

A Proposal for Open Standard Based Legal Document Management System for the Parliament of Bangladesh

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Abstract Purpose : A fast and progressive legislative system is necessary for Bangladesh in order to address pressing issue where regulatory solutions are required. In order to achieve efficiency and functionality of the working of the legislative body, information systems should be introduced for reliable creation, storage, retrieval and dissemination of legislative documents such as bills, discussions, committee reports ,arguments ,minutes of parliament and laws. In this paper We have explored the methods and challenges of developing a legislative Document Management System (DMS) for the Bangladesh Parliament.

Approach – This research outlines the need for a Document Management System for the Bangladesh Parliament and proposes strategies that can be followed in building process of such system especially in connection with the structuring of documents and following open standard. **Findings –** It can be concluded that A Document Management System based on XML standard will be ideal for the Bangladesh Parliament despite challenges and obstacles. **Limitation:** This paper does not cover the technical side of the DMS. It is out of the scope of the paper to discuss all components of a Legislative Information System. Further research may be conducted on developing specific models of the Information System for the Parliament. **Value –** This paper has the potentials to inspire the e-government proponents of the developing countries to promote ICT in the Legislative Houses and will act as a primary guideline for the policy makers.

Keywords : Parliament , Parliamentary DMS , Open Standard , Legal Informatics , Bangladesh

1. Introduction

A Parliament is the center in running democratic affairs of a state. It is in the parliament where a country's present policy is scrutinized and future stance is constructed by way of debates, deliberation and legislation. In almost all democratic states a parliament has played the central role to introduce legislation, taxes and allow expenditures for the government. It has been argued that the primacy of legislation is going to an end(Sartor G ,2008) and we are gradually moving from the era of legislation to the age of administration(Halvey E,1983) (by special technical bodies),or jurisdiction (creation of law by judges , supported by jurists) or customs and soft regulations (as emerging especially from economic relation, contracts and decisions by arbitraries) or even computing code(enabling or constraining actions in virtual environments)(Lessig L, 2006). However, the emergence of other sources of law does not necessarily render legislation less important and less central and the parliament and its legislation will continue to be the major sources of laws and regulation in the foreseeable future especially in developing countries like Bangladesh. The inherent values that parliamentary legislation should address are as follows(Sartor G ,2008):

- a) Legislation should provide regulation that will be capable of giving solution to the problem they address being supported by best available knowledge.

- b) Legislation should provide regulation that will be a product of open and rational debate among law makers and stakeholders. In this process, relevant advantages, disadvantages and alternatives are considered.
- c) Legislation should reflect opinion of the public in general and should be able to adapt to social changes.
- d) Legislation should promote legal certainty by way of providing effective normative guideline to the people and decision makers and means to check arbitrary exercise of power.
- e) Legislation should enable citizens to be aware of their rights so that in the event of default they are able to claim their rights.

Information and Communication Technology has the ability to contribute to achieve the above mentioned values in a modern parliament by providing-

- a) ICT tools to monitor and evaluate the impact of present or new law on the administration and society.
- b) Communication and Information retrieval tool to promote informed debate on legislative initiatives.
- c) New platform for interaction between citizens and their representatives and voicing opinion i.e. social networking, online feedback, e –petition system.
- d) Systems facilitating access to law and other legislative information, making law more understandable and common citizen friendly.
- e) Making more accessible knowledge about rules and remedies, clarifying procedures and automation of repetitive tasks.

It is out of the scope of the paper to discuss all components of a Legislative Information System. However the main focus of this article is outlining a system for document management within parliament which will be a significant part of the whole information system in the Bangladesh Parliament.

