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# **INTRODUCTION TO XML FOR DECISION-MAKERS**

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## Briefing Background, Acknowledgements, and Contact Information

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This briefing and all related materials are the direct result of a two-year grant to the State Archives Department of the Minnesota Historical Society (MHS) from the National Historical Publications and Records Commission (NHPRC). Work on the “Educating Archivists and Their Constituencies” project began in January 2001 and was completed in May 2003.

The project sought to address a critical responsibility that archives have discovered in their work with electronic records: the persistent need to educate a variety of constituencies about the principles, products, and resources necessary to implement archival considerations in the application of information technology to government functions. Several other goals were also supported:

- raising the level of knowledge and understanding of essential electronic records skills and tools among archivists,
- helping archivists reach the electronic records creators who are their key constituencies,
- providing the means to form with those constituencies communities of learning that will support and sustain collaboration, and
- raising the profile of archivists in their own organizations and promoting their involvement in the design and analysis of recordkeeping systems.

MHS administered the project and worked in collaboration with several partners: the Delaware Public Archives, the Indiana University Archives, the Ohio Historical Society, the San Diego Supercomputer Center, the Smithsonian Institution Archives, and the State of Kentucky. This list represents a variety of institutions, records environments, constituencies, needs, and levels of electronic records expertise. At MHS, Robert Horton served as the Project Director, Shawn Rounds as the Project Manager, and Jennifer Johnson as the Project Archivist.

MHS gratefully acknowledges the contribution of Advanced Strategies, Inc. (ASI) of Atlanta, Georgia, and Saint Paul, Minnesota, which specializes in a user-centric approach to all aspects of information technology planning and implementation. MHS project staff received training and guidance from ASI in adult education strategies and workshop development. The format of this course book is directly based on the design used by ASI in its own classes. For more information about ASI, visit <http://www.advstr.com/>

For more information regarding the briefing, contact MHS staff or visit the workshop web site at <http://www.mnhs.org/preserve/records/workshops/edarchivists.html>

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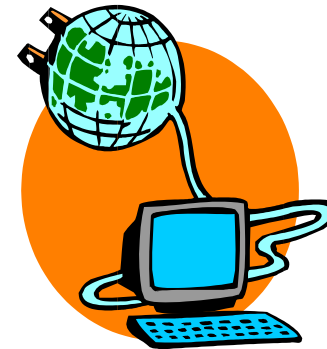
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# Introduction to XML for Decision-Makers

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**This briefing includes:**

- Briefing objectives.
- What do we mean by information resources, digital objects, and electronic records?
- Defining digital objects.
- What is eXtensible Markup Language (XML)?
- Why XML?
- Marking up a document.
- Standardizing markup: Document Type Definition (DTD) and XML Schema.
- eXtensible Stylesheet Language (XSL).
- XSL Transformations.
- Minnesota Electronic Real Estate Recording Task Force.



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## Briefing objectives

Upon completion of this briefing, you will be able to:

- understand basic information technology concepts and terminology
- understand what XML is and why it is useful
- understand the reasons for the development of XML
- recognize XML markup
- identify other components of the XML standard
- understand how XML may be implemented in a project

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## What do we mean by information resources, digital objects, and electronic records?

Information resources: The content of your information technology projects (data, information, records, images, digital objects, etc.)

Digital object: Information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form. An object created, generated, sent, communicated, received, or stored by electronic means.<sup>1</sup>

An electronic record is a specific type of digital object with unique characteristics described by archivists and records managers.

Types of digital objects:

- e-mail
- web pages
- databases
- spreadsheets
- word processing documents
- Portable Document Format (PDF) files
- PowerPoint presentations
- digital images
- ...and many more

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<sup>1</sup> Electronic Signatures in Global and National Commerce Act (E-Sign). <http://thomas.loc.gov/cgi-bin/query/z?c106:S.761>:

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**Digital objects have three components:**

Content: Informational substance of the object.

Structure: Technical characteristics of the objects (e.g., presentation, appearance, display).

Context: Information outside the object which provides illumination or understanding about it, or assigns meaning to it.

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## Defining information objects

### Pittsburgh Project Definition

Content  
Structure  
Context

### Order of Values

Data  
Information  
Knowledge

### Information Technology Architecture

Data  
Format  
Application



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**Exercise: What do you think eXtensible Markup Language (XML) is?**

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Language means communication and communication leads to understanding

What makes understanding possible?

