Metadata framework for online legal information system in Indian environment

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Abstract

Purpose – This study aims to discuss the metadata structure of an online legal information system (OLIS) developed to suit the Indian environment. The OLIS is accessible online at www.olisindia.in. It contains several types of legal information resources to help lawyers, research scholars, students and the common user. The open-access OLIS helps the users to get the required information expeditiously. Dublin Core (DC) metadata standard was selected to create records in the OLIS because of ease of use and high adoption rate.

Design/methodology/approach – The OLIS was designed using the system analysis and design method after a needs assessment survey conducted in eight major legal organizations in Delhi. The OLIS, accessible at www.olisindia.in, was accessed to identify and validate the metadata elements with the DC metadata standard.

Findings – This paper discusses in detail the metadata structures of the OLIS. The system contains 15 types of resources relating to judicial and legislative information. Each database has a different metadata framework so that information desired by the legal community can be retrieved with precision and quick recall. In addition, a number of functions, such as latest news, online help, Frequently Asked Questions, query submission, online discussion forum for help and video tutorials, have been integrated into the OLIS.

Practical implications – The study guides law libraries and library professionals to follow metadata standards in building an open-access database and also provides a legal resources metadata framework that enables them to select suitable resources for their libraries.

Originality/value – The study confirms that the metadata elements set for managing judicial and legislative information are different compared to other types of scholarly information. The study can help newly established law university libraries to build legal information systems to suit their environment and satisfy the information needs of the diverse law community.

Keywords India, Metadata, Dublin Core, Information system, Judicial information, Legislative information

Paper type Research paper

1. Introduction

Information and communications technology is crucial for speedy mechanisms to decide upon disputes and deliver justice to citizens. Electronic tracking of cases helps in the grouping of cases and processing of judicial records. A database of court cases is required to trace a case registered initially in the trial court till the final judgment in the higher judiciary. Judges would also be able to track the cases, which will result in delivery of justice to citizens of India (Kalam, 2012). A metadata schema is necessary for finding the appropriate legal information. It is crucial to guide legal professionals to get the exact asset (Recker and Wiley, 2001). However, online systems designed by information technology professionals to

manage legal information failed significantly in retrieving precise records. Interestingly, searches on the "open web" yield more useful results compared to the open-source systems developed by government agencies in India to manage legal information (Bhardwaj and Madhusudhan, 2013). The errors and broken links between documents and metadata records could lead to users' dissatisfaction in using the system and also maximize chances of financial losses and project failures (Chuttur, 2014). Lack of training of staff for metadata entry and unclear guidelines in metadata creation are hindrances in system development (Ryan and Walmsley, 2003; Dushay and Hillmann, 2003). Currently, dedicated staff are responsible for handling of metadata in digital libraries, which includes controlled vocabulary and established taxonomies (Bethard *et al.*, 2009). A recent approach to metadata construction and maintenance, namely, "folksonomies", makes use of the social networking mechanism and user tagging (Strohmaier *et al.*, 2012; Lau *et al.*, 2015).

1.1 Dublin Core
Dublin Core (DC) is the most popular and widely used standard for the description of metadata of electronic resources. It was founded in the year 1995 at Ohio. Subsequently, it was approved by the National Information Standards Organization (NISO) as a standard in 2001 (NISO, 2007). The Dublin Core Metadata Initiative works as the International Organization for Standardization (ISO) maintenance agency for ISO 15836 (ISO, 2009). Metadata was developed for the description of cross-domain information resources, and its semantics underscores the lowest common denominator in resource description (Park, 2004; Park and Childress, 2009). The standard was selected to create records in an online legal information system (OLIS) because of ease of use and high adoption rate of the metadata standard. The standard was developed by a group of professionals from the fields of library and information science and computer science, the museum community and allied professions (Hillmann, 2009).

In general, the DC metadata elements represent resource description and representation in which metadata relationships are typed but are essentially non-hierarchical. Advocates of the standard assert that it fills a low-barrier level of description, which is essential for minimal description. A bibliographic record or surrogate record is the description of the information package. It is a surrogate for the item being described and not the actual item; in the case of electronic resources, it is not the entire item. The function of a surrogate is to assist the user in locating information by providing a concise description of an item. Metadata standards (schemes) ensure that it is easy to recognize parts of a surrogate.

2. Literature review
Different metadata standards are bound to coexist to manage digital contents. There are three basic steps in the creation of metadata:

(1) description (providing a description of the information package and any information necessary for its use);
(2) encoding (providing the syntax for metadata); and
(3) providing access to metadata.