2. The need for a Document Management System for the Bangladesh Parliament

Different Governments of Bangladesh who came to power failed to make the Parliament an effective forum for democratic process. The causes which are identified are *inter alia*, Lack of political will, conflict and disunity between the opposition and treasury in almost every matter, lack of education and awareness among members of parliament who mostly come from business community and an age old system of internal management of the Parliament. This is unrealistic to think that Introducing Information and Communication Technology in day to day activities of the Parliament will change the situation overnight. Nevertheless, it will definitely increase the productivity and efficiency of the house and citizens will be largely benefitted and this will set the ground for transforming the Parliament to concentrate on more citizen centric debate rather than making it a political war ground. A Document Management System in The Parliament is expected to bring the following benefit as it did for many Parliaments around the world-

- I. The process of legislation takes up months and even years in the present system due a poor communication between different actors in the legislative process. The Proposed system has the potential to integrate all communication channels between the actors involved and makes it much quicker to establish communication and document transaction among them. This will certainly reduce time in different level of legislation.
- II. Law makers need instant access to previous laws, regulation, meeting reports and committee reports to assess a current situation. An easy search and retrieval tool of such document will be a great help for them to decide and deliberate on important issues.
- III. Cost is a big issue in the Parliament. Printing and storing volumes of report in paper format involves huge cost and traditional communication by letter is also not so cheap and highly inefficient. Members will be able to file their queries to the government through the system leading to speedy and paperless flow of information across the treasury and opposition benches. While investment in

Information Technology is one time and maintenance cost is quiet manageable as compared to the productivity and length and extent of service it has to offer.

- IV. Since all proceedings, discussion and decisions will be recorded and protected by encryption, No one in the administration can alter any decision taken in a committee whimsically and this will ensure transparency and accountability. The opposition will have the opportunity to be more involved in the democratic process knowing their opinions will be valued.
- V. The work flow of the legislature will be improved which may lead to efficiency and cost reduction.
- VI. The most important benefit will be the online accessible publication of proceedings, laws and regulation. In the proposed system laws and regulation will be updated on regular basis and will be freely accessible by any citizen through various delivery channels i.e., World Wide Web, mobile device, community information center etc. The system can be instrumental in strengthening citizen engagement, providing innovative ways of interaction between citizen and legislature.
- VII. The system will help connect parliamentarians and parliamentary institutions with their worldwide counterparts, thus sharing and strengthening their knowledge and information on the issues they confront.
- VIII. Finally the whole system will be an important driving force to the countries aspiration for greater democracy and development.

ICT policy of Bangladesh clearly supports the objectives in general terms as '(the policy is intended to¹) promote use of ICT by providing special allocations for ICT project implementation in the public sector. Train the decision makers in ICT use and promote an ICT culture'.²

Introducing ICT in the Parliament and law making process in a developing country like Bangladesh is a tough challenge to undertake and the system will undoubtedly have some pitfalls too. Firstly, the history of system management in Bangladesh is somewhat disappointing. The DMS could be managed by inefficient people resulting in catastrophic information failure. Secondly, like most e-government projects digital divide will hamper in ripping the benefit of the parliamentary information system for the mass people. However, with the increasing awareness and literacy of ICT it is hope that this effect will get substantially reduced in future. Thirdly, it will be difficult to train the lawmakers to use the system because usually most lawmakers are not so ICT friendly. Fourthly, it will be difficult to resolve the issue of the status of originality and state of being official version of documents contained in the Database.

3. Strategies of Building a Document Management System

Before developing and introducing a DMS for the Bangladesh Parliament a thorough study should be made on the methods and ways to be adopted in such a system and strategies should be planned beforehand in order for the smooth development and deployment of the system.

Bengt Eriksson, a Swedish specialist who has long practical experience within the area of Legislative Informatics, explained the core strategy to be adopted while developing a document management system for parliaments,

'Over the years, we have learned a few things. One is that standards come and standards go. Concretely , that could mean that instead of viewing today's internet and today' standards as the final answer to the document access and information exchange , you should ask yourself which of today's standards are likely to survive long enough to establish themselves as standards of tomorrow. From that point of view, it is obvious that the solutions that you seek today must be as generic as possible, proprietary only to the extent that is deemed absolutely necessary. If such solutions are not found, you stand the risk that because of compatibility difficulties much of your

¹ Words in parenthesis are added by Authors.