- vocabulary
- dictionary
- grammar

It's not just semantics. This is the structure of an "unstructured" text. It is executable knowledge.

*"When I say a word, it  
means exactly what I  
want it to mean."*

Humpty Dumpty –  
*Alice in Wonderland*

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## What does eXtensible Markup Language mean?

- eXtensible:** In XML, you create the tags you want to use. XML extends your ability to describe a document, letting you define meaningful tags for your applications. For example, if your document contains many glossary terms, you can create a tag called <glossary> for those terms. If it contains employee identification numbers, you could use an <employeeid> tag. You can create as few or as many tags as you need.
- Markup:** Any means of making explicit an interpretation of a text. In this instance, a notation for writing text with tags. The tags may indicate the structure of the text, they may have names and attributes, and they enclose a part of the text.
- Language:** XML is designed to facilitate communication. It follows a firm set of rules that allow you to say what you want in a way that others will understand. It may let you create an extensible set of markup tags, but its structure and syntax remain firm and clearly defined.

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### Why XML?

- Share data**            Different organizations rarely use the same tools to create and read data. XML can be used to store any kind of structured information, and to enclose or encapsulate it in order to pass the information between different computing systems which would otherwise be unable to communicate.
- Reuse data**            XML documents can be moved to any format on any platform - without the elements losing their meaning. This means you can publish the same information to a web browser, or a personal digital assistant (PDA), and each device would use the information appropriately. XML can be designed in such a way that fragments or chunks can be pulled out of any given context and reused. So, when a chunk is updated, the resources that use the chunk are updated also.
- Customize data**        XML allows for the development of user-defined document types. Users define the XML tags they want to encapsulate their data. XML also allows groups of people or organizations to create their own customized markup languages for exchanging information in their domain.

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## Marking up a document <sup>2</sup>

**Declaration:** Declares what version of XML you are using. Appears first in an XML document. Also called a processing instruction.

```
<?xml version="1.0" standalone="yes"?>
```

**Elements:** The most basic unit of an XML document. The name of the element (defined by you) should assign some meaning to the content.

```
<recipe>
  <title>Original Nestle Toll House Chocolate Chip Cookies</title>
  <background>
    <author>Ruth Wakefield</author>
  </background>
</recipe>
```

**Attributes:** Additional data elements that help to more accurately describe an element. Attributes have quotation-mark delimited values that further describe the purpose and content of an element. Information contained in an attribute is generally considered metadata.

```
<ingredients>
  <item quantity="1" unit="12 oz pkg.">Nestle Toll House semi-sweet chocolate morsels</item>
</ingredients>
```

The decision of whether to present your information as attributes or sub-elements will depend on your business needs.

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<sup>2</sup> Extensible Markup Language (XML) 1.0 (Second Edition). W3C Recommendation, 6 October 2000. <http://www.w3.org/TR/REC-xml>

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## Standardizing markup <sup>3</sup>

### Document Type Definition (DTD)

The document which holds the rules that govern what makes an XML document valid. A standard mechanism for defining what elements and attributes may be used in an XML document, where they may appear, and indicating their relationship to one another within the document. In other words, a DTD is the grammar of an XML document.

### XML Schema <sup>4</sup>

Specifies the structure of an XML document and constraints on its content. A schema defines the grammar of an XML document and is for validation.

What are the benefits of XML Schemas?

- XML Schema is expressed in well-formed XML. DTDs are not expressed in XML language.
- XML Schema gives you all the functionality of XML for sharing, re-using and customizing the grammar and dictionary of your mark-up language. XML Schema allows you to change schemas easily and without affecting the already formatted documents in XML.
- Offers an extensive system of datatypes that you can specify for a given element. For example, an element may be an integer, contain a period of time, contain a string, boolean, a language code, etc. DTDs are unable to restrict character data to a pattern.

