information with the appropriate library resources or databases.

LRM: Library Reference Model

LSP: Library Services Platform.

M2M: Machine-2-Machine (direct communication between devices)

MFA: Multi Factor Authentication

NLN: The National Library of Norway

NTSF: Norsk tesaurus for sjanger og form / Norwegian Thesaurus for Genre and Form

OOTB: Out Of The Box.

OPAC: Online Public Access Catalogue.

RDA: *Resource Description & Access* – a standard for registration of metadata

RDA Official: from December 2020 the official version of the RDA standard. Based on the IFLA LRM, it provides a complete set of entities and elements for creating a metadata description set based on RDA guidance and instructions.

RDA Original: was first published online in the RDA Toolkit in June 2010. This is the "original" version (with content updates through April 2017)

RPA: Robotic process automation

RWD: Responsive Web Design

SLA: Service Level Agreement

The **solution(s):** The library management system/platform and discovery tool to be procured.

Supplier: LSP supplier.

User:

- Staff user, authorized to use the LSP for delivering library services. Mostly library staff and IT staff, including Sikt administrators
- Patron, user of library services, mainly by Discovery. Can be students, researchers, academic staff, including library staff, but may also include libraries as such, involved in ILL.

Vendor: The libraries' document suppliers.

WAD: Web Accessibility Directive

WCAG: Web Content Accessibility Guidelines. Recommendations for making web content more accessible.

2.2 Expectations for the Procurement

Prior to the start of the tender, Sikt organized a project to gain insight into the current and future needs of libraries, researchers, scientists, students and educators in the Norwegian Knowledge sector. The LSP and Discovery tool is seen as a part of the total digital environment solution. In this document we seek to address the key needs that should be supported by the LSP and Discovery Tool.

2.2.1 Procurement Objective

The objective of this procurement is to purchase a modern Library Services Platform (LSP) and a Discovery tool that is implemented with a Service Oriented Architecture and is adaptable and can be easily integrated and modified to suit the consortium's needs. The systems must be based on technology that has an expected lifespan of at least a decade.

The LSP-product to be offered must be in full-scale operation in other institutions at the start of this tender process. LSP-products that still are in development and only have “early adopters” will not fulfil this requirement. It is also expected that the systems are in continuous development and that they continue to develop and adapt in regards of functionality, technology and changing/future needs/requirements. There is especially an expectation that artificial intelligence/generative AI will be an integrated part of the deliveries in the near future.

It is essential that the LSP handles all media types in a uniform way, regardless of format or acquisition process. This uniform management should not only be visible at the User Interface, but also be reflected by the underlying services. The LSP must provide a platform with services that will enable Sikt to implement extensions needed by the consortium.

One of the findings in the insight project was that the current LSP and Discovery solution covers the needs of the institutions within the consortium. There are, however, some institutions that find the current solutions rather complex with functionality they do not need. It should be considered to look at solutions that can be modular and that groups of institutions could choose to not include all modules of the system.

There would also be institutions within the consortium with little or no resources to configure and maintain the system locally. Thus, the system should allow Sikt to configure a group of institutions centrally in bulk in an easy and efficient manner.

The Discovery tool must go beyond the traditional OPAC and unify all different types of sources in a single user interface. It must provide the necessary services to integrate with the LSP for all types of delivery, including ordering physical items, administering loans and support easy discovery and access to e-resources.

We aim to procure a LSP and Discovery tool that takes into account the general needs from the consortium:

- User friendly and intuitive design.
- The solutions should provide a seamless experience. The LSP should be one workspace through one portal.
- The solutions should be perceived as holistic with all the core information and functionality users need.

- There should be good opportunities for customization in different views for the users.
- The solutions should follow recognized standards and have good opportunities for integration.
- The solutions should have transparent and ethical AI support that can enrich the service, but which also can be turned off.
- The solutions should include analytics functionality to support reports, analysis and data-driven decisions.
- The solutions should be accessible and follow standards for accessibility.
- Data ownership and data processing should be well described.
- The solutions should be compatible and provide opportunities for integration with tools and systems that are widely used within and outside academia.

3 REQUIREMENTS GENERAL

No.	Requirement	Max. length (pages)	Type (M/D/E)
1	The supplier has a policy and approach to deliver services which are sustainable and contribute towards handling climate change. Describe what initiatives the supplier has introduced to support climate action, such as the use of renewable energy, CO2 compensation, or sustainable travel policy. In addition, provide information on the supplier's strategies and initiatives in other relevant areas of future sustainability and climate conditions. This may include, but is not limited to, waste management and recycling policies, water conservation efforts and initiatives to reduce energy consumption. The supplier should also describe any partnerships or collaborations with environmental organizations or participation in sustainability networks. Furthermore, the supplier should provide evidence of any certifications or awards received in relation to environmental sustainability.	2	M*

3.1 Operations/Platform

We are looking for an LSP/Discovery solution provided as a cloud service (SaaS – Software as a Service). We expect each institution to have access to their own instance of the system. The institutions in the consortium should not be able to access/view data or configuration from other institutions. The exception to this rule is the shared bibliographic descriptions and holdings data.

All data submitted to the solution belongs in its entirety to the institution and/or the users of the LSP, and processing should occur within the EU/EEC, in compliance with the provisions set forth in the General Data Protection Regulation (GDPR). Any processing of customer data outside the EU/EEC must be covered by valid transfer mechanisms.

The institutions within the consortium included in the tender vary in size and academic profile, and their needs from an LSP/Discovery tool will vary accordingly. However, the consortium has a shared commitment towards usability and accessibility, and we are looking for a modern, adaptable design which supports flexibility in use for frontend-users (e.g. students and researchers) and backend-users (e.g. librarians). We are also looking for a solution that allows each institution to customize with regards to their institutional needs and preferences, both in terms of branding and the functionality available within the solution.

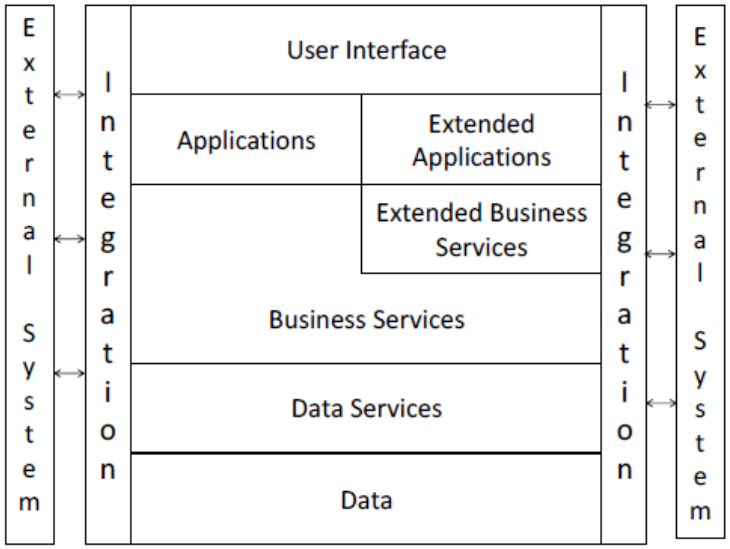
The solution will need to accommodate both smaller institutions with little to no need for customization beyond custom branding, as well as large institutions which may have their own IT development teams and a high demand for customization and API access.

No.	Requirement	Max. length (pages)	Type (M/D/E)
2	The solution MUST be a cloud-based/SaaS service hosted within the EU/EEA region, in compliance with GDPR requirements	YES/NO	M
3	The solution MUST be multi-tenant, i.e. each institution has their own separate instance	YES/NO	M
4	DESCRIBE the hosting operational environment, including failover capabilities and any single points of failure	0.5	E
5	The supplier MUST have a reliable data backup and a disaster recovery plan to mitigate data loss in the event of a disaster or system failure.	0.5	M*
6	DESCRIBE the process for testing and deploying upgrades to the solution, including network considerations and the role of subcontractors	0.5	E
7	The proposed solution MUST be ready for use before January 1, 2026.	YES/NO	M
8	The LSP MUST have a responsive and accessible HTML-based user interface.	YES/NO	M
9	The Discovery Tool MUST have a responsive and accessible HTML-based user interface, with support for mobile devices.	YES/NO	M
10	The solution MUST support the Internet Protocol version 6 (IPv6) protocol. This includes both connections to clients and to any other external systems it interacts with.	YES/NO	M

3.1.1 Library Services Platform Architecture

It is expected that the LSP has a Service Oriented Architecture and provides shared, reusable services, with loose couplings. Data should be accessible across systems, rather than exported from, or imported into, each system of the enterprise.

The LSP should emphasize the separation of applications and business services. Figure 1 illustrates the need for access to services at different levels. Sikt will use these services to implement extensions. It should also be possible to integrate with external systems at any level.



No.	Requirement	Max. length (pages)	Type (M/D/E)
11	MUST have a Service Oriented Architecture that allows access to services at different levels.	YES/NO	M
12	Please describe the LSP system architecture. The description MUST describe how Sikt or selected member institutions can implement extensions and integrate the LSP with external systems.	1	M*
13	The supplier MUST provide a list of supported open standards protocols and standard export formats. If there are any plans to support new standards in the future, please state when these will be supported.	1	M*
14	The supplier MUST describe and provide documentation of non-standard protocols and export formats.	0.5	M*

3.1.2 Ownership of data

It is crucial that all data within the system is the exclusive property of Sikt and the consortium. This encompasses a variety of data types including but not limited to:

- Content such as bibliographic descriptions, holding records, and user information
- Usage data, which is derived from system utilization
- Statistics/reports generated within or by the system
- Implied data inferred from other data elements in the system
- Other related data forms

The supplier is not permitted to access or use the data within the system for purposes other than delivering the agreed-upon services and support, without explicit consent from Sikt. For

instance, any data usage for benchmarking against other institutions would require prior approval.

No.	Requirement	Max. length (pages)	Type (M/D/E)
15	All data within the system MUST be the property of Sikt and the consortium.	YES/NO	M
16	The supplier MUST agree that they are not permitted to access or use the data within the system for purposes other than delivering the agreed-upon services and support, without explicit consent from Sikt.	YES/NO	M

3.2 Integrations

Integration is crucial to the LSP. The institutions and Sikt need to integrate the systems with other software in use by the consortium, both by extracting data from the LSP and to input data into the LSP. Examples of necessary operations are import/update of users, export and import of bibliographic data, import/export of holdings data, ILL transactions and orders creation.

The sector follows an integration policy which states that integrations should be API- and event-based. Therefore, we expect the solution to have a modern, rich and well supported API suite which Sikt and the sector can utilize to develop integrations and dataflows with other services and platforms across the digital ecosystem. We also expect that the system can scale according to the needs and that there are no practical limitations in the usage of API's.

The LSP must be able to interact and share data with other relevant systems as long as these external systems follow the same architectural principles offering services/APIs, protocols, etc. The LSP should support common standards in the library domain and in the education and research sector. It would also be beneficial if the system could offer solutions for low-code/no-code integrated within the system in order to ease the creation of workflows and integration without the need for a high level of coding expertise.

See appendix 2 for a list of current integrations.

No.	Requirement	Max. length (pages)	Type (M/D/E)
17	DESCRIBE if and how the solution supports sending out event notifications or other forms of messages when changes occur in the platform's source data (e.g. webhooks) and which events are supported	0.5	E
18	DESCRIBE if it is possible to suppress native functionality in order to focus on similar third-party functionality (e.g. Suppress native discussion forums to use third-party discussion platforms). If so, describe how this can be done (e.g. settings, scripting, etc.)	1	E

19	The data model for the solution SHOULD be fully documented, and the documentation should be available to the customer as an aid to building integrations, reporting functions, etc.	YES/NO	D
20	The solution MUST have a rich, open API-suite using modern standards.	1	M*
21	List and DESCRIBE which standards and protocols (e.g. SOAP, REST/RESTful, GraphQL, SCIM etc) that are currently supported by the solution's API-suite	0.25	E
22	Detail and DESCRIBE the performance metrics of the API-suite, including response times and any rate limiting or other operational limitations	0.25	E
23	If there are general upper limits defined for API-usage the supplier MUST be willing to increase the amount if necessary to enable Sikt and the consortium to achieve their goals and cover the needs related to the API's.	YES/NO	M
24	DESCRIBE the security features in the API-suite, including authentication, authorization, encryption, logging and monitoring capabilities	0.5	E
25	Outline and DESCRIBE any planned or future expansions or improvements to the API that are currently in development or under consideration	0.5	E
26	The solution MUST have real-time APIs to enable the provisioning and management (CRUD) of bibliographic descriptions, holding records, availability (available, on loan, on hold), patrons, ILL partners, vendors, e-resources and licenses.	YES/NO	M
27	DESCRIBE the process for maintaining and developing new functionality in the API-suite, including whether and how customers may report their needs for future API functionality.	0.5	E
28	MUST describe what parts of the solution are not covered by APIs	0.5	M*
29	The system should offer solutions for low-code/no-code integrated within the system. Please DESCRIBE.	0.5	E
30	The Discovery System SHOULD offer APIs/services that enable the integration of its search and other functionalities into external services, such as search widgets, loan systems, and more.	YES/NO	D

3.3 User accounts

LSP and Discovery should have a shared registry of user accounts. These accounts will be used for authentication and authorization, with one account for each user, containing necessary properties and data related to the user. The user can be a staff user and/or a patron.

We expect the LSP to host the user account registry, which will be accessible by the Discovery system for facilitating patron actions.

3.3.1 User management

It is vital that the system supports user management operations both automatically and manually. In short, importing, updating, and deleting users from external systems both individually and in bulk. If possible, support for real-time import and updates of user records would be ideal.

Compliance with GDPR is paramount in all aspects of user data handling, which should naturally include automatic anonymization and deletion of personal/sensitive information, like requests and loan history.

Throughout patron processes (requests, loans, renewals, etc), user data should be readily available, including user groups and library privileges.

No.	Requirement	Max. length (pages)	Type (M/D/E)
31	MUST be able to import, update and delete users from external systems, by job and in bulk by file. Explain how.	1	M*
32	MUST be able to register, edit and delete users manually.	YES/NO	M
33	MUST be able to divide patrons into different user groups, with different privileges.	YES/NO	M
34	SHOULD be able to configure a customized user registration form (default for the library).	YES/NO	D
35	EXPLAIN how patrons could be able to self-register by web-GUI.	0.5	E
36	MUST be possible to prevent fields from being overwritten by the automatic user data update jobs.	YES/NO	M
37	It MUST be easy to delete users singular and in bulk, by customizable parameters. Explain how.	0.5	M*
38	It MUST be possible to register preferred language on users for patron-facing GUI and messaging (Norwegian Bokmål, Norwegian Nynorsk, Northern Sami, English etc.).	YES/NO	M
39	The LSP MUST NOT share user data and link accounts between institutions.	YES/NO	M
40	Automated anonymization and deletion of sensitive information, like requests and loan history MUST be possible.	YES/NO	M
41	It MUST be possible to define a retain-period before data is anonymized and/or deleted (e.g. reservations and loan history).	YES/NO	M
42	The solution SHOULD support automatic deactivation and/or deletion of users based on set criteria (e.g. inactivity for a certain period)	YES/NO	D

3.3.2 Authentication

The LSP/Discovery should offer both internal and external authentication.

For external authentication, Feide is of special interest. The institutions in the Norwegian HE sector utilize a common standard for authentication through the identity federation Feide[1]. The supplier must support Feide authentication through OIDC or SAML 2.0. Note that the Feide identity federation's architecture is different from most HE federation with a single IdP for all institutions.

[1] https://docs.feide.no/service_providers/index.html

No.	Requirement	Max. length (pages)	Type (M/D/E)
43	The offered solution MUST support Feide authentication through OIDC or SAML 2 (OIDC: https://docs.feide.no/reference/oauth_oidc/index.html, SAML: https://docs.feide.no/reference/saml/index.html)	YES/NO	M
44	The offered solution MUST support elevated security with MFA for end users through Feide (https://docs.feide.no/service_providers/mfa/index.html)	YES/NO	M
45	SHOULD support Single Sign On (SSO) and Single Logout (SLO) functionality.	YES/NO	D
46	DESCRIBE how the offered solution supports Feide login hints to simplify user login (OIDC: https://docs.feide.no/reference/oauth_oidc/openid_connect_details.html #login-hints-bypassing-the-login-discovery-page SAML: https://docs.feide.no/reference/saml/selectorg.html)	0.5	E
47	DESCRIBE which other authentication standards (OIDC, SAML, LDAP, CAS etc) and solutions (Azure, EntraID, Google Cloud Identity, Okta, Social logins etc) are supported in the offered solution.	0.5	E
48	SHOULD support authentication using a One-Time Code to accommodate institutions that do not have a remote authentication method like SAML SSO	YES/NO	D
49	For end users not using external authentication, DESCRIBE the offered solution's internal authentication solution.	0.5	E
50	DESCRIBE the offered step up/MFA authentication for end users when using other authentication solutions or for those without MFA in Feide	0.5	E
51	DESCRIBE how the offered solution helps the end users select their correct authentication method when multiple authentication sources are used.	0.25	E
52	DESCRIBE how you manage which users or privileges require elevated security with step up/MFA authentication	0.25	E

3.3.2.1 API-authentication

Access to the API's must be secure in order to prevent misuse and unauthorized access to the system. The API's must be scoped and follow the principle of "data minimization" meaning that the access to the API's only give access to data and endpoints that are directly relevant and necessary to accomplish a specified purpose.

No.	Requirement	Max. length (pages)	Type (M/D/E)
53	DESCRIBE how the offered service supports modern authentication and authorization for APIs, as a data provider and data consumer (e.g. OAuth2.x and JWT-tokens)	0.25	E

54	DESCRIBE if and how the service supports authentication and authorization of APIs through Feide with OAuth2.x and JWT tokens, both as a data provider and data consumer (https://docs.feide.no/data_sharing/index.html)	0.25	E
55	The API's MUST have mechanisms for data minimization (e.g. limit an API-key to specific endpoints, scoping). Please describe.	0.5	M*
56	The API's SHOULD have mechanisms for restriction of access to the API's, e.g. limit access by IP. Please describe.	0.25	E

3.3.3 Authorization

We are looking for a solution that makes it easy to give granulated privileges and permissions to library staff users and patrons, individually and by groups, both centrally at Sikt and at the institutions, with the possibility to set limitations to read only, not create and not delete.

The LSP should be able to support an integration with the sector's preferred Identity and Access Management system (Rapid Identity).

No.	Requirement	Max. length (pages)	Type (M/D/E)
57	Sikt SHOULD have the authority to assign administrative privileges to staff users at the member institutions.	YES/NO	D
58	Describe the administrative privileges for each institution's individual tenant, and how these privileges can be delegated to sub-administrators locally.	0.5	E
59	It MUST be possible to set staff user limitations in certain areas. EXPLAIN how access and privileges are assigned and regulated for staff users, and how access can be nuanced (e.g. CRUD operations).	0.5	M*
60	When creating new staff users, the LSP SHOULD automatically assign a default minimum of privileges. Explain how this is regulated.	0.5	E
61	DESCRIBE the extent to which administrators can be automatically given the correct roles and privileges based on the Norwegian HE sector's existing Identity and Access Management system (https://docs.sikt.no/docs/iam/produkt/).	0.5	E

3.4 Automation and AI

Sikt recognizes the potential of automation and AI to streamline workflows, enhance efficiency, and improve the overall user experience for librarians, students, faculty users and administrative personnel. We also see the potential in leveraging data for analytics. It is important, however, to carefully consider the ethical implications of these technologies and that any implementation in the solution is done in a considered, transparent and responsible manner. It is crucial to Sikt that the supplier is attuned to both current and future regulatory requirements, such as the forthcoming EU AI Act and future legislation. Additionally, we

believe in giving our customers control over the technologies they use, including the ability to suppress or disable AI functionality if desired.

The supplier cannot use any data stored within the system or data based on the usage of the system to train AI-models without the consent from Sikt and the consortium.

There is an expectation that the systems during the lifespan of the contract will evolve and include various functions based on machine learning, automation and artificial intelligence that will aid the users of the systems in the fulfillment of their needs, support more efficient workflows and help to get the most out of the system. It is also an expectation that this will be included as an integrated part of the systems and the deliveries of this procurement and not as separate services/products.

This chapter covers automation and AI on a more general level. Specific needs within a specific domain/part of the system will be covered in subsequent chapters.

No.	Requirement	Max. length (pages)	Type (M/D/E)
62	Any new/existing AI functionality developed that is a natural extension or addition to the library services MUST be an integrated part of the system and included in the deliveries.	YES/NO	M
63	DESCRIBE how data within the solution is accessible for use with data analytics or other computing tools.	0.5	E
64	DESCRIBE existing functionality in the solution where AI and/or automation is used.	0.5	E
65	DESCRIBE how the use of AI/automation improves the efficiency of workflows for students, researchers, librarians and administrative personnel.	0.5	E
66	DESCRIBE whether the system has robust connectors for RPA solutions or addons (for instance Microsoft Power Automate).	0.25	E
67	DESCRIBE the supplier's strategic objectives and the roadmap for the development and implementation of AI, automation and RPA within the solution.	0.5	E
68	DESCRIBE the main components the supplier is focusing on for delivering benefits in the future, particularly with regards to better user experience and more efficient workflows.	0.5	E
69	The use of AI in the systems MUST be in compliance with the EU AI Act and future legislation/regulation of AI.	YES/NO	M
70	DESCRIBE how you will ensure that the solution meets the requirements of the forthcoming EU AI Act and future legislations/regulations.	1	E
71	DESCRIBE how you will ensure that the use of AI/automation is ethical and transparent.	0.5	E
72	DESCRIBE how AI functionality is tested and validated before being implemented in a live environment.	0.5	E
73	Indicate how the Institutions can customize, including suppress and/or disable, any AI functionality in the solution.	0.5	E
74	DESCRIBE how the solution manages the data that AI functionality is trained on, particularly with regard to privacy, information security and ethical concerns.	0.5	E

75	The supplier MUST not use any data stored within the system or data based on the usage of the system to train AI-models without the consent from Sikt	YES/NO	M
76	AI technology, including algorithms used in the LSP/Discovery tool MUST be transparently documented, including their purpose and data sources, and that encourages informed decision-making for the customer.	YES/NO	M
77	DESCRIBE whether and how the solution provides reporting on AI decisions to users/administrators, etc.	0.5	E
78	DESCRIBE if it possible to change the language model used for generative AI, e.g. GPT3.5, GPT 4.0, NORGPT (https://www.ntnu.edu/norwai/lap), NB-Whisper (https://ai.nb.no/models/)	0.5	E
79	Describe how generative AI is used in order to assist the librarians within the system or to increase the quality of the data within the system.	1	E
80	Describe how AI is used in the discovery tool to assist the patrons to fulfill their information needs.	1	E
81	Please describe possibilities for automating cataloguing workflows	0.5	E
82	Please describe the LSP's current and future planned AI-based services for enrichment of bibliographic descriptions	0.5	E
83	Please describe the current and future planned AI-based services to assist users in descriptive and subject cataloguing	0.5	E
84	The supplier SHOULD provide a plan for how new technologies, such as AI or other technology, can be integrated and improve workflows in the system. Examples: statistics, user guides, automated workflows- and processes. Please provide examples from such plans.	1	E

3.5 Data Security and Privacy

3.5.1 GDPR

The EU General Data Protection Regulation (GDPR) sets forth stringent requirements for data protection and privacy. It mandates that organizations handling personal data of EU citizens uphold the fundamental rights and freedoms of individuals, particularly their right to protect their personal data.

For Sikt, it is paramount that the solution, and the supplier providing it, adhere to all aspects of the GDPR. This includes the overarching principles of data protection, the specific requirements for security in the processing of personal data, and the stipulations for using sub-processors.

Moreover, the territorial scope of data storage and processing is a significant consideration under the GDPR. It is crucial that data is stored within the European Economic Area (EEA) and in compliance with applicable Norwegian and EU legislation. If any data processing occurs outside the EEA, appropriate transfer mechanisms must be used to ensure the data's protection.

Finally, the ownership of the data remains with the institution and/or the users of the LSP/Discovery tool, and any agreements related to data processing must align with this principle.

Understanding and ensuring GDPR compliance is not just a regulatory requirement, but also a testament to the supplier's commitment to privacy, security, and the ethical handling of personal data.

Note that Sikt requires suppliers to agree to make use of the enclosed template for Data Processing Agreement (DPA). See appendix 7 in the Tender regulations. Answers submitted will be subject to changes and refining in the negotiation phase.

No.	Requirement	Max. length (pages)	Type (M/D/E)
85	The solution and the supplier MUST comply with GDPR, including the overarching principles of data protection	1.5	M*
86	The solutions and the supplier MUST comply with requirements for security in the processing of personal data according to GDPR article 32	2	M*
87	The supplier MUST only use sub-processors who implement appropriate technical and organizational measures that ensure that the processing meets the requirements of GDPR, and has entered into a written agreement with sub-processors that impose similar obligations with regard to the protection of personal data as those imposed on the supplier itself.	1	M*
88	Data MUST only be stored in EEA countries, and at all times be in accordance with applicable Norwegian and EU legislation.	0.5	M*
89	If personal data is to be processed outside the EEA, the supplier and/or its sub-processors MUST use a valid transfer mechanism and provide a transfer impact assessment.	1.5	M*
90	All data stored, processed and transferred by the solution MUST remain the legal property of the institutions and the supplier shall not assert any rights over any data uploaded to the service.	YES/NO	M
91	The supplier MUST be willing to use the enclosed template for Data Processing Agreement (DPA).	YES/NO	M
92	The supplier MUST fill out a draft of the DPA (based on the template) and submit with bid submission.	0.5 + separate document	M*
93	DESCRIBE how an institution may suppress or disable any functionality if necessary to comply with GDPR or Norwegian law.	0.5	E
94	DESCRIBE the process through which the institutions can facilitate data subjects' rights, notably correction, deletion, and retrieval of their data	0.5	E
95	DESCRIBE how requirements for data protection by design and by default (GDPR article 25) are met in the offered solutions	0.5	E
96	DESCRIBE how user data and user activities are handled in compliance with GDPR.	0.5	E

3.5.2 Data security and encryption

The protection of sensitive data, both in transit and at rest, is important to us and we are therefore particularly interested in understanding the data encryption standards employed across your solution.

We also seek insight into the security mechanisms of your offered solution, including its resilience against common attack vectors such as Denial-of-Service (DoS) attacks. It is crucial to understand how these mechanisms safeguard against unauthorized access at application level and lower.

Furthermore, we require information on how logging is managed within your solution, including storage and exportation of user activity logs. Finally, we are interested in how communication within the offered solution is secured through encryption and other measures.

Through this section, we aim to gain a comprehensive understanding of the data security measures and practices incorporated in the solution.

No.	Requirement	Max. length (pages)	Type (M/D/E)
97	Data MUST be encrypted in transit and at rest	YES/NO	M
98	DESCRIBE the data encryption standards used across the solutions	0.5	E
99	DESCRIBE the security mechanisms in the offered solution and how these protect against (D)DoS attacks, SQL injection, cross-site scripting and other common attack vectors. Describe which mechanisms, if any, are in place to prevent access to information in the event of unauthorized access to your solution. This includes security breaches at application level and lower.	0.5	E
100	DESCRIBE which industry standards and certifications that ensure security and data protection the supplier and data centers adhere to. Attached relevant certifications can substitute a written response.	1	E
101	DESCRIBE how logging is handled in the offered solution; where, and for how long, are logs of user activity stored.	0.5	E
102	DESCRIBE how to export logs from your offered solution to an institution's logging service and specify any delays in the availability of logs.	0.5	E
103	The supplier MUST describe the backup routines for the systems and the recovery plan in case of an event	1	M*

3.6 Accessibility

Accessibility is a key aspect of any solution, as it ensures that all librarians, staff, students and academics can access and use the service effectively, regardless of their abilities or disabilities. Accessibility also contributes to the quality, usability, and inclusiveness of the service, as well as compliance with legal and ethical standards.

Norwegian laws mandates that all systems are in compliance with the current WCAG-standard at level AA.

The accessibility requirements specify the minimum level of accessibility that the solution must meet, as well as the documentation and support that the supplier must provide to demonstrate and maintain compliance. The requirements are based on the European standard EN 301 549, which incorporates the Web Content Accessibility Guidelines (WCAG) 2.1. The requirements also cover aspects of accessibility beyond the technical standards, such as user testing, assistive technologies, and workflows.

Importantly, accessibility is not a one-time effort, but an ongoing commitment. It requires regular monitoring and testing to identify and rectify any accessibility issues, and a proactive approach to maintaining compliance with evolving accessibility standards.

No.	Requirement	Max. length (pages)	Type (M/D/E)
104	The supplier MUST describe their approach to accessibility, focusing on the inclusion of users with disabilities and use with assistive technologies.	1	M*
105	The current version of the offered solution MUST comply with applicable chapters of the WAD (Web Accessibility Directive) standard EN 301 549.	2	M*
106	The supplier MUST commit to maintaining compliance for any future versions of WAD and EN 301 549.	0.5	M*
107	The LSP/Discovery tool MUST comply with level AA in the WCAG 2.1 standard	YES/NO	M
108	The supplier MUST commit to maintaining compliance for any future versions of WCAG at minimum level AA.	YES/NO	M
109	If there are WCAG requirements that are intentionally not met, this MUST be described and explained.	0.5	M*
110	An up-to-date Voluntary Product Accessibility Template (VPAT) MUST be publicly available for each system throughout the lifetime of the contract.	0.25	M*
111	DESCRIBE how accessibility issues, reported or self-discovered, are tested, prioritized, and rectified.	0.25	E
112	DESCRIBE the target timeline or plan for fixing failures when they are discovered.	0.25	E
113	The supplier MUST commit to covering any daily fines imposed by the authorities on the institutions, as a result of the solution being non-compliant with accessibility requirements. Fines can be imposed if breaches are not rectified within a deadline set by the authorities.	YES/NO	M

3.7 Usability

As part of a large knowledge sector with rapid changes in demands, technology and workflows, the usability of the LSP and discovery tool is one of the pivotal factors driving cost-effectiveness, student success, and overall satisfaction. A user-friendly LSP can significantly enhance the ability for the employees to be effective in the day-to-day operations within the library, likewise a user-friendly discovery tool would aid the students to find the relevant resources the library provides and increase the overall experience.