² Section 2.2.3 of The ICT Policy of The Government of Bangladesh 2009.

work is rendered useless whenever a new software tools and software version is released.'(Ericsson B, 2009)

A particular solution developed today must be flexible enough to embrace future technology given the fact that ICT is growing and transforming at an exponential rate. Such system should not be complex and user friendliness should be given utmost priority as the users of the system are not supposed to have advanced user level of IT knowledge.

A Document Management Systems may contain the following elements –

- a. Document Production
- b. Document Storage in Database
- c. Document Distribution and Retrieval
- d. Document archival

3.1 Document Production

The following strategies are to keep in mind while designing rational production system of documents-

- a) Document should be structured.
- b) Metadata and Information about the structure should be entered as close to the source as possible.
- c) Information security should be ensured.

Structuring of Document

Numerous documents are produced during the working of a Parliament i.e. Bills, Committee Reports, Session Minutes, Committee hearings etc. These documents can be produced in raw and flat format or in structured format. Structuring of documents means breaking down of the documents in parts and marking them up so that they can be recognized by a system **identification and retrieval**.. Every system development procedure within the field of legal document management requires a document analysis at the very outset and it is practically imperative when the docware³ technique is applied(Sjöberg CM,2009). A document is structured when we can trace and identify different parts of it such as title, headings, paragraphs, articles and references etc. It is also possible to set rules as to what parts of the document may contain what kind of data.

A structured document is useful for various reasons. Firstly, it allows the search of document to be very efficient. Documents may be considerable in size and word matching search within the documents may not produce desired results. Search is more effective when documents are structured. Secondly, if the document is structured it will be much easier for a search engine to locate the exact kind of information a researcher wants. Structured document with better information retrieval technique has the potential to cater to the information need more efficiently. Thirdly, it is quite obvious that technology will evolve very fast in near future and structured documents will be more suited to adapt to the new technologies. Fourthly, rules can be set up with structure which will not allow wrong kind of data to be entered in a specific part of the document leading to the integrity and reliability of the documents. Finally, structured documents are easily manageable in respect to the version control and applications of amendments.

³ Standardized document markup language ie. XML

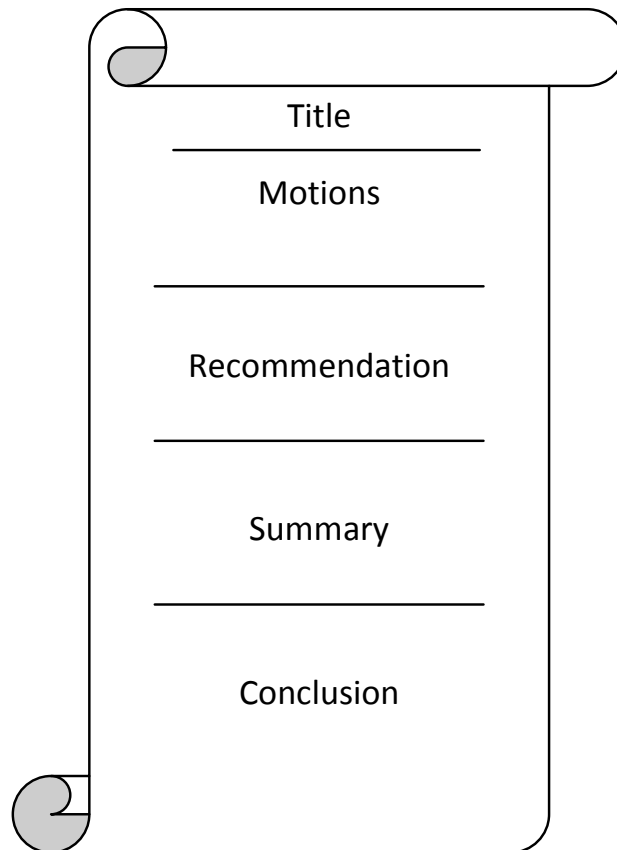


Figure 1 : In a structured document, every part is clearly identified.