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<sup>3</sup> See the following web site for a list of Document Type Definitions and XML Schemas promoted by a wide variety of industries:  
[http://www.xml.org/xml/registry\\_searchresults.jsp](http://www.xml.org/xml/registry_searchresults.jsp)

<sup>4</sup> XML Schema. W3C Recommendation, 2 May 2001. <http://www.w3.org/XML/Schema>

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## Example: Document Type Definition of a recipe

```
<!DOCTYPE recipe[
<!ELEMENT recipe (title, background, recipe_info, nutritional_info, comments, ingredients, directions)>
<!ELEMENT title (#PCDATA)>
<!ELEMENT background (author, history)>
<!ELEMENT author (#PCDATA)>
<!ELEMENT history (#PCDATA)>
<!ELEMENT recipe_info (prep_time, cook_time)>
<!ELEMENT cook_time (#PCDATA)>
<!ELEMENT prep_time (#PCDATA)>
<!ELEMENT nutritional_info (calories, fat, protein, carbohydrates, cholesterol, sodium, fiber)>
<!ELEMENT protein (#PCDATA)>
<!ELEMENT calories (#PCDATA)>
<!ELEMENT carbohydrates (#PCDATA)>
<!ELEMENT sodium (#PCDATA)>
<!ELEMENT cholesterol (#PCDATA)>
<!ELEMENT fat (#PCDATA)>
<!ELEMENT comments (#PCDATA)>
<!ELEMENT fiber (#PCDATA)>
<!ELEMENT ingredients (item+)>
<!ELEMENT directions (directions_standard, directions_variation+)>
<!ELEMENT item (#PCDATA)>
<!ELEMENT directions_standard (step+)>
<!ELEMENT directions_variation (variation_name+, step+, variation_comment?)>

<!ATTLIST item
    quantity CDATA #REQUIRED
    unit CDATA #REQUIRED>
<!ELEMENT step (#PCDATA)>
<!ELEMENT variation_comment (#PCDATA)>
<!ELEMENT variation_name (#PCDATA)>
]>
```

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**Example: Schema of a recipe**

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## Presenting XML

eXtensible Stylesheet Language (XSL) <sup>5 6</sup>

A language for expressing stylesheets.

**Stylesheet:** A definition of a document's appearance or layout in terms of such elements as default typeface, size, and color of headings and body text, how sections are laid out in terms of space, line spacing, margin widths on all sides, spacing between headings, etc. Typically expressed at the beginning of an electronic document. May be embedded in or linked to a document.

XSL Transformations (XSLT) <sup>7</sup>

A language for transforming XML documents. A tool which uses XSL to act on XML documents. XSLT is used to transform XML document contents into something else more suitable for a particular task.

Why would we want to transform a document from one format into another?

- store in one format, display in another
- convert to a more useful format

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<sup>5</sup> The Extensible Stylesheet Language (XSL). <http://www.w3.org/Style/XSL/>

<sup>6</sup> Extensible Stylesheet Language (XSL), Version 1.0. W3C Recommendation, 15 October 2001. <http://www.w3.org/TR/xsl/>

<sup>7</sup> XSL Transformations (XSLT), version 1.0. W3C Recommendation, 16 November 1999. <http://www.w3.org/TR/xslt>

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### Example: eXtensible Stylesheet Language (XSL) of our recipe