Metadata consists of two parts: the description scheme and the encoding scheme. The description scheme describes what is to be included in each section (and may also describe some formatting), and the encoding scheme defines how to format the data for display or data exchange. Buckland and Larson (2005) stated that metadata can also constitute a form of infrastructure to access resources on the internet using four facets, viz., What, Where, When and Who. Metadata definitions range from very general concepts about data and "the sum

total of what one can say about any information object at any level of aggregation" (Gilliland, 2000), to more specific definitions, such as "structured data about an object that supports functions associated with the designated object" (Greenberg, 2003). Metadata definitions sometimes focus on specific uses, "structured information that feeds into automated processes" (Brand *et al.*, 2003), and sometimes on context, "the sum total of what one can say about any information object at any level of aggregation" (Gilliland, 2000). The conception of metadata can be as general as any contextual representation of an object or, in other words, anything about anything.

The DC metadata standard elements can be further divided into sub-elements and specified as qualifiers' scheme and language (Thornely, 1998). Fleming *et al.* (2008) recommended that library professionals ought to lead in maintaining the standard and continue to offer metadata creation expertise in an advisory role. The description of elements in DC can be encoded as text in XML, HTML meta tags or resource description framework (RDF). The DC records are synonyms for resource description. DC uses the elements in resource description while in machine-readable catalog (MARC); the standard uses tags, fields and sub-fields. DC has 16 elements, while MARC listed 999 tags in the standard (Coleman, 2005). In their study, Ivanovic *et al.* (2012) defined a set of metadata regarding theses and dissertations by the Common European Research Information Format (CERIF) data model. The data model can be resorted successfully in a CERIF-compatible data model based on MARC 21 format. The system on the model could exchange metadata with institutional repositories. Similar to the OLIS, Bair and Steuer (2013) also developed a pre-modern manuscript tool using a DC metadata standard to facilitate discovery of manuscripts. Powell *et al.* (2011) stated that adoption of metadata standard, namely, DC, helps libraries in storing wealthy information resources. Infosyntha prototype helps small digital libraries adapt their metadata in a standard format. It helps them to increase access to their resources. Mohamed (2006) found that meta tags are more widely used as compared to DC. However, rank order was raised tremendously by using metadata elements in web pages. Bhardwaj and Madhusudhan (2015) revealed that accessing the information using online legal resources is a cumbersome task because access instructions on online resources are not clear, and there is lack of expertise in using legal databases. Kakali (2014) postulated that users' collaboration and their vocabulary are crucial in subject description of documents in digital libraries. In addition, metadata is also significant to locate, verify, control, manage and retrieve the resource. Bilinsky (2008) stated that metadata is crucial to lawyers when making or receiving discovery and exchanging documents with opposing counsel or even with a client. Mart (2013) studied head-note of human-created key number systems in Westlaw and the head-note classification in Lexis' database generated with a computer algorithm, to know how these two systems deal with comparable case head-note. It was found that the system supplied better results with more human intervention. Osterman Research Report (2010), regarding managing metadata in law firms, described that metadata must be managed in a coordinated fashion throughout the life cycle of all electronic documents. Law firms must formulate policies about metadata creation, its management, archival and deletion. Study also found that the quantity and concentration of sensitive contents are much higher in law firms.

Chen (2015) developed a model based on RDF for shared terms, and contextual relationships between described objects and metadata elements, for a semantic representation. Fersini *et al.* (2013) described that application of semantics and machine learning techniques in the courtroom is quickly converting judicial paper files into an integrated multimedia folder. Using this technique, audio recordings and video recordings can be accessed through the internet. Furthermore, they suggested that multimedia files

should be included in the new-generation OLIS. Yates and Shapiro (2010) suggested that planning, development and implementation strategies are essential for building a legal information system. The authorities quoted above also stated that a needs assessment survey should be conducted at each phase of development. Greenleaf *et al.* (2012) observed that the Indian judicial system is complex, and public legal information must be freely available to all. Current legal resources from the government have grave limitations for access. Also, free access to the legal information system can have special significance for lawyers, law students and research scholars because a large number of people do not have access to commercial online services for legal information.

3. Objectives and methodology
The objectives of the study are as follows:

- to identify metadata elements to describe judicial and legislative information in the OLIS; and
- to know whether the OLIS conforms with the DC metadata standard.

Methodology of this study is a blend of more than one research method, because it deals with three significant aspects:

(1) identifying primary and secondary sources of information and identifying users' needs;
(2) designing of an OLIS; and
(3) development of an OLIS.

The OLIS was designed using the system analysis and design (SAD) method after a needs assessment survey, conducted in eight major legal organizations in Delhi, using a structured questionnaire circulated personally to 750 users during July to September 2013. In all, 397 filled-in questionnaires were collected by the investigator, eliciting a response rate of 52.9 per cent. The stratified random sampling technique was used in selection of survey data.