Information Standard

All those benefits of structuring document mentioned above can be achieved by document mark up. There are many markup standard or information standard out there such as HTML , SGML ,XML. XHTML etc. The question is which standard will be appropriate for our system. A suitable standard should be open not limited by intellectual property, vendor independent, supported by a well accepted standardization Authority such as International Standardization Organization (ISO) and most importantly its definition should be publicly accessible and generally understandable. An appropriate standard for legislative document may contain a set of straightforward, technology neutral representation of Parliamentary documents and an enabling structure for the effective exchange of machine readable documents such as legislation, records and minutes (Vitali F, 2008). Machine readable means organizing document in a structured and systematic manner so that a software application may read it without any flaw.

In this era of globalization parliamentary information and experience exchange across the world is crucial to promote democracy and international co operation. A good standard allows interlinking and web-enabling of Parliaments. Such standard will address policies and specifications for connecting Parliament information system across countries. Country Parliaments should use the guidance provided to supplement their national e- Government Interoperability Frameworks with an international dimension and thus enable international interoperability of Parliaments(Vitali F, 2008).

The choice of standard and XML solution

HTML (Hyper Texts Markup Language) is one of the easiest and widespread mark up standard used to day.

However, it is designed largely to define how text and data will be presented to the user. Most of the text presentations we encounter in today's website are defined by HTML. It has predefined mark up tags which seriously undermines the usability of it as information career. In view of this HTML will not be a good choice to structure Legal document although it will be used in the presentation and user interface part of the system. XML or eXtensible Markup Language is a popular information standard in the legal arena. XML does not DO anything in itself. XML was instead created to structure, store, and transport information. It is just pure information wrapped in tags. Someone must write a piece of software to send, receive or display it.⁴ It is a meta language that can be used to build different kind of information models. XML. XML has elements and attributes. An XML element is everything from (including) the element's start tag to (including) the element's end tag. An element can contain other elements, simple text or a mixture of both. Elements can also have attributes. XML elements can have attributes in the start tag, just like HTML.⁵ Attributes provide additional information about elements. **XML based standards** means the standard in question uses XML to describe the information model that is the object of the standardization attempt (Lunblad N ,2009). XML is suitable for structuring the legislative documents because it offers the flexibility to the developers to invent their own tags, it is an open standard which means no royalty payment is required and most importantly it provides a system called schema or grammar which is a set of rules that describe the structure of a document and which could be used to validate a document.

```

<REPORT>
    <TITLE>.....</TITLE>
    <MOTIONS>.....</MOTIONS>
    <RECOMMENDATIONS>.....</RECOMMENDATIONS>
    <SUMMARY>.....</SUMMARY>
    <CONCLUSION>.....</CONCLUSION>
</REPORT>

```

Figure 2: A simple example of XML document with different elements.

Document Type Definition and Schema

Document Type Definitions and XML Schemas both provide descriptions of document structures. A Document Type Definition (DTD) defines the rules of an XML document. It defines the document structure with a list of legal elements and attributes. XML Schemas express shared vocabularies and allow machines to carry out rules made by people. They provide a means for defining the structure, content and semantics of XML documents. in more detail. XML Schema was approved as a W3C Recommendation on 2 May 2001.⁶ An XML Schema defines the elements, child elements and the attributes that can appear in a document. It can also define the order, the number of child elements, the data types for elements and attributes

⁴ http://www.w3schools.com/xml/xml_what_is.asp accessed on January 10,2011

⁵ http://www.w3schools.com/xml/xml_attributes.asp accessed on January 11,2011

⁶ <http://www.w3.org/XML/Schema> accessed on February 02,2011


```

<xs:schema>
<xs:element name="REPORT">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="TITLE"
type="xs:string"/>
      <xs:element name="MOTIONS"
type="xs:string"/>
      <xs:element
name="RECOMMENDATIONS"

```

Figure 3 : Example of Schema of the figure 2 XML document.

