
**Information and documentation —
Performance indicators for electronic
library services**

*Information et documentation — Indicateurs de performance pour les
services électroniques des bibliothèques*

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Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Relationships with other indicators	4
4.1 The networked environment	4
4.2 Categories of performance indicators	5
4.3 The relevance of ISO 11620 to electronic library services	5
4.3.1 Indicators that apply equally to traditional and electronic library services	5
4.3.2 Indicators that apply only to traditional library services	6
4.3.3 Indicators for traditional library services where analogous indicators can be found for electronic library services	7
5 Use of performance indicators	7
5.1 Purposes	7
5.2 Selection of performance indicators	8
5.3 Limitations	8
5.3.1 Measuring the impact of electronic library services	8
5.3.2 Degree of accuracy	8
5.3.3 Comparability of performance indicator data	9
5.3.4 Indicators of temporary importance	9
Annex A List of performance indicators for electronic library services	10
Annex B Descriptions of performance indicators	12
Bibliography	31
Alphabetical index	32

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

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Introduction

This Technical Report is concerned with the evaluation of electronic library services.

The successful provision of these services depends on close collaboration between publishers, network providers, and librarians. Their needs for data about various aspects of performance are different, and the ability to collect data may not rest with the person most interested in that data. For example, the publisher may be best placed to collect data on the usage of a particular service; whereas the librarian may have most interest in using that data in developing and evaluating the service.

The main purpose of this Technical Report is to spread knowledge about the practice of evaluating electronic library services. Although electronic library services have been developed over more than thirty years, the technical environment has changed significantly in the last ten years. The need for performance indicators for electronic services was acknowledged in ISO 11620: 1998 Information and documentation - Library performance indicators. It was also acknowledged that at the time of publication of that International Standard, there were no indicators that had been tested and documented, or that were in widespread use. Although there has been significant progress in the last few years on the definition, testing and documentation of indicators, it is still too soon to determine which indicators will be most generally useful, or become widely used. This Technical Report provides a standardized terminology and concise definitions and descriptions of a selection of performance indicators, in the same format as that used in ISO 11620. Publications listed in the Bibliography [2,3,5] provide more detailed information on data collection and analysis.

Only a small number of the indicators presented here are indicators of service quality: work on this area is not yet mature enough to be included. The indicators that are included have been tested in libraries, or are simple adaptations of similar indicators. In each case they have been judged against the criteria established in ISO 11620. That is, each indicator is judged to have informative content, to be reliable, valid, appropriate, practical, and in some circumstances may be used for comparative purposes.

The indicators presented in this Report are a representative selection of those which have been tested. A further selection would have taken longer to prepare, and to publish. Developments in the measurement and evaluation of electronic library services will be monitored by a Working Group, which will propose additional indicators, and modifications or adaptations to the indicators here as they are tested and validated. This Technical Report should be considered as work in progress towards the development of an International Standard. It is intended that, where appropriate, the contents of this Technical Report will be incorporated in a future revision of ISO 11620.

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Information and documentation — Performance indicators for electronic library services

1 Scope

This Technical Report is applicable to all types of libraries in all countries. Limitations on the applicability of individual performance indicators are listed in the scope clause of the description of each indicator (see Annex B).

Indicators may be used for comparison over time for the services provided by the same library. Comparisons between libraries and services should only be made with caution, taking into account differences in the constituencies of the libraries, with good understanding of the indicators used, and careful interpretation of the data.

This Technical Report does not include indicators for the evaluation of the impact of libraries either on individuals or on society.

Throughout the text, the names of indicators are printed with initial capitals for significant words, e.g. Workstation Use Rate. This helps to distinguish the names from supporting text.

2 Normative references

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The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2789:2003, *Information and documentation — International library statistics*

ISO 5127:2001, *Information and documentation — Vocabulary*

ISO 11620:1998, *Information and documentation — Library performance indicators*

ISO 11620:1998/Amd. 1:2003, *Information and documentation — Library performance indicators — Amendment 1: Additional performance indicators for libraries*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

database

collection of electronically stored data or unit records (facts, bibliographic data, texts) with a common user interface and software for the retrieval and manipulation of the data [ISO 2789]

NOTE 1 The data or records are usually collected with a particular intent and are related to a defined topic. A database may be issued on CD-ROM, diskette, or other direct access method, or as a computer file accessed via dial-up methods or via the Internet.