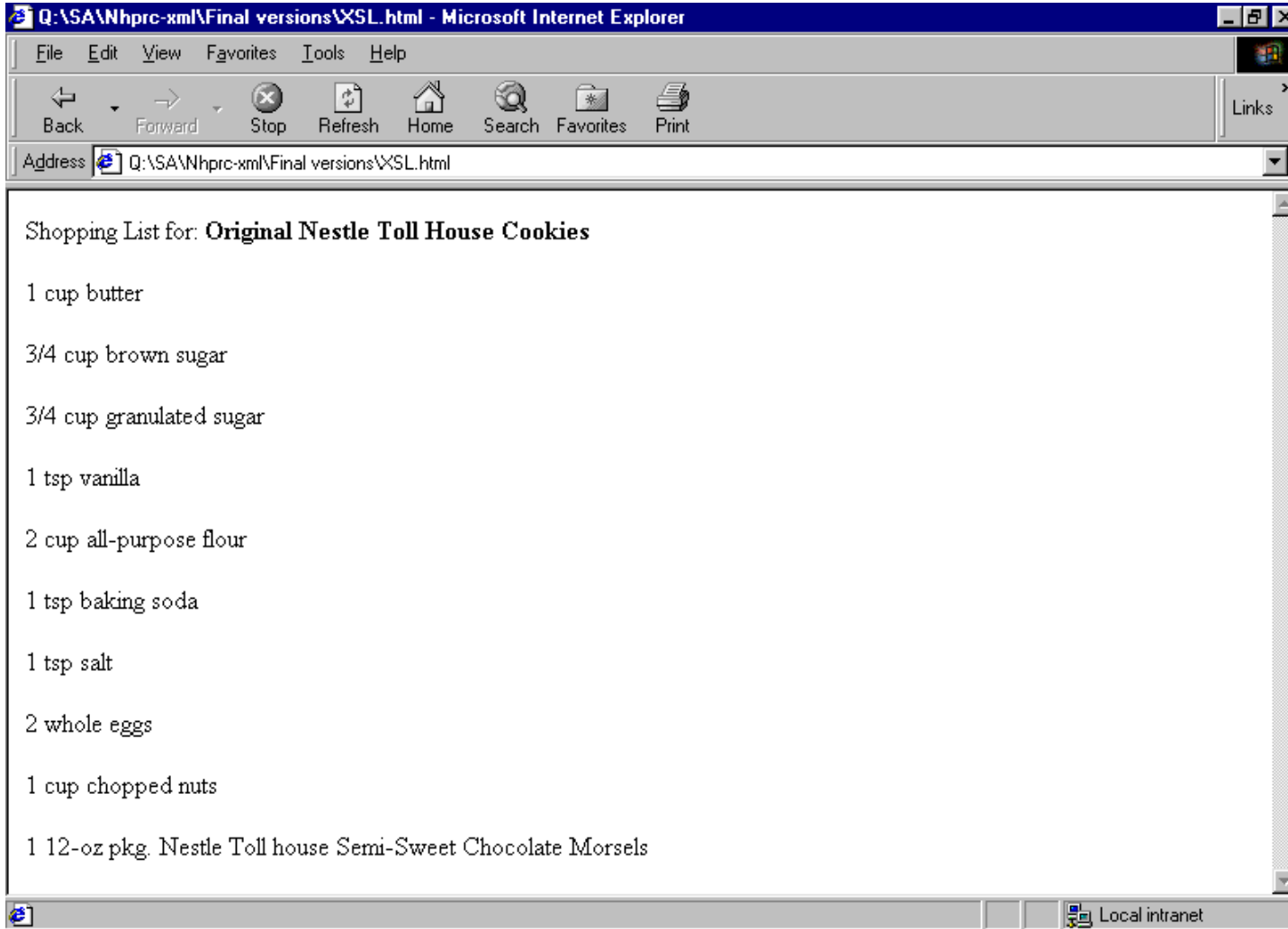
```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
  <xsl:template match="/">
    <html>
      <head/>
      <body>
        <p>Shopping List for: <b><xsl:value-of select="recipe/title"/></b></p>
        <xsl:for-each select="recipe/ingredients/item">
          <p>
            <xsl:value-of select="@quantity"/>
            <xsl:text> </xsl:text>
            <xsl:value-of select="@unit"/>
            <xsl:text> </xsl:text>
            <xsl:value-of select="."/>
          </p>
        </xsl:for-each>
      </body>
    </html>
  </xsl:template>
</xsl:stylesheet>
```

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**Exercise: XSL of a recipe. How does the above style sheet display in a browser?**



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### A markup exercise

A joke.

Two North Dakotans come into a bar, slapping each other on the back, laughing, clearly happy as clams. One says to the bartender, "We're celebrating! Give everybody a round on us!"

The bartender says, "So what's the big deal? What are you celebrating?"

And the North Dakotan says, "We just finished a jigsaw puzzle and it only took us four days."

The bartender says, "A jigsaw puzzle? Two people? Four days? That doesn't sound like much reason to celebrate."

And the other North Dakotan says, "Are you kidding? The box said '2-3 Years.'"