Meta data

Meta data can be defined as 'data about data'. Meta data is not included in the actual content of a document rather they are outside information which describes the content of the document. Metadata is structured data which describes the characteristics of a resource. It shares many similar characteristics to the cataloguing that takes place in libraries, museums and archives. The term "meta" derives from the Greek word denoting a nature of a higher order or more fundamental kind. A metadata record consists of a number of pre-defined elements representing specific attributes of a resource, and each element can have one or more values.⁷ Following is the example of meta data

Element	Value
Title	The Document
Creator	Committee 1
Meeting No	1
Format	XML
Date of creation	12.02.2010

DDI, EAD, e-GMS are some examples of meta data standards (Bloom , J 2009).

Using controlled vocabulary such as taxonomies, thesauries and anthologies meta data could be created in a document in a more sophisticated manner. Taxonomies and thesauri are vocabulary terms arranged into a hierarchal structure where each term has one more vocabulary and grammar for using that vocabulary to express something meaningful within a specific domain of interest (Eriksson B ,2009). The Parliamentary Ontology needs to be designed to be extensible so that those Parliaments with different, or more specific, metadata needs may add extra elements and qualifiers to meet their own requirements (Vitali F, 2008). Meta

⁷ <http://www.library.uq.edu.au/iad/ctmeta4.html> accessed on February 02,2011

data facilitates more knowledge about the document in question and offers users many more possibilities of locating the specific data he or she wants.

Meta data could play an important role in the legal information management like our proposed Parliamentary Document Management System. Meta data in an information retrieval system greatly improves the recall and precision of a particular search. In a legal information retrieval system word matching searches are not always so efficient and effective. Adding meta data to the documents along with latest search technology enables field and semantic searches. The goal is to enhance user satisfaction on the IR system by providing useful search results. A particular legislation may be amended to address the need of time. In that case the facts behind amendment would be added with the document as meta data. The amendment information such as amendment date, amending bill submission authority, votes etc are just as important as the amendment text itself. So meta data could supplement new information.

Ensuring Information Security

Information Security is a crucial issue to be considered while developing the Document Management System. The system is required to be safe and reliable both from technical and information quality point of view. Information Security is the overarching concept that encompasses security of information whether the information is paper based or electronically stored. Internal and external vulnerabilities of the system should be considered and adopt measures to minimize risks and ensure greater confidence and trust. It is customary to discuss three concepts while discussion information security of particular system (Andersson H et al, (2010)

Confidentiality: prevention of unauthorized disclosure of information or information resources. The assets of the information system could only be accessed by authorized persons. Various level of access could be granted to persons with different responsibilities. This will be controlled by an information security policy. In our system some information may be sensitive and must be protected before it is right time to disclose them.

Integrity: prevention of unauthorized modification of information or information resources. Integrity is the most important issue to be ensured in our system. We must make sure that all legislative documents are stored exactly as they were produced and they do not also change when the documents are retrieved. Electronic signature using asymmetric cryptography could be used to achieve integrity.

Availability: prevention of unauthorized withholding of information or information resources. According to ISO 7498-2 availability is ' the property of being accessible and useable upon demand by an authorized entity(Andersson H et al, (2010). This concept indicates under usual condition the system must be functional so that the stakeholder of the system could benefit from it.

3.2 Document Storage

Adequate storage and efficient access methods are crucial elements in any document administration(Sjöberg CM,2009). Documents with its structure and meta information has to be stored in a Database for reference and retrieval through various delivery channels. A database is crucial element for our system to organize and store the documents produced in manner described above. In designing the database and choosing a database solution we have to keep in mind that it should support structured document format; it will be better to choose an open source solution to minimize cost and most importantly it must be reliable and secured.

3.3 Document Distribution and Retrieval

Intranet and Extranet

Our proposed document management system will be composed of intranet and extranet. An intranet is a

private computer network that uses Internet Protocol technologies such as HTTP to securely share any part of an organization's information or operational systems within that organization.⁸ Intranet is the private network connecting different ministries, parliamentary secretariat, and legislative drafting wing and law commission. The intranet will facilitate synchronized work flow among different agencies above involved in law making process through highly secured and closed network. Through the system a particular ministry can initiate a legislative proposal and the proposal can see its life cycle of transforming into law by work flow defined and established in the system.