Prior to finalizing the questionnaire, a pilot study was conducted during December 1-31, 2012, to identify the defects, discrepancies, errors and flaws in the sequence of questions in the questionnaire. The final questionnaire was designed with 45 questions on the basis respondents' feedback. Before circulating among users, reliability of the questionnaire was tested using SPSS version 16, and it was found to be a reasonably reliable set of questions. The questions were designed for the respondents to state their experience with the following aspects:

- awareness of open-access legal information resources;
- rating of existing online legal information resources;
- level of satisfaction in existing online legal information resources;
- problem(s) being faced in using the online legal information resources, including open access and commercial;
- type of legal materials to be incorporated in the proposed OLIS: case laws, acts and amendments, ordinance, rules and regulations, notifications, circulars, parliamentary debates, commentaries, speeches, videos, research article, legal news, book reviews, etc.;
- kind of case laws to be incorporated in the proposed OLIS;
- search type and parameters(s) to search information in the proposed OLIS;

- potential help features;
- citation search facility, including both national and international;
- features in the proposed OLIS;
- integration of Web 2.0 tools in the proposed OLIS; and
- online training.

For majority of the questions, users were free to write their opinions. The OLIS, accessible at www.olisindia.in, was accessed to identify and validate the metadata elements with the DC metadata standard. Each module of the OLIS was accessed to ascertain the metadata fields designed in the proposed system. Any defects or errors were also rectified while accessing the metadata entry worksheet of each resource. The OLIS was tested to verify that all modules function properly. Black box testing methods have been used to test the system without bothering the internal coding.

4. Judicial documents metadata
The home page of the administrative module has provision to manage the case, add judicial cases, manage judicial cases and manage legislative information. The logout option facilitates quitting the module. To enter the record, the data operator has to choose the type of resource, i.e. case law, article, speech search, form search, audio video search or commentary search, evidence information search, citation search, etc. Thereafter, the content drop-down window allows choosing the content's format, i.e. text, audio or video (Figure 1).

4.1 Judgments metadata
Judgments of courts help in the interpretation of statutes. Judgments can be entered in the OLIS using the judgments metadata entry module. Court to which the case law belongs has to be opted, i.e. trial court, high court, Supreme Court of India or tribunals. In case a high court case law entry is to be done, then the appropriate high court has to be opted. In case of entry of judicial record, several fields need to be entered, such as appellants and respondents. A unique feature of the OLIS is that any number of appellants and respondents can be added. This empowers search of all names to identify the appropriate case. Besides this, date of judgment, case no. and type of case law, such as writ (civil), writ (criminal), transfer case (civil), transfer case (criminal), review petition (civil), review petition (criminal), etc., are also mentioned so that the appropriate case type can be included during the case law field entry. A number of other fields are mentioned in the data entry worksheet, such as judge name, subject, statute/act, section, bench strength, advocate name and state of appellant. In addition, a data entry field *History of Case No.* is indicated so that the user can track the case law in all stages. In each case law, data entry case note/description box is given to include case note/description/head-note. In addition, the data entry worksheet has provision to include video along with text file of a case law. YouTube link to the video file can also be mentioned. In each case entry, equal citation can be mentioned as well. Therefore, to indicate equal citations, fields like title of report, year, volume, page number and court are given. A study by Carnevali (2008) found that majority of countries are developing electronic case filing (e-filing) systems in the judiciary. Interestingly, only a few systems are appropriate and functional. Electronic services of the courts must be robust to make legal professionals prefer to access such services. Another study by McMillian (2008) revealed that a computerized case management system developed in the states of Bosnia and Herzegovina provides plenty of opportunities to develop procedures and handle corruption. Legal information services can strive to prevent corruption in the judiciary (Figure 2).
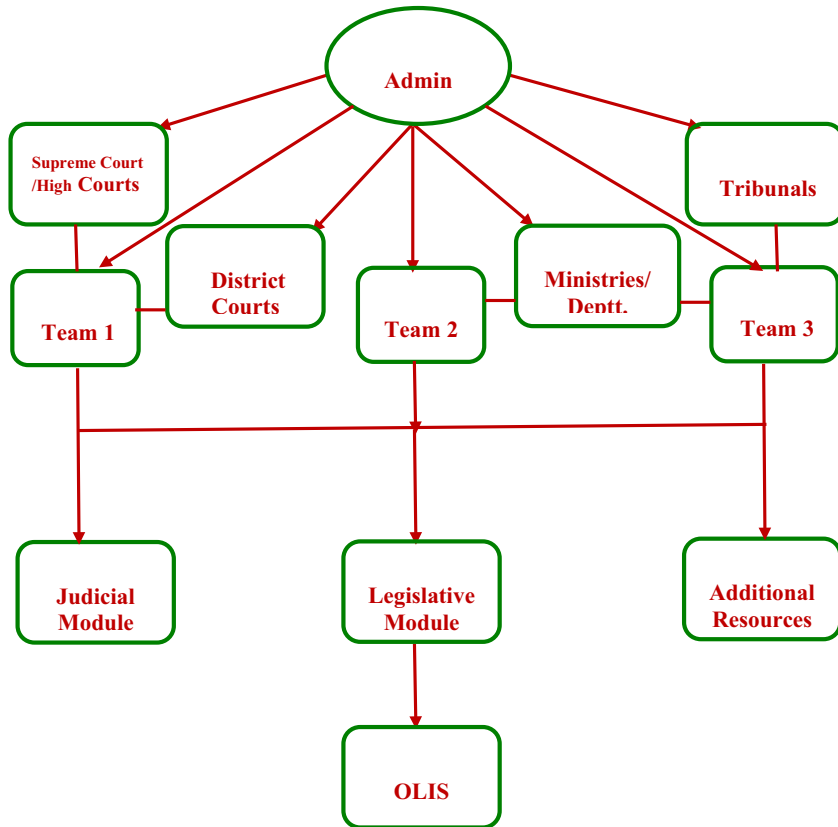
Figure 1.
Workflow of
administrative module
in the OLIS