In this section, we delve into the usability requirements of the LSP/discovery tool. We seek to understand how the solution ensures an intuitive, smooth, and efficient user experience, from simple navigation to streamlined workflows. This includes, but is not limited to, easy access to resources, effective day-to-day operations and intuitive interfaces that cater to a diverse range of user needs.

Our focus is to assess how well the LSP/discovery tool can provide a seamless and engaging user experience, decrease barriers to information for users, and ultimately enhance the effectiveness of the library workflows. Your response should detail the design principles that

underpin the system's usability, give examples of how those principles are executed, and indicate how user feedback is incorporated into ongoing usability enhancements.

No.	Requirement	Max. length (pages)	Type (M/D/E)
114	DESCRIBE your approach to ensuring good usability within your solution. This should include, but is not limited to, the following points: - Your process for incorporating usability considerations during the development and maintenance of the solution - How you gather and incorporate user feedback into the solution - Any usability testing or user experience research conducted during the development process. - Any certifications or awards received in relation to usability or user experience.	1.5	E
115	DESCRIBE the HTML user interface, emphasizing the underlying philosophy that guides design choices. Include insights into how design decisions align with the overall goals and functionality of the LSP/Discovery tool.	1	E
116	The solutions MUST include full language support for English, Norwegian Bokmål, Norwegian Nynorsk and Northerns Sami for all patron-facing elements in the LSP (letters etc.) and the Discovery System.	YES/NO	M
117	The solutions SHOULD include translations for English, Norwegian Bokmål, Norwegian Nynorsk and Northern Sami for all patron facing elements in the LSP (letters etc.) and Discovery System OOTB.	YES/NO	D
118	The solutions MUST allow translation of all patron-facing elements in the LSP (letters etc.) and Discovery System if the Norwegian and Sami languages are not supported OOTB.	YES/NO	M
119	DESCRIBE the processes, tools and procedures in place to facilitate and ensure high quality translation of the solutions.	0.5	M*
120	DESCRIBE limitations - if any - on available storage to each institution or to the Customer as a whole, including also available storage for digital objects. If there are limitations, describe the expected growth rate of those limitations, as well as pricing for exceeding the quotas.	0.5	E
121	The user interface MUST be intuitive and logically structured.	YES/NO	M
122	MUST have integrated help functionality, with context-sensitive help. Please describe any context-sensitive help offered within the solution.	0.5	M*
123	The LSP user interface MUST support use of keyboard hot keys. Explain how.	0.5	M*
124	Local customization to the institution MUST be possible in the LSP, included but not limited to the ability to add and modify the institution's logo.	YES/NO	M
125	LSP MUST provide the capability to schedule tasks (including but not limited to import, export, normalization, reports/statistics), both one-time and regular tasks, minimum on fixed intervals or frequencies as defined by the system	YES/NO	M
126	LSP SHOULD allow users/institution to schedule jobs at user-specified intervals or frequencies	YES/NO	D
127	Error messages SHOULD be informative and actionable. Explain how.	0.5	E
128	It SHOULD be easy to correct and undo errors and user mistakes in the LSP.	YES/NO	D
129	It SHOULD be possible to personalize the menus and workflows in the LSP user interface.	YES/NO	D
130	It SHOULD be possible to work in different browser tabs simultaneously.	YES/NO	D

131	It SHOULD be possible to toggle between basic and advanced functionality when necessary.	YES/NO	D
132	SHOULD be possible to edit and configure notifications, letters and slips without any programming skills. Explain how.	0.5	E
133	The LSP SHOULD work on tablets and handheld devices. Please describe to what extent tablets and handheld devices are supported by the LSP.	0.25	E

3.8 Statistics and reports

Libraries rely on statistics in order to analyze and evaluate the service they provide to their users. Information about the collection, complete and parts, and usage of the documents, is necessary to perform collection management and refining the services to the users. The LSP and Discovery System must offer flexible functions for statistics and allow reports on "everything". The libraries should be able to generate the statistics themselves, both instantly and on schedule.

In addition to traditional library-specific statistics, it is important for Sikt to be able to create statistics for the entire consortium. Furthermore, access to complex statistics and reports with data from all scopes in the LSP, will allow us to effectively work with metadata and collection management, both in each institution and across the consortium.

The National Library gathers statistics from all the libraries in Norway on behalf of the government in order to create a national statistic. The system must be able to provide the relevant statistics and values that are required from the National Library. See appendix 5 for a list of the required fields.

No.	Requirement	Max. length (pages)	Type (M/D/E)
134	MUST offer flexible functions for statistics and reports for each institution and the entire consortium. Please describe the range of possibilities and formats for generating statistics and reports for the solutions.	1	M*
135	The LSP MUST be able to provide statistics on all data and operations within the system (e.g. but not limited to number (#) of patrons within a user group, # of deleted items/bibliographic description, # of loans fulfilled for a specific time period, # of ILL requests received last year etc.)	YES/NO	M
136	The supplier MUST provide a list of the data it is possible to use as the basis for reports and statistics.	1	M*
137	The supplier SHOULD create new indexes on request by the customer if there are fields missing/not indexed.	YES/NO	D
138	MUST be able to deliver the values that is part of the national statistics described in Appendix 5, for each institution and for the consortium	YES/NO	M

139	SHOULD be able to deliver the statistics through a service (or an API) as well as through a user interface	YES/NO	D
140	SHOULD be able to deliver the statistics at any given time for any given time period, based on user input.	YES/NO	D
141	MUST be possible to generate aggregated statistics for the consortium	YES/NO	M
142	Must have a tool for analyzing content and usage of all types of collections and acquisition data.	YES/NO	M
143	SHOULD have subscription options for reports and lists, i.e. getting reports and lists regularly by scheduling.	YES/NO	D
144	MUST have several output formats for statistics (e.g. XML, txt, xsl). Please provide a list of possible output formats.	0.5	M*
145	SHOULD allow the possibility to create dashboards/integrate reports and statistics directly into the LSP user interface, e.g. daily loans	YES/NO	D
146	SHOULD support indexing and reporting on every aspects of the bibliographic descriptions, e.g. 9xx fields	YES/NO	D
147	SHOULD offer mapping of new statistical data areas in response to emerging needs of the library, be adaptable and consistently evolving. Please provide a development plan for the solution	0.5	E
148	SHOULD be able to connect the analytics module with business intelligence tools like Tableau, Power BI or similar	YES/NO	D
149	SHOULD provide information about the known limitations of the analytics module, if there are any, e.g. limit for data export, missing identifiers	1	E

3.8.1 Statistics and reports - Discovery

In addition to the requirements already outlined, the Discovery System presents its own set of unique challenges when it comes to statistics and reports. Monitoring user behavior in the Discovery System can greatly benefit libraries, but tracking this in real time can be challenging. For libraries to fully harness the potential of the Discovery System they require comprehensive statistical and analytical reports to better understand how users behave. These reports need to accurately depict the system's activities and user behaviors, while still being aligned with requirements for data privacy. With this information, libraries can employ an evidence-based approach to address shortcomings or capitalize on strengths within the system.

No.	Requirement	Max. length (pages)	Type (M/D/E)
150	MUST have statistics and reports for each institution, including, but not limited to, circulation statistics, search queries, user behavior, and resource usage. Please describe the possibilities and formats for generating statistics and reports, and preferably provide an overview of the mapped data areas.	1	M*
151	SHOULD offer analytics that show patron behavior and user engagement – data not only about events in the UI, but entire user session and traffic inside Discovery.	YES/NO	D
152	SHOULD provide data about user traffic outside Discovery (e.g. how user gains access to resources if not via Discovery), acquired from database vendors	YES/NO	D
153	SHOULD provide mapping of discovery records to specific scientific disciplines allowing the identification of disciplines with the most user engagement	YES/NO	D
154	SHOULD be possible to easily check which activation (in library system / Central index) is causing a specific record to appear in Discovery, e.g. “What is the source of this record”.	YES/NO	D

4 REQUIREMENTS LSP

This chapter contains the functionality requirements the consortium has for an LSP. An overall goal is that all functionality offers unified handling of all resources regardless of acquisition types.

It is essential that the LSP facilitates rational processes and provides standard functionality needed by a modern library.

There will be a test of the product during the evaluation/negotiations phase and the result will be an important factor of the awarding process.

Appendix 3 describes various user-stories related to the LSP and Discovery. The suppliers will be asked to demonstrate some of the user-stories as part of the system demonstrations.

No.	Requirement	Max. length (pages)	Type (M/D/E)
155	MUST contain standard functionality (e.g. delivery, metadata management, e-resources) needed by a modern academic library.	YES/NO	M
156	The supplier MUST document if there are any missing functionality that normally is considered to be part of a standard / traditional ILS.	1	M*
157	MUST run on most common browsers: • Firefox, Edge, Chrome and Safari	YES/NO	M
158	SHOULD support browser navigation buttons	YES/NO	D
159	Appendix 3 describes various user-stories related to the LSP and Discovery. The supplier MUST describe if there are any user-stories listed that the systems can NOT fulfill.	1	M*

4.1 Consortium advantages

4.1.1 Shared database

The BIBSYS Consortium wants to benefit from a shared database, which consists of a joint catalogue for bibliographic data, as well as a shared database for vendor data, license data, ILL partner data etc. The goal is that information that is relevant to all members of the consortium, or a group of members, is visible and usable for all members. The benefits are:

- Less work to do for each member
- Instant access to updates for all members
- Instant display of updates for all members
- High quality data
- High degree of recognition for both library staff as well as end users
- Group views of data can be made based on explicit linking to shared resources, for instance the view of holdings for different libraries linked to shared bibliographic data.
- Reports and statistics can be made across libraries because linking to basic data is explicit.

A shared database bolsters the collaborative ethos that the consortium strives for.

A shared database requires that each member can expand upon or override the shared data with local data. For instance, an institution may have its own contact person with a vendor.

In the following requirements, shared data is called Global data. Local data is unshared data, which may be unique for each institution.

No.	Requirement	Max. length (pages)	Type (M/D/E)
160	Global data MUST be shared in the LSP. All members should be able to update and use the shared data.	YES/NO	M
161	All bibliographic descriptions MUST by default be global, serving as shared entries within the library catalogue.	YES/NO	M
162	Updates to global data MUST be instantly accessible to all members of the LSP	YES/NO	M
163	Updates to global data MUST result in instant display throughout the LSP	YES/NO	M
164	It MUST be possible to see a title with holdings information for all members of the consortium, or restrict to only local holdings.	YES/NO	M
165	It MUST be possible to extend/override global data with local data wherever global data exist. Please describe any limitations	0.5	M*
166	It MUST be possible to protect local data from being overwritten by global updates, e.g. on user profiles or bibliographic descriptions.	YES/NO	M

4.1.2 Central management and group functionality

The BIBSYS consortium wants to benefit from sharing configuration. Such configuration should be maintained centrally by Sikt and distributed to consortium institutions, either to all, institutions individually, or to a group of institutions.

Sharing configuration by group of institutions may make central administration more efficient. In this context a group would refer to a set of institutions. Sikt should be able to create sets of institutions ad hoc, but also be able to create pre-defined groups.

The objective of group functionality is to simplify operations for the group member institutions by allowing operations to be done “one time at one place”, taking effect for all members.

No.	Requirement	Max. length (pages)	Type (M/D/E)
167	The LSP MUST provide efficient central administration of the member institutions of the consortium.	YES/NO	M
168	It MUST be possible to distribute configuration to the consortium, to institutions individually, or to a group of institutions.	YES/NO	M
169	It SHOULD be simple to create a group of institutions, and to add or remove members from the group.	YES/NO	D

170	It MUST be possible to choose whether local configuration is to be overridden or not by central distribution.	YES/NO	M
171	EXPLAIN which categories are supported by central configuration, and which are not.	0.5	E

4.2 Search functionality

This section refers to search functionality for staff users within in the LSP. The LSP will be the primary tool of librarians and (meta)data managers. It must not be confused with search in Discovery.

No.	Requirement	Max. length (pages)	Type (M/D/E)
172	MUST include advanced search and/or limit functionality, e.g.: • Specialized search (CQL, Boolean operators, truncation etc.) • Pattern based search. As a minimum: exact match, left and right truncation • Search based on existence of data fields, corresponding to metadata model. Example: records with no 651 fields, records with any value on 082, records with n occurrences of 653 etc.	YES/NO	M
173	It MUST be possible to specify subsets of the metadata descriptions as predefined sources for a search. The sources could be defined on the basis of: • Material type • Ownership/Organizational entity,- that is, some entity within the BIBSYS consortium (the whole consortium, library, department, collection) Bibliography/Collection • Other Please describe the possibilities.	0.5	M*
174	MUST be possible to search in all data fields, to generate as precise selections as allowed by the applied metadata model.	YES/NO	M
175	It SHOULD be possible to index and search local fields (9xx-fields).	YES/NO	D
176	MUST be possible to combine search fields	YES/NO	M
177	SHOULD include advanced and intuitive navigation (within search results and search history), such as navigation based structural relations in thesauri and classification schemes	YES/NO	D
178	It SHOULD be support for pattern based search in the form of regular expressions	YES/NO	D
179	It MUST be possible to save searches and resulting metadata description sets, both as logical (dynamic based on the search) and fixed (the actual descriptions retrieved) sets.	YES/NO	M
180	It MUST be possible to combine sets with Boolean operators (AND, OR, NOT).	YES/NO	M
181	MUST support and differentiate Norwegian characters (especially æ, ø and å), e.g. “Bat” and “Båt” are not the same. A search for “Båt” should not return “Bat” and vice versa.	YES/NO	M

4.3 Acquisition

The LSP is expected to support all acquisitions processes and provide a general acquisition infrastructure for all resource types (print, electronic and digital). It must streamline and simplify library workflows for managing orders, claims, receiving, activation of electronic resources, invoices, vendors and vendor accounts, as well as ledgers, funds and licensing.

The LSP must also support the whole workflow of e-resources throughout its entire lifecycle (e.g. trials, negotiations, activation/deactivation, statistics and analysis, renewals).

We assume that all functionality related to acquisition is present in the LSP, for example ordering, invoicing, and budgeting, facilitating access to resources (activation, inventory registration, link resolver etc.). If the supplier has other solutions, the specifications should be answered from that context.

Libraries maintain close contact with a variety of vendors, making it crucial for the LSP to support communication between the library and vendors. Additionally, the LSP should provide the ability to track communication around orders, payments, and other related transactions.

Some libraries depend solely on the acquisition functionality support in the LSP, while some libraries need integration with external institutional system(s) for maintaining ordering, claims, budgets/fund, vendors, etc. In case of the latter, the LSP should be updated to have the full overview of resources in acquisitions. In order to be prepared for potential tightening of legislative regulations, the LSP must be ready to support both alternatives: Acquisition inside the LSP and acquisition partly outside the LSP. The required solutions are further described in chapter "22 – Functional requirements – Acquisitions - Handling Acquisitions partly outside the LSP ".

The ability to generate detailed statistics and reports in the Library Services Platform (LSP) is crucial for libraries to effectively manage and monitor their resources, e.g. return of investment, overlap analysis and cost analysis.

No.	Requirement	Max. length (pages)	Type (M/D/E)
182	MUST have an acquisitions system that can handle all types of resources in a unified manner.	YES/NO	M
183	MUST support one time purchase as well as subscriptions of single titles and packages/collections of e-journals, e-books and databases and standing orders.	YES/NO	M
184	MUST support serials management (both print and electronic, as well as combined). Please describe how the serials management is solved.	0.5	M*
185	Serial management in the LSP MUST have prediction pattern functionality.	YES/NO	M
186	MUST support automatic processing and sending of order claims. Please describe the claiming process for both monographic and periodical material.	0.25	M*

187	The system MUST offer configurable settings to enable or disable claims functionality. Describe at which levels claims can be switched on or off (i.e different acquisition methods, material types, specific vendors.)	YES/NO	M
188	MUST have a vendors database supporting both global and local data of vendor records.	YES/NO	M
189	DESCRIBE how the LSP could have a vendor- and contact database separate from the patron register.	0.5	E
190	Vendor name and identifier MUST be searchable in the LSP.	YES/NO	M
191	Vendor metadata like alternative name, email, vendor type and notes SHOULD be searchable in the LSP.	YES/NO	D
192	The LSP SHOULD facilitate importing data about vendors.	YES/NO	D
193	MUST support both email and m2m communication between LSP and vendors. Please describe your solution and supported standards (e.g. EDIFACT).	0.25	M*
194	SHOULD support accumulation and dispatch of orders to vendors e.g. once a day.	YES/NO	D
195	MUST be able to edit orders on every step of the order process. Please describe the possibilities in your solution for editing orders.	0.25	M*
196	The LSP MUST facilitate the ordering of items in a single acquisition workflow to multiple internal libraries.	YES/NO	M
197	It MUST be possible to create orders for the material we have on hand and receive it in the system immediately after the order is created.	YES/NO	M
198	MUST be able to track orders throughout the acquisitions process.	YES/NO	M
199	MUST be able to enrich orders with additional data for internal data processing and analysis.	YES/NO	M
200	Order templates SHOULD be present for all types of resources.	YES/NO	D
201	MUST be able to create order templates for all resource types.	YES/NO	M
202	MUST support budgeting with reports on balance.	YES/NO	M
203	SHOULD take into consideration pro-rata payments, credit notes, etc. to work out expected costs.	YES/NO	D
204	MUST handle and convert different currencies and work in cooperation with the budget.	YES/NO	M
205	SHOULD be able to handle manual and automatic currency adjustments.	YES/NO	D
206	The supplier MUST describe different ways (manual, file upload, M2M communication etc.) of updating the LSP with financial data.	0.5	M*
207	MUST support label and barcode printing inside the LSP or by other methods. Please describe your solution.	0.25	M*
208	SHOULD capture title changes, transfers between vendors, etc. in order to maintain access.	YES/NO	D
209	Please DESCRIBE how the LSP can handle orders and data about article processing charges, or any future functionality regarding Open Access and APCs.	0.5	E

210	MUST support alerts and search on due tasks, for instance, renewal of subscriptions.	YES/NO	M
211	MUST support event log.	YES/NO	M
212	MUST support advanced reports and lists and possibility to export for data analysis and visualization.	YES/NO	M
213	It MUST be possible to identify in the LSP, and retrieve lists, of what material has been delivered from a vendor and what has not been delivered.	YES/NO	M
214	SHOULD be able to correct errors, like e.g. activation errors, automatically.	YES/NO	D
215	SHOULD support acquisition data maintenance through batch processes.	YES/NO	D

4.3.1 Handling Acquisitions partly outside the LSP

It is vital that the library system, purchasing/invoicing system, and vendor systems work in harmony. These systems must be interoperable and effectively communicate with each other to ensure smooth, efficient operations. This coordination is key to maintaining accurate records, streamlined workflows, and providing a high-quality service.

Norwegian regulations impose that all invoices should be managed in one dedicated system regardless of where the purchase is initiated and in which system the order is created. Nevertheless, it is important that the LSP can be kept updated with invoice data as automatic as possible.

While a purchasing system could handle simple library purchases rather independently from the LSP, this is not possible for more complex e-resource purchases that need to be closely integrated with LSP workflows and ERM functionality in particular. The LSP must therefore have the necessary API's (CRUD) so that it can be closely integrated with the vendors' e-commerce system.

It is important to have the complete picture in the LSP, utilizing its normal acquisition functionality as much as possible. Workflows in the LSP must supplement and integrate with relevant, external systems, attempting to make maximum use of the LSP's built-in functionality in an overall optimal workflow.

No.	Requirement	Max. length (pages)	Type (M/D/E)
216	MUST support Real Time Acquisition.	YES/NO	M
217	MUST provide services (or APIs) that can be used to create ordering information in the LSP from an external vendor, and update of these orders when orders are updated in the vendor interface.	YES/NO	M
218	MUST be able to integrate with external purchasing systems, and hereby also help to ensure that information from the external system is matched to	YES/NO	M

	existing bibliographic descriptions avoiding duplicate/and descriptions of poorer quality than in the LSP.		
219	The supplier MUST describe a solution for how to ensure that the necessary financial acquisition functionality, as described in the introductory chapter, is found in the LSP, including necessary services/APIs.	0.5	M*
220	MUST provide services (or APIs) that can receive ordering information used to automatically link to, or create draft bibliographic descriptions and holding records for single titles.	YES/NO	M
221	MUST be able to collect bibliographical data from external catalogues in order to reuse records, instead of doing the cataloguing from scratch.	YES/NO	M
222	MUST provide services (or APIs) that can receive receiving/invoicing information to update holdings record status (item) or subscription record status (title/package). Please describe how this communication is solved.	0.25	M*

4.4 E-resources management

E-resources play a central and ever-growing role in library systems. As such, it is essential that any system we implement is up-to-date and follow best-practice in order to make the handling of e-resources as easy and efficient as possible. It is important for us to embrace new technologies, including AI, to streamline our workflows and ensure we are providing the best possible service to our users.

Additionally, we believe in the importance of collaborating well with the industry to keep our Library Service Platform (LSP) updated. This collaboration is key to ensuring we stay at the forefront of e-resource management in library systems.

The automated activation, update and deactivation of e-resources are crucial in a LSP, and the importance will only increase in the future. The system should support this functionality and seek to integrate with as many vendors as possible.

Sikt negotiates consortium agreements for e-resources for member institutions. Import of holdings to the libraries based on these agreements should be as automatic as possible and commonly used formats should be supported.

No.	Requirement	Max. length (pages)	Type (M/D/E)
223	The LSP MUST support the whole workflow of e-resources throughout its entire lifecycle (trials, negotiations, statistics and analysis, renewals, activation/deactivation, Link Resolver functionality (if not done elsewhere), etc.).	YES/NO	M
224	MUST support automatic activation/update/deactivation of e-resources by integration with external vendor/publisher. Please describe the method.	0.5	M*
225	Acquisition management of e-resources MUST be an integrated part of LSP, for vendors, orders, claims and budgets/funds.	YES/NO	M

226	License records MUST support links to formal contract documents, and functionality to display, import and export existing license data.	YES/NO	M
227	MUST integrate with knowledge base packages and titles for activation purposes.	YES/NO	M
228	MUST support and record the whole life cycle of license handling from trials of e-resources to closing of contract and contract changes. This includes support for notes /discussion during trial phase prior to contract, as well as notes / discussion during evaluation after contract.	YES/NO	M
229	The e-resource terms of use MUST be visible to library staff.	YES/NO	M
230	Relevant terms of use SHOULD display in Discovery to patrons, (i.e. text mining).	YES/NO	D
231	MUST record restrictions like subscription period, renewals, cancellation options, etc.	YES/NO	M
232	MUST be able to specify notes about authentication methods, i.e. IP addresses and username/password, both on a general level and on a more granular level for a specific e-resource.	YES/NO	M
233	MUST be possible to limit access to electronic resources for different staff user groups with different access rights.	YES/NO	M
234	MUST be possible to define levels of user access models (e.g. 1-user, 3-user, unlimited) and display in the Discovery System.	YES/NO	M
235	MUST record and manage any permanent/perpetual access after cancellation, including where the access is from i.e. LOCKSS/Portico, etc.	YES/NO	M
236	SHOULD support alerts to publishers about loss of access.	YES/NO	D
237	When consortium license agreements are agreed upon, the resources in question SHOULD be activated automatically for the member institutions and include relevant terms of use (ILL terms, and others). Please describe the solution for updating the LSP with resources subscribed to through consortium agreements.	0.25	E
238	Sikt SHOULD be able to perform updates about holdings etc. on behalf of the consortium.	YES/NO	D
239	MUST support automatically harvested statistics (including SUSHI harvesting of COUNTER 4/5 and future updates) and other standards.	YES/NO	M
240	MUST support manually entered statistics.	YES/NO	M
241	MUST support import of usage data via several formats i.e. ONIX, XML, CSV.	YES/NO	M
242	SHOULD have tools for cost/benefit rating of collections based on COUNTER information, etc.	YES/NO	D
243	MUST provide a tool to conduct a content overlap analysis, e.g. compare the holdings and content of different collections or resources to identify overlaps and gaps in coverage.	YES/NO	M

244	MUST provide separate A-Z / A-Å lists for databases in Discovery.	YES/NO	M
245	SHOULD provide separate A-Z / A-Å lists for e-resource subscriptions in Discovery.	YES/NO	D

4.4.1 The Knowledge Base

The Knowledge Base (KB) is traditionally a subset of library resources, primarily e-resources, with information about URLs, and with information about subscriptions (or open access), i.e. who should have access to the resources. The main role for the KB is to provide information about available resources to the Link Resolver and Central Index, but the KB is also the source for A-Z / A-Å list for subscriptions, and for journal alerts to end-users.

The Knowledge Base is a critical component of the system. It should contain comprehensive and up-to-date information relevant to the academic electronic resources of the institutions in the consortium.

We emphasize the importance of maintaining a strong relationship with the market, including staying up-to-date with updates from publishers and that this is reflected in the LSP.

Sikt negotiates e-resource license agreements on behalf of the consortium, and it is beneficial that these agreements are reflected and updated in the knowledge base and their catalogue.

For vendors managing Knowledge Bases filled with material, maintaining neutrality is important. It ensures that content is accessible and discoverable based on its relevance and merit, regardless of its origin or popularity. This neutrality safeguards against biases that could manipulate search outcomes, potentially skewing research findings or limiting the diversity of accessible information. When vendors commit to impartiality, they not only enhance the trust and reliability of their platforms, but also support the academic and intellectual integrity of the users who rely on these resources for informed decision-making and research.

No.	Requirement	Max. length (pages)	Type (M/D/E)
246	MUST provide a tool for the administration of holdings of electronic resources. Please describe the tool.	0.5	M*
247	The supplier MUST describe the relationship between e-resource data in the knowledge base and data in the catalogue.	0.5	M*
248	The supplier MUST describe the relationship between the knowledge base data and the central index, with respect to data for search, full text rights, synchronization and access to e-resources enabled in the Discovery solution.	0.5	M*

249	The supplier MUST exercise impartiality and avoid bias in the curation of resources for the Knowledge Base.	YES/NO	M
250	Please DESCRIBE the selection process for new resources in the Knowledge Base.	0.5	E
251	MUST commit to cooperating with a wide range of e-book and journal vendors in order to collect content data, and support open standards.	YES/NO	M
252	MUST describe the procedures, services and frequency of updating the knowledge base from publisher/vendor.	0.25	M*
253	MUST include tools that allow Sikt and each institution to add single resources (titles) and collections to the Knowledge Base and take into account shared cataloging environment.	YES/NO	M
254	It MUST be possible to import holdings/titles into the knowledge base using the KBART-format.	YES/NO	M
255	MUST support batch import/export of electronic holdings via commonly used formats (KBART, excel, etc.).	YES/NO	M
256	Sikt SHOULD be able to import holdings files into the knowledge base on behalf of institutions, as well as to add single titles which are not (yet) included in the knowledge base.	YES/NO	D
257	The institution members MUST be able to import holdings files into the knowledge base as well as to add single titles which are not (yet) included in the knowledge base.	YES/NO	M
258	MUST be able to export holdings for each member separately to Google Scholar.	YES/NO	M
259	SHOULD be possible to export holdings to external systems like BrowZine. Describe possible holding export to any other similar external services.	YES/NO	D
260	MUST be able to add public notes to individual titles and packages through the LSP.	YES/NO	M
261	MUST have alert services for the KB, i.e. changes and updates etc.	YES/NO	M
262	SHOULD have reports and options for search on KB collection updates.	YES/NO	D
263	The Knowledge Base/ Integrated Index MUST include Open Access and free e-resources, as well as functionality to differentiate these types of resources from paid resources.	YES/NO	M
264	It SHOULD be possible to enhance the KB-descriptions with local fields (i.e. local as in consortium level), without the risk of these fields being removed/overwritten by global updates in the Knowledge Base. (Norwegian subject headings, BARE authority ID etc.)	YES/NO	D
265	A database publisher/vendor/agent SHOULD be able to maintain the holdings in the knowledge base on behalf of the subscribers (i.e. the institutions).	YES/NO	D

4.4.2 Link resolver

The Link Resolver needs to be flexible and capable of exporting holdings to external services that enhance library visibility and reach, especially on platforms like Google Scholar. It should also be equipped to deliver full text.