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## A markup exercise example

A joke.

```
<?xml version="1.0?">
<text>
  <paragraph>
    <sentence type="expository">Two North Dakotans come into a bar, slapping each other on the back, laughing, clearly happy as
      clams.</sentence>
    <sentence type="exclamation">One says to the bartender,<quotation> "We're celebrating! Give everybody a round on
      us!"</quotation></sentence>
  </paragraph>
  <paragraph>
    <sentence type="question">The bartender says, <quotation>"So what's the big deal? What are you
      celebrating?"</quotation></sentence>
  </paragraph>
  <paragraph>
    <sentence type="expository">And the North Dakotan says, <quotation>"We just finished a jigsaw puzzle and it only took us four
      days."</quotation></sentence>
  </paragraph>
  <paragraph>
    <sentence type="other">The bartender says, <quotation>"A jigsaw puzzle? Two people? Four days? That doesn't sound like
      much reason to celebrate."</quotation></sentence>
  </paragraph>
  <paragraph>
    <sentence type="other">And the other North Dakotan says, <quotation>"Are you kidding? The box said '2-3
      Years.'"</quotation></sentence>
  </paragraph>
</text>
```

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## A markup exercise example

A joke.

```
<?xml version="1.0?">
```

```
<story>
```

```
<setting>Two North Dakotans come into a bar, slapping each other on the back, laughing, clearly happy as clams.
```

```
</setting>
```

```
<dialogue>
```

```
<character1>One</character1> says to the <character2>bartender</character2>, "We're celebrating! Give everybody a round on us!"
```

```
The bartender says, "So what's the big deal? What are you celebrating?"
```

```
And the North Dakotan says, "We just finished a jigsaw puzzle and it only took us four days."
```

```
The bartender says, "A jigsaw puzzle? Two people? Four days? That doesn't sound like much reason to celebrate."
```

```
And the <character3>other North Dakotan says</character3>, "Are you kidding? The box said '2-3 Years.'"
```

```
</dialogue>
```

```
</story>
```

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# Introduction to XML for Decision-Makers

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## A markup exercise example

A joke.

```
<?xml version="1.0?">  
<humor>
```

```
  <joke taste="questionable">
```

```
    Two <ethnic subject>North Dakotans</ethnic subject> come into a bar, slapping each other on the back, laughing, clearly happy  
    as clams. One says to the <ethnic subject>bartender</ethnic subject>, "We're celebrating! Give everybody a round on us!"
```

```
    The <ethnic subject>bartender</ethnic subject> says, "So what's the big deal? What are you celebrating?"
```

```
    And the <ethnic subject>North Dakotan</ethnic subject> says, "We just finished a jigsaw puzzle and it only took us four days."
```

```
    The <ethnic subject>bartender</ethnic subject> says, "A jigsaw puzzle? Two people? Four days? That doesn't sound like much  
    reason to celebrate."
```

```
    <punchline>And the other <ethnic subject>North Dakotan</ethnic subject> says, "Are you kidding? The box said '2-3 Years.'"  
  </punchline>
```

```
</joke>
```

```
</humor>
```

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## Using XML in a program

A common language needs a:

- Vocabulary
- Dictionary
- Grammar
- And an educational system

A successful XML project needs a:

- Compelling business need
- Collaborative community
- Practical application
- And a very large up-front investment in people, time, money, and knowledge

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## Introduction to XML for Decision-Makers

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### Business needs

Data sharing

Infrastructure independent applications

Web-based transactions

Improved business processes

Legal mandates

Preservation

The **first** concern is having a real application or business need that XML may help fulfill. The second step is developing the appropriate XML language.

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## Legal mandates

E-Government Act of 2002 <sup>8</sup>

“4) enterprise architecture

(A) means

- (i) a strategic information asset base, which defines the mission;
- (ii) the information necessary to perform the mission;
- (iii) the technologies necessary to perform the mission;
- (iv) the transitional processes for implementing new technologies in response to changing mission needs”

“(6) interoperability means the ability of different operating and software systems, applications, and services to communicate and exchange data in an accurate, effective, and consistent manner;”

“(7) integrated service delivery means the provision of Internet-based Federal Government information or services integrated according to function or topic rather than separated according to the boundaries of agency jurisdiction”

Electronic Signatures in Global and National Commerce Act (E-Sign) <sup>9</sup>

“A Federal regulatory agency shall not adopt any regulation, order, or guidance described in paragraph, and a State regulatory agency is preempted by section 101 from adopting any regulation, order, or guidance described in paragraph, unless--

- (iii) the methods selected to carry out that purpose do not require, or accord greater legal status or effect to, the implementation or application of a specific technology or technical specification for performing the functions of creating, storing, generating, receiving, communicating, or authenticating electronic records or electronic signatures.”