4.2 Citation search metadata
Citation search metadata entry module helps to retrieve the document with particular citation. The data entry window has fields such as title, information type and search type. These are mandatory fields. In addition, journal/magazine title, year, volume, page number and court are also given. The citation module has facility to upload full-text file and incorporate the note along with metadata. In addition, video file can be uploaded. YouTube link can also be mentioned in metadata entry.

4.3 Evidence information metadata
In the needs assessment survey, a suggestion was made by several respondents to create an evidence information system so that users can get evidence information. Therefore, an evidence information system module is created to enter records related to evidence. The evidence information system metadata entry has fields such as title, information type, search type and item type. These four fields are mandatory in data entry. Some of the other fields given in this module are case no., case type, advocate name, party name, witness name, date of evidence and note. In the evidence information system, video/audio file may also be uploaded for any evidence information available in video/audio format. Text file can be uploaded in the evidence information system. Moreover, data already entered in this module can be edited at any stage (Figure 3).

4.4 Articles metadata

Through a structured questionnaire, majority of the respondents suggested that legal articles must be incorporated in the OLIS. Therefore, a data entry worksheet was created for articles in the OLIS. This module metadata entry has a number of fields for efficient retrieval of legal articles. The mandatory fields include title, information type, search type, item type and subject. In addition to these fields, other fields are subject, journal/magazine, year, volume, pages, article title, author and abstract. Keeping in view video journals in other fields, it was anticipated that video journals would be started in the field of law. Therefore, a video file uploading facility is given in the data entry worksheet of this module. In the line of other modules in the OLIS, data can be edited here also. Besides this, to save time in data entry, a drop-down list of subjects can be created.

4.5 Legal forms metadata
Forms are required in daily routine work of the judicial system. They are required for issuance of certified copy of orders and judgments. In addition, in bond and bail, judicial forms are required. These forms can be identified by form no. or title. Various ministries also issue forms from time to time. Through the questionnaire, majority of the respondents demanded that legal forms should be included in the model. The following fields are given in the data entry worksheet: title, information type, search type, subject, form number, agency who issued the form and description. In addition to uploading portable document format (PDF) files using this module, video contents can also be attached, to describe how to fill the particular form.

4.6 Speech metadata
In the speech metadata entry module, a number of fields are mentioned in data entry. These fields are as follows: title, information type, search type, subject, title of speech, speaker, event where speech delivered, date of speech, magazine which has reported the speech and statute/act referred or mentioned in the speech. The abstract of the speech can be mentioned in the metadata entry module as well. Besides this, the speech recorded in audio/video format can be uploaded in the OLIS.

4.7 Audio/Video metadata
The OLIS has provision to include audio/video contents. These audio/video contents could be a debate among legal professionals, a discussion of the topic of law, a court proceeding or audio/video recording of a conference. Due to the increasing demand of multimedia contents, this is a very useful source of information for the legal fraternity. Visually challenged students and the general public are major beneficiaries of such contents. The data entry fields in this module are as follows: title, information type, search type, item type, subject, section, speaker, date of audio/video recording, sub-subject, publisher, sponsor and statute applied (Figure 4).