No.	Requirement	Max. length (pages)	Type (M/D/E)
266	MUST support OpenURL version 0.1	YES/NO	M
267	MUST support OpenURL version 1.0	YES/NO	M
268	MUST allow easy access to records and full-text documents from OpenURL enabled sources externally. E.g. allow integration with sources like PubMed so that users are shown links to the Discovery System when content is available from their institution.	YES/NO	M
269	The Link Resolver MUST use context-sensitive linking and provide relevant notes to the user if they do not satisfy the criteria for access. E.g. warn users that are not within accepted IP-range, remind users to log in to the Discovery System to see specific links etc.	YES/NO	M
270	MUST support direct links (“one click access”) to full text when available from provider.	YES/NO	M
271	The link resolver MUST be delivered with an administration/configuration tool, allowing separate configuration by each member, i.e. configuring target services, IP ranges and proxy authentication.	YES/NO	M
272	The link resolver output MUST be accessible by APIs or services as well as by OpenURL requests	YES/NO	M
273	APIs and services SHOULD be available via HTTPS and respond with XML or JSON	YES/NO	D
274	MUST provide ability for configuring additional target services, e.g. feedback forms, based on the metadata and context.	YES/NO	M
275	MUST be able to add public notes to individual titles and packages through the Link Resolver.	YES/NO	M
276	MUST elaborate on possible functional and technical consequences of using other external link resolvers, e.g. SFX, Full Text Finder.	0.25	M*
277	MUST provide information about the available statistical data and describe the capabilities (and known limitations) of analytics module for Link Resolver usage.	0.25	M*

278	SHOULD support external integrations that enhance access to e-resources, e.g. BrowZine.	YES/NO	D
279	It MUST be possible for Sikt to perform group configuration on behalf of all institutions (holdings, target adjustments).	YES/NO	M
280	Institutions SHOULD be able to configure the display of Full Text services and link resolver, e.g. suppress pay-per-view links when other holdings are available, or hide links based on interface, but indicate exceptions for collections that should always be displayed.	YES/NO	D
281	The supplier SHOULD provide tools so that Sikt and the institutions are able to debug and find out why links are failing.	YES/NO	D
282	The supplier SHOULD have tools to identify dead links so that they can be replaced efficiently.	YES/NO	D
283	The institution SHOULD be able to overwrite the URL provided by the vendor according to local needs.	YES/NO	D

4.5 Metadata management

Having access to quality-assured metadata is essential to everyone who uses the LSP. It is important that the LSP provides powerful and user-friendly workflows for resource handling, both physical and electronic resources. The LSP should provide most of the necessary metadata through upstream imports from publishers.

Although the volume of manual cataloguing has decreased for most libraries the last years, it is still needed, e.g. for special collections. To handle this cataloguing as effectively as possible, it is important that the LSP offers good support for both original and copy cataloguing, e.g. the possibility to create templates and to import metadata from sources outside of the LSP. It is essential that this functionality is easy to use.

The National Library is responsible for infrastructure regarding metadata and metadata standards in Norway. The Norwegian translation of RDA Official, including application profiles, will be implemented in 2027 at the latest.

At present Norwegian libraries use RDA Original as metadata registration rules. The BIBSYS Consortium will transition from RDA Original to RDA Official no later than May 2027. The cataloguing will go from record-based (manifestation records) to entity-based.

This means that by the implementation of the LSP, we will probably still be using RDA Original and register metadata in the MARC format. The Norwegian Cataloguing Committee recommends that the ontology RDA Elements (aka the RDA implementation of LRM) forms the basis for entity-based cataloguing in Norway and that RDA application profiles are developed by the National Library. This means that in a few years the system will have to support entity-based cataloguing and the LRM/RDA format, including implementation of the

Norwegian application profiles. To ensure a smooth transition, it is preferable that we have a testing and training environment for RDA/LRM well ahead of the shift.

The “default language” for global metadata is Norwegian Bokmål. However, the libraries will also need to register global metadata in other languages and different alphabets. This may affect the whole bibliographic description as well as only certain fields. It would therefore be preferable to have a possibility to specify the language used on both description level and field level.

In addition to creating new bibliographic descriptions, we need tools that will allow us to effectively work with metadata and collection management, e.g. a collection analysis tool, the possibility to change bibliographic description or location of items in bulk operations and the possibility to automate routine processes.

No.	Requirement	Max. length (pages)	Type (M/D/E)
284	MUST support the cataloguing standard Resource Description and Access (RDA), both the RDA Original, and by 2027 (at the latest), the RDA Official.	YES/NO	M
285	MUST be possible to create bibliographic descriptions according to the metadata registration standard LRM/RDA (within 2027 at the latest).	YES/NO	M
286	SHOULD have a testing environment for RDA/LRM cataloging at system implementation	YES/NO	D
287	Please DESCRIBE to what extent LRM is supported.	1	E
288	If LRM is not fully supported please state when it can be expected that the system has full support for LRM.	0.25	E
289	SHOULD be possible to create bibliographic descriptions according to the metadata registration standard BIBFRAME.	YES/NO	D
290	The LSP MUST support conversion to/from BIBFRAME and LRM/RDA	YES/NO	M
291	The metadata editor MUST offer good support for editing linked data, including an intuitive interface for creating and updating entities, relations between entities, splitting and merging of entities.	YES/NO	M
292	MUST be possible to register metadata for all material types.	YES/NO	M
293	Please DESCRIBE how the system can help a user through the metadata registration process (e.g. predefined metadata in the form of templates, validation routines, format help functions)	1	E
294	MUST offer efficient upstream import of metadata, preferably from authoritative library sources.	YES/NO	M
295	MUST support import of metadata for all material types from vendors and a variety of external sources.	YES/NO	M
296	Within the metadata registration process, it MUST be possible to perform an authority control of authority names and subject headings.	YES/NO	M
297	MUST be possible to use Norwegian as metadata language.	YES/NO	M

298	The LSP MUST accommodate language tags (or other means of denoting the language used) on all textual elements in the metadata.	YES/NO	M
299	Please DESCRIBE how multilingual metadata is supported.	0.25	E
300	Please DESCRIBE how metadata from different writing systems (e.g. chinese, japanese, cyrillic, arab) is supported	0.25	E
301	SHOULD support transliteration of any information element in the metadata.	YES/NO	D
302	SHOULD have integrated functionality for automatic transcription from different writing systems.	YES/NO	D
303	It MUST be possible to edit metadata in bulk operations through both API and in the LSP. This includes holding information and all entity types; work, expression, manifestation and item.	YES/NO	M
304	When updating metadata in the system, changes SHOULD be put into effect immediately, i.e. it should not be necessary to wait for a nightly job. Examples: updates against external integrated systems, synchronization with the end user interface or other internal or external services (e.g. indexing of URIs).	YES/NO	D
305	MUST be possible to create and store bibliographic descriptions and entity metadata, even if there is no item/holding in any of the libraries in the consortium.	YES/NO	M
306	MUST be possible to assign different levels of cataloguing in the bibliographic records and entity metadata.	YES/NO	M
307	SHOULD have configurable input control for metadata registration within the consortium, where notifications and restrictions may be set up for different metadata-registration fields.	YES/NO	D
308	SHOULD be possible to restore deleted metadata (e.g. bibliographic descriptions, holdings, items).	YES/NO	D
309	SHOULD be possible to view and restore earlier versions of bibliographic descriptions.	YES/NO	D
310	There MUST be a possibility to restrict the deletion of local and shared descriptions, both on item and title level.	YES/NO	M
311	MUST support export of bibliographic descriptions in several different formats.	YES/NO	M
312	MUST be possible to define templates in the form of predefined metadata registration-fields for different entities and resources, both in regards of RDA application profiles and MARC21 etc.	YES/NO	M
313	Different groups in the consortium SHOULD be able to create, share and utilize templates within the consortium.	YES/NO	D
314	When editing a field, there SHOULD be a link to a help page for that specific field (e.g. MARC 21 or the metadata registration rules such as RDA Official with Norwegian application profiles)	YES/NO	D
315	When editing a field, if there is a link to a help page for that specific field, the institution/consortium SHOULD have the possibility to define which help page it is linked to.	YES/NO	D
316	It SHOULD be possible to search for and select multiple bibliographic records and entity description to be worked on in the cataloging-interface synchronously.	YES/NO	D

317	It SHOULD be possible to automatically generate accession numbers in more than one holding record at a time and/or generate multiple item records in one operation	YES/NO	D
318	The LSP MUST offer options to customize the format of system-generated barcodes for various collections, including the ability to adjust their length and prefix. OR, it MUST support the use of externally generated barcodes	YES/NO	M
319	The system MUST have metadata on the item level. For journal issues this includes the possibility to register information about chronology and enumeration in fixed fields.	YES/NO	M
320	There MUST be a field at the item level where the National library can record the storage container for the item.	YES/NO	M
321	SHOULD offer the possibility to register multiple storage locations on an item in instances where the item consists of more than one material type and these have different storage requirements.	YES/NO	D
322	It MUST be possible to import new bibliographic descriptions in various formats (e.g. MARC21, DC, BIBFRAME and RDA/LRM) from external sources for copy cataloging.	YES/NO	M
323	It MUST be possible to configure which external sources should be available.	YES/NO	M
324	It SHOULD be possible to enrich already existing bibliographic descriptions with metadata from external sources.	YES/NO	D

4.5.1 Authorities

The consortium has an authority file (BIBSYS Authority File) that contains all authorities; name authorities for persons and corporations/conferences and uniform titles. There are also plans to support subject headings in the future.

The reason for this is that authorities and subject headings with controlled vocabulary share many common aspects:

- The need for a link to the bibliographic description in which they are registered.
- The need to be verified as a legal term before they can be registered in a bibliographic description (authority control).
- The relationship between an authority and its see-references (unauthorized forms) is similar to the relationship between authorized and unauthorized subject headings as well as relationship between multilingual versions of a subject heading.

A subset of this file contains the national authorities (National Authority File). The National Authority File is maintained by the National Library and represents quality-assured descriptions. The criterion for including authorities as part of the National Authority File is that the name entries appear in a bibliographic description belonging to the National Bibliography or by definition by the National Library. National authority descriptions should be marked and locked in the cataloguing process. BIBSYS provides an application (BIBSYS Bare) for supervisory maintenance of the authorities. Appendix 4 contains more information about BIBSYS Bare.

It is expected that the LSP offers standard authority functionality supporting the BIBSYS Authority File, but also the possibility to create and maintain various authority-registries and controlled lists within the LSP. It should be possible to share the authority-registries across the consortium.

The LSP must support integrated authority verification in the cataloguing process. The user must be able to alter bibliographic data to correspond with the authority file and create new authorities while cataloguing. A cataloguer with the appropriate privileges should also be able to correct the authority record seamlessly while cataloguing.

All authorities used in bibliographic descriptions must be a part of the BIBSYS Authority File. This means that if an authority from an external authority file is copied, this authority must be stored in the BIBSYS Authority File. It is important that there are links between an authority and the bibliographic descriptions that are registered with the authority. The user must be able to see these connections in the LSP as help in the registration/cataloguing process.

The authority records in the BIBSYS Authority file are used by other third-parties outside of the consortium, and there will be authorities created and updated either directly in the BARE interface or via API's by external actors. If the system stores a local copy of the authorities in the BIBSYS Authority file to be used within the LSP, new, updated and deleted authorities must be harvested and updated within the LSP on a regular basis, minimum every 24 hours.

If a librarian creates a new authority this record must be added to the BIBSYS Authority file in real-time using REST API's or SRU/U. If a librarian tries to update an authority within the LSP the system must check the BIBSYS Authority file to see if there exists a newer version of the authority. If there is this must be retrieved so that the librarian works on the latest version. The check should be done before the user goes into editing of the authority and not at the save-stage.

The BIBSYS Authority file will contain authorities with the following levels:

- Authorities marked as National Authorities, verified by the National Library
- Authorities verified by a cataloguer in the BIBSYS Consortium
- Authorities imported from trusted external systems, but not verified by a cataloguer in the BIBSYS Consortium
- Authorities not verified by cataloguer in the BIBSYS Consortium

The LSP must be able to assign different levels to authorities, like the above-mentioned levels.

Authorities marked as a 'National Authority' should be locked, and only selected users at the National Library should also have the privilege to change/update locked authority records. Other users should be able to see and use the locked authorities, but not change them. Only selected users at the National Library should have the privilege of marking an authority as a 'National Authority'.

The authority-function must be based on identifiers when linking between a bibliographic description and the authority-record (the identifier of the authority-record must be registered on the bibliographic description in the appropriate fields). Linking based on logical or value-similarity is not accepted. When an authority-record is updated/changed the information in

the bibliographic descriptions must be updated accordingly, e.g. name, year of birth/death, subject-heading etc.

No.	Requirement	Max. length (pages)	Type (M/D/E)
325	MUST support standard authority functionality. Please describe the standard authority functionality within the system.	1	M*
326	MUST support the Norwegian Authority File: Persons and Corporate Bodies (BARE), with seamless and immediate update of the authority file when necessary, using REST-API's or SRU/SRU-U provided by BARE.	YES/NO	M
327	Advanced facilities for authorizing agents during cataloguing/data ingest SHOULD be provided. Such authority linking support could be a lookup/search service integrating information from multiple sources (e.g. Norwegian Authority file, Viaf, ISNI, ORCID,...). Please describe the available facilities for this.	0.5	E
328	The linking between authority-records and bibliographic descriptions MUST be based on identifiers	YES/NO	M
329	The user MUST be able to see which bibliographic descriptions are registered with a given authority in the registration/cataloguing process and other contexts based on the authority-ID.	YES/NO	M
330	MUST be possible to assign different levels to authorities	YES/NO	M
331	MUST support that National Authorities can only be edited by selected users at the National Library	YES/NO	M
332	MUST be possible to define templates for creating new authorities, that can be used within the consortium.	YES/NO	M
333	If the information in authority fields (e.g. authors, uniform titles, corporations/conferences, controlled vocabularies, etc.) in a bibliographic description is not verified, there MUST be a warning when saving the description.	YES/NO	M
334	A bibliographic description SHOULD not be saved if the information in authority fields (e.g. authors, uniform titles, corporations/conferences, controlled vocabularies, etc.) is not verified.	YES/NO	D
335	When an authority-record is updated/changed the information in the bibliographic descriptions MUST be updated accordingly, e.g. name, year of birth/death, subject-heading etc. (preferably in real-time, but minimum within 24 hours).	YES/NO	M
336	If authorities from the BIBSYS Authority file are stored locally in the LSP, new, updated and deleted authorities MUST be harvested regularly (minimum every 24 hours).	YES/NO	M
337	If authorities from the BIBSYS Authority file are stored locally in the LSP, the system MUST check if a newer version exists before a librarian starts editing the authority.	YES/NO	M
338	Integration with external sources/vocabularies/authority files SHOULD be adaptable to the individual sources. For some full integration, for others, lookups on demand, via APIs.	YES/NO	D
325	MUST support standard authority functionality. Please describe the standard authority functionality within the system.	1	M*

4.5.1.1 Subject headings

The libraries in the consortium have used different controlled subject vocabularies over the years. The vocabularies give a richness of variant terms and facilitate consistency in the descriptions with preferred terms and the assignment of the same terms to similar content.

We need a system that allow us to continue to store and maintain the current controlled vocabularies. The controlled vocabularies owned and maintained by the National Library, as well as the international vocabularies, are integrated with the system by API's. The Norwegian controlled vocabularies (e.g. HUMORD and Tekord) are stored and maintained in the current LSP, and we also create new subject headings here. Both solutions, internal and external master storage, must be supported to ensure the continued use of these vocabularies in the future.

Note also that the requirement about multilingual metadata is important for subject data. Sikt and the consortium are by law required to support the Sami languages. Many geographic names in Norway are multilingual with parallel names in Norwegian, one of the Sami languages and/or Kven Finnish. In such cases, all government bodies are committed to use all the names in registers/indexes.

No.	Requirement	Max. length (pages)	Type (M/D/E)
339	MUST support management and development of controlled subject vocabularies (e.g. HUMORD, MeSH and NBvok)	YES/NO	M
340	MUST be possible to store and maintain local controlled vocabularies (e.g. HUMORD and Tekord) within the LSP.	YES/NO	M
341	SHOULD be able to interact with external sources/vocabularies for which suitable access services are available. Examples: MeSH, Agrovoc and the Norwegian 'Sentralt stedsnavnregister' (Central geographical names file) and NTSF. This implies the possibility of using global IDs as values for the various subject data fields, relying on the LSP to look up relevant information as needed.	YES/NO	D
342	Please DESCRIBE how subject headings are handled in the LSP.	0.5	E
343	SHOULD be possible to assign parallel multi-lingual terms for subject terms and geographical names (including all Sami languages and Kven Finnish), and support different terms written in different alphabets.	YES/NO	D

4.5.2 Digital Media / Data management

Libraries have collections of digital media, e.g. digital text, digital audio, digital videos and digital pictures. Some of these collections are stored locally, some externally and some in other systems provided by Sikt. It is important that the system can effectively handle various solutions for storing and describing digital media and files. Regardless of the datafile's

location, the LSP should function as the primary management tool for metadata, capable of handling scenarios where both the datafile and metadata are stored within the LSP, as well as situations where the datafile is external to the LSP while the metadata remains internal.

No.	Requirement	Max. length (pages)	Type (M/D/E)
345	MUST provide a repository for hosting digital media (DAM-functionality).	YES/NO	M
346	The LSP MUST allow linking from a bibliographic description to The National Library's digital library. This has to be visible both in the LSP and in the Discovery System.	YES/NO	M
347	It SHOULD be possible to toggle the visibility of the link to The National Library's digital library in the Discovery System based on the user's access privileges.	YES/NO	D
348	The LSP MUST offer possibilities for linking from a journal to a digital repository containing digital representations of all journal issues of that title.	YES/NO	M
349	The LSP SHOULD support linking between journals, journal issues and articles, and support digital representation on all three levels.	YES/NO	D
350	MUST support https-access to hosted media (both externally and internally hosted), which can then be used for linking in bibliographic descriptions.	YES/NO	M
351	MUST govern access to digital media based on IP-control and/or authentication.	YES/NO	M
352	MUST support access to metadata attached to digital files for the purpose of editing metadata descriptions in the LSP.	YES/NO	M
353	MUST support retrieval of hosted media in a discovery solution.	YES/NO	M
354	SHOULD be possible to stream video formats (at least frequently used formats) instead of downloading them	YES/NO	D

4.5.3 RDF-representation

RDF, or Resource Description Framework, is a standard model for data interchange on the web. It allows for the integration of a variety of applications using web technologies. RDF extends the linking structure of the web to use URIs to name the relationship between things as well as the two ends of the link. This structure allows RDF to represent simple statements, as well as complex structures of knowledge.

The consortium would like to enhance the library database by offering an RDF-version of its metadata, allowing for greater interoperability across various digital platforms. The

conversion process into RDF should be customizable to meet our specific requirements and produce data compliant with our chosen ontology.

The RDF-data should be accessible via an SPARQL-endpoint, enabling complex data queries. The system should also support linked data creation, connecting BIBSYS's library catalogue information to other external datasets.

For wider data accessibility, RDF data should be available as downloadable datasets. Furthermore, the system should offer multiple RDF data serializations, including RDF/XML and Turtle, to ensure data compatibility with various semantic web applications.

These improvements aim to increase the usability, accessibility, and connectivity of the library catalogue, positioning it in the digital data landscape.

No.	Requirement	Max. length (pages)	Type (M/D/E)
355	SHOULD provide an RDF-version of BIBSYS' metadata in the library database	YES/NO	D
356	The conversion of the metadata into RDF SHOULD be customizable by Sikt.	YES/NO	D
357	The RDF-database SHOULD be accessible through an SPARQL-endpoint	YES/NO	D
358	SHOULD support the creation of linked data based on the metadata	YES/NO	D
359	SHOULD link/connect the information in the database to other datasets (linked data). Please describe.	0.25	E
360	The RDF data SHOULD be available as downloadable data sets	YES/NO	D
361	SHOULD support several serializations of RDF data, at least RDF/XML and Turtle	YES/NO	D
362	SHOULD describe the linked data possibilities and capabilities within the systems.	0.5	E

4.5.4 Bibliographies

A bibliography/collection normally consists of documents that logically relate to each other. The relation can be based on subject, authorship, form, publication date, etc. We use the terms *bibliography* and *collection* in a broad sense. A bibliography/collection can consist of a few documents or thousands of documents. A bibliographic description can be tagged as part of several bibliographies/collections, and a bibliographic description without holdings can be part of a bibliography/collection. Some examples of bibliographies/collections are the national bibliographies, special collections, syllabus, curriculum, required reading, etc.

It should be possible to create global and local bibliographies/collections. A national bibliography should be global for every library in the consortium and a curriculum for a course at a given institution should be possible to limit to an institution or a group (see description of groups in chapter 4.1.2).

It must be possible to identify and extract bibliographic descriptions based on the bibliography tag. This includes harvesting by OAI-PMH, searching by SRU and as a facet in the Discovery-layer.

No.	Requirement	Max. length (pages)	Type (M/D/E)
363	MUST be possible to define bibliographies as a view, i.e. specify which data elements that will be visible when data is searched and presented as descriptions of a bibliography.	YES/NO	M
364	MUST be possible to mark, tag and express bibliographic descriptions and different entities as part of a bibliography/collections.	YES/NO	M
365	MUST be possible for a bibliographic description to be part of several bibliographies/collections	YES/NO	M
366	MUST be possible to create and store bibliographic descriptions that are not held by any library (descriptions with no holdings)	YES/NO	M
367	MUST be possible to define OAI-PMH sets based on a bibliography/collection tag/definition	YES/NO	M
368	The bibliographic descriptions MUST be retrievable through SRU based on the bibliography/collection tag/definition.	YES/NO	M
369	MUST be possible to create a new bibliography/collection	YES/NO	M
370	MUST be possible to connect a bibliography/collection to a given library (one or many)	YES/NO	M
371	MUST be possible to include both multi-part documents, parts of a host document (e.g. articles in periodicals, cuts/tracks on CDs, chapters of books) as well as single documents in a bibliography or a collection.	YES/NO	M
372	SHOULD be possible to defines sub-bibliographies/Sub-collections to create a hierarchy.	YES/NO	D
373	In case of migration to a new LSP, the supplier MUST describe how existing collections can be migrated from the current LSP to the new one.	0.5	M*

4.5.4.1 National bibliographies

The National Library (NLN) creates and maintains several bibliographies, including the National Bibliography of Norway, selected authors' bibliographies as well as other thematic bibliographies. These are all integrated in the catalogue, where specific tags are used to indicate a record's/entity's membership in specific bibliographies. This way of managing bibliographies implies that the catalogue must allow inclusion of metadata with no attached holdings.

For records/entities included in the National Bibliography, NLN needs the ability to constrain editing rights to authorized staff members or other agents authorized by NLN.

No.	Requirement	Max. length (pages)	Type (M/D/E)

374	MUST be possible to lock a description in a National bibliography to prevent anyone other than the National Library to alter the description	YES/NO	M
375	MUST be possible to express and maintain provenance information (data about metadata), including information about metadata source, cataloguer, rights holder concerning metadata editing, etc.	YES/NO	M
376	MUST be able to set the status of a description to high quality	YES/NO	M
377	MUST be possible to grant edit rights in the user-profile	YES/NO	M
378	MUST provide access control for the metadata based on information about editing rights	YES/NO	M
379	SHOULD be possible to lock only those parts of the descriptions that are included in the bibliography	YES/NO	D

4.5.5 Licensing of metadata

The Norwegian government wants public data and digital content that is publicly funded, to increasingly be available to everyone. It is stated in the guidelines to governmental institutions that their data should be available in machine-readable formats. It is strongly suggested that the data should be licensed with an open and free-to-use license. A Norwegian national license (NLOD[2]) has been created for this purpose.

As governmental institutions with governmental funding, the vast majority of the member institutions in the BIBSYS Consortium, along with Sikt itself, are affected by these guidelines and therefore obligated to make metadata available and licensed.

No.	Requirement	Max. length (pages)	Type (M/D/E)
380	It MUST be possible to license the metadata in the Library Database with NLOD and other appropriate licenses of choice.	YES/NO	M
381	It SHOULD be possible to license the metadata in the Library Database harvested from other sources, like institutional repositories, with NLOD and other appropriate licenses of choice.	YES/NO	D
382	It MUST be possible to mark/flag/tag titles as licensable, to be able to retrieve records in e.g. OAI, SRU or in the discovery-tool based on this information. This includes records from every source (library database, knowledge base, institutional repositories and so on).	YES/NO	M

4.6 Data import / Data export

Data import and export are vital functions when dealing with bibliographic data, local data, holdings data, etc. The LSP must support import/export using standard protocols and formats.

[2] NLOD --- Norwegian License for Open Government Data (https://data.norge.no/nlod/en/2.0)

No.	Requirement	Max. length (pages)	Type (M/D/E)
383	Data delivery endpoints and APIs MUST offer high capacity and reliability, to secure stable and efficient data delivery upstream (to other systems)	YES/NO	M
384	MUST be able to deliver data in multiple formats, at least as entities according to RDA/LRM (in standard serializations like Turtle rdf/xml, etc), Marc21, Dublin Core.	YES/NO	M
385	SHOULD support other metadata formats e.g. MODS, METS. Please provide a list of supported metadata formats.	0.5	E
386	It SHOULD be possible to introduce additional linked data ontologies as delivery format according to needs.	YES/NO	D
387	It MUST be possible to use queries based on CQL for SRU	YES/NO	M
388	Both OAI-PMH and SRU MUST support the metadata formats DC and MARC 21 in MarcXchange	YES/NO	M
389	MUST provide services (or API's) for search and retrieval of bibliographical descriptions, holdings records and authority records	YES/NO	M
390	Bibliographical descriptions and its belonging holdings records SHOULD be delivered as content of a MarcXchange collection element	YES/NO	D
391	The LSP MUST support OAI-PMH deleted.	YES/NO	M
392	SRU server SHOULD be compliant with The NorZIG Profile for SRU. https://www.norzig.no/sru/profile/1.2/	YES/NO	D
393	All data MUST be delivered encoded in UNICODE UTF-8	YES/NO	M
394	Circulation status SHOULD be included in holding records according to BIBSYS proposal Circulation status in Marc 21	YES/NO	D
395	It SHOULD be possible to access and process data using RDF (http://www.w3.org/RDF/) and XML	YES/NO	D

4.6.1 Data import

Import of data (i.e. bibliographic data, local data, holdings data, etc.) from external sources are important. As long as data from the external sources is received using standard protocols and formats, it must be possible to import these data by a standard service. Depending on the situation, import may affect global and/or local data/holdings and may result in either creation of new descriptions/fields, update of existing descriptions/fields or adding fields to existing descriptions.

Sikt also imports other types of data, such as data for abstract, table of contents and book covers. Such data is all used to enrich bibliographic descriptions. Data used for record-enrichment is subscripted.

No.	Requirement	Max. length (pages)	Type (M/D/E)
396	Import of data in MARC 21 and MarcXchange format MUST be supported.	YES/NO	M
397	Import of data in the ISO2709 format SHOULD be supported.	YES/NO	D
398	It SHOULD be possible to perform a test-import of data (dry-run) and get a report with the expected result without affecting the actual data	YES/NO	D
399	MUST be possible to import or link to data for abstracts, table of contents and book covers from external sources.	YES/NO	M
400	MUST be possible to define and manage set-definitions using CQL for OAI-PMH	YES/NO	M
401	OAI-PMH harvesting SHOULD have access control defined on set level	YES/NO	D
402	OAI-PMH MUST support metadata format Dublin Core (DC) and Marc 21 serialized as MarcXchange (ISO/DIS 25577 http://www.loc.gov/standards/iso25577/).	YES/NO	M
403	The LSP MUST provide advanced validation mechanisms for data to be imported. Please describe.	0.5	M*
404	The LSP import services SHOULD offer a flexible exception handling during import, providing real-time feedback, enabling the staff user to correct errors immediately.	YES/NO	D
405	The LSP MUST provide capacity to import efficiently large amount of data from external sources. Please describe, including current limitations and scaling facilities.	0.5	M*

4.6.1.1 Bibliographic imports

It must be possible to import bibliographic data from an external source with configurable parameters. Reliable methods for avoiding duplicates are necessary and should be configurable as well.

No.	Requirement	Max. length (pages)	Type (M/D/E)

406	For bibliographic records it MUST be possible to choose among predefined match rules.	YES/NO	M
407	For bibliographic records it SHOULD also be an option to configure your own detailed match rules.	YES/NO	D
408	MUST be possible to import bibliographic data, holdings data and local data from external sources.	YES/NO	M
409	MUST be possible to check for duplicates on-the-fly, based on various criteria during import.	YES/NO	M
410	The duplicate check must be flexible regarding which fields that will be compared and SHOULD be configurable. Please describe	YES/NO	D
411	Configurable/advanced/intelligent matching mechanisms MUST be available during import, to prevent entity duplicates in the catalogue. Please describe the facilities for ensuring data consistency during import.	0.5	M*
412	It MUST be possible to set up automatic (scheduled) import from specific aggregators, like Bokbasen, Orchard and others).	YES/NO	D
413	It MUST be possible to import records with different material types.	YES/NO	D
414	It SHOULD be possible to pause or stop an ongoing import.	YES/NO	D
415	After an import it SHOULD be possible to get a full report based on each record (eg. csv file). The report should at least contain all the record IDs and each import status (imported, not imported, merged, IDs of the merged records etc.)	YES/NO	D
416	When an import fails, the exact (and understandable) information of the problem SHOULD be available.	YES/NO	D
417	When records fails to be imported they SHOULD be collected/saved in a separate file (same format as the input file). All records with no failures should be imported.	YES/NO	D
418	When importing records, all records items SHOULD be imported in the same operation.	YES/NO	D
419	MARC21/MARCXML and RDA/LRM (RDA/LRM from 2027 at the latest) MUST be supported formats for bibliographic imports.	YES/NO	M
420	Several physical formats should be supported for bibliographic imports. DESCRIBE other supported import formats.	0.5	E
421	Match actions like merge, overlay/replace and not import MUST be possible.	YES/NO	M
422	Which bibliographic information copied from the imported record to be merged MUST be configurable.	YES/NO	M
423	Item information MUST be extracted from the bibliographic record.	YES/NO	M

424	MUST describe how item information will be extracted from the bibliographic record and how it is configured.	0.5	M*

4.6.2 Data export

The LSP must support export of data using standard protocols, like OAI-PMH, SRU and API. It is expected that the LSP export of data includes, but not limited to, delivery of:

- Bibliographical descriptions
- Holdings records including circulation status
- Authorities
- Knowledgebase
- Loans/requests
- Statistical data (usage, loans, requests etc)

When the metadata format is MARC 21 in MarcXhange, the bibliographical description ought to be delivered together with its belonging holdings records as a MarcXchange collection. Sikt needs to be able to build its own applications for exchange of data. Thus, the LSP has to include services (or API's) for search and retrieval of data.