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<sup>8</sup> H.R. 2458, E-Government Act of 2002. <http://thomas.loc.gov/cgi-bin/query/D?c107:2:./temp/~c107yKQjZ9:>

<sup>9</sup> Electronic Signatures in Global and National Commerce Act (E-Sign). <http://thomas.loc.gov/cgi-bin/query/z?c106:S.761:>

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## Introduction to XML for Decision-Makers

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### Case study: Minnesota Electronic Real Estate Recording Task Force <sup>10</sup>

Task force formed 2000

Project to end 2004

Funded by filing fee surcharge

Private-public partnership

Entirely voluntary

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<sup>10</sup> <http://www.commissions.leg.state.mn.us/lc/erertf.htm>

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## Case study: Minnesota Electronic Real Estate Recording Task Force

What do we mean by recording and electronic recording?

Recording:

- Recording is the act of entering deeds, mortgages, easements, and other written instruments that affect title to real property into the public record.
- The purpose of recording is to give notice, to anyone who is interested, of the various interests that parties hold in a particular tract of land. Recording determines the legal priority of instruments that affect title to a particular tract of land.

Electronic recording:

- A publicly owned and managed county system, defined by statewide standards, that does not require paper or “wet” signatures, and under which real estate documents may be electronically:
  - o Created, executed, and authenticated;
  - o Delivered to and recorded with, as well as indexed, archived, and retrieved by, county recorders and registrars of title; and
  - o Retrieved by anyone from both on- and off-site locations.

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## Case study: Minnesota Electronic Real Estate Recording Task Force

What are the business needs?

- Huge and increasing volume of filings
- Highly inefficient paper workflow between automated activities
- Secondary mortgage market demand for digital records
- Increasing complexity of property rights and descriptions
- Legislative mandate to develop common technical and information architectures

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## Case study: Minnesota Electronic Real Estate Recording Task Force

What are the options?

- Level 1: images and minimal metadata (scan paper documents and send them in an e-mail message that is manually processed)
- Level 2: images, metadata, digital or digitized signature (scan documents with some substantive metadata that can be automatically processed)
- Level 3: so-called “smart” documents in XML format, following recognized standards (create documents in an XML format which can be entirely processed automatically, populating tract and grantor/grantee indexes, calculating taxes and fees, validating legal descriptions, forwarding approvals and authorizations to different offices, etc.)

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### Case study: Minnesota Electronic Real Estate Recording Task Force

What are the problems?

- Ordinary challenges to re-engineering
- Extraordinary political challenges to re-engineering
- Connectivity to existing systems
- Resources
- Setting standards
- Role of the archivist

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## Case study: Minnesota Electronic Real Estate Recording Task Force

How are we using XML?

- Business and workflow analysis
- Data and process models
- National standards: Mortgage Industry Standards Maintenance Organization (MISMO) and Property Records Industry Joint Task Force (PRIJTF)
- Schemas <sup>11</sup>
- XSLT

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<sup>11</sup> <http://www.commissions.leg.state.mn.us/lcc/erertfdrafts/>

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## Introduction to XML for Decision-Makers

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**You will have to make choices. One person or organization cannot do it all**

The first choice is XML right for me?

Components:  $X + Y + Z =$  resources, tools, standards/methodologies, education, technology, partners

Variables for the Electronic Real Estate Recording Task Force:

- Resources: consultants with business analysis and XML expertise, a special surcharge on filing to generate sufficient funds, volunteers with subject matter expertise.
- Tools: business analysis, communication, negotiation, web sites, facilitated meetings, pilots, subcommittees.
- Standards/methodologies: XML, XML Schemas, national standard with local extensions.
- Education: not enough of it, no common basis of understanding of the choices.
- Technology: web-based transactions, digital signatures, imaging, XML as middleware between legacy applications.
- Partners: banks, realtors, title companies, Fannie Mae, an archivist, county officials, state agencies, legislators ...