4.8 Commentaries metadata
Commentaries are secondary sources of legal information containing comments, interpretations and description of statutes. The results of users' survey data revealed 356 (89.67 per cent) of the respondents expressed that commentaries would be useful to locate case laws and other legal information. Commentaries are an indispensable part of learning

Figure 4.
Audio/Video contents metadata entry module

about the nuances of law. In the questionnaire, the respondents were asked to record preferences on commentaries. Majority of the respondents (89.67 per cent) advocated inclusion of commentaries in the OLIS. A number of fields are mentioned to describe commentaries, such as title, author, search type, item type, subject, sub-subject, publisher, commentaries title, date of commentary and contents. A contents box is provided to enter the contents so that the user can identify the relevant contents within the commentary. Commentaries have provision to upload video commentary and audio commentary.

Table I reveals that the OLIS conforms to the DC metadata elements. The element provenance clearly shows that the contents are open access. However, the right holder shall remain the creator of the contents, as mentioned in the dc.rightholder metadata element. The accrual periodicity of the OLIS metadata is such that it remains up-to-date. Table I also reveals that the accrual method is deposit by institution or individual, as the system has facility for contribution of contents online by users any time, irrespective of location. All the elements are mentioned in Table I. Rights to the contents of speech and audio/video remain with the speaker. The rights of articles and commentary will be with the author of the respective contents. The OLIS promotes self-deposition of contents in the system.

5. Legislative documents metadata
Legislative information is crucial in court proceedings. Legislative information is usually created by the Parliament and state assemblies. Ministries and departments also periodically generate legislative information in the form of notices and circulars. However, such kind of information is scattered and unorganized. A number of resources come under the legislative information category, such as acts, Parliament bills, Lok Sabha debates, Rajya Sabha debates, circulars, treaties, trade notices, press releases, notifications and rules and regulations.

5.1 Central and state acts metadata
Central and state acts are laws of the land. After receiving assent of the President of India, the central bill, passed by the Parliament, is subsequently notified in the Gazette of India. Similarly, state bills have to be passed by the state assembly, assented by the Governor and notified in the state gazette, to become state acts. These acts are vital in court proceedings. Identifying relevant acts in a case is a crucial process. The metadata entry worksheet of this module has a number of fields, such as act title, information type, search type, act no., act date, act laws, act industry, act state, amendments under the act and notes.

5.2 Parliamentary bills information system
Under Parliament bills, status of the bill has to be assigned during data entry of records, such as assented, passed, pending, withdrawn, negative and lapsed. Status entry in the worksheet will help to identify the relevant record in the database. In addition, the ministry is also assigned. The name of the Member of Parliament who introduced the bill needs to be entered in the worksheet along with whether current or ex-member. The data entry worksheet is designed in such a manner that bill category can be assigned as ordinary bills, constitutional amendment bill, financial bill, money bill and ordinance replacing bill. Maximum fields in this module are in the drop-down box, keeping in view the repetition of members and participants. In addition, the drop-down list helps to retrieve the relevant contents. Note/ description of all debates can also be created to understand the gist in the shortest time (Figure 5).

Element	Judgments	Evidence information	Articles	Legal forms	Speech	Audio/Video	Commentaries
dc.title	Party name	Party name	Title	Form title	Title	Title of talk	Title
dc.creator	Judge(s), advocate(s)	Witness	Author	Agency	Speaker	Speaker	Writer
dc.subject	43 subjects in Indian law	Subject	Subject	Subject	Subject	Subject	Subject
dc.description	Case note	Note	Abstract	Details, purpose	Gist	Summary	Abstract, Contents
dc.publisher	Judiciary, i.e. courts	Judiciary, i.e. courts	Publisher	Judiciary, i.e. courts	Speaker/institution	Speaker/institution	Publisher
dc.contributor	Judge(s) advocate(s), courts, tribunals	Witness, advocate, courts, tribunals	Author, affiliation	Courts, institution	Speaker, affiliation	Speaker, affiliation	Writer, affiliation
dc.date	Date of judgment	Date	Date	Date	Date	Date of event	Date
dc.type	Text	Text, audio and video	Text	Text	Text, audio and video	Audio, video	Text
dc.format	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic, Multimedia
dc.identifier	Case no.	Evidence no.	Article no.	Form no.	Speech no.	AV no.	No.
dc.source	Courts, tribunals	Courts, tribunals	Publisher, institution	Courts, institution	Speaker, institution	Speaker, institution	Publisher, writer
dc.language	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi
dc.relation	–	–	–	–	Event	Event	–
dc.coverage	Date, institution, place	Date and institution, place	Date, place	Institution	Date and event	Date, institution	Date, place
dc.rights	Public	Public	Public	Public	Speaker	Speaker	Writer