MARC 21 does not support circulation status. Sikt has proposed a Norwegian addition to MARC 21 for using marc field 859 for availability status. This is the preferred method for adding circulation status to holdings records delivered from LSP.

No.	Requirement	Max. length (pages)	Type (M/D/E)
425	MUST support the KBART format for export of the Knowledgebase	YES/NO	M
426	SHOULD support other formats for export of the Knowledgebase. Please provide a list of supported formats	0.5	E
427	All delivery of data MUST be in UNICODE serialized as UTF-8.	YES/NO	M
428	MUST be able to deliver data in multiple syntaxes, like XML, json, csv.	YES/NO	M
429	The LSP MUST allow search using the SRU version 1.2, https://www.loc.gov/standards/sru/sru-1-2.html	YES/NO	M
430	SRU MUST support Dublin Core (DC) and Marc 21 serialized as MarcXchange (ISO/DIS 25577)	YES/NO	M
431	To allow interoperability with other Norwegian SRU servers, SRU in the LSP MUST be compliant with The NorZIG Profile for SRU, http://norzig.no/sru/profile/1.1/	YES/NO	M

432	When the metadata format is MARC 21 in MarcXhange, the bibliographical description SHOULD be delivered together with its belonging holdings records as a MarcXchange collection.	YES/NO	D
433	Records MUST be defined using dynamic queries or static set-definitions. Both queries and sets will be based on CQL (Contextual Query Language). Cfr.http://www.loc.gov/standards/sru/specs/cql.html.	YES/NO	M
434	MUST be able to deliver data via OAI-PMH, SRU, SPARQL as well as downloadable files	YES/NO	M
435	It MUST be possible to harvest bibliographic data, including authorities, using OAI-PMH version 2.0, http://www.openarchives.org/OAI/openarchivesprotocol.html	YES/NO	M
436	Set-definitions for OAI-PMH publishing SHOULD be based on CQL. Sikt should be able to define (manage and configure) the set-definitions.	YES/NO	D
437	It MUST be possible to restrict access to published sets (OAI-PMH). Access control can be based on IP or host recognition.	YES/NO	M

4.6.2.1 Bibliographic export

It must be possible to export bibliographic data with holdings and items. Several standard syntaxes and formats must be supported, like XML, json, csv, OAI-PMH, SRU and SPARQL. Downloading files must also be possible.

No.	Requirement	Max. length (pages)	Type (M/D/E)
438	MUST support delivery/export of bibliographical descriptions, holdings records and authority records using OAI-PMH 2.0 (including OAI deleted) and future releases of the protocol	YES/NO	M
439	MUST support delivery/export of bibliographical descriptions, holdings records and authority records using SRU 1.2 and future releases of the protocol	YES/NO	M
440	OAI-PMH and SRU services MUST be able to deliver RDA/LRM entities.	YES/NO	M
441	It MUST be possible to export records to different formats. Please DESCRIBE the supported formats.	0.5	M*
442	It MUST be possible to export the bibliographic descriptions to a SFTP-server	YES/NO	M
443	It MUST be possible to download the bibliographic descriptions as files.	YES/NO	M

4.7 Circulation and delivery

The LSP must facilitate rational processes in a modern library. It is essential that the LSP provides standard functionality such as, but not limited to, item tracking, policy configurations, loan and request management, user notifications, delivery and handling of electronic files, and interoperability with other systems.

It is important to note the difference between booking and reservation requests in a library context:

- Booking refers to scheduling the use of a specific resource or space at a particular time. For example, if a library has meeting rooms or study spaces, you might book a room for a specific date and time. Similarly, some libraries allow patrons to book items and equipment ahead of time.

- Reservation refer to placing a hold on a library item that is currently checked out or at another branch. When the item becomes available, the library sets it aside for the person who has it reserved. The person then has a certain amount of time to come and check out the item.

Many libraries in the consortium are structured across multiple departments, circulation desks, and pickup locations. Consequently, the LSP should facilitate seamless circulation among these various points.

It is important that the LSP enables set-up of automated, configurable functions related to circulation. The library staff should not have to relate to different user interfaces for different groups of library users or materials etc.

The LSP should integrate circulation and interlibrary loan (ILL) in a unified manner. Essentially, the LSP must meet the needs of both library staff users and patrons.

No.	Requirement	Max. length (pages)	Type (M/D/E)
444	DESCRIBE how the LSP communicates the fines and fees to the patron, and how status changes regarding the fines and fees are communicated.	0.5	E
445	The LSP MUST provide real-time tracking for items through it's whole lifecycle. Starting with the order and item creation, up until the item is deleted from the catalogue; including all circulation and delivery transactions.	YES/NO	M
446	SHOULD provide logs for item status changes and transactions, but must comply with GDPR.	YES/NO	D
447	The LSP SHOULD support “My loan” functionality including loan list, renewal, etc. at self-check-out and self-check-in.	YES/NO	D
448	MUST provide functionality/services for self-check-out and self-check-in machines.	YES/NO	M
449	The LSP MUST support the SIP2 and NCIP protocols for self-service functionality e.g. self-check-out and self-check-in machines.	YES/NO	M
450	MUST have functionality for creating receipts (digital and on paper) to patrons.	YES/NO	M

451	MUST support self-service pick-up shelves. Explain how.	0.5	M*
452	SHOULD provide autogenerated hold shelf pick up numbers, with the possibility for resets, maintained by the local library. Explain how.	0.5	E
453	It SHOULD be possible to configure unique loan policies for different departments and locations within the library.	YES/NO	D
454	It MUST be an easy way to open and close the library/library services on both institution and library level, including ILL. Explain how.	0.5	M*
455	It MUST be possible to configure policies for request, booking and loan for different locations and user groups.	YES/NO	M
456	The library MUST be able to manually override requests and loan policies etc.	YES/NO	M
457	A patron SHOULD be able to request, pick up and return a loan from freely chosen locations inside an institution.	YES/NO	D
458	A patron MUST be able to request a document for pick-up or delivery at a freely chosen location including home, office, or alternative delivery location.	YES/NO	M
459	A user SHOULD be able to request a copy or digitization of a extract from a physical item (book or journal), and have it delivered physically or electronically.	YES/NO	D
460	The library MUST easily be able to override pick-up location and delivery location.	YES/NO	M
461	It MUST be possible to request titles that are unavailable. Out on loan, missing/lost or titles with otherwise empty holdings. Explain how.	0.5	M*
462	It MUST be possible to request titles - not only on the item level.	YES/NO	M*
463	It SHOULD be possible to book items - not only on the title level.	YES/NO	E
464	The library SHOULD be able to manually override and change the waiting lists.	YES/NO	D
465	The library SHOULD be able to easily change the waiting list order, e.g. by «drag-and-drop», not having to redo the whole list in the correct order.	YES/NO	D
466	MUST offer pick-list functionality with possibilities for printing individually, and in bulk.	YES/NO	M
467	It SHOULD be possible to manually override due dates, both singular and in bulk jobs.	YES/NO	D
468	MUST have manual and automatic functionality to provide notifications to patrons when an item is ready to pick-up, overdue, lost/damaged, etc. via SMS and email.	YES/NO	M
469	MUST have manual and automatic functionality for blocking a patron from the library services, configurable by the library.	YES/NO	M
470	The library SHOULD be able to choose what services should be blocked for whom, individually or by user group, and under what conditions. Explain how.	0.5	E
471	It SHOULD be easy for staff users to toggle item status lost/missing/transit etc.	YES/NO	D
472	Items that have been lost or missing, or new replacement items, SHOULD immediately go into circulation again being included in existing waiting lists.	YES/NO	D

473	The library MUST easily be able to deliver electronic files to end-user according to terms of use.	YES/NO	M
474	The applied terms of use SHOULD be available as an integrated part of the delivery of electronic files to end-users.	YES/NO	D
475	Explain how the LSP handles reading-room loans, where the end-users aren't allowed to check out the items.	0.5	E
476	Library staff SHOULD be able to place items in a "shopping basket" and request/handle multiple items at the same time, in bulk. Explain how.	0.5	E
477	Library staff SHOULD be able to create a loanable temporary item, connected to a bibliographic description.	YES/NO	D
478	SHOULD be able to place items in temporary locations for a limited time period/predefined period.	YES/NO	D
479	SHOULD be able to convert requests to ILL or purchase request, and vice versa.	YES/NO	D
480	The LSP SHOULD provide a solution for patron payment, both at the circulation desk, through the Discovery System.	YES/NO	D
481	It SHOULD be possible to integrate the LSP with external third party solutions for patron payment.	YES/NO	D

4.7.1 Interlibrary loan

Norwegian libraries have a long tradition of collaboration in sharing resources, to offer better service to their users. ILL is an essential library service in Norway, where a user of one library can borrow books or receive print or electronic copies of documents owned by another library.

Norwegian collaboration is based on peer-to-peer transactions.

While interlibrary loan is well established and supported for Norwegian partners, the consortium is seeking better integration with foreign partners, especially partners for article delivery.

ILL involves transfers of requests and orders for loans and non-returnable copies between ordering library and owner library, which can be delivered electronically or physically.

Key requirements are managing interlibrary loans in a way that is efficient, user-friendly, and adaptable to various libraries and protocols. ILL orders can be initiated by librarians or submitted by patrons using a discovery tool.

ILL operations, both within the consortium and with external libraries, are key aspects of the LSP. Ideally, the LSP should support seamless ILL requests and loans that mimic "in-house" circulation.

ILL is depending on data from the Norwegian directory of libraries (Base Bibliotek), which stores information about both Norwegian and foreign libraries. The LSP should be able to use data from this directory for facilitating ILL circulation, by support for partner update from this directory by API, or by import function.

Functionality requirements may vary within and outside the consortium. Certain requirements considered mandatory for consortium libraries might only be rated as desirable when dealing with libraries outside the consortium.

No.	Requirement	Max. length (pages)	Type (M/D/E)
482	ILL MUST be handled in a uniform way, regardless of protocol.	YES/NO	M
483	Data from Base Bibliotek SHOULD be used as master to identify libraries offering ILL both inside and outside consortium. Explain how data from this directory can be imported.	0.5	E
484	ILL requests and loans SHOULD be as seamless as possible for the patron, and follow the same workflow as basic “in-house” circulation	YES/NO	D
485	The LSP SHOULD allow consortium configuration of default rules for ILL	YES/NO	D
486	Inside the consortium it SHOULD be possible to see “ILL rules and conditions” for a given title across institutions	YES/NO	D
487	An ordering library MUST (manually and automatically) be able to request a loan or copy of (physical and electronic) items from another library in the consortium	YES/NO	M
488	The LSP SHOULD provide functionality where the consortium and ordering libraries can define lists of preferred ILL libraries.	YES/NO	D
489	The LSP SHOULD automatically consider item availability and ILL library rules and conditions before requesting a loan on behalf of the borrowing library.	YES/NO	D
490	An ordering library MUST (manually and automatically) be able to request loan renewals from an ILL library.	YES/NO	M
491	An owner library MUST (manually and automatically) be able to accept a request or reject it.	YES/NO	M
492	An owner library SHOULD (manually and automatically) be able to put an ILL request on a waiting list.	YES/NO	D
493	An owner library SHOULD (manually and automatically) be able to forward a request to another library inside the institution.	YES/NO	D
494	It MUST be possible to deliver digital files to the ordering library from the owner library according to terms of use.	YES/NO	M
495	The applied terms of use for an article SHOULD be transferable to ordering library.	YES/NO	D

496	If article terms of use permits digital delivery to patron, this SHOULD be possible to automate.	YES/NO	D
497	Unfulfilled ILL requests MUST be returned to requesting library, where the request can be redirected (manually and automatically) to another ILL library.	YES/NO	M
498	Unfulfilled ILL requests SHOULD be returned to requesting library with a note/message.	YES/NO	D

4.7.1.1 ILL-Protocols

The LSP should support different protocols for interlibrary loan needed to complete and perform ILL requests inside and outside the consortium.

ILL with libraries outside the consortium represents different challenges for integration and automation. These categories SHOULD be supported:

- Libraries within Norway, using NCIP-P2P protocol shared by most Norwegian libraries.
- Foreign major libraries participating in ILL collaboration, for instance OCLC Resource Sharing.
- Other libraries supporting some ILL protocol.
- Libraries not supporting any ILL protocol.

Especially the NCIP-P2P protocol, established as a Norwegian profile for ILL, is important.

No.	Requirement	Max. length (pages)	Type (M/D/E)
499	ILL MUST support Norwegian profile of NCIP-P2P protocol v 1.1 (apart from message ItemRequested), as described at https://bibliotekutvikling.no/content/uploads/sites/8/2022/08/Norsk-NCIP-1.1-Eksempelmeldinger-juli-2022.pdf	YES/NO	M
500	ILL SHOULD support Norwegian profile of NCIP-P2P protocol v 1.1 including message ItemRequested	YES/NO	D
501	The LSP SHOULD support lookup for title/holdings in the Norwegian library community by SRU, or by NCIP-P2P lookup (not included in the Norwegian profile yet)	YES/NO	D
502	ILL SHOULD support SRU Holdings protocol (ISO 20775) for information about holdings availability and requestability in the Norwegian library community	YES/NO	D
503	The LSP SHOULD support ILL by ISO 10160/10161	YES/NO	D
504	The LSP SHOULD support ILL with OCLC WorldShare, by NCIP or ISO 18626	YES/NO	D

505	BIBSYS consortium has not yet established efficient solutions for ILL with foreign libraries. Describe other protocols/solutions offered by LSP/Discovery.	0.5	E
506	ILL MUST support email messaging to libraries not supporting available protocols	YES/NO	M

5 REQUIREMENTS DISCOVERY

The Discovery service must be capable of searching across a wide range of indexed content quickly and seamlessly in a user-friendly interface. In addition, it must be a solution that can easily reveal the institutions' own content. A wide range of users with different skills and experience will use the system, and it is important that the needs of both the experienced and non-experienced user are met.

It is essential that the Discovery tool provides functionality for a consortium containing different types of academic institutions sharing a catalogue. Sikt must be able to act as an efficient system integrator and have access to standard services or APIs to serve the consortium needs.

The solution must provide functionality for delivery of e-resources, including a Link Resolver, Knowledge Base, Central Index, and administration of this. If the LSP has these capabilities, the Discovery system must be able to integrate seamlessly with these solutions. See requirements regarding Knowledge Base and Link Resolver in the LSP section of the tender.

We anticipate increased AI integration in future Discovery solutions. The service should be able to leverage AI to enhance multiple aspects of the Discovery process, especially by providing more tailored and intuitive results through enhancing retrieval and/or conversational search (prompting). The solution must ensure transparency in AI-facilitated search processes and outcomes. This includes providing clear source attribution for all content, so users can understand and verify the origins of their search results.

No.	Requirement	Max. length (pages)	Type (M/D/E)
507	MUST support consortium model for academic libraries. Please describe the solution.	1	M*
508	Sikt MUST be able to act as a system integrator and give access to standard services (or API's) that make it possible to customize the solution according to the consortium's needs.	0.5	M
509	Configuration of the system MUST be possible for both Sikt and the institutions.	YES/NO	M
510	SHOULD be possible to create more than one discovery instance per institution (for special interest purposes, e.g. national bibliographies).	YES/NO	D
511	Sikt SHOULD be able to create discovery instances not linked to any specific institution, containing a custom selection of records from the LSP and other local sources/central index.	YES/NO	D
512	MUST be a fully web-based platform accessible anywhere, anytime, and on any device, operable through the most common web browsers (Firefox, Edge, Chrome and Safari) without the need for installing additional software.	YES/NO	M
513	MUST offer a single point of entry for the end-user with an intuitive simple search, equivalent to other modern search solutions.	YES/NO	M

514	MUST be possible to search across a wide range of indexed content quickly and seamlessly.	YES/NO	M
515	SHOULD incorporate options to distinguish and toggle between a simple view and advanced view (more/less details depending on the user needs). E.g. minimalist interface (presenting essential information in a simplified format), and extended interface (offering more detailed information for those seeking in-depth exploration). Please describe.	0.25	E
516	MUST include a Delivery solution for both physical, digital and electronic-resources, including Link Resolver, Knowledge Base, Central Index, and an administration tool for these functionalities. If some or all these features are being handled by the library system or a third party, the Discovery System must be able to integrate with these solutions.	YES/NO	M
517	MUST facilitate circulation and delivery services for patrons in accordance with the specifications for the Library Services Platform (LSP).	0.5	M*
518	The search and navigation functions of the Discovery System SHOULD leverage the structured framework of the linked data ontology to present bibliographic entities within the context of their associated entities. Please describe how Linked Data, LRM (Library Reference Model) and entity-relationship based cataloguing is used to present content	0.5	E

5.1 Content

The Discovery System should take full advantage of the BIBSYS joint catalogue, allowing the institutions to expose both their local collections and the consortium's resources to their patrons in the way they choose to. It should also provide the ability to index other local sources, ensuring that all library resources are fully utilized and that the patron's needs are met. The content resulting from this local indexing should be part of the overall search index. Searching across the local and central index should be seamless for the user.

No.	Requirement	Max. length (pages)	Type (M/D/E)
519	MUST be able to index the BIBSYS joint catalogue as well as local LSP content from each institution individually, either by direct integration with the LSP or through SFTP, OAI-PMH or similar technologies.	YES/NO	M
520	MUST be able to index other local content (e.g. locally digitized collections, databases, websites, institutional repositories) through SFTP, OAI-PMH or similar technologies.	YES/NO	M
521	Must DESCRIBE the tools and how the responsibility of indexing local material is divided between the supplier and the consortium/institutions.	0.5	E
522	MUST have near real-time update of the indexed holdings and bibliographic data from the LSP	YES/NO	M

523	MUST offer rich normalization rules for search and display in Discovery. Please describe the possibilities and limitations.	1	M*
524	MUST be able to enrich and index records based on authority records, including variant/non-preferred terms.	YES/NO	M

5.1.1 Central Index

The Central Index is a crucial element of the system. It needs to be robust and ensure effective handling of e-resources together with the Knowledge Base and Link Resolver described in the LSP requirements. If the Discovery solution uses a different technology, please answer the requirements according to this other technology.

No.	Requirement	Max. length (pages)	Type (M/D/E)
525	MUST have a Central Index or an equivalent technology.	YES/NO	M
526	The supplier MUST provide an overall description of the Central Index or its alternative. Please highlight the key strengths/advantages and disadvantages. If available, provide information about the following: specific subject areas covered, diverse material types, exclusive agreements with publishers, response time issues, handling and reporting errors in metadata , search/activation management capabilities, OA and peer-reviewed indication, depth of indexing and full text search, the scale of controlled vocabulary, data/text-mining permissions, relevance ranking, how it is mixed with results from local content in the search etc.	1.5	M*
527	The Supplier MUST provide information about the possibilities and procedure for requesting changes and adding new resources to the central index in case it does not cover the desired resources.	0.5	M*
528	SHOULD be able to index the full text of the resources. Please state the depth of indexing.	0.25	E
529	SHOULD update the Central Index according to the frequency of changes in the sources harvested (e.g. a database of newspaper articles must be indexed more frequently than a book Database).	0.25	E
530	Updates to the index (metadata and linking information) and other changes made by the institution to their electronic holdings MUST be reflected in the Discovery System within 48 hours. Please describe.	0.25	M*
531	MUST be possible to index Norwegian national resources like Idunn and “Nasjonalt Vitenarkiv” (NVA - https://nva.sikt.no)	YES/NO	M

5.2 Functionality

Users expect an intuitive search interface that enables them to efficiently be able to find relevant resources that suit their needs. This relates to both known items and exploratory search. Both novice and experienced users must have no issues navigating through the catalogue. This includes finding, distinguishing, selecting, and accessing resources that suit their needs. The Discovery system must accommodate users who are familiar with advanced search methods by providing the necessary tools and functionality to do so, and also offer extra features that users have come to expect, like exporting references, saving searches, and more.

5.2.1 Search

The system must align with the established search practices and expectations within the library community. Users should “get what they ask for” when searching, especially when performing precise and targeted searches (e.g. phrase search without expansion mechanisms). Both Sikt and the institutions must be able to customize fields and facets in order to meet both novice and expert users’ search needs.

The integrity of a Discovery System hinges on its ability to deliver neutral and unbiased search results. Such impartiality ensures that all users have equitable access to information, free from external influence or manipulation. In the context of academic research and learning, the absence of bias is particularly critical as it upholds the principle of academic freedom and promotes a diversity of thoughts and perspectives.

While relevancy ranking is absolutely necessary and bound to be subject to some level of bias, a neutral search prevents the undue prioritization of certain sources over others and strives for objectivity and impartiality. Unbiased searching also reinforces users' trust in the Discovery System, as they can be confident that the information retrieved is relevant and comprehensive, not skewed by hidden agendas or commercial interests.

No.	Requirement	Max. length (pages)	Type (M/D/E)
532	Discovery MUST support UNICODE as a character set in search, presentation, and sorting. If your UNICODE support has limitations, please describe this in the tender response.	0.25	M*
533	Sikt MUST be able to create new and change OOTB search indexes / searchable fields based on bibliographic description fields from the local catalogue (including local fields). E.g. MARC 21, RDA, etc. Please specify the formats and the data fields that can be indexed.	0.5	M*
534	It SHOULD be possible to index all record metadata fields for search.	YES/NO	D
535	Sikt MUST be able to customize pre-search filters and facets based on indexed fields.	YES/NO	M

536	Institutions MUST be able to define their own search scopes and specify the content that is searchable within each scope.	YES/NO	M
537	Search algorithms within the Discovery System MUST adhere to a neutral process, not favoring any particular sources or content.	YES/NO	M
538	Supplier MUST provide detailed documentation that describes how the search algorithm works (e.g. word exclusions, phrase search, stemming etc.)	1	M*
539	Users SHOULD be able to deactivate “smart” search mechanisms that seek to expand search results (e.g. expanded phrase search and similar mechanisms).	YES/NO	D
540	Discovery MUST support the following search techniques: - Phrase search - Boolean operators (AND, OR, NOT and parenthesis) - Wildcards - Truncation	YES/NO	M
541	The supplier Must DESCRIBE limitations for these search techniques: - Phrase search - Boolean operators (AND, OR, NOT and parenthesis) - Wildcards - Truncation	0.5	M*
542	The supplier must DESCRIBE other available search techniques, such as using specific syntaxes (CQL), ability to express complex search queries on one line etc.	0.5	M*
543	Advanced search MUST be included. It must contain searchable fields including but not limited to: - title - author/corporation - ISBN/ISSN Please describe the features for Advanced Search and provide a list of searchable fields available in the advanced search.	1	M*
544	Advanced search MUST contain pre-search filters like: - material type - language - publication year Please describe what pre search filters are available.	0.5	M*
545	Advanced Search SHOULD give users the ability to select, create and utilize multiple search fields in Advanced Search, i.e. add new fields if needed, in addition to those provided by default.	YES/NO	D
546	Advanced Search SHOULD support subject heading registers (search with specific terms from MESH or other preselected vocabularies).	YES/NO	D
547	The supplier must DESCRIBE which functions/services are available in the Discovery Service to search for a known item (citation finder/matcher, DOI lookup etc.).	0.25	M*
548	The supplier must DESCRIBE search possibilities and support tools available, i.e. "Did you mean" functionality, phonetic search, and others.	0.5	M*
549	If common word exclusion is used, it SHOULD be possible to add Norwegian words.	YES/NO	D

550	SHOULD have an integrated solution allowing search in controlled vocabularies, e.g. subject search or browse subject index.	YES/NO	D
551	Subject search SHOULD include the ability to specify which specific subject heading register / or classification system to match (e.g. find records using MeSH terms).	YES/NO	D
552	SHOULD be able to retrieve, display, and provide access to relevant data from additional sources beyond the library silo (Linked Open Data) to enhance the searching experience (e.g., displaying an author info card with more information about a book's author).	YES/NO	D
553	MUST be able to integrate with a reading list management system. The integration should enable use of data from the reading lists for display in record and facets, such as persistent links, course codes, course titles etc.	YES/NO	M
554	Users MUST be able to perform searches without authentication.	YES/NO	M
555	Users SHOULD be able to combine multiple searches with Boolean operators. Please describe the options available and the limitations, such as the maximum number of Boolean operators that can be combined.	0.25	E
556	Users MUST be able to limit to local institution search scope, consortium scope, expand to everything that's available for search, or custom scopes made by the institution.	YES/NO	M
557	Users SHOULD be able to limit a search to library location, e.g. library branch, campus, department, particular collection.	YES/NO	D
558	Users SHOULD be able to exclude/include central index or equivalent for search.	YES/NO	D
559	Users MUST be able to limit the search to only show records that are available physically and in electronic full text for your institution (e.g. subscribed/purchased electronic content and open access resources).	YES/NO	M
560	Users SHOULD be able to limit search to items available to pick from shelf without mediation, e.g. not in a locked location (archived, storage room etc.).	YES/NO	D
561	It SHOULD be possible to lock facets so that users can perform several searches without having to select facets each time (persistent facets).	YES/NO	D
562	If Full Text Search is supported, users SHOULD be able to deactivate it.	YES/NO	D
563	It SHOULD be possible to expand search with related terms from controlled vocabularies, mapping to Dewey Decimal Classification (DDC), word variants etc.	YES/NO	D
564	Discovery SHOULD have a search refining tool that corrects and enhances search queries (and preferably provides info and feedback about it), e.g. corrects references that were copy-pasted from reading lists to search box in Discovery.	YES/NO	D

5.2.2 Results Lists

It is important that the results are displayed in an orderly manner, focusing on important information and without unnecessary clutter. The end user must be able to customize the results to suit their needs via faceted navigation and relevant sorting options. It should be

apparent why the resource is in the results list and whether the resource displayed is available or not.

No.	Requirement	Max. length (pages)	Type (M/D/E)
565	Discovery MUST have a brief view and detailed view of records.	YES/NO	M
566	Results list SHOULD offer a compact view of the results (i.e. title, contributor, direct links only) in addition to the standard view/display, e.g. have an option to hide details and show titles only.	YES/NO	D
567	Results list MUST have faceted navigation, including but not limited to: - material type - author - language - publication year - bibliographies / collections - subject - peer reviewed - Open Access Please describe the level of facets and how they are built.	1	M*
568	Facets SHOULD be able to cover and show joint results from both local and central index.	YES/NO	D
569	SHOULD have library curated recommendations based on search, e.g. recommended databases, websites, people at the institution etc.	YES/NO	D
570	The result list MUST be ranked by relevance based on the query.	YES/NO	M
571	Supplier MUST describe how the algorithm used for relevancy ranking works and whether it can be adjusted, e.g. local records are prioritized and show up on top of other results etc.	0.5	M*
572	Users MUST be able to sort results list by at least publication date (ascending and descending) and relevancy ranking. Please describe other sorting possibilities (like sort by purchase date etc.).	0.25	M*
573	Display of records from the central index SHOULD include additional information like “retracted”, “preprint”, “review article”, "open access" etc.	YES/NO	D
574	MUST support record export to RIS.	YES/NO	M
575	SHOULD support record export to common bibliographic formats such as BibTeX, RefWorks, Endnote, MARC21, XML, CSV, and Excel.	YES/NO	D
576	Users SHOULD be able to export both a single record and all selected search results (no limit) and get the exported records in a reasonable amount of time.	YES/NO	D

577	SHOULD have an integrated citation generator/tool (cite this title) and easily create references in popular citation formats, e.g. APA, Harvard, Chicago, MLA (copy-paste convenience).	YES/NO	D
578	SHOULD support export of search results and lists into the most used citation formats, e.g. APA, Harvard, Chicago, MLA.	YES/NO	D
579	MUST have functions for deduplication of records (merged presentation of equal items) and FRBRizing. Please describe the algorithm for deduplication, level of FRBR and use of work-level records.	0.5	M*
580	Deduplicated and merged records SHOULD be presented in a user-friendly manner, preferably indicating the presence of merged titles, and providing options for users to explore related versions or editions if necessary.	YES/NO	D
581	SHOULD have functions for deduplication of records from different sources, e.g. from local sources and the central index.	YES/NO	D
582	SHOULD be possible to enhance the presentation and usability of search results, e.g. by providing supplementary information, context, or visuals like book covers, book reviews, book contents etc. Please describe the available options and areas for enrichment.	0.5	E
583	The supplier MUST provide a list of the publishers they have an agreement with to receive document enhancements. Please DESCRIBE the possibilities for Sikt to add enhancements from Norwegian publishers.	0.5	M*
584	SHOULD be possible to fully integrate with Syndetics Unbound content enrichment solution.	YES/NO	D
585	SHOULD have functionality to include biographical information about authors and creators and other linked data.	YES/NO	D
586	MUST be possible to integrate and display and preview digital documents and multimedia (such as manuscripts, videos, audio, photographs).	YES/NO	M
587	SHOULD have a solution to visualize and display titles on a virtual shelf.	YES/NO	D
588	SHOULD be possible to integrate with and show Altmetrics data (important for bibliometrics and measuring impact).	YES/NO	D
589	Subject headings in the list of facets SHOULD indicate which subject heading register the term belongs to, e.g. show MESH terms together, then LCSH grouped etc.	YES/NO	D
590	Subject headings in the detailed record view SHOULD indicate which subject heading register the term belongs to, e.g. show MESH terms together, then LCSH grouped etc.	YES/NO	D
591	Users SHOULD be able to save searches and records, e.g. add a record to favourites.	YES/NO	D

592	Users SHOULD be able to set up alerts, e.g. receive notifications when new records that match a saved search or bookmarked resource becomes available.	YES/NO	D
593	SHOULD have item recommendations for similar resources. Please describe.	0.25	E

5.2.3 Circulation and Delivery

It is important that users can easily recognize how to access the materials, both physical and electronic. If the material is not available at their own institution, the system should clearly display all other options available to the users, whether it is requesting the material from their own institution or through ILL.