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# Introduction to XML for Decision-Makers

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Thank you

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## APPENDIX A

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# Appendix A

## Comparing SGML, HTML, and XML

	Standard Generalized Markup Language (SGML)	Hypertext Markup Language (HTML)	eXtensible Markup Language (XML)
Standard	ISO standard 1986 [ISO 8879:1985]. Approximately 500 pages.	Current version HTML 4.01. Recommendation first released on 18th December 1997. 389 pages. Created by Tim Berners-Lee and Robert Caillau at CERN in 1991.	eXtensible Markup Language (XML) 1.0 (Second Edition). W3C Recommendation 6 October 2000. 59 pages.
Def.	An international documentation standard for defining descriptions of the structure of different types of electronic documents.	Web-based document presentation standard.	Document processing standard.
Use	Used for describing thousands of different document types in many fields. Used primarily for technical documentation and government applications, and in industries with huge documents, such as medical records, company databases, and aircraft parts catalogs.	Used worldwide by anyone creating web pages.	Gaining use.
Description	A method for creating interchangeable, structured documents. Content markup.	HTML is a SGML application used on the web. Markup for presentation or format. Most HTML browsers do not support basic SGML constructions, but nearly all SGML authoring tools are capable of producing good HTML documents.	XML is not a SGML application, rather a set of simple conventions for using SGML without some of the more esoteric features. Known as simplified SGML, XML is a lightweight cut-down version of SGML which keeps enough of its functionality to make it useful but removes all the optional features, and the more complex and less-used parts of SGML, in return for being easier to write applications for, easier to understand, and more suited to delivery and interoperability over the Web.

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## **APPENDIX B**

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## Appendix B

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### List of Acronyms

ASI	Advanced Strategies, Inc.
CDATA	Character Data
DTD	Document Type Definition
E-SIGN	Electronic Signatures in Global and National Commerce Act
HTML	Hypertext Markup Language
IT	Information Technology
MHS	Minnesota Historical Society
MISMO	Mortgage Industry Standards Maintenance Organization
NAGARA	National Association of Government Archives and Records Administrators
NHPRC	National Historical Publications and Records Commission
PCDATA	Parsed Character Data
PDF	Portable Document Format
PRIJTF	Property Records Industry Joint Task Force
SGML	Standard Generalized Markup Language

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## Appendix B

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### List of Acronyms (continued)

W3C	World Wide Web Consortium
XML	eXtensible Markup Language
XSL	eXtensible Stylesheet Language
XSLT	XSL Transformations

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## **APPENDIX C**

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## Appendix C

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### Free XML tools and editors

- XML Editor:
  - XML Cooktop  
<http://www.xmlcooktop.com/>
  
- Online tools
  - Parser
    - Userland Frontier  
[http://frontier.userland.com/stories/storyReader\\$1092](http://frontier.userland.com/stories/storyReader$1092)
  - Well-formedness and validator
    - <http://www.cogsci.ed.ac.uk/~richard/xml-check.html>
  
- Other
  - The Apache XML Project  
<http://xml.apache.org>
  
  - netbeans.org  
<http://www.netbeans.org/nonav/index2.html>

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## Appendix C

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### Free XML tools and editors (continued)

- URLs with access to many tools:
  - XML.com  
<http://www.xml.com/buyersguide/>
  - XML Cover Pages  
<http://www.oasis-open.org/cover/publicSW.html#xmlTools>
  - <http://www.xmlsoftware.com>
  - Information by Lars M. Garshol  
<http://www.garshol.priv.no/download/>
  - sourceforge.net  
<http://sourceforge.net/>

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# Appendix C

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## XML tools and editors that are not free

- Editors
  - XMetal – SoftQuad, Inc.  
[http://www.softquad.com/top\\_frame.sq](http://www.softquad.com/top_frame.sq)
  - Xeena  
<http://www.alphaWorks.ibm.com/tech/xeena>
  - XMLSpy  
<http://www.xmlspy.com>
  - ArborText – Epic  
<http://www.arbortext.com/>
- Parsers
  - Xerces  
<http://www.alphaworks.ibm.com/tech/xml4j>
  - Expat  
<http://expat.sourceforge.net>
- Other tools
  - TIBCO Extensibility  
<http://www.tibco.com/products/extensibility/>
  - XML Notepad – MSDN  
<http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnxml/html/xmlpaddownload.asp>

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## Appendix C

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  - Macromedia  
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  - Microsoft  
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## **APPENDIX D**

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- XML Schema  
<http://www.w3.org/XML/Schema>

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- Mozilla 1.0  
<http://www.mozilla.org/>
- Opera 5 (and higher)  
<http://www.opera.com/>
- Netscape 7.0  
<http://www.netscape.com/>

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