NOTE 2 Licensed databases are counted separately even if access to several licensed database products is effected through the same interface.

3.2 digital document

information unit with a defined content that has been digitized by the library or acquired in digital form as part of the library collection [ISO 2789]

NOTE 1 This includes eBooks, electronic patents, networked audiovisual documents and other digital documents, e.g. reports, cartographic and music documents, pre-prints etc. Databases and electronic serials are excluded.

NOTE 2 Items incorporated in databases are covered by 3.1.

NOTE 3 A digital document can be structured into one or more files.

3.3 document

recorded information or material object which can be treated as a unit in a documentation process [ISO 5127]

NOTE Documents may differ in their physical form or characteristics.

3.4 document downloaded

full text of a document or part of a document in the electronic collection that is delivered to a user [ISO 2789]

3.5 electronic collection

all resources in electronic form in the library collection [ISO 2789]

NOTE The electronic collection includes databases, electronic serials, and digital documents. Free Internet resources which have been catalogued by the library in its OPAC or a database should be counted separately.

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3.6 electronic resource

a document in electronic form which forms a separate item with a distinctive title, whether issued in one or several units

NOTE This includes electronic books, serials, maps, but not databases.

3.7 electronic service

electronic library service which is either supplied from local servers or accessible via networks [ISO 2789]

NOTE Electronic library services comprise the OPAC, the library web site, the electronic collection, electronic document delivery (mediated), electronic reference service, user training on electronic services and Internet access offered via the library.

3.8 entry

a unit of bibliographic or factual information or multimedia objects included in a searchable database

3.9 information request

information contact that involves the knowledge or use of one or more information sources (such as printed and non-printed materials, machine-readable databases, the library's own and other institutions' catalogues) by library staff [ISO 2789]

NOTE 1 May also involve recommendations, interpretation or instruction in the use of such sources.

NOTE 2 The request can be delivered personally or by means of telephone, regular mail, fax or electronic media (via e mail, the library web site, instant messaging or other networked communications mechanisms).

NOTE 3 It is essential that libraries do not include directional and administrative inquiries, eg for locating staff or facilities, regarding opening times or about handling equipment such as reader printers or computer terminals.

NOTE 4 Inquiries are also excluded if library staff simply help the user to locate items of stock that have already been identified bibliographically.

3.10

library collection

all documents provided by a library for its users [ISO 2789]

NOTE 1 Comprises documents held locally and remote resources for which permanent or temporary access rights have been acquired.

NOTE 2 Access rights may be acquired by the library itself, by a consortium and/or through external funding.

NOTE 3 Acquisition is to be understood as deliberately selecting a document, securing access rights and including it in the OPAC or other databases of the library. Interlibrary lending and document delivery and excluded.

NOTE 4 Does not include links to Internet resources for which the library has not secured access rights by legal agreements (eg legal deposit right), license or other contractual and/or co-operative agreement. Free Internet resources which have been catalogued by the library in its OPAC or a database should be counted separately.

3.11

population to be served

number of individuals for whom the library is set up to provide its services and materials [ISO 11620]

NOTE For public libraries this will normally be the population of the legal service area (authority); for libraries of an institution of higher education this will normally be the total of academic and professional staff plus students.

3.12

rejected session (turnaway)

unsuccessful request of a database or the OPAC because of requests exceeding simultaneous user limit [ISO 2789]

NOTE Rejection through entry of wrong passwords is excluded.

3.13

remote session

a successful request of a database or the OPAC established from outside the library building (adapted from EQUINOX^[1])

3.14

session

successful request of a database or the OPAC [ISO 2789]

NOTE 1 A session is one cycle of user activities that typically starts when a user connects to a database or the OPAC and ends with explicit (by leaving the database through log-out or exit) or implicit (timeout due to user inactivity) termination of activities in the database. The average timeout period would be 30 minutes. If another time period is used this should be reported.

NOTE 2 Sessions on the library web site are counted as virtual visits.

NOTE 3 Requests of a general entrance or gateway page should be excluded.

NOTE 4 If possible, requests by search engine should be excluded.

3.15

user training

training programme set up with a specified lesson plan, which aims at specific learning outcomes for the use of library services [ISO 2789]

NOTE 1 User training can be offered as a tour of the library, as library tuition, or as a web based service for users.