No.	Requirement	Max. length (pages)	Type (M/D/E)
594	Item information MUST include status of item (such as “on shelf”, “on hold” or “on order”), ID, material type, call number, collection, and owner library (location).	YES/NO	M
595	Discovery System MUST recognize and utilize request, booking and loan policies from the LSP.	YES/NO	M
596	Item information MUST include and display terms of use for logged in users based on policies from the LSP. E.g. not requestable, not for loan, 2 weeks loan.	YES/NO	M
597	Discovery MUST be able to display public notes to individual titles and packages (from LSP and Link Resolver).	YES/NO	M
598	SHOULD be possible to edit and adjust the display labels for item status and other information imported from LSP.	YES/NO	D
599	Item information MUST support shelf map from external service based on item ID/Call Number	YES/NO	M
600	SHOULD have an integrated functionality that helps to visualize and locate items on shelves, e.g. shelf maps, indoor navigation.	YES/NO	D
601	SHOULD be possible to integrate with third party software offering interactive indoor navigation solutions.	YES/NO	D
602	Item availability information (or status) MUST be visible from the brief display/results list.	YES/NO	M
603	MUST have real time update of item circulation status.	YES/NO	M
604	SHOULD show availability for the same record in other libraries in the consortium.	YES/NO	D

605	SHOULD show ILL rules for the specific record when viewing holdings from other libraries in the consortium.	YES/NO	D
606	MUST be possible to place requests for reservations, bookings, digitizations, extracts etc.	YES/NO	M
607	MUST be possible to request various material and resource types, e.g. both physical and electronic titles, books, journals, and articles.	YES/NO	M
608	It MUST be possible to request titles that are unavailable (out on loan, missing/lost or titles with otherwise empty holdings).	YES/NO	M
609	It MUST be possible to request titles - not only on the item level.	YES/NO	M
610	It SHOULD be possible to book items - not only on the title level.	YES/NO	D
611	MUST be possible to place ILL requests in the Discovery interface for known items (i.e. identified in the Discovery System, but institution has no holdings).	YES/NO	M
612	MUST be possible to place ILL request in the Discovery interface for items and resources not found in the Discovery System.	YES/NO	M
613	DESCRIBE how ILL processes are managed, both in scenarios where the title and holdings within the consortium are known, as well as in instances where the resources cannot be located within the Discovery System. Please provide information about OOTB ILL forms, whether Sikt can create and display a form, and/or other alternate solutions.	0.5	E
614	SHOULD support solutions that offer direct linking (e.g. LibKey).	YES/NO	D
615	SHOULD support external integrations that enhance access to e-resources, e.g. BrowZine.	YES/NO	D
616	SHOULD have enrichment functionality in resource/item request forms, e.g. article data loads in automatically when the DOI number is available.	YES/NO	D
617	SHOULD be possible to control the display of delivery services, e.g. hide the request option if an item is not requestable, suppress ILL request form if the item is available online or on shelf / held by library.	YES/NO	D
618	SHOULD be possible to control the discoverability and display of local physical records either in LSP or Discovery, e.g. hide or suppress ILL materials that are part of the inventory only temporarily.	YES/NO	D
619	SHOULD be possible to add, display and easily check the license and terms of shipping (e.g. ship digitally) on requestable items and resources.	YES/NO	D

5.2.4 Links and Navigation

The inclusion of robust linking and navigation features in the Discovery System is crucial for the user experience. These features enable users to quickly and efficiently navigate between records, access detailed information with ease, and move back and forth between citations. They also facilitate swift transition from a brief record view to a more detailed one, and an organized Database A-Z / A-Å list allows for easy database access. These features not only simplify the process of discovery for users but also enhance the overall efficiency and productivity of their research process.

No.	Requirement	Max. length (pages)	Type (M/D/E)
620	MUST support bibliographic linking between records, e.g. navigation and display of multi-part works, different formats of same item, different translations of the same work, “continues as” etc., in a user-friendly manner	YES/NO	M
621	MUST be possible to navigate from a bibliographic description using elements like author, subject and other relevant metadata. E.g. clicking on the author’s name triggers a search for other resources by the same author.	YES/NO	M
622	SHOULD be possible to configure the display of related records to present them in a user-friendly manner, e.g. show only in expanded view of the record and hide as default.	YES/NO	D
623	MUST describe technical solutions for further navigation and connection of additional external points of entrance to the resources, such as: - A-Z/A-Å list of Databases and e-journals - Subject Divided list - Subject heading register - Subject browsing functionality - Call number browsing - Links to related resources - Other interactive ways of exploring the collection (carousels, simulated collections etc.)	1	M*
624	MUST have an integrated Database A-Z / A-Å list with custom categories and sorting based on alphabetical letters (databases starting with A, B, C etc.)	YES/NO	M
625	SHOULD include an integrated E-journal A-Z / A-Å list with custom categories and sorting based on alphabetical letters (databases starting with A, B, C etc.)	YES/NO	D
626	SHOULD support display of collections of materials. The collections can be designated in the LSP or by the library directly in the Discovery System.	YES/NO	D
627	SHOULD have backwards and forwards citation linking.	YES/NO	D
628	MUST have persistent links to detailed record view.	YES/NO	M

629	SHOULD have persistent links to search/result list.	YES/NO	D
630	SHOULD provide a linked data concept map where users can navigate between concepts	YES/NO	D
631	Discovery SHOULD have customizable RSS feeds - New items, changes in saved searches etc.	YES/NO	D
632	Sikt SHOULD have solutions and ways of dealing with metadata and subject headings that are considered inappropriate or offensive (DEI).	YES/NO	D

5.3 Profile & Authentication

The Discovery system must integrate with User Data from the Library Services Platform (LSP) and offer user accounts. Users expect streamlined and intuitive self-service options that allow them to manage their account effectively. Communication from the library needs to be clear and easy to comprehend, and users should have no issues performing basic tasks in the system such as renewing loans, placing requests etc. Personalization features are also desirable, allowing users to tailor their own experience and engage more with the Discovery System. It needs to be easy for users to indicate which optional services they wish to enable, especially services that use personal data to enhance features. These features must comply with GDPR.

No.	Requirement	Max. length (pages)	Type (M/D/E)
633	MUST offer user accounts.	YES/NO	M
634	The system MUST be able to integrate with and utilize User Data from the LSP.	YES/NO	M
635	The system MUST offer self-service options allowing users to manage their account.	YES/NO	M
636	Please DESCRIBE the self-service options available, e.g. renew loans, view hold requests, view their borrowing history, pay fines etc.	0.25	E
637	Messages intended for the patron from the LSP MUST be clear and easy to understand, e.g. no cryptic texts that cause confusion.	YES/NO	M
638	SHOULD have an option for self-registration of users, either OOTB or using an external form.	YES/NO	D
639	Users SHOULD be able to place items in a “shopping basket” and request multiple items at the same time.	YES/NO	D
640	SHOULD be possible to configure and personalize the user account, e.g. change default language of the UI and other User Interface settings.	YES/NO	D

641	Users SHOULD be able to organize saved records and group them according to their needs, e.g. organized as lists or folders.	YES/NO	D
642	Users SHOULD be able to save search history for each session and in between sessions (voluntary opt in and in compliance with GDPR).	YES/NO	D
643	Users SHOULD be able to save loan/request history (voluntary opt in for users and in compliance with GDPR).	YES/NO	D
644	SHOULD be possible for users to deactivate all features requiring data collection, ensuring anonymity and confidentiality, e.g. an Incognito Mode that protects user privacy	YES/NO	D
645	SHOULD be able to configure a session timeout limit to automatically log all users out after a period of inactivity, e.g. after one hour, after a week.	YES/NO	D
646	MUST support user recognition based on IP-address (including proxy) for on and off campus use.	YES/NO	M

5.4 User Interface

The Discovery tool must be a fully-web based platform accessible anywhere, anytime, and on any device. The User Interface (UI) plays a crucial role in all public facing digital services, because it directly impacts the User Experience (UX) and ultimately determines how effectively the users can interact with and navigate through the system's features and content. In Discovery, the UI serves as the primary point of interaction between users and the library. A well-designed UI enhances usability, facilitates information discovery, and fosters engagement, ultimately contributing to a positive UX.

The Discovery system should support different kinds of users by offering customization options, personalized experiences, flexible interfaces, training resources and feedback mechanisms. The system MUST accommodate all users related to accessibility considerations. It should seamlessly integrate into the institution's digital ecosystem and reinforce its brand image across all user touchpoints.

It is mandatory by Norwegian legislation that patron-facing systems are provided in Norwegian and Sami languages. The task of translating the interface, if done by Sikt, should be easy and effective.

No.	Requirement	Max. length (pages)	Type (M/D/E)
647	The user interface MUST support UNICODE.	YES/NO	M
648	The user SHOULD be able to choose a preferred language and save the settings as default. Requirements for patron facing languages are described in the "Usability" category.	YES/NO	D
649	The supplier MUST describe how the interface relies on the use of style sheets, Java scripts, cookies, and possibly other technologies for extending interface functionality.	1	M*

650	Discovery System MUST adhere to the principles of Responsive Web Design (RWD). That includes being responsive and dynamically adjust its layout to various devices and screen sizes, e.g. menus seamlessly change from desktop view into the mobile view.	YES/NO	M
651	SHOULD be designed with touch interaction in mind and support common touch gestures such as tapping, swiping, pinching, and dragging.	YES/NO	D
652	SHOULD support browser navigation buttons, e.g. Back, Forward, Reload.	YES/NO	D
653	SHOULD support voice recognition and voice commands, e.g. voice search (In multiple languages, especially Norwegian).	YES/NO	D
654	SHOULD have an integrated accessibility tool (or widget) allowing users to make changes to the layout, e.g. override colors, use dark mode, change contrast, change font size.	YES/NO	D
655	SHOULD be compatible with browser extensions that either are meant to work with Discovery, or contribute to improving UX and access (such as Libkey Nomad, Unpaywall, Endnote click, CORE discovery).	YES/NO	D
656	SHOULD support web 2.0 features, like folksonomy and tagging content, personalization, and customization, allowing users to tailor their UI based on their preferences.	YES/NO	D
657	SHOULD support web 3.0 features.	YES/NO	D
658	SHOULD be possible to add hover-over tooltips that provide and display additional information without requiring to click on each item, e.g. short text explaining how a certain feature works.	YES/NO	D
659	SHOULD be possible to add visual cues with links leading to explanatory information describing how selected features and elements of the UI work, e.g “info” icon with a link to FAQ.	YES/NO	D
660	MUST provide or offer a possibility to implement patron facing support and feedback mechanisms (e.g. built-in chat, feedback/contact forms, FAQ modules, guided tours, etc.). Please describe which features are available.	0.5	M*

5.5 Customization

The institutions in the consortium are diverse, with equally diverse needs. It is important for them to express their identity and customize the appearance of the interface as they see fit. Some institutions are very small with few employees and depend on Sikt to make these changes. With so many institutions to take care of, and without being able to use a "one size fits all" system, it is important that Sikt can configure on behalf of one, all, or a subset of institutions.

Further customization options should include the ability to tailor faceted navigation/filters, the fields available in advanced search, ranking parameters for the results list, and both brief and detailed record views. The system should also provide tools for displaying library announcements and warnings in easily visible locations for patrons, both in general view and in specific contexts.

No.	Requirement	Max. length (pages)	Type (M/D/E)
661	MUST be able to customize the UI. Please describe the possibilities, level of customization, and (if applies) the process of accessing and uploading the customized files.	1	M*
662	MUST support consortium wide and institution level of customization.	YES/NO	M
663	MUST be possible for Sikt to customize on behalf of the consortium, e.g. set default values for all institutions in one operation.	YES/NO	M
664	Sikt MUST have the possibility to customize for each institution separately.	YES/NO	M
665	Sikt SHOULD be able to customize on behalf of subsets in the consortium through bulk actions.	YES/NO	D
666	Each institution SHOULD be able to customize the UI at library level (branch, faculty, campus, or department).	YES/NO	D
667	MUST be possible to implement local branding for each institution, e.g. change logos, color schemes, fonts, and messaging independently. Please outline how institutions can personalize the solution globally and at different levels (e.g., faculties, departments, units) using bespoke branding, themes, JavaScript, CSS, tools, etc. Highlight if these customization options cater to varying organizational units and preserve unique identities.	0.5	M*
668	Re-branding and basic customization of the user interface SHOULD be done in GUI and not require advanced knowledge or programming skills.	YES/NO	D
669	MUST be able to integrate Discovery search box in local sites for each institution.	YES/NO	M
670	SHOULD be possible to configure the integrated search box with predefined search parameters, such as material types, institution and search scope. Please specify the available options.	0.5	E
671	SHOULD be able to customize the faceted navigation / filters (i.e. sorting of facets and which facets to show).	YES/NO	D
672	SHOULD be able to customize which fields are available in advanced search (customizing on both consortium and institution level).	YES/NO	D
673	SHOULD be able to configure ranking parameters for result list, e.g. present own material first on the result list, use boosting based on custom criteria etc.	YES/NO	D
674	SHOULD be able to configure brief and detailed record view.	YES/NO	D
675	SHOULD provide tools for library announcements and warnings that are easily visible for patrons, both in general view and in specific contexts.	YES/NO	D
676	SHOULD have a web builder tool to create custom pages that can be implemented in Discovery, or other CMS solution that can be used without knowing html, php etc.	YES/NO	D
677	If HTML or style sheets can be edited, there SHOULD be an option for version control.	YES/NO	D

678	SHOULD be able to overwrite labels from LSP to ensure readability for patrons.	YES/NO	D

6 REQUIREMENTS NATIONAL LIBRARY

The National Library of Norway (NLN) is part of the BIBSYS Consortium. Given its role as a national library, it has some special requirements that need to be supported within the system to fulfill its mandate.

6.1 About The Norwegian National Library

The goal of the NLN is to be accessible to all Norwegian citizens, regardless of where they live. To achieve this, the NLN aims to make all its collections digitally available. The NLNs has been digitizing its collections for many years and has a large online collection which is available in the National Library's digital library, Nettbiblioteket, located on the NLN's web pages. The master metadata for the digital library is maintained in the LSP, so the LSP must provide a link between the LSP, the discovery system and the digital library.

The NLN has a large collection of documents. In 2023, the library had 3.344.000 print monographs and 2.833.000 print issues, 685.400 digital monographs and 138.600 digital issues. The number of digital publications is expected to increase significantly in the coming years, in terms of both the annual growth rate and the total number of digitized objects. It is essential that the LSP can handle large document collections and support digitization and other item processes quickly and efficiently, even when there are many items or digital representations.

6.2 Legal deposit

The Legal Deposit Act of 2015 requires all publishers and producers of documents made publicly available in Norway to provide those documents to the NLN for preservation and dissemination. By the same law, the NLN may also require the digital files from which published documents are produced (e.g. pdfs used for printing books), as well as a limited set of core metadata with the deposit.

It is expected that the functionality needed to achieve an efficient workflow for legal deposit is largely covered by the default functionality within the system and thus described in other chapters in this document. There are user-stories related to legal deposit in appendix 3.

No.	Requirement	Max. length (pages)	Type (M/D/E)
679	The LSP MUST support the needs of the National Library related to efficient workflows for legal deposit	YES/NO	M

6.3 Data import and export

The deposit of digital files and metadata from publishers has enabled the NLN to automate its handling of much of the deposited material. Currently, both recorded music and textual

material are collected from aggregators, and their accompanying metadata is converted and imported into the catalogue for further enrichment. The NLN aims to receive as much legal deposit as possible digitally and automate metadata creation. For example, the volume of music acquisitions through aggregators is estimated to amount to about 50,000 metadata records a year for the coming few years.

At the same time, the NLN is mandated to offer free and open metadata on Norwegian publications in a timely fashion to any third party, including public libraries. Therefore, it is crucial that both import and export facilities have the capacity to handle relatively large amounts of data, and that they are scalable.

The main delivery mechanism for open metadata from the NLN will be the so-called Metadata Well, to be established as part of the current national strategy for libraries[3] as described by the Ministry of Culture and Equality. Technical infrastructure for the Metadata Well is under procurement, a request for tender will be issued by autumn 2024.

The Metadata Well shall provide libraries and others with a single authorized source of uniquely identified metadata descriptions. It will also constitute a hub for the reuse of metadata between libraries. Suppliers of metadata and service providers can use the infrastructure provided by the Metadata Well to provide additional data or services.

The LSP is expected to communicate with the Metadata Well to retrieve bibliographic descriptions, check for newer versions of bibliographic descriptions, and submit bibliographic descriptions to the Metadata Well. A more general description of import and export is handled in chapter 4.6.

No.	Requirement	Max. length (pages)	Type (M/D/E)
680	The LSP SHOULD support the workflows of the Metadata Well when established in order to support: - retrieval of bibliographic descriptions from the Well (copy cataloguing) - check for newer versions of a bibliographic description in the Well - submission of bibliographic descriptions to the Well	YES/NO	D

6.4 Acquisition

The Legal Deposit Act forms the foundation of the NLN's collections, with the LSP being an essential tool for managing legal deposit with publishers in Norway. The general needs of the NLN related to acquisition are covered in the general section of this document. However, the NLN also has some specific needs addressed in this section.

[3] Norwegian Government. Ministry of Culture and Equality. Utvidet nasjonal bibliotekstrategi - ut 2025: Rom for demokrati og dannelse. Oslo 2023 [in Norwegian]: https://www.regjeringen.no/no/dokumenter/utvidet-nasjonal-bibliotekstrategi-ut-2025-rom-for-demokrati-og-dannelse/id2995881/

Printed materials are typically deposited in three physical copies distributed among three internal libraries. Thus, it is crucial for the library to efficiently record large quantities of items swiftly and accurately. Additionally, digital files are deposited into an external system (applicable to both printed and digital publications), imported into the LSP, and displayed in the NLN's digital library.

An important aspect of obtaining legally deposited materials from publishers is the claiming workflow within the LSP. Currently, only printed materials are claimed, but it is essential that the system evolves to allow for the tracking and claiming of digital files in a manner similar to printed materials. For periodicals, the use of predicted items is integral to tracking publications, necessitating an efficient and largely automated system to generate these predicted items. The NLN currently manages approximately 3,800 physical journal subscriptions and 20,300 predicted journal issues awaiting receipt, with about 7,000 issues in claim.

The NLN maintains a registry of nearly 17,000 active vendors used exclusively for legal deposit. These vendors must be contacted automatically with reminders to deposit missing material. Additionally, the NLN has a responsibility to respond to publishers regarding deposited materials, who submitted them, and what is missing. It should also be possible for NLN to retrieve vendor data from the LSP for use in information campaigns about legal deposit.

No.	Requirement	Max. length (pages)	Type (M/D/E)
681	The LSP MUST facilitate exporting data about vendors.	YES/NO	M
682	The LSP MUST provide options for separating acquisition related to Legal deposit from other types of acquisition in the LSP.	YES/NO	M
683	The LSP MUST have functionality for sending claim and order letters to vendors containing customizable information about the legal deposit act.	YES/NO	M
684	MUST be possible to create a subset of vendors reserved for legal deposit	YES/NO	M
685	SHOULD support acquisition functionalities for digital representations	YES/NO	D

6.5 Inter-library-loan

The National Library is a major supplier of inter-library-loans (ILL) to institutions in Norway. This is mostly handled by a part of the NLN, Depotbiblioteket/Depot library. The NLN Depot library holds about 2 million objects, including an almost a complete set of Norwegian printed monographs, journals, and newspaper microfilms. Its collection and the ILL requests are managed in an external system (MARC-based) outside of the LSP., As a specialized ILL library,

it is the preferred target for any ILL requests from libraries within the BIBSYS consortium whenever the requested material is held by the Depot library. While not a member of the Consortium, the Depot Library is part of NLN, and by far the largest supplier to interlibrary lending in Norway. Therefore, efficient handling of ILL from the Depot Library to libraries in the Consortium is essential.

The LSP is expected to support efficient communication between the Depot Library and the institutions in the consortium for both monograph lending and article copies related to inter-library loans.

The functionality needed to achieve an efficient workflow for ILL with the Depot Library is expected to be covered by the default functionality within the system and thus described in other chapters of this document. There are user stories related to ILL in Appendix 3.

No.	Requirement	Max. length (pages)	Type (M/D/E)
686	The LSP MUST support the needs of the National Library related to efficient workflows for inter-library-loan	YES/NO	M

7 SERVICES

7.1 Implementation and Onboarding

The successful deployment of any solution hinges on a well-planned and effectively executed implementation project. This includes aspects such as the technical setup, data migration, and importantly, the onboarding of users, which should be designed to ensure a smooth transition, enabling quick familiarization with the solution and the utilization of its features to their full potential.

The following requirements specify the expectations and responsibilities of the provider in relation to the implementation and onboarding activities, as well as the information that the provider must provide to demonstrate their capacity and quality of service. The requirements cover aspects such as training, online help, technical implementation, migration, timeline, and scalability.

No.	Requirement	Max. length (pages)	Type (M/D/E)
687	DESCRIBE which consulting services are available from the supplier. Describe capacity, competence, geographical location and language skills.	1	E
688	The supplier MUST have a tried and tested procedure and methodology for onboarding new institutions.	1	M*
689	Propose a timeline for onboarding new institutions. Assess your capacity to implement the offered solution at multiple new institutions in parallel and describe how this can be done.	0.5	E
690	DESCRIBE which support is available for new institutions in the on-boarding process, such as on-site and/or online training, self-paced learning resources, video and text tutorials, etc	0.5	E
691	If applicable/relevant the supplier MUST propose a timeline and procedure for migrating the consortium from the current LSP to a new system.	0.5	M*
692	In case of migration to a new LSP, the supplier MUST allow multiple test loads (minimum 4) of data (all types) into the new system.	YES/NO	M

7.2 Training and support

In this section, we delve into the critical aspects of Support, SLA, and Contract Management. Reliable and accessible support services are vital to ensure smooth and uninterrupted operation of the solution for all users. This includes the availability of customer support in English, as well as comprehensive end-user documentation.

The SLA is a key component in defining the expectations and responsibilities between the customer and the provider. It covers all aspects of the service, from uptime and performance to issue resolution times. The LSP is a key component in the day-to-day operations within the library and needs to a have a very high availability (including failover possibilities). The

proposed SLA needs to take into account the institutions' need for quick response and action in case of problems with availability, problems or errors, security incidents and reporting, etc.

Contract Management, on the other hand, focuses on the administrative aspects of the service agreement, including the provider's responsibilities, regardless of any sub-contractors being used, the availability of updated technical documentation, and the provision of a single point of contact for all issues and queries.

We seek a high level of service quality and a strong, transparent relationship between the provider and the customer.

Sikt will act as the focal point for support to the consortium and will report cases, bugs, issues to the provider on behalf of the institutions.

7.2.1 Training and documentation

Sikt or selected institutions will be responsible for training the members of the consortium Sikt will also provide support to the institutions within the consortium. For Sikt to do this successfully, the supplier must be responsible for the proper training of the Sikt staff (and a selected group from the consortium) and for providing relevant 3rd and 4th line of support to Sikt.

The supplier must provide standard training material and train Sikt staff. Sikt will re-use the documentation and provide training to the consortium.

No.	Requirement	Max. length (pages)	Type (M/D/E)
693	The Provider MUST provide training of Sikt staff and other selected staff users from the institutions. Please describe how the training will be done (seminars, online courses, webinars, etc.)	0.5	M*
694	Sikt MUST have access to training material and be able to download/access and distribute it to the consortium during the contract period.	YES/NO	M
695	The Provider MUST provide training programs and a detailed description of the training programs.	YES/NO	M
696	The documentation MUST be available in English.	YES/NO	M
697	The documentation must be comprehensive, up-to-date and cover all aspects, functionality and configuration options within the LSP and discovery tool throughout the contract.	YES/NO	M

7.2.2 Support

Each institution will provide functional (1st line) support to their own users (the end users). Sikt will provide the 2nd line of support to the institutions covering both functionality and customization issues. In cases where Sikt does not have the answer, Sikt must be able to contact the supplier for advanced support (i.e. typically 3rd and 4th line of support) during working hours 08.00 – 16.00 CET (GMT + 1).

No.	Requirement	Max. length (pages)	Type (M/D/E)
698	The supplier MUST provide advanced support (typically 3rd line or 4th line of support) to Sikt during working hours 08.00 – 16.00 CET (GMT + 1)	YES/NO	M
699	The supplier MUST describe the advanced support capabilities, e.g. how this is shared between a main office and European office, how this will affect promised response times, etc.	0.5	M*
700	The supplier MUST describe how advanced support of emergency incidents are handled.	0.5	M*
701	The supplier MUST describe how to handle the following issues: • information to customers regarding software bugs • fault reporting • software fixing procedures The Supplier is responsible for providing support for all services offered, independently of any subcontractors being used.	0.5	M*
702	The Provider MUST have a single point of contact (“Helpdesk”) for reporting and updates on all issues and questions that arise during the use of the services provided.	YES/NO	M
703	Describe how Sikt can report problems to support/helpdesk (e.g. phone, email, chat, online forms etc.). Please also describe how the progress of reported issues can be monitored by the Customer.	0.5	E
704	Sikt SHOULD have the opportunity to have monthly meetings with support to address, discuss and escalate important support-cases within the consortium.	YES/NO	D
705	Reported bugs of middle and high priority MUST be remedied within reasonable time	YES/NO	M
706	The supplier SHOULD provide statistics on expected time for: • Initial real response (not automated first response on receiving of case) • Time to resolution for high, medium and low priority cases • Time to production for cases that has been sent to development for fixing	0.5	E

7.2.3 Test environment

The supplier must provide a test environment for Sikt and the consortium. The test environment would be used to test the effect of configuration changes, new functionality introduced into the system and other changes. The test environment should be a complete copy of the production environment with real data and configuration. There must however be some mechanisms that ensure the anonymization of user-data, as GDPR does not allow real user data in a test environment. There should be some easy tools, mechanisms or central scheduling that allows the test environment to be refreshed with data and configuration from the production environment.

No.	Requirement	Max. length (pages)	Type (M/D/E)
707	MUST provide fully functional test environments that mirrors the production environments in terms of data, configuration, and functionality.	YES/NO	M

708	New or significantly altered functionality MUST be introduced to the institutions' test environment well ahead of implementation in the live production environment. DESCRIBE this process or timeline.	0.5	M*
709	MUST implement and maintain robust mechanisms within the test environment to ensure anonymization of personal user data in compliance with GDPR regulations, while retaining the integrity and usefulness of the test data.	YES/NO	M
710	Each institution SHOULD have access to their own separate testing environment or instance.	YES/NO	D
711	SHOULD provide ability to regularly refresh the test environment with the latest data and configurations from the production environment (through easy-to-use tools, central scheduling or other mechanisms).	YES/NO	D
712	The test environment MUST enable thorough interoperability testing between the LSP and the Discovery System, ensuring the entire workflow can be rigorously tested and validated.	YES/NO	M

7.3 Service Level Agreement (SLA)

There must be an SLA covering all aspects of the production service, which includes system availability, system response-time, incident handling, service downtime and interruptions, supplier's response time and support availability and channels.

No.	Requirement	Max. length (pages)	Type (M/D/E)
713	The service MUST have a Service Level Agreement (SLA) covering all aspects of the production service, which includes system availability, incident handling, service downtime and interruptions, supplier's response time and support availability and channels.	YES/NO	M
714	The supplier MUST provide and describe the proposed SLA for the solution.	0.5 + separate document	M*
715	The supplier MUST describe the process and methods for communicating incidents to Sikt/institutions.	0.5	M*

7.3.1 Availability and performance

It is expected that the systems have good performance and are able to scale according to the consortium's needs. It must be able to handle large sets of users and large amounts of bibliographic records. Some bibliographic records, especially for the National Library of Norway (NLN), has a high number of holdings/items.

It is essential that the LSP can handle large document collections, can support digitization processes and other item processes quickly and efficiently even when there are a large number of items.

The general interface must have an overall quick response time and it must be possible to switch between different areas of the system smoothly and without long loading time. It must be possible to retrieve lists, configurations and tasks in an efficient and user-friendly manner in order to achieve efficient workflows.

Performance by response time may vary depending on which kind of operation and how often it is used. Patron facing operations require shorter response time than staff user operations, and record operations require shorter response time than reports. The system must however ensure a quick response time enabling staff users to carry out their daily tasks efficiently and seamlessly, without any delays due to system loading or operation execution.