An extranet is a computer network that allows controlled access from the outside for specific purpose.⁹ The public documents can be viewed through extranet. The extranet is the extension of internet to ensure accessibility off site. Some part of the parliamentary web site will be part of extranet.

The Website

Websites have become an indispensable publishing media due to proliferation of internet in every sphere of life. Almost every parliament around the world has a website providing the viewers from basic information to sophisticated e-citizens consultation service. The official website of parliament should be a one stop center for all information regarding the legislature. It should be authoritative and non-partisan and must be easily understandable, user friendly and freely accessible to anyone. The website has to provide information in timely, accurate and comprehensive manner. It is required to be well managed and supported so that it could meet the growing needs of citizens and members, keep pace with new technology and help ensure transparency and accountability of the Parliament.

Objectives of the website

In general the parliamentary websites started with the principle aim of a web presence providing basic information. Over the years parliamentary websites are developed and improved to offer a very diverse range of information in a more complex and challenging way. The following are the objectives of a modern parliamentary website-

- a) To provide basic information about the history, functions and members of the parliament.
- b) To provide copies of official texts of proposed legislation.
- c) To provide a code of law for the country containing all laws and rules in force in the country.
- d) To provide accounts of debate and summaries and plenary actions and copies and committee documents.
- e) Two way communication between members and citizens and engaging citizens in the policy process.
- f) To provide improved methods of access through better search engines for retrieving documents.
- g) To provide alerting service to enable citizens to be notified of the introduction and changes in the proposed legislation.
- h) To provide audio and video streaming of sessions live or from archive.
- i) To provide an easy and user-friendly interface for citizens.
- j) To provide download facilities of authoritative parliamentary documents.

The website has to be designed and developed keeping in mind the above objectives. In addition the website should be designed such a way that in one hand it ensures the access to information of all who interested, on the other hand it protects persons and their personal data from unauthorized access and processing. A privacy policy should be incorporated in the website to achieve the above goal.

⁸ http://compnetworking.about.com/cs/intranets/g/bldef_intranet.htm accessed on June 08, 2011

⁹ Id.

3.4 Document Archival

Due to advancement in technology electronic archiving has become more common place and serves as affordable as well as reliable solution for preserving documents. Through electronic archiving it is now possible to easily archive different forms of data such as images and videos. All the data created and preserved in Document Management System should be delivered to the national archive where they will be preserved for future use. Suitable technological solution is to be explored for such archives as they are meant to last many years to come. Standardized methods of archiving are being developed. There should be rules and regulation to describe the procedure to be followed for delivering data to electronic archiving. Information standard could be suggested as the required delivery formats in this regard(Sjöberg CM,2009).

4. Conclusion

A Document Management System based on XML standard offers many challenges and obstacles and some of them are quite formidable. Practical experience has suggested that it is really a time consuming and laborious task to fully realize the potential of XML standard in combination with available software. Once various tools are acquired, uncertainty still looms at the stage of information retrieval. It is quite challenging to establish proper establishment and updating of hypertext links in a frequently recurring environment of legal texts(Sjöberg CM,2009). A particular amendment may contain a lot of background report and information and it is difficult to fit all the information in and linking them appropriately.

XML require an investment of time and effort by key stakeholders to agree on the format of official documents and on the tags to be used to mark them up. This calls for a specialist team consisting legal experts, technical experts and interdisciplinary experts of Law and Information Technology. It will be quite difficult for Bangladesh to gather and maintain such a team due to unavailability of expert human resource and low compensation structure. The effort needed to reach agreement is also quite overwhelming.

Adding meta data is also a challenging task. The question is who will add meta data. Meta data should be added by the document creator or meta data can be added by automatic means. In this regard, the drafters work will be significantly increased if meta data is to be added manually.

The system will need high degree of security and availability. It is quite imaginable the degree of chaos and confusion could be created if the system goes offline or malfunction without warning. The system is vulnerable to inside and outside threats and calls for various preventive and remedial measures. An Information security policy should be formulated which will describe the possible course of action that may be taken to deal with the emergency situation arising from time to time.

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