(continued)

Table I.
DC metadata elements in OLIS

Element	Judgments	Evidence information	Articles	Legal forms	Speech	Audio/Video	Commentaries
dc.audience	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public
dc. provenance	Open access	Open access	Open access	Open access	Open access	Open access	Open access
dc.rightholder	Creator	Institution	Author	Open	Speaker	Speaker	Writer
dc.instructionalMethod	Educational context/problem solving	Educational context	Educational context	Functional	Education context	Education context	Educational context
dc.accrualMethod	Deposit	Deposit	Deposit	Deposit	Deposit	Deposit	Deposit
dc.accrualPeriodicity	Regular	Regular	Regular	Regular	Regular	Regular	Regular
dc.accrualPolicy	Active	Active	Active	Active	Active	Active	Active

Table I.

www.m

5.3 Lok Sabha debates

Lok Sabha debates are consulted in the legal research process. The users' survey data set revealed that Parliament debates were required by 338 respondents. They stated that the Lok Sabha debates are also consulted in cases. Therefore, these must be included in the proposed system. In the metadata entry process, Lok Sabha debate title, i.e. topic on which the debate was scheduled, and Lok Sabha member who initiated the debate (for instance, the member who proposed the bill starts the debate on a particular subject) are entered. Besides this, participants in a debate are also mentioned. In addition, type of debate needs to be indicated in the data entry (Figure 6) process, such as government bill, general budget, statement by minister and message from Rajya Sabha. Lok Sabha session and date of debate fields are given so that the user can search for the debate using these parameters.

5.4 Rajya Sabha debates

Rajya Sabha debates are also included in the OLIS because a number of respondents suggested that Rajya Sabha debates are also significant in legal research. The parameters of this module are similar to Lok Sabha debates. Following are the fields in data entry (Figure 7): title of debate, search type, Rajya Sabha members participated, Rajya Sabha debate type, Rajya Sabha session, subject of the debate, date of debate and description.

Figure 7.
Rajya Sabha debates
metadata entry
module

5.5 Circulars

Circulars issued by various ministries are very useful sources of information in the daily routine work of the judiciary. These circulars can influence decision of any case pending in a court of law. However, selection of the appropriate circular is the key to success in the judicial process. In the process of circular data entry, several fields are important to help locate the exact circular sought by users. Some of the fields mentioned in the circular data entry process are as follows: circular title, circular number, date of circular, file number, ministry that issued the circular and department concerned. Moreover, subject of the circular and statute/ act under which circular is issued are mentioned. In addition, whether circular belongs to center or state government is given as well. The data entry process has the description of the circular pertaining to items as given in the worksheet.

5.6 Treaties

Since independence, India has been actively involved in signing treaties with other countries. However, these treaties are difficult to locate. Since 1980, these have been published by different publishers in book form. Presently these are available at the website of the Ministry of External Affairs. However, the database is not searchable. Various memorandums between different countries are useful sources of information for the academic community. These treaties could be bilateral treaty (between two countries), multilateral treaty (between three or more countries), plurilateral treaty (special multilateral treaty with limited number of states) or international organization treaty, such as United Nations Organizations, World Trade Organization, etc. The treaties worksheet entry has many fields, including title of the treaty, subject, sub-subject, statute/act applied ministry involved, treaties title, country involved, date of treaty, department and treaty state. In addition to all these parameters, the gist of the treaty can also be provided along with the metadata.

5.7 Trade notices

A number of departments functioning under ministries issue trade notices from time to time. These trade notices are useful sources of information, not only for the legal fraternity but also for traders and the general public. These notices have relevance in the judicial process of pending cases in various tribunals and courts. Several respondents suggested including such contents in the model OLIS. Following fields are included in the data entry worksheet of this module: title, information type, search type, file no., subject, statute/act, ministry who issued

the trade notice, department, trade notice no., trade notice date, trade notice laws, industry and trade notice state. Besides this, description of the particular trade notice can also be mentioned in the box provided at the end of above fields to understand the gist.

5.8 Press release
Press releases by legislative bodies, i.e. ministries and Departments, are included in the OLIS. These press releases sometime work as important documents, vital for decision of any case. The press release module in the OLIS has a number of fields, such as title, subject, news title, news date, news laws and news state. Similar to other modules in the OLIS, press releases data entry has note/description to understand the message conveyed through the press release (Figure 8).