No.	Requirement	Max. length (pages)	Type (M/D/E)
716	The LSP MUST be able to handle a large, and continuously growing, collection of physical and digital documents without affecting performance.	YES/NO	M
717	The uptime requirement for the LSP and Discovery in the SLA MUST be better than 99,5 % pr month 24/7/365	YES/NO	M
718	The uptime requirement for the LSP during business hours in the SLA MUST be better than 99,75 % pr month	YES/NO	M
719	The uptime requirement for the LSP and Discovery in the SLA SHOULD be better than 99,9 % pr month	YES/NO	D
720	The uptime and response time for the LSP and Discovery in the SLA SHOULD be calculated monthly	YES/NO	D
721	The uptime and response time for LSP and Discovery MUST be calculated individually	YES/NO	M
722	The response time requirements for actions and operations within the LSP in the SLA MUST be that: - 50% of all online Transactions Types are performed in less than one (1) seconds (server-side response times) - 75% of all online Transactions Types are performed in less than two (2) seconds (server-side response times) - 95% of all online Transactions Types are performed in less than three (3) seconds (server-side response times) Online transactions types are defined with examples in appendix 6	YES/NO	M
723	The SLA SHOULD include response times requirements for API's	YES/NO	D
724	The response time requirements for searches and loading of the pages (e.g. calculations of availability and retrieval of holdings/items and additional information from the LSP) within the Discovery in the SLA MUST be that 95% of the online transactions are performed in under two and a half (2,5) seconds.	YES/NO	M
725	Scheduled downtime MUST be performed during the maintenance window.	YES/NO	M

726	The maintenance window SHOULD be between the hours of Saturday 20:00 and Sunday 06:00 Central European time.	YES/NO	D

7.4 End-of-Contract Provisions

As the contractual relationship draws to a close, it is crucial to ensure that the transition out of the current service is as smooth and seamless as the onboarding process.

One of the key considerations during this phase is the secure and efficient export of data from the service. It is essential that the solution has a standards-based mechanism to facilitate this process, ensuring that the data can be easily imported into a new service.

Moreover, it is important to understand how institutions can access their data stored in the solution after the contract has expired. This includes any potential changes to the services during the initial months following the contract's expiration.

The supplier shall provide assistance to the institutions if the institutions wishes to terminate the agreement. The supplier shall facilitate the transfer of the institution's data to the Institution or to a third party designated by the Institution.

No.	Requirement	Max. length (pages)	Type (M/D/E)
727	The solution MUST have a standard-based mechanism to export all of the customer/institutional data within the system from the service at the end of the contract.	YES/NO	M
728	DESCRIBE how the mechanism to export all of the data from the solution at the end of the contract can ensure the import of this data into a new service.	0.5	E
729	The supplier MUST provide information about whether institutions can access the data stored in the solution beyond termination of the contract and describe how such access is accommodated (the price per institution for this service should be specified in the price matrix).	0.5	M*

7.5 Future Development / Roadmap

As technology evolves and educational needs change, it is crucial that the solution is able to adapt and grow to meet these changing demands.

A clear and detailed development roadmap can provide valuable insights into the provider's plans for future enhancements, features, and technical improvements. This not only reflects the provider's commitment to continuous improvement, but also helps customers plan their own IT strategies and resources accordingly.

Moreover, the development process itself is of interest, particularly the extent to which it is user-centered and involves input from customers/community. The ability for customers to participate in this process, perhaps through a customer advisory council, is an important consideration.

No.	Requirement	Max. length (pages)	Type (M/D/E)
730	Please share your current development roadmap that addresses features, functionalities and technical aspects pertaining to the offered solution for at least the next 2 years. It is adequate to provide a link to an authoritative source for the roadmap. The roadmap must include time estimates.	1	M*
731	DESCRIBE how your roadmap is developed, particularly in terms of user centered design. Describe how you work with your customers to identify and establish current and future requirements. In what ways will the Customer and participating institutions be able to take part in this process (e.g. through your customer advisory council)?	0.5	E
732	MUST provide documentation with plans for further development of the Discovery solution and the link-resolver, at least a roadmap for one year ahead (share plans concerning AI, Linked Data, Content (CI+KB), controlled vocabulary, DEI (Diversity, equity, and inclusion), integrations and enhancements etc.)	1	M*
733	MUST describe plans for AI-related search enhancement (search assistant, conversational AI etc.)	0.5	M*
734	MUST describe customer involvement in the further development of the system, arrangement of user groups, user meetings, beta-testing programs etc.	0.5	M*
735	SHOULD have mechanisms that enable customer participation in ongoing development processes (e.g. feedback, collaboration and community platforms, enhancements programs, focus groups and early adapters). Please describe.	0.5	E

8 OPTIONS

The service may in the future be expanded to include a selection of closely related services. We therefore want to know if the supplier also offers other products or services within the same service area. We are also interested in sub-functionality within the various options.

To create predictability for the option services, we primarily want the options to follow the same pricing model as the service in general. The options are priced in Tender Document *4 – Price Matrix.* There is no obligation to buy the options. Some institutions may want to use the services listed as options, while other institutions may not want to use the options.

The same requirements for data security, GDPR, and usability apply to the options as to the service in general.

No.	Requirement	Max. length (pages)	Type (M/D/E)
736	Please DESCRIBE the supplier's current portfolio of other services and products relevant to the service area.	1	E
737	Please DESCRIBE future plans for functionality and services relevant to the solution, outside the scope of the binding roadmap described in previous requirement	1	E
738	All options shall be individually priced in 4 - Price matrix (sheet 6_Options). If nothing else is described, the price model is Unit price per institution, with the same discount as in the service price (sheet 2_Service_price). Describe any other discounts, price models or variations of pricing for the offered options. The Prices and price models will be added to Appendix 6 at time of contract signing.	Infinite in 4 - Price Matrix and 3 Supplier's Answers and Descriptions	E

9 PRICE

The goal of the pricing model is to create predictability for both the Customer and the supplier. The pricing model should make it easy for the consortium to get an overview of the total costs of the service, while also making it possible to price different elements separately (modules).

The price model should be easy and scalable and allow predictability if an institution joins/leaves the consortium. The fact that Sikt acts as the single point of contact for the supplier in contract administration, payment and support for about 80 institutions should result in a significant discount compared to having separate contracts.

All parts of the delivery (the Library Services Platform and Discovery tool with requested functionality, services, etc.) that are described in the offer are considered included in the supplier's prices. If there are exceptions to this, it must be explicitly stated under each question/description.

We expect that the pricing model will evolve in the negotiation phase, based on feedback from the negotiations. It is important to get a clear picture of the costs for all parts of the delivery, including implementation, annual service fees, as well as additional costs/options. If there are elements that cannot be priced explicitly, the pricing model should indicate the concept and price basis (e.g., price per user, price for infrastructure, etc.).

As mentioned previously the institutions within the consortium vary in size and needs. Some institutions may not need the entire suite of functionality beyond the needs to operate and fulfill the basic needs of the library. It should therefore be possible to select a core package of the LSP with additional add-on modules. It would be expected that selecting the core would cost less than the entire suite of functionality, but that selecting all functionality would cost less than the core plus most of the add-on modules.

It is important that a potential mix of core, complete and all variations in between does not affect or limit Sikt in handling, maintaining and supporting the institutions in the consortium. It is also important the end-user of the discovery solution gets a satisfactory and fulfilling user experience also when the library has selected only the core of the LSP.

The duration of the contract will be for a minimum of five years for both the LSP and the Discovery system. After the first five years, the contract can be terminated on a 12 months' notice by the Customer. The supplier can cancel the contract with a 24 months' notice. The details about the procedure for terminating the contract must be stated in the contract.

To ensure the provision of optimal solutions for the Sikt consortium, Sikt retains the right to cancel one of the deliverables (either the LSP or Discovery) while maintaining the other system. For instance, we might renew the contract for the LSP, but choose a new discovery solution for the consortium. The pricing model must accommodate such scenarios.

The contract must be in the currency Norwegian Krone (NOK).

No.	Requirement	Max. length (pages)	Type (M/D/E)

739	All deliverables shall be priced in 4 - Price matrix. Unless other information is given, prices submitted in the price matrix includes all functionality described in the Bidders answers, unless clearly specified and priced as an option. Describe any other discounts, price models or variations of pricing for the offered deliverables. The Prices and price models will be added to Appendix 6 at time of contract signing.	Infinite in 4 - Price Matrix and 3 Supplier's Answers and Descriptions	M*
740	The contract MUST be in Norwegian Kroner (NOK)	YES/NO	M
741	The contract MUST allow to renew both or only one of the deliverables (LSP or Discovery)	YES/NO	M
742	It SHOULD be possible to select a core of functionality of the LSP in order to reduce cost and complexity.	YES/NO	D
743	The supplier MUST describe any implications of using only the core of the LSP functionality	0.5	M*
744	The supplier MUST describe the different potential/possible add-ons/extra modules of the LSP.	0.5	M*
745	The end-user experience of the Discovery solution MUST not be affected as result of the library using the core-functionality only of the LSP.	YES/NO	M
746	DESCRIBE whether it is possible to add/remove modules in the LSP without affecting the rest of the system.	0.5	E
747	It SHOULD be possible to order development of additional LSP functionality/integrations directly from vendor	YES/NO	D
748	DESCRIBE the supplier's capacity and rates for consulting work on developing custom integrations	0.5	E

APPENDIX 1 – INSTITUTIONS IN THE BIBSYS CONSORTIUM

Institutions in the BIBSYS Consortium

This appendix lists the institutions within the BIBSYS Consortium.

- Akershus Universitetssykehus HF
- Anno Museum
- Arbeiderbevegelsens arkiv og bibliotek
- Arkitektur- og designhøgskolen i Oslo
- Atlantis medisinske høgskole
- Bergen Global
- Departementenes servicesenter (DSS)
- Det Norske Nobelinstituttet
- Dronning Mauds Minne Høgskole
- Erfaringskompetanse innen psykisk helse
- Fiskeridirektoratet
- Folkehelseinstituttet (Fellesbiblioteket for helseforvaltningen)
- Forsvarets forskningsinstitutt
- Forsvarets høgskole
- Handelshøgskolen BI
- HL Senteret
- Høgskolen i Innlandet
- Høgskolen i Molde
- Høgskolen i Østfold
- Høgskulen i Volda
- Høgskulen på Vestlandet
- Høyskolen Kristiania
- Institutt for energiteknikk
- Integrerings- og mangfoldsdirektoratet (IMDI)
- Justis- og beredskapsdepartementet
- Konkurransetilsynet
- Kriminalomsorgens utdanningssenter KRUS
- Kunsthøgskolen i Oslo
- Lovisenberg diakonale høgskole
- Maihaugen
- MF - Vitenskapelig høyskole
- Museum Stavanger AS
- Nasjonalbiblioteket
- Nasjonalmuseet
- NIFU STEP
- NINA
- NLA Høgskolene

- Nofima AS
- NORCE - Norwegian Research Centre
- Nord Universitet
- Norges Bank
- Norges Handelshøyskole
- Norges idrettshøgskole
- Norges miljø- og biovitenskapelige universitet
- Norges musikkhøgskole
- Norges teknisk-naturvitenskapelig universitet
- Norsk Folkemuseum
- Norsk institutt for bioøkonomi - NIBIO
- Norsk institutt for luftforskning - NILU
- Norsk Oljemuseum
- Norsk Polarinstitutt
- Norsk Skogfinsk museum
- Norsk Teknisk Museum
- Nynorsk kultursentrum - Ivar Aasen-tunet
- OsloMet- Storbyuniversitetet
- Politihøgskolen
- Riksantikvaren
- Sametingets bibliotek
- Samisk høgskole
- SIHF - Sykehuset Innlandet
- Statens arbeidsmiljøinstitutt
- Statistisk sentralbyrå
- Statped
- Stiftelsen SINTEF
- Stortinget
- Sykehuset Telemark HF
- Sykehuset Østfold HF
- Sørlandet Sykehus HF
- UiT - Norges arktiske universitet
- Universitetet i Agder
- Universitetet i Bergen
- Universitetet i Oslo
- Universitetet i Stavanger
- Universitetet Sørøst-Norge
- Universitetssenteret på Svalbard, UNIS
- Vestreviken HF - Sykehuset Asker og Bærum og Sykehuset Buskerud
- VID

APPENDIX 2 – LIST OF CURRENT INTEGRATIONS

Integrations with external systems

Present status for the LSP, May 2024

Areas
Metadata
Acquisition
Discovery & fulfillment

Integration between the LSP and the Discovery is not included.

Names and abbreviations used in the table are explained at the bottom of the document.

The list is meant to exemplify the variety of the current integrations from the LSP to other external systems and to illustrate the need for the LSP to be a robust platform for integrations. The list is not meant be comprehensive or exhaustive.

No	Data	From ← → To	Protocol	Format	Volume	Frequency	Comments
Integrations including all areas							
1	Statistics delivered to government	LSP institution → Statistics Norway	FTP?	CSV file	Forms filled with data	1. January	Sikt generates one file per institution, compiled from 35 Analytics reports, triggered by Python.

Metadata integrations

2	Name authorities	BARE ← → Ex Libris community database	SRU/U, SRU	XML	Dozens	Continuous per day	Record updates
3	Name authorities	BARE data in Ex Libris community database ← → LSP joint catalogue	?	XML	Dozens	Continuous per day	Record updates with active links to authorities. LSP contributes to BARE by metadata editor
4	Bib records	Biblioteksentralen → LSP joint catalogue	OAI	XML	Hundreds	Nightly	All new Norwegian publications imported as soon as they are published. Upstream source for the consortium.
5	Bib records	Bib databases → LSP joint catalogue	?	XML	Single records	In need	Copy cataloguing by direct access to external sources from LSP editor, OOTB integration
6	NTSF records	NTSF directory → LSP joint catalogue	HTTPS	TTL (text/turtle)	Some	Nightly	Vocabulary updates from the directory at the National Library. Vocabulary consists of about 5 hundred terms (records).
7	Bib enriching information	Bokbasen og Nielsen Bookdata → LSP joint catalogue	API	XML	Hundres or thousands	Several times a day	Sikt application is updating bib records with URLs on 856 field, i.e. links to publisher's description, table of content, thumbnail etc.
8	Bib records with holdings	LSP institutions -> NB Biblioteksøk	OAI	XML	Tens of thousands	Nightly	NB Biblioteksøk is harvesting LSP

							consortium member records individually. Could be harvested from joint catalogue in one harvest operation.

Discovery & fulfillment integrations

9	Electronic subscriptions	LSP institution → Discovery (CDI database)	SFTP	XML	Thousands	Nightly	Activates for search articles covered by subscriptions
10	Electronic subscriptions	LSP institution → Google Scholar	SFTP	XML	Thousands	Nightly	Activates for OpenURL links to articles
11	ILL partner records	Base Bibliotek → LSP institutions	HTTPS and API	XML	Dozens	Nightly	Sikt application retrieves updates from Base Bibliotek and is forwarding to the LSP institutions.
12	ILL search for publications	LSP institution → External source	?	?	Single search	In need	LSP has OOTB access to external databases for search and retrieve records. Sources like British Library, WorldCat, Libris etc. Records retrieved may subsequently be used for ILL requests to any ILL partner.
13	ILL transactions	LSP institution ← → NCIP-P2P partner	NCIP-P2P	XML	Dozens	Continuous per day	ILL transactions for request, reject, ship, renew etc.
14	Patron loans	Lending machine → LSP institution	SIP2	XML/JSON?	Hundreds	Continuous per day	Self-service lending

15	Student records	FS → LSP institution	FTP	XML?	Thousands	Nightly	Integration profile in the LSP imports user data about students from student database hub (FS) to the LSP institution
16	Staff records	Mother institution → LSP institution	FTP	TXT?	Hundreds	On demand	Sikt application imports user data about staff directly from mother institution to the LSP institution
17	Authentication data for ILL partners	NB IDP → Oria	HTTPS	XML	Hundreds	All ILL login to Discovery	NB is offering an IDP service on top of Base Bibliotek for authentication of ILL partners

Acquisition integrations

18	Consortium licenses	Edvarda (LÅT) → LSP institutions	API	XML / CSV file	Dozens	Updates, mainly around new year	Sikt application imports licenses with license terms from the national license database to the LSP subscribing institutions
19	Book orders	LSP institution ← → Vendor	FTP	EDI	Single transactions	Several times a day	Based on EDIFACT standard. Orders initiated from the LSP institution. About 30 institutions use this integration.
20	Book orders (mostly electronic books)	Vendor → LSP institution	API	XML	Single transactions	Several times a day	Real-time Ordering / Real-time Acquisition (RTO/RTA) initiated from vendor portal.

							Example: GOBI API integration.
21	Orders for print and electronic material	LSP institution → Vendor	?	?	Single transactions	Several times a day	By integration profile "Rialto" offered by the LSP system, used against Proquest and other vendors
22	E-resource holdings	Vendor → LSP institution	FTP?	KBART	Thousands	Weekly or daily	Continuous update from vendor by integration profile directly between LSP institution and vendor. Includes holdings for all licenses with that vendor. Supporting about 10 vendors.
23	E-subscription renewal	Vendor EBSCOnet / Prenax → LSP institution	API	JSON/XML	Single transaction	At time for renewal	API integration for renewal initiated from vendor portal.
24	COUNTER reports	Vendor → LSP institution	HTTPS/File	JSON/TXT	Thousands	Monthly	Regular SUSHI import of e-resource usage data, or by manual import from file.

Special integrations for the National Library (NB)

25	Holdings for **digitized** monographies, maps and journals	NB digital production → LSP NB	OAI	XML	Hundreds	Nightly	Bib records are already in place in the LSP. Holdings are added, and 856 URLs are added to bib records
26	Bib records and holdings for **legal deposit** monographies, maps and music	NB digital production → LSP NB	OAI	XML	Dozens or hundreds	Nightly	Bib records are created or updated for monographies and maps.

							Bib records are created only for music volumes and tracks. Holdings records created for journals (Bib records already in place.) 856 URLs added to bib records.
27	Bib records for digitizations and legal deposit	LSP NB → NB Net library	OAI	XML	Hundreds	Nightly	NB is getting bib records quality assured back to Net library
28	Bib records new or updated Holdings records for new print publications received by legal deposit	LSP NB → NB automated warehouse library	OAI	XML	Hundreds	Nightly	Bib records may have updates from consortium members, or Sikt cleanup, since LSP NB is part of joint catalogue. This is of interest for NB automated warehouse library. Notice: NB automated warehouse library is not using the consortium LSP as the other libraries at NB
29	Bib records with holdings	LSP NB → Share VDE	OAI	XML	Thousands	Weekly	The National Library is a member of the Share VDE project. Records with holdings for NB, except holdings for automated warehouse, are exported.
30	ILL partner records	Base Bibliotek → LSP institutions	HTTPS (file with records), API (single records)	XML	A few	Nightly	Six thousand partners from Norway and foreign countries are

							imported as patrons as well as ILL partners.
31	ILL locate requests	LSP institutions → NB automated warehouse library	SRU	XML	Hundreds	Daily	Automated or manual search for ILL available holdings at NB automated warehouse library.
32	ILL loan requests	LSP institutions ← → NB automated warehouse library	NCIP-P2P	XML	Dozens	Daily	ILL loan requests, and subsequent shipping, renewal, return etc. messages
33	ILL availability/requestability request	NB Biblioteksøk → LSP institutions	SRU Holdings	XML	Hundreds	Daily	NB Biblioteksøk, external ILL portal, is checking if registered holdings is available for ILL right now.

Special integration for BOTT institutions

34	BOTT physical collections	LSP joint catalogue → BOTT collection project	FTP	XML/TXT	Journals: 100 thousand Monographies: 2 mill	Steps 2023/2024	BOTT libraries have a project for freeing space in libraries by throwing away surplus copies. If one BOTT library keeps a copy, the other libraries may discard theirs.

Special integration for National Museum

35	Bib records	LSP NM → OCLC	OAI	XML	Thousands	Twice a year	Records exporte to OCLC Art Discovery Group Catalogue. About a hundred thousand records.
36	OCLC number generated for bib records from NM	OCLC → LSP joint catalogue	File	TXT	Thousands	Twice a year	Step following the export above. OCLC number returned from OCLC is added to 035 field on joint catalogue record.

Names and abbreviations used in the table

- BARE: National registry for name authorities
- Biblioteksentralen: Enterprise offering metadata records
- Bokbasen: Enterprise offering metadata records or data for enriching bib records
- Nielsen Bookdata: Enterprise offering metadata and images for enriching bib records
- NTSF: Norwegian thesaurus on genre and form
- CDI database: Ex Libris Central Discovery Index. Searchable database of citations collected from scholarly e-resources including journal articles, e-books, legal documents and more.
- Base Bibliotek: Central directory in Norway for ILL peer-to-peer partners, containing both Norwegian and foreign libraries
- FS: Norwegian hub within higher education for student information
- NB: National library
- NB Biblioteksøk: ILL portal for requesting print copies from the whole Norwegian library community, available to both libraries and patrons.
- NB Net library: Portal for Norwegian publications available in digital format, digitized or digital born, run by the National Library
- Edvarda (LÅT): Norwegian name for the system used for administration of national e-resource licenses (Danish system called ‘Consortia Manager’)
- BOTT libraries: 4 biggest universities in the consortium

APPENDIX 3 – USER STORIES

Appendix 3: User stories

This appendix incorporates several user stories to complement the specifications outlined in the requirements list. While the requirements target the identification of key components on a more detailed and specific scale, the user stories provide a broader perspective. They aim to show workflows and user interactions, interlinking various elements of the requirements. Even though the user stories included in this document are not exhaustive, they are intended to demonstrate practical examples of system usage.

We want these user stories to help bridge the gap between technical specifications and real-world application. The majority of these stories are written from the perspective of end users, to make sure that we don't lose track of the most important part of any solution - the end users and how they can effectively interact with the systems.

The appendix is divided into five categories to better illustrate which key areas are being described – Metadata management, Acquisition, Circulation and delivery, Discovery and various processes detailed by the National Library of Norway. However, it is important to note that many of these stories naturally overlap, as these areas are all part of the unified library system.

METADATA MANAGEMENT

U01 - Templates for bibliographic records and entities

As a cataloguer, I want to create and manage templates for bibliographic records and entity descriptions. I want to save several different templates and customize them for specific resource types and entities. This will save time when creating new records and entity descriptions. Pre-defined templates will also streamline the data entry. It should be possible to share the templates within the consortium, so that we can enhance the organization and accessibility of library collections while ensuring consistency and accuracy in cataloguing.

U02 - Creating a localized electronic item with bibliographic description and access-point

As a cataloguer, I want to be able to create and catalogue temporary access-points for electronic titles/items. I want to create them when faced with, for example, OA-resources not yet available in any centrally managed collection in the LMS. (The temporary description and access-point are then to be deleted if/when a more official one is made available), or when faced with the need to create an access point and give a bibliographic description of a database for the LMS. These descriptions and access-points should only be available to the institution I am at and not the consortia as a whole.

U03 - Authority register for subject headings (create new authority records in the vocabulary)

(We need an authority register for subject headings integrated in the library system. The cataloguers use terms from the authority register to index subjects of bibliographic records. Only the responsible board for the vocabulary should be able to create or change the records.)

As a cataloguer with special access rights, I want to be able to create and edit subject headings directly in the library system. Given there is a need for a new subject heading, the cataloguer with the rights to create new records should be able to create a record that fits in the hierarchy.

Documentation for one of the vocabularies that the system must have functionality for:

https://www.ub.uio.no/bruk/sok-i-hele-biblioteket/emneord/humord/pdfer/handbok-for-humord-og-realfagstermer.pdf

U04 - Run a job on a set of items

As a librarian, I want to be able to create a search set of all the items of a certain part of the library collection, so that I can run a job on this set of items to change the terms of use or to change/add/delete other data/information on the item level such as e.g. public or internal notes.

Example:

A part of the library collection is currently not available for inter library loan

The library decides to change this and make it available for inter library loan

The librarian should be able to create a search set of all the items and run a job on this set to change the terms of use so that they are available for inter library loan.

U05 - Use of advanced functionality for collection management

As a librarian, I want to have access to highly advanced functionality for analysing content and usage of all types of collections and acquisition data. I want to combine descriptive and subject-related metadata, circulation and delivery data, and acquisition-data in highly advanced searches, for example to find out which books should be kept on the shelves for users, which should be moved to closed storages and which can be discarded from the library collection.

Example: The library needs to get more space on the shelves for new books. There are a lot of books on the shelves that are not in use anymore and the librarian suspect we already have the same book in the storage. We need a report that can tell us:

- which books are on the shelves (in a location and with a specific call number)
  AND
- have been bought at least 10 years ago
  AND
- have not been borrowed the last 5 years
  AND
- we already have an item in a closed storage of the same book
  AND
- the same item in the storage is in place (not borrowed, missing, lost)

U06 - Use of advanced analyses and reports in metadata management

As a metadata manager, I want to be able to use complex reports and analyses, so that I can identify which bibliographic records require my attention.

Given we have multiple records that need to be checked by a cataloguer, we want to be able to create an analysis or report which can easily identify errors or missing metadata in bibliographic records.

Possible scenario:

We see that some bibliographic records in our catalogue have a combination of RDA and katreg-fields. To identify which records that have this combination, we want to create a report in our analysis tool.

In the report, we specify that we want a list of all records that have both the value “katreg” in field 040 and a value in field 264. Or we could list all records that have the value “s.” in 300 and any value in field 336. And so on.

U07 - Integrated access to Norwegian Authority File: Persons and Corporate Bodies

As a cataloguer, I want to be able to have integrated access to Norwegian Authority File: Persons and Corporate Bodies (BARE) from the metadata editor in the LSP to make the cataloguing process run smoothly and be effective.

U08 - Create, revise and fetch authority records

As a cataloguer, I want to be able to create a new authority record or edit an existing one in the Norwegian Authority File: Persons and Corporate Bodies (BARE) as part of the cataloging process in the metadata editor in the LSP, or simply fetch an existing authority from BARE to the metadata editor so that I can do the cataloging much more effective.

U09 - Real time updates to authority data

As a cataloguer, I want to be able to do real time updates to metadata in the system instead of waiting for nightly jobs to do such updates so that I can complete the

cataloguing process at once and not have to process the metadata again the following day to check the result or to complete the job.

This user story relates to updating jobs against external integrated metadata systems such as the Norwegian Authority File: Persons and Corporate Bodies (BARE) but also internal processes in the LSP, e.g. synchronization with the end user interface or other internal or external services (e.g. indexing of URIs).

ACQUISITION

U10 - Ordering of a printed book

(A requisition has been sent to the institution's purchasing department, which creates an order in the purchasing system.) As an acquisitions librarian, I want to be able to place an order in the agent's system with this order being automatically created in LSP via Real Time Acquisition (RTA). Alternatively, I want to be able to register an order directly in LSP and then send it to vendor through EDI or e-mail.

In the LSP it is possible for me to communicate with vendor (i.e. claim), two-way if needed. When the book arrives, I receive it, or cancel it if necessary. The order status in the LSP is updated to closed or cancelled. I can print barcode via LSP or in combination with a barcode generation program, and finally send the item to ordering department through the LSP.

U11 - Ordering of an e-book

As an acquisitions librarian, I want to order an e-book that has been requested by a patron. For me to do the actual order I can choose different methods: I can order directly from vendor, through my subscription agent's system or the LSP vendor marketplace.

If I order through the LSP vendor marketplace an order is created automatically through API. The activation process is also automatic, so is the linking to the correct version of the e-book from the knowledge base. If the book is not in the knowledge base, I receive a notification and do the activation manually. When the e-book is activated, notification is sent to the patron that requested the book on a chosen e-mail.

If I order through the subscription agent's system an order is also created automatically in the LSP and so is the connection to the right title/vendor in the knowledge base. When the access is ready, I receive a notification email and do the activation manually. I send a notification to the patron that requested the book on a chosen e-mail.

After finding the book through the best suited method, I cooperate with the institution's acquisition department to place the order according to the requirements in my institution.

U12 - Ordering and receiving printed journals (serials)

As an acquisitions librarian, I want to be able to locate if the printed journal already exists and order it if it doesn't. I want to be able to order it through the LSP, subscription agent's system, or directly from supplier. As part of the order, I can add information like subscription interval, shelving information etc. If needed it is also possible to get predicted issues. Letter configuration, to make the claim fit to local needs, was already done at my institution (see user stories from National Library). When the issue arrives, the relevant issue can be found among predicted issues, or it can be created and received at "once". The issue is sent to shelves, or to another library, with now a change of status in the LSP. Barcodes are printed if needed. Renewal can be done in the LSP, through an agent, or directly.

U13 - Ordering of an e-subscription

As an acquisitions librarian, I want to start a subscription to an e-journal. I verify the journal in the library catalogue before placing an order. I can place the order in different ways:
I want to be able to register an order in the LSP. I want this assigned order number to be applicable to the order I have made within the subscription agent's system. This is to facilitate an automatic update in LSP when the time comes for renewal, which I will carry out in the agent's system.
Alternatively, I place an order directly from vendor through email. I would still like the capacity to register this order within the LSP, to ensure an accurate record and tracking of my orders.
The last step is to confirm and activate access to the subscription.

U14 - E-subscription: Follow-up/Renewal/error

As an acquisitions librarian, I want to be able to evaluate subscription renewal based on usage statistics, impact factor and other evaluation criteria. Renewal can be done through subscription agent's system with API update of order in the LSP. Alternatively, if renewal is done directly from vendor through email, I want to be able to do the renewal manually in LSP. In an ideal scenario it would be possible to update order renewals in the LSP using Excel.

By the start of a new year, we might lose access. I report the error through our own resources, and also report the error through external system. I add a note in the LSP for the end-users to see in the Discovery System in case it takes time to fix. If nothing happens, I claim it in external system or through e-mail and check access after a while. When access is restored, I inform affected end-user through e-mail. I remove the note about access problems if relevant. The invoice is processed, and renewal is done for

now, but starts again from the beginning in connection with the next subscription period.