NOTE 2 The duration of a lesson is irrelevant.

3.16 **virtual visit**

a user's request of the library web site from outside the library premises regardless of the number of pages or elements viewed [ISO 2789]

3.17 **web site**

electronic service that has a unique domain on the Internet and consists of a collection of digital documents [ISO 2789]

NOTE 1 The pages of a web site are usually interconnected by the use of hypertext links.

NOTE 2 Excludes the documents that fit the definitions of electronic collection and external Internet resources that may be linked from the library web site.

3.18 **workstation**

computer that may stand alone or be networked, or a dumb terminal [ISO 2789]

4 Relationships with other indicators

4.1 The networked environment

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The networked environment provides a different frame of reference for the provision of services: the boundaries between internal and external provision are different. For example, consider document delivery. In traditional library services this is represented by the interlending of physical documents between libraries. In the electronic world, document delivery is accomplished using a network. The network may be provided by a variety of external providers. Special equipment has to be installed in the libraries at both ends of document delivery process and staff have to be trained to use it. The suppliers of documents may be publishers or libraries; the end users may be directly in communication with the suppliers.

Again, the provision of equipment within the organisation of which the library forms a part, may be outside the library's own control: however, the library's performance may be judged on its service delivery even though it does not control some of the infrastructure essential to the delivery of the service.

It is because the boundaries within which electronic services operate differ from those in which traditional library services operate that comparisons between traditional and electronic library services are difficult, if not impossible. Since the extent to which different libraries have adopted electronic library services will differ then comparisons between libraries are increasingly difficult. The position is further complicated by the changes in expectations, experience and behaviour of users and of publishers. New generations of users will increasingly, at least in the developed world, be familiar with the use of computers and Internet applications generally and will expect electronic services as a matter of course. There will, however be for some considerable time significant numbers of older users who are less familiar with the concepts and practice of computer usage and will need careful support if they are not to be disadvantaged.

On the other hand, publishers are operating in a variety of ways to deal with the possibilities of electronic publishing. Long established practices in the supply of printed materials do not operate in the same way when original works are often generated in electronic format. The economics of publication in electronic formats are significantly different from those in printed formats and different charging models are being tried. The preferred format varies for electronic publications between types of publication, and may also vary from year to year; and the financial arrangements between library and publisher also vary between publications and from year to year.

Furthermore, the ability to measure the usage of publications in electronic format differs radically from that associated with print formats. It may be possible, although expensive, for a library to account for every use made of a printed document within a library: it may well be impossible for the library to count every use made of electronic documents. The publisher may be able count use made of the electronic format, while having no idea of the use made of printed documents. Effective performance measurement thus depends on new arrangements and collaboration between the copyright owners, publishers, agents, librarians and users.

A final point relates to 'Per capita' indicators. Some electronic library services (web-sites, OPACs, 'free' information services) can be accessed by anyone, and are not limited to the population to be served. In these cases, usage per capita ratios would be artificially inflated, if the data were collected automatically. If a library is interested in knowing what proportion of its population to be served is using its services remotely, those data could be collected by a conventional survey technique.

4.2 Categories of performance indicators

In defining performance indicators for electronic library services it is natural to start by seeking analogies with performance indicators for traditional library services. Reference to ISO 11620:1998 and its amendment ISO 11620/Amd. 1 show a list of 34 indicators. These are grouped in a number of categories according to Table 1.

Table 1

Service, activity or aspect measured	Sub-category
User perception	General
Public services	General
	Providing documents
	Retrieving documents
	Lending documents
	Document delivery from external sources
	Enquiry and reference services
	Information searching
	User Education
	Facilities
Technical services	Acquiring documents
	Processing documents
	Cataloguing
Promotion of services	
User services	Deployment of staff

In drawing up this technical report it has proved possible to use the same categories for the proposed performance indicators with only minor modifications (see Annex A). The applicability of the indicators in ISO 11620 is discussed in the following subclause.