5.9 Notifications
Acts passed by the Parliament do not come into effect until notified in the Gazette. These notifications are published by state and central governments. Notifications are significant for lawyers to deliberate on any issue in the court of law. However, to locate the relevant notification is the most cumbersome process in legal information search. Respondents wanted the OLIS to include notifications so that lawyers can get such type of information with ease. Identifying the field to retrieve notifications is equally difficult. Consulting experts in the field of information management and after visiting various libraries, various fields were identified to enter the records of notifications. The fields of metadata entry are as follows: notification title, subject, statute/act, ministry, department, notification no. and date of notification. In addition, whether notification is related to state act or central act is also given in the metadata entry process. Some of the fields in data entry are mandatory, such as title, information type and search type.

5.10 Rules and regulations
Rules and regulations are framed under an act and passed by the Parliament or the state assembly. These rules guide how the particular act will work. These rules are framed by the respective ministry or department, and have to be passed by the Parliament and must be published in the Government Gazette. Keeping in mind the diverse information needs of lawyers, the model OLIS has incorporated rules and regulations. Following fields are included in the metadata entry: title, subject, sub-subject, industry, title of rule, rule number, date of rule and central rule or state rule. Note related to the rule has to be mentioned in the data entry process in this module (Table II).

Figure 8.
Press release metadata entry module

Element	Central and state acts	Bills	Lok Sabha and Rajya Sabha debates	Treaties	Trade notices	Press release	Notification
dc.title	Act title	Bill Title	Debate Topic	Title of Treatise	Title	Title	Title
dc.creator	Proposed	Introduce by Member	Member Name	Ministry/Dept.	Ministry/Dept.	Ministry/Dept.	Ministry/Dept.
dc.subject	Law	Subject	–	Subject	Subject	Subject	Subject
dc.description	Description	Object and Reason	Description	Statute/ Act	Statute	Description	Description
dc.publisher	Center/State	Parliament/ Assembly	Publisher	Ministry/Dept.	Institution	Institution	Publisher
dc.contributor	Judge(s), advocate(s), courts, tribunals	Parliament/ Assembly/ Ministry/Dept.	Member, institution	Ministry/Dept.	–	Department	Government/ Ministry/ Institution
dc.date	Date of judgment	Date	Date	Date	Date	Date of event	Date
dc.type	Text	Text, audio and video	Text	Text	Text, Audio and Video	Audio, Video	Text
dc.format	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic	Print, electronic, multimedia	Print, electronic, multimedia	Print, electronic, multimedia
dc.identifier	Act no.	Bill no.	Debate no.	Form no.	No.	AV no.	No.
dc.source	Parliament/ Assembly	Parliament/ Assembly/ Ministry/Dept.	Parliament	Ministry, dept.	Ministry/Dept.	Speaker, institution	Publisher, writer
dc.language	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi	English, Hindi
dc.relation	Act no.	–	–	–	Country	Event	–
dc.coverage	Date, institution, place	Date and institution, place	Date, place	Institution	Date and event	Date, institution	Date, place
dc.rights	Public	Public	Public	Public	Public	Public	Public

(continued)

Table II.
DC metadata elements in OLIS to manage legislative information

Table II.

Element	Central and state acts	Bills	Lok Sabha and Rajya Sabha debates	Treaties	Trade notices	Press release	Notification
dc.audience	Law students, lawyers, judges, general public	Law students, lawyers, Judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public	Law students, lawyers, judges, general public
dc. provenance	Open access	Open access	Open access	Open access	Open access	Open access	Open access
dc.rightholder	Government	Institution	Author	Open	Ministry/Dept.	Speaker	Writer
dc.instructionalMethod	Educational context/ Legal/ Administrative	Educational context/ Legal/ Administrative	Educational context/Legal dispute	Functional	Educational context/ Administrative	Education context/ Administrative	Educational context/Legal/ Administrative
dc.accrualMethod	Deposit	Deposit	Deposit	Deposit	Deposit	Deposit	Deposit
dc.accrualPeriodicity	Regular	Regular	Regular	Regular	Regular	Regular	Regular
dc.accrualPolicy	Active	Active	Active	Active	Active	Active	Active

Similar to the judicial information metadata, the DC metadata schema has been followed in legislative information. All the elements have been described in the OLIS perspective. The languages in the system are English and Hindi because these are the two major languages in which contents are written. Accrual method elements shall remain as deposited by legislative institutes, ministries and departments. The target audience of the system are law students, lawyers, judges, research scholars and the general public. Over a period, the system will grow.