U15 - Invoice

As an acquisitions librarian, I ensure that all necessary financial data is available in the LSP. This data is crucial as it allows the library to generate valuable analysis and statistics. After ordering a document, invoices are sent from the vendor to my institution's invoice control system, primarily via EHF. My role is to ensure that this invoice information is registered in the LSP. This can be done automatically via EDI, or by uploading e-mail invoice files to the LSP, or even manually entering the information. To close a one-time order, I simply close the invoice in the LSP, which also changes the order's status to 'closed'. The actual payment process occurs outside of the LSP.

U16 - Register a new vendor

As an acquisitions librarian, I depend upon an up-to-date vendor database, with all the information I need to communicate with our vendors. When I want to place a new order, I start by checking in the vendor database if the vendor already exists there. If not, I create a new vendor. Preferably without having to create a duplicate registration in the vendor database.

CIRCULATION & DELIVERY

U17 - Borrowing material available in the library.

As a patron, I run a search in the Discovery System and locate the book. The book is available on the shelf. The Discovery System notifies me to pick up the book and borrow it myself. I'm not allowed to place a request. I find the book on the shelf in the library and register the loan on the self-service machine.

U18 - Borrowing material only available in a library at another campus.

As a patron, I run a search in the Discovery System and locate the book. The book is available on the shelf at another campus. The Discovery System notifies me to either pick up the book at the other department myself, or to place a request for it to be sent to my own library. I place a request and order the book for pick up at my own library.

The order goes on a pick list at the owner department, who takes the book from the shelf and sends the copy to my library/campus. The book is received at the counter and placed on a self-service pick-up shelf. The next day, I receive an automatically generated message with a pickup deadline and a "hold shelf pick-up number". I pick up the book and register the loan on the self-service machine.

U19 - Borrowing material not available at the patron's institution library.

The patron searches in the local catalog in the Discovery System but does not find the book. The patron expands the search to the national catalog and locates the book at another institution. The patron orders the correct title and edition in the Discovery System.

The library staff processes the order and sends it to the library that owns the title. The patron receives an automatically generated message that the book has been ordered. Some days later, the book is received and placed on a self-service pick-up shelf. The patron receives an automatically generated message with a pickup deadline and a "hold shelf pick-up number". The patron picks up the material and checks it out at the machine or at the counter.

U20 - The library staff user is to borrow material not available at their own institution.

A patron orders a book from the national catalog in the Discovery System. The library staff user processes the order and sends it to a library that owns the title and has a suitable loan policy (choice of owner library can be done manually, or automated based

on configurable criteria). The ordering library and the patron receive an automatic receipt that the book has been ordered. The owner library receives the order and sends the book. The ordering library receives an automatically generated message that the book is on its way.

Some days later, the ordering library receives the book and places it on a self-service pick-up shelf. The patron receives an automatically generated message with a pickup deadline and a "hold shelf pick-up number".

U21 - Digital delivery of articles to end user

As a patron, I want to order an online article that my institution does not have available. I order the article, indicating that I would like it sent digitally if possible. After some time, I receive an email notification telling me that the digital material is available by link and information about the license terms that allows this.

DISCOVERY

U21 - Simple search and locate

As a Bachelor student, I want to quickly locate a known title at my institution. I use the simple search and indicate that I only want results from my institution. I receive autocomplete suggestions as I type in the search field, with corrections for misspellings or a “Did you mean…” prompt if applicable. Post-search, I want to filter results by material type and availability at my campus library. The new result list contains my book (FRBRized if multiple editions) and the availability status. From the result list I go to detailed view. Here I will find the book's shelf address, a more detailed look at the availability status and access to a map of where it is located in the library.

U22 - Advanced search and export

As a PhD student, I want to find literature for my thesis. I use advanced search and choose to search in all libraries in the consortium. I want to search in metadata, not in full text of the documents. I enter a detailed search string with Boolean operators, wildcards and truncations. I expect to do the search without any limitations in number of Boolean operators or truncation symbols. I filter the result both chronologically and based on languages. I also filter the result by resource types. After the search is complete, I export all the results in the result list to EndNote with a few clicks.

U23 - Full-text links

As a patron, I want to be able to search for an article title and easily access the full text of the article. I expect the correct reference and the link to be easy to identify, meaning there should be no duplicate records and ideally only one, highly visible link or button. When I click the link, I want to be taken directly to the full text (HTML preferably), given that I am connected to my institution's network or logged into the proxy or similar. If the link is broken, as can happen, I need an easy way to report the error to my library to get help.

U24 - Requesting materials

As a patron, I want a simplified and intuitive process for ordering materials from my library. This should include request options for all types of materials that are always

located in the same area of the page, making them easy to find. I also want the ability to place multiple requests with minimal effort. I would like a 'shopping bag' feature where I can accumulate my requests as I continue browsing, adding notes to each request as necessary, rather than having to process each request separately. Additionally, I would appreciate clear prompts for necessary actions (like logging in), and easy access to review and edit my requests before submission. After placing my orders, I want to be able to check the status of my requests under 'My Account' to ensure they have been received and are being processed. This efficient process will enhance my user experience, making it easier for me to access the resources I need.

U25 - Customization

As a local system administrator working at a consortium-affiliated multi-campus library, I want to be able to modify both the user interface and the system's overall functionality, so that our Discovery can meet the needs of our broad and diversified user base. My limited programming skills should not be a hindrance to make changes in the system configuration and settings, such as re-branding and customizing textual and graphical elements. I also need the possibility to customize functional aspects of the system such as facets, search scopes, search fields, and normalization rules.

U26 - Statistics

As an analytics librarian, I want to collect comprehensive usage data and user behavior statistics for our library's collections, resources, and services. This includes search queries, use of UI elements, preferred database interfaces, and user pathways, while respecting user privacy. The gathered data will aid in providing valuable insights to both the acquisition and discovery teams, facilitating better collection development and fund allocation. This process will help us understand which resources generate the most user engagement, how users access subscribed resources, and how resources are used.

U27 - Booking of audiovisual equipment

As a bachelor student in journalism, I want to book a sound recorder to use when I am conducting an interview next week. I open the library’s home page, find the link that directs me to the Discovery System and a result list with all the audiovisual equipment that is available only to journalism students. I find the sound recorder I want to borrow, log on and click the request button. I fill out the Start date (e.g. 5 days ahead) and End date (e.g. 7 days ahead) fields and submit the request.

U28 - Search instance for a specific data set

As a local system administrator for The National Library, I want to be able to create a search instance (and a landing page) for a specific dataset (The National bibliography and the Sami bibliography) in which all search and navigation is confined to this dataset.

U29 - Managing links to National Library's digital library

As a consortium / National library, we want the possibility to manage links from a bibliographic record to the digitized version in the National Library's digital library (Nettbiblioteket) with explanatory text regarding access. (Even though the content is in Nettbiblioteket, you have to fulfill certain criteria to gain access, and we want this communicated effectively.) We also want the possibility to remove the links in discovery for a given subset.

NATIONAL LIBRARY OF NORWAY

U30 - Journal management

As a librarian at the National Library, I want the creation of expected issues for a periodical title to be automated. I want to configure the frequency of each periodical in advance so that when I receive new issues, the system automatically generates the next expected issue with the correct numbering and expected receipt date. Additionally, I want the ability to change the numbering and expected receipt date for expected issues, as well as the option to delete them. This will allow me to efficiently manage, follow up on, and receive a large number of subscriptions for legal deposit printed periodical publications.

U31 - Receiving and tracking of physical copies

As a librarian at the National Library, I want to be able to order and receive copies for all the library's different departments in the same process. I also want to track the copies as they are sent from the receiving library to the library where they will be shelved and configure rules for how this should work for each library. For some distant libraries, I need to configure a transit period, but for others, this is unnecessary as the items are shelved directly after receipt. This will help me to always know the location of the copies.

U32 - Managing orders and claims

As a librarian working with legal deposit, I want to be able to see all the publications that the library has ordered and received. As a minimum, I want to be able to filter these orders by vendor, title, date, status, and acquisition type, and I also want to be able to see all outstanding legal deposit orders that will be claimed. This will provide me with information on vendors who fail to deliver as expected, enabling me to follow up accordingly. It will also make it possible for me to identify and cancel orders that we don't anticipate will be fulfilled. Moreover, I will also be able to provide legal deposit vendors with information on all titles they have deposited to the National library, making it easier for them to comply with the legal deposit requirements.

U33 - Claims functionality

As a librarian working with legal deposit, I want the LSP to automatically send claims via email to all vendors for whom we have outstanding materials with exceeded expected receipt dates. The emails should display enough information on the title to make it possible to identify it, and the number of copies the vendor should deposit for each title. Additionally, I want the ability to toggle the reminder functionality on and off for specific material types, such as books and journals. Sometimes, the National library receives large amounts of publications at the same time, and receiving these in the LSP may take some time. It is important that the library does not send out claims for publications we have already received.

U34 - Batch recording of journal issues

As a librarian at the National Library, I want to be able to process multiple volumes of periodicals in the same operation, without recording each item record manually. I would like to be able to enter into the LSP the number of issues that should be generated, and the range enumeration/chronology that should be used. Based on this information, the LSP should be able to create item records automatically for each issue and for several journal volumes.

U35 - Customizing letters

As a librarian at the National Library, I want to be able to customize patron-facing letters. I want to be able to change the content of the letter, and I also want to be able to change the layout, for instance to add the institution’s logo. I also want to be able to configure what email the letter is sent from, so that an email regarding an overdue loan is not sent from the same email as a letter regarding legal deposit of a book.

U36 - Automatic and manual handling of claims

As a librarian at the National Library, I need the LSP to automatically generate claims based on the expected receiving date of items. In addition to this I also need the ability to manually control when claims are sent out, both for individual orders and for multiple orders simultaneously. Due to the large volume of active orders at the National Library, it is not feasible for me to manually send claims for every single order, but I do need the flexibility to do so for specific orders when necessary. For example, I may want to delay claims if I've recently communicated with a vendor regarding the ordered publications or if the publication date for a title has changed.

U37 - Receiving material directly after ordering

As a librarian working with legal deposit, I want to be able to receive material directly, at the same time as I am creating an order for it. I do not want to send all legal deposit orders to the vendor. The National Library must record order information for all legal deposit publications to be able to verify that it is delivered, and by who. However, the vendor is obligated to send their publications to the National Library without us needing to request it, and a lot of publications arrive at the library without having been previously ordered.

U38 - Managing vendors

As a librarian working with legal deposit, I need to be able to search for all recorded information in the vendor registry. As a minimum, it should be possible to search for the following: name, ID, alternative name, email, organization number, supplier type, status, and notes. This will allow me to identify the correct vendors and avoid duplicates. I also need to be able to generate a report (in Excel/CSV file) containing all vendors or a selection of vendors. The report must contain the following information: Vendor name, address, email address, organization number, supplier type, alternative name, ID, status, notes, who created the vendor and when it was created. I need this information to be able to contact vendors to send them information regarding legal deposit. In addition, I need it to make sure that the information in the registry is up to date and correct, and to proofread new vendor records.

U39 - Loan and copy requests

As a resource-sharing collection managed in an external system (MARC-based) outside of the LSP I want to

- receive localization and loan/copy requests encoded according to a standard I support, e.g. SRU and NCIP (Norwegian profile). The requests must contain all information I need to identify and localize the requested items correctly,

so that resource sharing from my collection can be handled efficiently.

U40 - Provenance data management

As a metadata manager at the National Library, I want to be able to

- Maintain granular information about metadata provenance, both in the catalogue and in the authority file, including information about rights holder to the various elements. In particular, I need to be able to declare editing rights of certain metadata elements as exclusive to the National Library or some agent appointed by the National Library

so that I can manage data of national significance in a secure way.

U41 - Entity-based cataloguing

As a cataloguer/metadata creator, I want to be able to

- Create entity-based metadata according to LRM / RDA official, using application profiles suitable for the type of resources I describe against which any manual input must be checked by the system

So that our metadata become good quality linked data following a recognized standard

U42 - Editing facilities

As a cataloguer/metadata creator, I want to be able to

- perform multiple updates in one operation (bulk editing)
- express that an entity (Work, expression, manifestation) belongs to one or more bibliographies or virtual collections, even in cases where no library in the consortium owns a holding of the entity in question

so that our metadata becomes linked data following a recognized standard.

Metadata management

U43 - Synchronization with other systems at the National Library

As the National Library, I want

- the system to interoperate with my internal systems and deposit-handling processes in a safe and secure manner, in particular
    - National Library's digital library (Nettbiblioteket)
    - The partly automized processes handling incoming material
    - Metadata Well (to be realized)

so that incoming material becomes available for users as soon as possible, described by correct metadata that stays consistent with corresponding descriptions in the Metadata Well.

U44 - Editing facilities targeted towards data maintenance

As a metadata manager at the National Library, I want to be able to

- Identify and correct errors and peculiarities in my data easily, for example by
    - Searching for entities lacking certain properties or relationships (e.g. orphan manifestations, entities not included in any bibliography, …)
    - Searching for entities with properties which value is not of the right kind or does not follow a required pattern, or does comply to a given pattern
    - Identifying the range of applied values for certain properties (e.g. which content types are represented in the catalogue)
    - Correct systematic errors by bulk editing

so that I can maintain good metadata quality in an efficient manner

Metadata management – Authorities

U44 - Basic support for authority look-up and identification

As a cataloguer/metadata creator, I want to be able to

- search and retrieve authorities in selected authority files, external vocabularies, and other sources, directly from the LSP

so that bibliographic entities can be linked to authorities seamlessly and effectively

U45 - Advanced support for authority look-up and identification

As a metadata manager at the National Library, I want to be able to

- verify authorities with minimal manual labor, by automatic matching of proposed entities to selected sources like ISNI, VIAF, Discogs, Orcid, Wikidata, etc.

so that metadata can be linked to correct authorities in an efficient manner.

U46 - New authority sources

As a metadata manager at the National Library, I want to be able to

- introduce new authority sources whenever expedient

so that the bibliographic entities to the greatest extent possible are linked to defined authorities.

Data import

U47 - Efficient data import

As a metadata manager at the National Library, I want to be able to

- Import large sets of metadata in an efficient and scalable yet controlled manner. This involves
    - Facilities to set up and run automated ingest from specific aggregators, like Bokbasen, Orchard, and more (~10 aggregators)
    - Facilities to set up and run automated ingest from our internal deposit-handling processes
    - Advanced, configurable matching and merging facilities between incoming and existing data

so that the data-flow into the catalogue goes as smoothly as possible, keeping the catalogue up to date, with consistent, non-duplicate data.

U48 - Importing data in multiple formats

As a metadata manager at the National Library, I want to be able to

- Import metadata in different formats/models, for example MARC, Dublin Core, and linked data according to RDA Elements and BIBFRAME. For this I need good support to define conversions from these formats to the native format of the system

so that we get a large supply of sources from which to enrich the catalogue, thereby minimizing the need to describe resources that are already described by others.

Data export / Data delivery

U49 - Exporting library data

As a collection manager, I want to be able to

- Export data about a collection, e.g. bibliographic data, holding data and circulation data

so that I can obtain reliable information about the library's collections and their use.

U50 - Exporting data for analysis

As a data manager, I want to be able to

- Export metadata as downloadable datasets

so that I can analyze the data off-line using suitable tools.

U51 - Delivering data for third party service providers

As a third-party service provider, I want to be able to

- Utilize any open subsets of the metadata, selecting from a variety of consumption methods, like

    - Harvest via OAI-PMH, possibly limited to certain sets, timespans and metadata formats
    - Perform lookups into the catalogue from my own system environment (API)
    - Query LRM/RDA data from a SPARQL endpoint
    - Download datasets as ready-made files
    - Extract both MARC21 and linked data compliant with LRM/RDA

so that I get access to the data I need for building my services, in the way that best suits my operation.

U52 - Delivering data in many formats

As a metadata manager, I want to be able to

make my metadata available for others in a variety of ways and in several formats:

- On a harvestable OAI-server
- As downloadable data dumps
- On a SPARQL endpoint
- Via APIs
- As MARC21, Dublin Core and linked data compliant to LRM/RDA,

where all data delivery endpoints and APIs are reliable and have sufficient (and scalable) capacity to handle frequent queries,

so that both external and internal data consumers can extract data efficiently and securely.

U53 - Interoperability with other internal systems

As a collection in the National Library managed in the Bibliofil system (the Depot Library), I want to

- Receive metadata for all newly acquired material in the System catalog that is also to be included in the Depot Library. The data must be transferred as soon as possible after registration in the System, in the form of MARC21 records.
- Receive metadata updates concerning resources with holdings both in the Depot Library and in some Consortium library. The data must be transferred as soon as possible after changes are made, in the form of updated MARC21 records.

so that my in-house catalogue is kept up to date at all times.

Fulfillment

U54 – Creation of temporary items

As a Librarian managing items for reading room use, I want to be able to create a temporary item that can be loaned to patron and deleted after use. When a user requests a journal in the reading room, it is impractical to check out individual issues, and sometimes the issues are not even registered. A temporary item would need the possibility to enter bibliographic information ("Samtiden" 1960-1965. Two volumes and three issues).

U55 - Interlibrary lending from the Depot Library to libraries in the consortium

As a key ILL provider (the Depot Library), I want to receive localization requests in a form compliant to a standard that I support, e.g. SRU, so that items in the Depot Libraries are identified and localized as efficiently and correctly as possible.

As a key ILL provider (the Depot Library), I want to receive both loan and copy requests in an agreed-upon form (NCIP messages, Norwegian profile), containing all information necessary to identify and localize the requested items, so that interlibrary loans from the Depot Library is processed as efficiently as possible.

APPENDIX 4 – BIBSYS AUTHORITY FILE

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BIBSYS BARE

BIBSYS BARE is an application for supervisory registration and maintenance of the BIBSYS Authority File, which is the preferred source for authorities in the BIBSYS Consortium.

The application is mainly used by the National Library. It is important for the National Library to have full control of the National authority file, and that the BIBSYS Authority File is the master.

At the time of writing, BIBSYS BARE contains name authorities for persons and corporations. It will be extended with subject headings, uniform titles etc. at a later stage. The person authorities are exported to VIAF, and further/additional exports of e.g. corporations are up to consideration.

BIBSYS BARE is used to maintain authorities. Examples of operations available are editing, merging and deleting authorities.

The Authority File is available via REST-API's (CRUD), the SRU-protocol and OAI-PMH. Update and creation of authorities is possible through the API's and/or a web service based on SRU-U. The API's are documented and available via a Swagger interface (https://authority.bibsys.no/authority/). See attachments for documentation of the SRU-service.

Integration via API would be the preferred solution.

- Attachment 1 Documentation of the BIBSYS SRU-U service
- Attachment 2 Schema for BIBSYS Authority-file with connections

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Attachment 1 Documentation of the BIBSYS SRU-U service

Introduction:

This document specifies a protocol for updating records. Currently only 1 service is supported: Authority

There is no widely used, well-defined standard for updating record data. The best alternative is SRU/Update, which is an accepted standard, even though it is lacking in some places (in particular authentication[1] and error conditions).

Sikt has chosen SRU/Update as the basis for its update service.

This document specifies the extensions Sikt has added to its SRU/U implementation. The extensions are mainly for authentication and error handling/recovery.

Since authentication and confidentiality/integrity is not covered by the SRU/U standard, they must be handled by other means (eg. IP-filter/SSL/TLS/XMLSec or proprietary extensions)

This service can be used for:

- creating new records
- replacing data on existing records[2]
- deleting existing records

One request is required for each record to be updated. No bulk update is supported. This is a limitation of the SRU/U specification.

Protocol

Envelope

The envelope is standard SRU/U xml version 1.0
(The envelope is marked in yellow)

```
<ucp:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:ucp="http://www.loc.gov/zing/srw/update/">
```

[1] Authentication is not fully covered by the SRU/U specification, resulting in the need for additional service specific extensions. SRU/U has made some guidelines/recommendations for an authentication extension (http://www.loc.gov/standards/sru/resources/authentication.html) <auth:token> with namespace "info:srw/extension/2/auth-1.1". Sikt does not use this element.

[2] The BIBSYS update service supports the "replace" action using the <editReplace> structure in <extraRequestData>. The <srw:record> element must be empty or missing in this case. Sikt does not currently support fully replacing a record using the <srw:record> element

```
        <srw:version></srw:version>
        <ucp:action></ucp:action>
        <ucp:recordIdentifier></ucp:recordIdentifier>
        <srw:record>
                <srw:recordPacking></srw:recordPacking>
                <srw:recordSchema></srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Bibliographic"
                        xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader></marc:leader>
                                <marc:controlfield></marc:controlfield>
                                <marc:datafield></marc:datafield>
                        </marc:record>
                </srw:recordData>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData>
                        <bibsys:authVersion></bibsys:authVersion>
                        <bibsys:userid></bibsys:userid>
                        <bibsys:authenticationToken></bibsys:authenticationToken>
                </bibsys:authenticationData>
                <editReplace></editReplace>
        </srw:extraRequestData>
</ucp:updateRequest>
```

(<editReplace> is only used with action "replace")

Embedded record data

Sikt has chosen ***marcxchange*** as the xml format, and ***marc21*** as the metadata format (The embedded record data is marked in green)

```
<ucp:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:ucp="http://www.loc.gov/zing/srw/update/">

        <srw:version></srw:version>
        <ucp:action></ucp:action>
        <ucp:recordIdentifier></ucp:recordIdentifier>
        <srw:record>
                <srw:recordPacking></srw:recordPacking>
                <srw:recordSchema></srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Bibliographic"
                        xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader></marc:leader>
                                <marc:controlfield></marc:controlfield>
                                <marc:datafield></marc:datafield>
                        </marc:record>
                </srw:recordData>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData>
```

```
                    <bibsys:authVersion></bibsys:authVersion>
                    <bibsys:userid></bibsys:userid>
                    <bibsys:authenticationToken></bibsys:authenticationToken>
                </bibsys:authenticationData>
                <editReplace></editReplace>
        </srw:extraRequestData>
</ucp:updateRequest>
```

Authentication data

(marked in pink)

```
<ucp:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:ucp="http://www.loc.gov/zing/srw/update/">

        <srw:version></srw:version>
        <ucp:action></ucp:action>
        <ucp:recordIdentifier></ucp:recordIdentifier>
        <srw:record>
                <srw:recordPacking></srw:recordPacking>
                <srw:recordSchema></srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Bibliographic"
                        xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader></marc:leader>
                                <marc:controlfield></marc:controlfield>
                                <marc:datafield></marc:controlfield>
                        </marc:record>
                </srw:recordData>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData>
                        <bibsys:userid></bibsys:userid>
                        <bibsys:authenticationToken></bibsys:authenticationToken>
                        <bibsys:authVersion></bibsys:authVersion>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</ucp:updateRequest>
```

Response

For actions **create** and **replace**, the updated record data is echoed in the response (the record as it stored in the BIBSYS database). For **delete**, a true/false status is returned.

Authentication

According to the SRU/U specification,

```
<extra[Request|Response]Data>
```

can contain elements that might be specific to the service.
Sikt uses this element to transfer authentication data (and the <editReplace> element when action=replace).

There is no authenticated session created. There is no login or logout procedure. Instead, each update request is authenticated.

The current version implements a challenge-response protocol.

At the request of the client, Sikt might also support XML Security, using a <Signature> element in <extraRequestData> to convey a cryptographic signature for the complete xml structure.

Request from client:

```
<extraRequestData>
        <bibsys:authenticationData>
                <bibsys:userid>
                <bibsys:authenticationToken>
                <bibsys:authVersion>
        </bibsys:authenticationData>
</extraRequestData>
```

userid: value assigned by Sikt (hex encoded binary string)
authVersion: Currently only the value '1' is valid (which indicates the HmacSHA256 256bit Challenge Response protocol specified in this document)
authenticationToken: A response to a challenge (the nonce) sent by the server. 256-bit hex encoded binary for HmacSHA256.

Response from server:

```
<extraResponseData>
        <bibsys:authenticationData>
                <bibsys:nonce>
                <bibsys:authVersion>
        </bibsys:authenticationData>
</extraResponseData>
```

nonce: a hex encoded binary value used as input to HmacSHA256.

Each client is assigned a unique userid and secret key (256-bit for HmacSHA256).

How to calculate authenticationToken:

1. Decode secret key from hex to binary
2. Decode nonce from hex to binary
3. token = HmacSHA256(secretKey, nonce)
4. Hex encode token (server ignores case)

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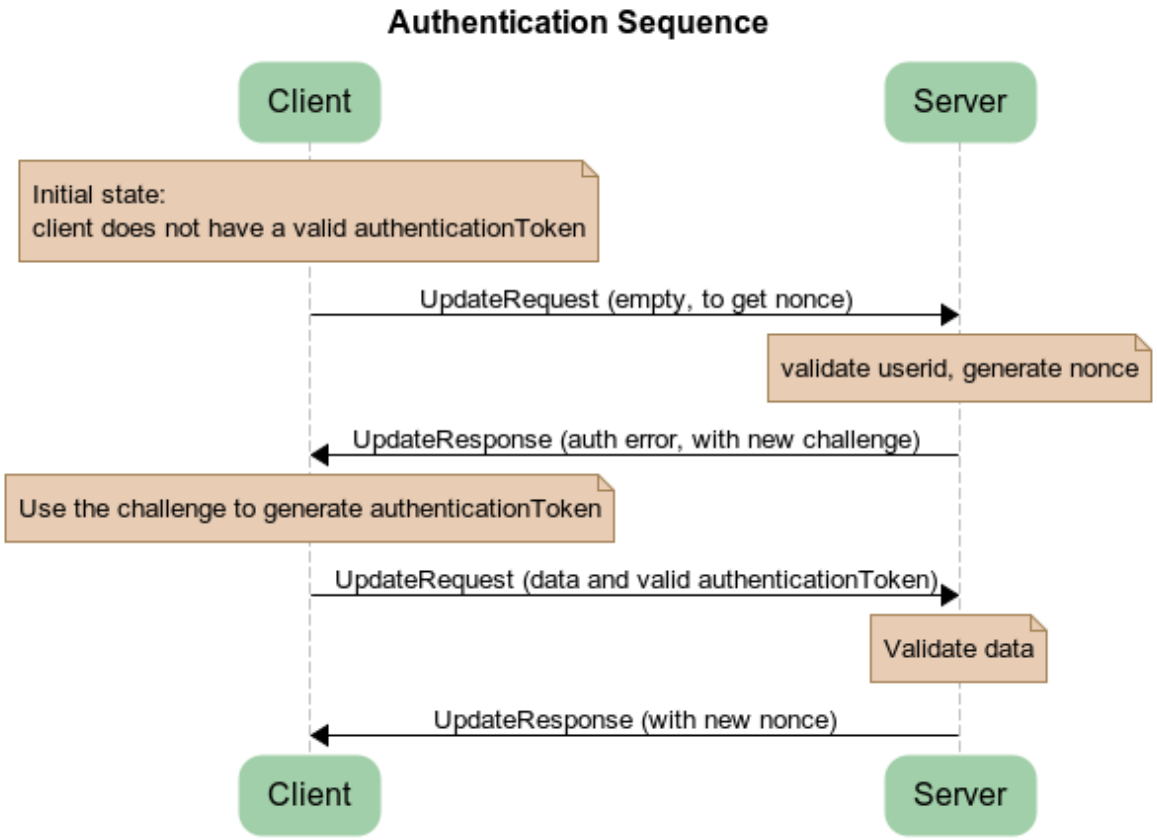
Test vectors for generating authenticationToken using HmacSHA256:

SecretKey	da39708f7f57ed1d7963fbf2ceb2aefae84af1928a5967718c466f6c4da69d6b
Nonce	d3fff685d8150b4807a15d80bc3e4ed3a888bfde48056c570cce9ef961a9a906
Authentication Token	cea80f0e300722cfcc0c875ea0e8896c751ad356cf68786a4bcfa19e423d2c8f



Description:

Initial State: client does not have a valid authenticationToken

Client sends a request to the server with its userid and authVersion in <extraRequestData> (the request may contain the actual data to be updated, or just an empty request. The server will just ignore the data anyway)[3]

Server validates the userid and returns a nonce[4]

Client generates an authenticationToken using its secret key and the nonce, adds the authenticationData to the update request, and submits it to the server

[3] This effectively creates an update chain, where the client needs to send 2 requests in the initial step
[4] The nonce is valid only for the next request, and only for a maximum of XX minutes (the session timeout)

Server validates the authenticationToken (and validates xml/data). If successful, the update is commited.

Server returns a response with a new nonce (a new nonce is returned regardless of an valid/invalid authenticationToken or data, as long as the xml and userid is valid).

Summary of client requirements:

- URL for the Sikt SRU/U service
- Static IP/hostname (used by Sikt for weakly authenticating the request origin)
- Userid and secretKey assigned by Sikt
- HTTP Client that can handle session cookies (session is used by Sikt to link nonce to authenticationToken)
- HTTP Client that supports SSL/TLS[5]
- SRU/U client implementation according to the SRU/U version 1.0 specification
- Logic that encapsulates marc21 data in marcxchange xml (The actual requirements for the marc21 metadata is specific to the service being updated (eg. authority/bibliographic))
- Some minor additions to handle Sikt specific authentication elements in `<extra[Request|Response]Data>`
- Retry functionality for error conditions that can be retried without user interaction (eg auth error)
- Functionality for logging/handling failed requests that must be manually corrected before being retried
- HmacSHA256 library (see example java code)

What the server does:

1. attempts to validate the xml (the complete structure must be well formed, and envelope must be according to SRU/U v1.0)
2. perform authentication and authorization using the data in <extraRequestData>
3. attempt to parse the data contained in the <record> element (according to a supported schema, eg. marcxchange)
4. check the status/authorization requirements for this recordId[6]
5. Finally the update will be committed, and the server will return a response, including a new nonce.