4.3 The relevance of ISO 11620 to electronic library services

4.3.1 Indicators that apply equally to traditional and electronic library services

Some indicators are the same for both traditional and electronic library services. An obvious example is User Satisfaction. Others need only very slight changes to existing definitions and descriptions of methods to make it clear that they are relevant to both types of service: an example is Cost per Title Catalogued. Similarly, the group of indicators relating to providing documents: here the definitions and descriptions would need to be modified to include documents in electronic formats. There are other indicators that have analogues in the networked environment (see 4.3.3), but more substantial revision would be needed to accommodate different formats, and different bases for measurement. See Table 2.

Table 2

Service, activity or aspect measured	Performance indicator	Reference in ISO 11620
User perception: General	User Satisfaction	B.1.1.1
Public services: Providing documents	Titles Availability	B.2.2.1
	Required Titles Availability	B.2.2.2
	Percentage of Required Titles in the Collection	B.2.2.3
	Required Titles Extended Availability	B.2.2.4
Public services: Enquiry and reference services	Correct Answer Fill Rate	B.2.6.1
Public services: Information searching	Title Catalogue Search Success Rate	B.2.7.1
	Subject Catalogue Search Success Rate	B.2.7.2
Public services: Facilities	Facilities Availability	B.2.9.1
	Facilities Use Rate	B.2.9.2
	Seat Occupancy Rate	B.2.9.3
	Automated Systems Availability	B.2.9.4
Technical services: Acquiring documents	Median Time of Document Acquisition	B.3.1.1
Technical services: Cataloguing	Cost per Title Catalogued	B.3.3.1
User services; Deployment of staff	User Services Staff per Capita	B.5.1.1
	User Services Staff as a Percentage of Total Staff	B.5.1.2

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4.3.2 Indicators that apply only to traditional library services

The indicators in this group are so closely related to the physical format of documents that they have no precise equivalent in the electronic world. See Table 3.

Table 3

Service, activity or aspect measured	Performance indicator	Reference in ISO 11620
Public services: Providing documents	In-library Use per Capita	B.2.2.5
	Document Use Rate	B.2.2.6
	Proportion of Stock not Used	B.2.2.7
	Shelving Accuracy	B.2.2.8
Public services: Retrieving documents	Median Time of Document Retrieval from Closed Stacks	B.2.3.1
	Median Time of Document Retrieval from Open Access Areas	B.2.3.2
Public services: Document delivery from external sources	Speed of Interlibrary Lending	B.2.5.1
Technical services: Processing documents	Median Time of Document Processing	B.3.2.1

4.3.3 Indicators for traditional library services where analogous indicators can be found for electronic library services

In this group, the indicators for electronic services are based on the same concepts as those for traditional services, but the basis for measurement is different. For example, Library Visits per Capita would be replaced by an indicator relating virtual visits to the population to be served. The various indicators for lending documents have analogues now that digital lending is possible.

The fact that analogues can be found suggests that, in a future revision of ISO 11620, it may be necessary to devise composite indicators that integrate traditional and networked services. For example, the indicator Library Visits per Capita could be redefined to include both physical and virtual visits. Two composite indicators are included in this Technical Report: Percentage of Virtual Visits to Total Visits, and Percentage of Information Requests Submitted Electronically. Librarians may wish to create other composite measures and indicators if that proves helpful in their own circumstances. See Table 4.

Table 4

Service, activity or aspect measured	Performance indicator	Reference in ISO 11620
Public services: General	Percentage of Target Population Reached	B.2.1.1
	Cost per User	B.2.1.2
Public services: General	Library Visits per Capita	B.2.1.3
	Cost per Library Visit	B.2.1.4
Public services: Lending documents	Collection Turnover	B.2.4.1
	Loans per Capita	B.2.4.2
	Documents on Loan per Capita	B.2.4.3
	Cost per Loan	B.2.4.4
	Loans per Employee	B.2.4.5
	Proportion of Stock on Loan	B.2.4.6

5 Use of performance indicators

5.1 Purposes

The performance indicators described in this Technical Report are used as tools to compare the effectiveness, efficiency and quality of the library's services and products to the library's mission and goals. They can be used for evaluation purposes in the following areas:

- comparing a single library's performance over years
- support for management decisions, e. g. reallocating resources, introducing new services, reducing or deleting existing services
- demonstrating the library's performance and its costs to the funders, the population, and the public
- comparing performance between libraries of similar structure and mission indicators should be able to suggest
- whether the library's performance or the use of its services has changed over years
- how far performance or use in one library differs from that in other libraries.