6. Discussion
The OLIS is accessible at www.olisindia.in. The system metadata structure has been developed as per the DC standard. The latest tools and technology were used in system development. An eXtensive hypertext mark-up language editor, namely, Dreamweaver, was used to create web pages and cascading style sheets. This tool also allows integrating multimedia files such as Flash and Photoshop files into the page. Adobe Photoshop is used to enhance and edit pictures and graphics. Photoshop provides an array of features, with tools such as crop tool, content-aware tools, new blur tool, painting capabilities, the adaptive wide angles filter, type style, layer search, etc. Adobe Flash is used for creating media files, such as graphics, animated banners and interactive media files. MySQL is an open-source, multi-threaded and robust structured query language database server. It is used as backend to store metadata and full-text contents. JAVA programming language was used, because it has provision of multithreads programs. The server-side script language PHP: Hypertext Preprocessor (PHP) was used in creating maximum web pages of the OLIS because it is platform-independent. Besides these technologies, Asynchronous JavaScript and XML (AJAX) are also used in the OLIS to create Web applications.

The architecture of the open-access OLIS has five layers. The data layer handles metadata associated with the contents, and the storage layer mainly does full-text contents management. The network layer in the system perpetually connects the users and source institutions. The presentation layer facilitates display of the retrieved results in clusters. The results can be filtered further using session filtering. The business layer combines a number of operations of the system. This layer helps to perform several operations and facilitates the users to get the latest news and Frequently Asked Questions for online help. The system has a storage layer. The main function of this layer is to manage metadata records and full-text contents. The system uses relational database management system with MySQL to store metadata. The functions of system backup and contribution of contents by users also comes under the preview of this layer. The network layer moves information from one layer to another and over the network medium. In the network layer, OLIS also incorporates Web 2.0 tools, such as Facebook, LinkedIn, Twitter and DISQUS. These tools help the users to share information with others and discuss emerging issues. Using the icons, users can share information on social networking sites instantly. The OLIS has a facility to submit contents from 21 high courts, 10 tribunals, district courts and the Supreme Court of India. The network layer makes possible for all the institutions in the network to submit contents in OLIS. In addition, individual users can submit research articles, speech, legal forms (used in judicial process) and audio and video contents. Broadly, the system has a sample collection of 605 full-text contents, including case laws (240), articles, (13), speeches (11), audio–video contents (12), commentaries (5) and legal forms (5). Legislative contents contained in the OLIS include acts (79), bills (47), Lok Sabha debates (36), Rajya Sabha debates (25), circulars (21), treaties (10), trade notices (15), press releases (27), notifications (21) and rules and regulations (38). The OLIS also facilitates online contribution of contents by users.

7. Conclusion

Metadata standard is essential to make the retrieval system efficient in information resources. DC has been widely implemented in the library and information communities, and its core elements are broad and generic, useful for describing a wide range of resources and also ensure interoperability and data exchange with other international standards, such as MARC-21. Every effort has been made to make the retrieval system efficient. The study found that the OLIS has used the 12 DC metadata elements properly in describing the 15 legal and legislative resources. The open archives initiative protocol for metadata harvesting (OAI-PMH) protocol allows the OLIS to retrieve or "harvest" the metadata from several sources, and offer services using that metadata, such as indexing or linking services. Additionally, the collection structure is also exposed via the OAI protocol's "sets" mechanism. The OAI service makes use of any crosswalk plug-in to offer additional metadata formats and supports hierarchy to manage contents (i.e. communities, collections and items).

Majority of open-access and commercial resources are not user-friendly and are incomplete. Most resources do not have basic, advance and additional search features. Open-access resources lack credibility and are inferior compared to commercial resources (Bhardwaj and Madhusudhan, 2016). The present study followed the DC metadata standard to make the search system more robust and to support relationship concepts and referencing of external entities. The OLIS, accessible at www.olisindia.in, integrates several help features and empowers the users to contribute contents at any time irrespective of location.

The study not only guides law libraries and library professionals to follow metadata standards in building an open-access database but also provides a legal resources metadata framework so that they can select suitable resources for their libraries. Particular attention was paid in the OLIS as to how and to what extent users interact with metadata (as opposed to traditionally displayed information) and what relationships such interactions have to organization theory. Hence, the metadata framework explained in the study can be used to promote metadata literacy, including different law information sources, metadata interactions and relationships by law libraries. Further, the study also suggests that the library and information science schools teach legal information sources metadata elements to students so that they can provide efficient services to legal professionals in law libraries.

The present study is one of the significant researches in the metadata field; it focuses on standards and systems that are far more complex than what the common users contend with in their everyday legal information use. This study focuses on the user experience of metadata and looks at the outcomes of metadata use in specific Web environments and metadata-centric Web services. It also demonstrates how diverse the list of metadata-related concepts and tasks can become. Therefore, metadata elements provided in the study are helpful in the assessment of existing legal sources in law libraries, by the National Assessment and Accreditation Council and other funding agencies in India.

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