The reasons for using a authenticationToken and not just username and password sent over SSL/TLS, is to protect the password/key from ending up in server logs etc. (This is also one of the reasons for requiring an authenticationToken on each request)
Another reason is to provide additional protection, and since this is a M2M interface, the authenticationToken can automatically be calculated by the client on each request

Using this method, the client is also effectively authorizing the update ("Use my client account to

[5] The requirement for SSL/TLS is to preserve integrity of data and prevent session hi-jacking (confidentiality is not currently a requirement, but might be at a later point if sensitive data is to be updated)
[6] The authenticationToken is only for access to the update service. The update request might fail authorization at lower layers, eg. if the particular record requires a different user role/status (Record only writable for librarians with extended privileges, kat2/kat3)

perform this update")

This method results in a form of continuous authentication

A future revision of the Sikt Update service might add support for SRU/U WebService (eg. SOAP wrapping), and/or XML-Security.

Error conditions

Since this service is meant to be used in a Machine-to-machine (M2M) interface, error recovery might not be possible without human interaction. Two general types of error conditions can be encountered: Conditions that can be automatically retried by the client at a later point (with or without a delay), and conditions that cannot be retried without modifying the request (possibly requiring human interaction).

Thie tables contains a list of the diagnostics currently used by BIBSYS. SRU and SRU uses 2 namespaces *srw: info:srw/diagnostic/1 ucp: info:srw/diagnostic/12*

General errors

Diagnostic namespace/error code	Usage / reason	Error text
srw:1 - General system error	Non-secure connection	Not HTTPS
	XML parsing error	<illegal text from request>
	Illegal character / character set	<illegal text from request>
srw:3 Authentication error	Wrong username / password	Wrong username / password
ucp:9 - Missing mandatory element: record rejected	version or action element is missing from request	<element> missing
ucp:53 - Cannot delete or replace record or component, authorization failure	User trying to change data without necessary privileges	

Errors when doing create request

Diagnostic namespace/error code	Usage / reason	Error text
ucp:25 - Invalid record identifier : data corrected by server	<RecordIdentifier> given	
ucp:58 - Suspect duplicate: record or component insert rejected	Duplicate record	Existing record echoed in response

Errors when trying to replace

Diagnostic namespace/error code	Usage / reason	Error text

ucp:55 - Cannot process update, incorrect or invalid version	Trying to update something other than latest version	
ucp:50 - Record not found (replacement or delete)	Original record not found when trying to update	
ucp:65 - Not processed (replace or delete). Record identifier retrieved more than one record.	Non-unique identifier for original record	

Errors when validating record

Diagnostic namespace/error code	Usage / reason	Error text
ucp:6 - Invalid repetition of component: record rejected	Element/linenumber for incorrect data	
ucp:9 - Missing mandatory element: record rejected	Missing element	

XML Schema

These will be available from the service itself via URL

Example authentication request/response XML

a) request with authenticationToken missing or invalid

```
<srw:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ucp="info:lc/xmlns/update-v1"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:action>info:srw/action/1/create</ucp:action>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                RECORD DATA HERE
                </srw:recordData>
                <srw:extraRecordData/>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData
xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>

        <bibsys:authenicationToken>1234</bibsys:authenicationToken>
                        <bibsys:userId>123456789</bibsys:userId>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateRequest>
```

b) Response with authentication failure and new nonce

```
<?xml version="1.0" encoding="UTF-8"?>
<srw:updateResponse xmlns:ucp="info:lc/xmlns/update-v1"
xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:diag="http://www.loc.gov/zing/srw/diagnostic/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:operationStatus>fail</ucp:operationStatus>
        <srw:extraRequestData>
                <bibsys:authenticationData
xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
                        <bibsys:nonce>abcdef1234567890</bibsys:nonce>
                </bibsys:authenticationData>
        </srw:extraRequestData>
        <srw:diagnostics xmlns="http://www.loc.gov/zing/srw/diagnostic/">
                <diagnostic>
                        <uri>info:srw/diagnostic/1/3</uri>
                        <details>Invalid token</details>
                        <message>Authentication error</message>
                </diagnostic>
        </srw:diagnostics>
</srw:updateResponse>
```

c) request with valid token

```
<srw:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ucp="info:lc/xmlns/update-v1"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:action>info:srw/action/1/create</ucp:action>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                RECORD DATA HERE
                </srw:recordData>
                <srw:extraRecordData/>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData
xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>

        <bibsys:authenicationToken>aabbccddeeff</bibsys:authenicationToken>
                        <bibsys:userId>123456789</bibsys:userId>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateRequest>
```

d) successful response (with new nonce)

```
<?xml version="1.0" encoding="UTF-8"?>
```

```
<srw:updateResponse xmlns:ucp="info:lc/xmlns/update-v1"
xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:diag="http://www.loc.gov/zing/srw/diagnostic/"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:operationStatus>success</ucp:operationStatus>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                RECORD DATA HERE
                </srw:recordData>
                <srw:extraRecordData/>
        </srw:record>
        <srw:extraRequestData>
                <bibsys:authenticationData
xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
                        <bibsys:nonce>ffffcccc1111</bibsys:nonce>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateResponse>
```

HmacSHA256 Java Example

```
import java.security.InvalidKeyException;
import java.security.NoSuchAlgorithmException;
import javax.crypto.Mac;
import javax.crypto.spec.SecretKeySpec;

public class TokenGenerator {

    public static byte[] generateHMac(byte[] secretKey, byte[] data, String
algorithm) {

        SecretKeySpec signingKey = new SecretKeySpec(secretKey, algorithm);

        try {
            Mac mac = Mac.getInstance(algorithm);
            mac.init(signingKey);

            return mac.doFinal(data);
        } catch (InvalidKeyException e) {
            throw new IllegalArgumentException("Invalid secret key provided
(key not printed for security reasons!)");
        } catch (NoSuchAlgorithmException e) {
            throw new IllegalArgumentException("Algorithm not supported: "
+ algorithm, e);
        }
    }


    public static void main(String[] args) throws Exception {
```

```
        byte[] nonceBytes = null;//Decode from hex
        byte[] secretKeyBytes = null; //Load from file

        byte[] token = generateHMac(secretKeyBytes, nonceBytes,
"HmacSHA256");

        //Hex encode token before returning to server

    }
}
```

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tjenesteleverandør

Create request

```
<srw:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ucp="info:lc/xmlns/update-v1" xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:action>info:srw/action/1/create</ucp:action>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Authority" xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader>99999nz  a2299999n  4500</marc:leader>
                                <marc:controlfield tag="001">x90051048</marc:controlfield>
                                <marc:controlfield tag="003">NO-TrBIB</marc:controlfield>
                                <marc:controlfield tag="005">19910422000000.0</marc:controlfield>
                                <marc:controlfield tag="008">910422n  adznnaabn|         |a|ana|
                               </marc:controlfield>
                                <marc:datafield tag="035" ind1=" " ind2=" ">
                                        <marc:subfield code="a">(NO-TrBIB)x90051048</marc:subfield>
                                </marc:datafield>
                                <marc:datafield tag="040" ind1=" " ind2=" ">
                                        <marc:subfield code="a">NO-TrBIB</marc:subfield>
                                        <marc:subfield code="b">nob</marc:subfield>
                                        <marc:subfield code="c">NO-TrBIB</marc:subfield>
                                        <marc:subfield code="f">noraf</marc:subfield>
                                </marc:datafield>
                                <marc:datafield tag="042" ind1=" " ind2=" ">
                                        <marc:subfield code="a">norbibl</marc:subfield>
                                        </marc:datafield>
                                <marc:datafield tag="100" ind1="1" ind2=" ">
                                        <marc:subfield code="a">Konar, Andreas</marc:subfield>
                                </marc:datafield>
                        </marc:record>
                </srw:recordData>
                <srw:extraRecordData/>
        </srw:record>
```

```
        <srw:extraRequestData>
                <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
                        <bibsys:authenicationToken>hemmelig</bibsys:authenicationToken>
                        <bibsys:userId>dddsd</bibsys:userId>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateRequest>
```

Response from server:

```
<srw:updateResponse xmlns:ucp="info:lc/xmlns/update-v1" xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:diag="http://www.loc.gov/zing/srw/diagnostic/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <srw:version>1.0</srw:version>
        <ucp:operationStatus>success</ucp:operationStatus>
        <ucp:recordVersions>
                <ucp:recordVersion>
                        <ucp:versionType>datestamp</ucp:versionType>
                        <ucp:versionValue>2013-04-30T14:46:38Z</ucp:versionValue>
                </ucp:recordVersion>
        </ucp:recordVersions>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Authority" xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader>99999nz  a2299999n  4500</marc:leader>
                                <marc:controlfield tag="001">123456789</marc:controlfield>
                                <marc:controlfield tag="003">NO-TrBIB</marc:controlfield>
                                <marc:controlfield tag="005">19910422000000.0</marc:controlfield>
                                <marc:controlfield tag="008">910422n  adznnaabn|         |a|ana|
                               </marc:controlfield>
                                <marc:datafield tag="035" ind1=" " ind2=" ">
                                        <marc:subfield code="a">(NO-TrBIB)x90051048</marc:subfield>
```

```
                        </marc:datafield>
                        <marc:datafield tag="040" ind1=" " ind2=" ">
                                <marc:subfield code="a">NO-TrBIB</marc:subfield>
                                <marc:subfield code="b">nob</marc:subfield>
                                <marc:subfield code="c">NO-TrBIB</marc:subfield>
                                <marc:subfield code="f">noraf</marc:subfield>
                        </marc:datafield>
                        <marc:datafield tag="042" ind1=" " ind2=" ">
                                <marc:subfield code="a">norbibl</marc:subfield>
                        </marc:datafield>
                        <marc:datafield tag="100" ind1="1" ind2=" ">
                                <marc:subfield code="a">Konar, Andreas</marc:subfield>
                        </marc:datafield>
                </marc:record>
        </srw:recordData>
        <srw:extraRecordData/>
</srw:record>
<srw:extraResponseData>
        <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                <bibsys:authVersion>1</bibsys:authVersion>
                <bibsys:nonce>abcdef1234567890</bibsys:nonce>
        </bibsys:authenticationData>
</srw:extraResponseData>
</srw:updateResponse>
```

Edit/Replace request

```
<srw:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ucp="info:lc/xmlns/update-v1" xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:action>info:srw/action/1/replace</ucp:action>
        <ucp:recordIdentifier>123456789</ucp:recordIdentifier>
        <srw:extraRequestData>
                <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
```

```
                        <bibsys:authenicationToken>hemmelig</bibsys:authenicationToken>
                        <bibsys:userId>dddsd</bibsys:userId>
                </bibsys:authenticationData>
                <srw:editReplace>
                        <srw:dataIdentifier>100 / a / 001</srw:dataIdentifier>
                        <srw:oldValue>Konar, Andreas</srw:oldValue>
                        <srw:newValue>Konar, Anders</srw:newValue>
                        <srw:editReplaceType>R</srw:editReplaceType>
                </srw:editReplace>
        </srw:extraRequestData>
</srw:updateRequest>
```

Response from server:

```
<?xml version="1.0" encoding="UTF-8"?>
<srw:updateResponse xmlns:ucp="info:lc/xmlns/update-v1" xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:diag="http://www.loc.gov/zing/srw/diagnostic/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:operationStatus>success</ucp:operationStatus>
        <ucp:recordVersions>
                <ucp:recordVersion>
                        <ucp:versionType>datestamp</ucp:versionType>
                        <ucp:versionValue>2013-04-30T14:48:38Z</ucp:versionValue>
                </ucp:recordVersion>
        </ucp:recordVersions>
        <srw:record>
                <srw:recordPacking>xml</srw:recordPacking>
                <srw:recordSchema>marcxchange</srw:recordSchema>
                <srw:recordData>
                        <marc:record format="MARC21" type="Authority" xmlns:marc="info:lc/xmlns/marcxchange-v1">
                                <marc:leader>99999nz  a2299999n  4500</marc:leader>
```

```
                        <marc:controlfield tag="001">123456789</marc:controlfield>
                        <marc:controlfield tag="003">NO-TrBIB</marc:controlfield>
                        <marc:controlfield tag="005">19910422000000.0</marc:controlfield>
                        <marc:controlfield tag="008">910422n  adznnaabn|         |a|ana|
                       </marc:controlfield>
                        <marc:datafield tag="035" ind1=" " ind2=" ">
                                <marc:subfield code="a">(NO-TrBIB)x90051048</marc:subfield>
                        </marc:datafield>
                        <marc:datafield tag="040" ind1=" " ind2=" ">
                                <marc:subfield code="a">NO-TrBIB</marc:subfield>
                                <marc:subfield code="b">nob</marc:subfield>
                                <marc:subfield code="c">NO-TrBIB</marc:subfield>
                                <marc:subfield code="f">noraf</marc:subfield>
                        </marc:datafield>
                        <marc:datafield tag="042" ind1=" " ind2=" ">
                                <marc:subfield code="a">norbibl</marc:subfield>
                        </marc:datafield>
                        <marc:datafield tag="100" ind1="1" ind2=" ">
                                <marc:subfield code="a">Konar, Anders</marc:subfield>
                        </marc:datafield>
                </marc:record>
        </srw:recordData>
        <srw:extraRecordData/>
    </srw:record>
    <srw:extraResponseData>
        <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                <bibsys:authVersion>1</bibsys:authVersion>
                <bibsys:nonce>abcdef1234567890</bibsys:nonce>
        </bibsys:authenticationData>
    </srw:extraResponseData>
</srw:updateResponse>
```

Delete request

```
<srw:updateRequest xmlns:srw="http://www.loc.gov/zing/srw/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:ucp="info:lc/xmlns/update-v1" xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
```

```
        <srw:version>1.0</srw:version>
        <ucp:action>info:srw/action/1/delete</ucp:action>
        <ucp:recordIdentifier>123456789</ucp:recordIdentifier>
        <srw:extraRequestData>
                <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
                        <bibsys:authenicationToken>hemmelig</bibsys:authenicationToken>
                        <bibsys:userId>dddsd</bibsys:userId>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateRequest>
```

Response from server:

```
<?xml version="1.0" encoding="UTF-8"?>
<srw:updateResponse xmlns:ucp="info:lc/xmlns/update-v1" xmlns:srw="http://www.loc.gov/zing/srw/"
xmlns:diag="http://www.loc.gov/zing/srw/diagnostic/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.loc.gov/zing/srw/ SRUUpdate.xsd">
        <srw:version>1.0</srw:version>
        <ucp:operationStatus>success</ucp:operationStatus>
        <srw:extraRequestData>
                <bibsys:authenticationData xmlns:bibsys="http://bibsys.no/authentication-v1">
                        <bibsys:authVersion>1</bibsys:authVersion>
                        <bibsys:nonce>abcdef1234567890</bibsys:nonce>
                </bibsys:authenticationData>
        </srw:extraRequestData>
</srw:updateResponse>
```

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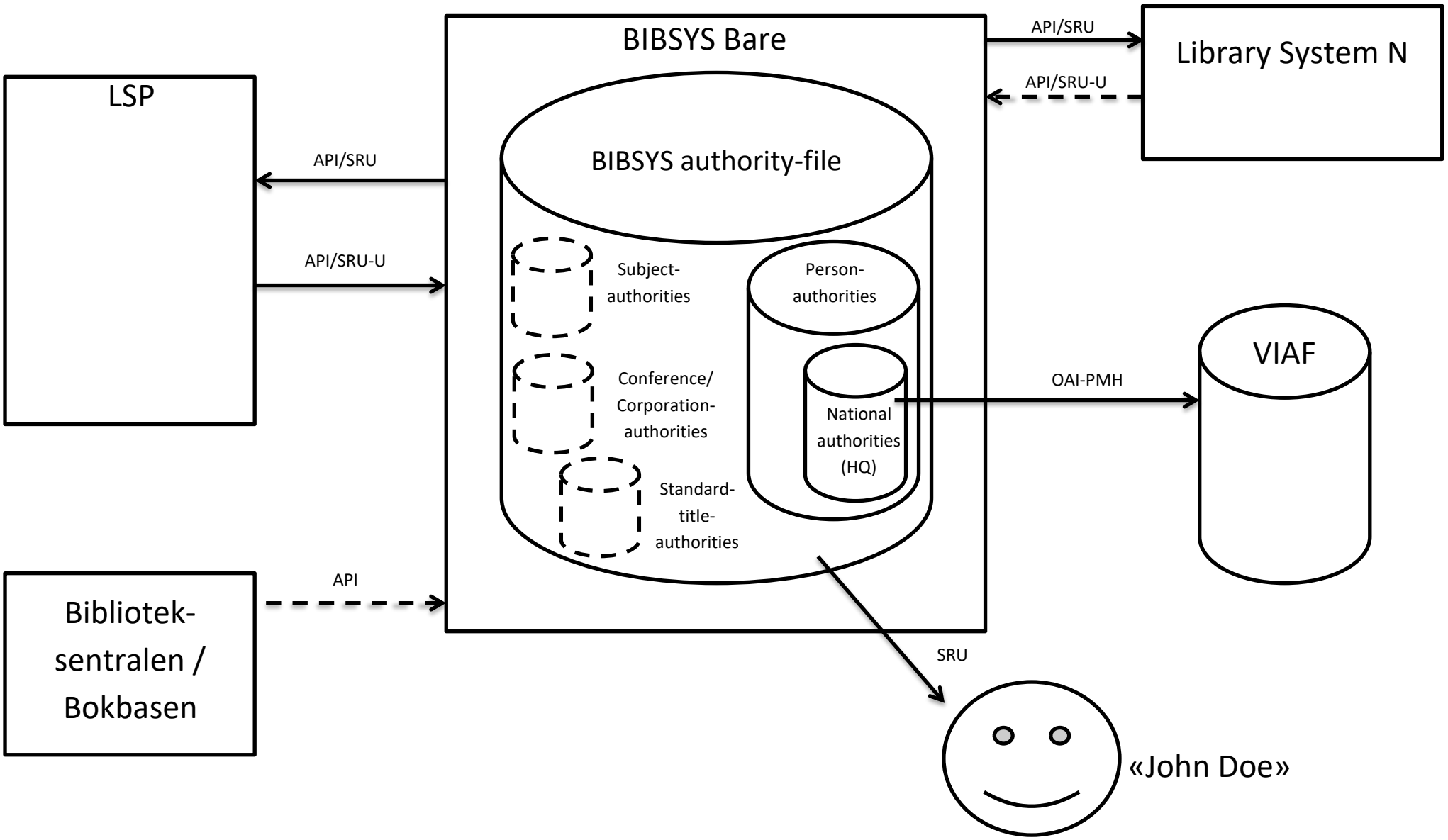
Attachment 2 Schema BIBSYS Authority-file with connections



APPENDIX 5 – NATIONAL LIBRARY STATISTICS

Required national library statistics

In addition to traditional library specific statistics, it is important for Sikt to be able to create statistics for the entire consortium.

The National Library gathers statistics from all the libraries in Norway on behalf of the government in order to create national statistics. This appendix lists requested fields that is part of the National Norwegian Library Statistics and must be provided.

Collections

For certain material types the statistics differentiate between number of unique titles and number of items.

For the moment the material types listed below are the only material types distinctly counted for. The need for an even more granulated statistic may apply in the future. It's therefore important that the analytics tool is capable of delivering as granulated reports as possible, leaving us the possibility to count exact material types if needed.

Number of titles and items in the collection

See the definition of Resource Type-table at the end of this document for specifications on what MARC fields that defines the resource types in the following table.

Books – physical form – unique titles
Books – physical form – number of items
Books – electronic form – unique titles - Should not include PDA/DDA or EDA books
Books – electronic form – PDA/DDA or EDA unique titles - Should ONLY include PDA/DDA or EDA books
Journals – physical form – unique titles - Both stopped and running subscriptions
Journals – electronic form – unique titles - Both stopped and running subscriptions
Journals – physical form – unique titles - Only running subscriptions
Journals – electronic form – unique titles - Only running subscriptions
Newspapers – physical form – unique titles - Only running subscriptions
Other serials– physical form – unique titles
Other serials– physical form – number of items
Other serials– electronic form – unique titles
Other serials– electronic form – number of items
Manuscripts – physical form – number of items
Manuscripts – electronic form – number of items
Graphical materials and maps – physical form – number of items
Graphical materials and maps – electronic form – number of items
Scores – physical form – number of items
Scores – electronic form – number of items

Audio-visual-material – physical form – number of items
Audio-visual-material – electronic form – number of items
Other material – physical form – number of items
Other material – electronic form – number of items
Realia – physical form – number of items

Library usage

Lending

Number of loans to the primary user group - not including renewals - not including realias
Number of loans to others - not including renewals - not including realias
Realia - Number of loans to others - including all user groups - not including renewals

Inter-library-loan

Number of *received* orders/requests
Number of loans to other libraries - not including renewals
Number of sent copies to other libraries - both electronic/digital and physical articles - includes copies of book extracts etc.
Number of *sent* orders/request
Number of received loans from other libraries - not including renewals
Number of received copies - both electronic/digital and physical articles - includes copies of book extracts etc.

Usage data electronic resources

Usage of databases the libraries are paying for. Free databases should not be included in the count. The data material for these fields are based on Counter 5.

Database usage – searches in databases - Counter 5 report: PR_P1, excluded search in Library catalogue. Alternatively: DR_D1
Database usage - searches in the library catalogue
Database usage – downloading and streaming - Counter 5 report TR_J1, TR_B1, IR_M1 (alternatively DR_D1)
Database usage – e-book full-text downloads - Counter 5 report TR_B1

Database usage – journal articles full-text downloads - Counter 5 report TR_J1, Open Access not included
Database usage – downloading and streaming of multimedia documents - Counter 5 report IR_M1 (alternatively DR_D1)
Database usage – downloads of Open Access articles from paid for resources - Counter 5 report TR_J3 with OAGold extracted. Alternatively, TR_J3 with TR_J1 subtracted)

Definition Resource Type

Resource Type	**Rule**
Book - Physical	LDR pos. 06 = a AND LDR pos. 7 = m AND 008 pos. 23 != a,b,c,o,f
Book - Electronic	LDR pos. 06 = a AND LDR pos. 7 = m AND 008 pos. 23 = o
Braille Book – Physical	LDR pos. 06 = a AND LDR pos. 7 = m AND 008 pos. 23 = f
Braille Serial – Physical	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 23 = f
Braille Map – Physical	LDR pos. 06 = e AND LDR pos. 7 = m AND 008 pos. 29 = f
Braille Music – Physical	LDR pos. 06 = c AND LDR pos. 7 = m AND 008 pos. 23 = f
Atlas - Physical	LDR pos. 06 = e AND LDR pos. 7 = m AND 008 pos. 29 != a,b,c,o AND 008 pos. 25 = e
Atlas - Electronic	LDR pos. 06 = e AND LDR pos. 7 = m AND 008 pos. 29 = o AND 008 pos. 25 = e
Map - Physical	LDR pos. 06 = e AND LDR pos. 7 = m AND 008 pos. 29 != a,b,c,o AND 008 pos. 25 != e
Map - Electronic	LDR pos. 06 = e AND LDR pos. 7 = m AND 008 pos. 29 = o AND 008 pos. 25 != e
Newspaper - Physical	LDR pos. 06 = a,e AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 = n AND 008 pos. 23 != a,b,c,o,f
Newspaper - Electronic	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 = n AND 008 pos. 23 = o
Journal - Physical	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 = p AND 008 pos. 23 != a,b,c,o,f
Journal - Electronic	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 = p AND 008 pos. 23 = o
Other Serial - Physical	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 != n,p AND 008 pos. 23 != a,b,c,o,f
Other Serial - Electronic	LDR pos. 06 = a AND LDR pos. 7 = i,s AND 008 pos. 06 != d AND 008 pos. 21 != n,p AND 008 pos. 23 = o

Manuscripts – Physical	LDR pos. 06 = d,f,t AND LDR pos. 7 = m AND 008 pos. 23 != a,b,c,o,f
Manuscripts – Electronic	LDR pos. 06 = d,f,t AND LDR pos. 7 = m AND 008 pos. 23 = o
Notated music- Physical	LDR pos. 06 = c AND LDR pos. 7 = m AND 008 pos. 23 != a,b,c,o,f
Notated music - Electronic	LDR pos. 06 = c AND LDR pos. 7 = m AND 008 pos. 23 = o
Audio, musical - Physical	LDR pos. 06 = j AND LDR pos. 7 = m AND 008 pos. 23 != a,b,c,o,f
Audio, musical - Electronic	LDR pos. 06 = j AND LDR pos. 7 = m AND 008 pos. 23 = o
Audio, nonmusical – Physical	LDR pos. 06 = i AND LDR pos. 7 = m AND 008 pos. 23 != a,b,c,o,f
Audio, nonmusical - Electronic	LDR pos. 06 = i AND LDR pos. 7 = m AND 008 pos. 23 = o
Projected medium - Physical	LDR pos. 06 = g AND LDR pos. 7 = m AND 008 pos. 33 = d,f,m,p,s,t,v AND 008 pos. 29 != a,b,c,o,f
Projected medium - Electronic	LDR pos. 06 = g AND LDR pos. 7 = m AND 008 pos. 33 = d,f,m,p,s,t,v AND 008 pos. 29 = o
2D non-projectable graphic - Physical	LDR pos. 06 = k AND LDR pos. 7 = m AND 008 pos. 33 = a,c,i,k,l,n,o AND 008 pos. 29 != a,b,c,o,f
2D non-projectable graphic - Electronic	LDR pos. 06 = k AND LDR pos. 7 = m AND 008 pos. 33 = a,c,i,k,l,n,o AND 008 pos. 29 = o
Kit - Physical	LDR pos. 06 = o AND 008 pos. 33 = b AND 008 pos. 29 != a,b,c,o,f
3D artifact - Physical	LDR pos. 06 = r AND 008 pos. 33 = r,w AND 008 pos. 29 != o
Microforms	008 pos. 23 = a,b,c
Other material - Electronic	LDR pos. 06 = m
Realia	To be defined
Undefined	Everything not defined above

Note:

- != equals "not like". Example: "008 pos. 06 != d" means 008 pos. 6 can be anything except d
- , equals "or". Example: "008 pos. 23 = a,b,c,o,f " means 008 pos. 23 must be like a or b or c or o or f

APPENDIX 6 – TRANSACTION TYPES DEFINITION

Transaction Types Definition

Transaction Type	*Definition*
Search	*The transaction type is characterized by the user entering a search criterion and producing a list of result records. In some cases no explicit search criteria is entered by the user, but the system will provide an implicit search criteria (eg display a list of on-order items).* *The transaction starts when the user hits the appropriate control to execute the search and completes when the result list is displayed on the screen.*
Display	*The transaction type is characterized by the user selecting an item from a result set and displaying the full detail of that selected record.* *Other 'Display' transactions may be initiated by the user selecting particular controls from a screen that cause a full detail page to be displayed.* *The transaction starts when the user selects the item to be displayed and completes when the full record has been displayed on the screen.* *For analysis of response times we separate Display transactions in to 2 categories depending on the volume of data being displayed in a record:* • ***Short record display transactions*** *– displaying records where the volume of data in the record is less than 0.5KB* • ***Long record display transactions*** *– displaying records where the volume of data in the record is greater than 0.5KB.*
Update	*The transaction type is characterized by the user requesting that some data changes that they have created be saved to the database.* *The transaction starts when the user selects to save the changes they have made and is complete when application control has returned to the user following executing the transaction. It should be noted that, to achieve very high-throughput and responsiveness transactions will be committed to the database asynchronously, meaning that control will return to the user*

	extremely quickly potentially before the actual transaction has been committed. For analysis of response times, as for Display Transactions we separate Update Transactions in to 2 categories depending on the volume of data being updated in a record: • ***Short record update transactions*** *– where the volume of data being updated is less than 0.5KB* • ***Long record update transactions*** *– where the volume of data being updated is greater than 0.5KB.*

Example Use Case 1: Editing a Patron record: "John Smith"

1. *User enters surname search criteria "Smith" and executes a* ***Search Transaction.***
2. *From the resultant list of records the user selects the appropriate record and displays in full detail by executing a* ***Short Record Display Transaction.***
3. *The User edits the patron record by changing the status of the patron for example and then saves the changes by executing a* ***Short Record Update Transaction.***

Example Use Case 2: Circulation Transaction

1. *Scan the user barcode and display user details:* ***Executes a Short Record Display Transaction.***
2. *Scan the item barcode - display item details and check-out the item to the user::* ***Executes a Short Record Display Transaction*** *followed by a* ***Short Record Update Transaction***

Example Use Case 3: Editing a Full Bibliographic Record

1. *User enters a keyword search for a particular bibliographic record and executes a* ***Search Transaction.***
2. *From the resultant list of records the user selects the appropriate record and displays in full detail by executing a* ***Long Record Display Transaction.***
3. *The User edits the bibliographic record and then saves the changes by executing a* ***Long Record Update Transaction.***

Example Use Case 4: Review and fulfill a request

1. *User enters the list of orders and executes a* ***Search Transaction.***
2. *From the resultant list of orders the user selects the appropriate entry and displays in full detail by executing a* ***Long Record Display Transaction.***
3. *The User scans the barcode and check-out the item to the user::* ***Executes a Short Record Update Transaction***

Example Use Case 5: Check and edit configuration

1. *User enters display a specific configuration of the system and executes a* ***Short/Long Display Transaction.***
2. *From the display the user enters edit mode and make changes to the configuration before saving by executing a* ***Short/Long Record Update Transaction.***