What is Akoma Ntoso?

Akoma Ntoso¹ is a set of simple, technology-neutral XML machine-readable descriptions of parliamentary, legislative and judiciary documents such as legislation, debate record, minutes, judgements, etc. that enables the addition of descriptive structures (markup) to the content of parliamentary and legislative documents. The AKOMA NTOSO schema makes the structural and semantic components of digital legislative documents fully accessible to machine-driven processes thereby supporting the creation of high-value legislative information services. This can greatly improve efficiency and accountability in the

¹ "Akoma Ntoso", “linked hearts” in the language of the Akan people of West Africa, is the symbol that represents understanding and agreement. Likewise, Akoma Ntoso represents common XML standards that provide open access to parliamentary documentation and allow Parliaments to exchange information more efficiently, just like “linked hearts”.

parliamentary, legislative and judiciary contexts.

This also makes it possible to build software applications to manipulate legal documents in terms of their structure and semantic context rather than simply as plain undifferentiated text. Such contextual access to legislative information makes it easier to use ICT technologies to assist institutions and citizens to become more involved in the legislative process.

Akoma Ntoso has been developed in the context of a project by the United Nations Department for Economic and Social Affairs (UN/DESA) aimed at fostering open access in African Parliaments and its maintenance is currently supported by the Africa i-Parliaments Action Plan of UN/DESA. It is now being adopted or entering as good practice in a number of other countries (e.g., Senate of Brazil and European Parliament) that aim to adopt and/or to adapt it to their legal systems and purposes.

The technical staff is currently developing a modularisation of the full Akoma Ntoso language aimed at extracting sub-schemas focused on particular types of documents:

- **Akoma4Legislative** for marking up legislative documents in any phase of its lifecycle: bill, act, amendments, report of the committee.
- **Akoma4ParliamentaryDocuments** for marking up debates, reports, orders of the day, motions, questions-answers, minutes.
- **Akoma4Justice** for marking up judgements. It defines how to mark up the header, the structure, the metadata, the citations to any kind of judiciary document (law, jurisprudence, judgements, articles, books, etc.) and also to define the permanent identifier (using the W3C URI standard) of these digital resources. It is also possible to qualify the citations by using a derivation of the Shepard classification system adopted, among others, by LexisNexis.

**Objectives of the Technical Committee**

The objectives of the Akoma Ntoso Technical Committee (TC) are to:

- promote a common legislative and Akoma Ntoso OASIS standard for creating a world-wide best practice that helps in the dissemination of the usage of XML within the Parliaments’ document management processes;
- collect the requirements from the community of the stakeholders managing legislative and legal documents (editors, libraries, public institutions, tribunals, publishers, etc.) in order to extend and refine the standard;
- set up a community that supports the stakeholders in order to adopt Akoma Ntoso locally;
- provide technical specifications and documentation in order to support the developers of tools and software applications relying on Akoma Ntoso.

**Why a TC on Akoma Ntoso?**

The legislative and judiciary information needs particular attention in order to preserve the legal knowledge when paper is de-materialized into digital resources. Much legal knowledge is embedded in these documents and a specific approach is necessary to prevent losses in the accompanying metadata, which is sometime fundamental for the correct completion of the Parliament processes.
An interdisciplinary virtuous circle is essential, yet often neglected: from the formulation of legislative/judiciary drafting guidelines that support XML standard requirements, to the development of tools that help in applying the XML standard in its day-by-day use, and to the design of all the mechanisms to improve the organization of the Parliaments and Courts and to create innovation, transparency, assessment, and efficacy.

The legal culture, the legislative traditions, the political procedures, the legal principles have to be taken in consideration as the pillars in this domain, particularly as ICT opens new opportunities.

For these reasons, we need to set up a technical committee which, departing from the best practices and the legal principles of legislative drafting, aims to model, represent, and manage legal documents as authorial, authentic, valid digital resources persistent over time (e.g. valid also after 100 years).

Parliament ICT team and legislative offices shall not only be end-users, but stakeholders and decision makers in this process. To this end, it is important to apply a bottom-up methodology to design an XML schema using a consensus-building approach, rather than building a pure technical XML schema as a data format or as a protocol for communication.

**Make Akoma Ntoso an OASIS Standard: Stability and ROI**

Parliaments need to invest in a robust, persistent, non-volatile Akoma Ntoso standard for representing legal documents, legislative and judiciary workflow (e.g. ECF), lifecycle events, legal metadata, modelling relationships with ontology and eventually with rules (e.g. LegalRuleML initiative).

For this reason, based on the success of Akoma Ntoso several Parliaments have an urgent need to use a standardized format inside a well-controlled workflow, endorsed by a strong management procedure, within an accredited standard organization like OASIS.

This process of accreditation will allow adopters and users of Akoma Ntoso to develop and produce an environment of software tools specifically for Akoma Ntoso (e.g. editors, web services, open data set, etc.). It will also increase the interest of the tech-industry sector and permit Parliaments to make long-term investment plans on the standard with a reasonable
return of benefits.

Without standardization and endorsement by a standards body and availability of tools is not possible to practically produce XML in the legislative workflow and as a result the Parliaments are not encouraged to use Akoma Ntoso (e.g. versus PDF) nor are they willing to invest in terms of organization management, personnel training, tools customization, etc.).

The interoperability is another positive side effect expected from this TC, especially in the supra-order legislative system (e.g. European Institutions) or between the Member States in Europe or among the Federate States (e.g. Brazil, USA, etc.) towards a particular format.

**Goals of Akoma Ntoso**

The AKOMA NTOSO framework is underlined by the following strategic goals:

To create a **common** legal document standard for the interchange of parliamentary, legislative and judiciary documents between institutions anywhere in the world.

To provide a format for **long term storage** of and access to parliamentary, legislative and judiciary documents allowing search, interpretation and visualization of documents.

To create a **common data and metadata model** so that experiences, expertise, and tools can be shared and extended by the participating peers, be their Courts, Parliaments or Governments.

To create a **common mechanism for naming and linking resources (URI)** so that documents produced by Parliaments and Courts can be easily cited and cross-referenced by other Parliaments, Courts or individual users.

To be **self-explanatory**, that is to be able to provide any information for its use and meaning through a simple examination of schema or example documents, without the aid of specialized software.

To be **extensible**, that is it to allow modifications to the models within the AKOMA NTOSO framework so that local customisation can be achieved without sacrificing interoperability with other systems.

**Functional Requirements of Akoma Ntoso**

**LEGAL AND LEGISLATIVE ORIENTATION.** The Akoma Ntoso standard provides a representation of the main structures of legal documents using a legal approach that provides the best combination of technological excellence and sophisticated juridical competency. In this context, XML has to capture the relevant legal metadata of the single act (law, decree, etc.), along with the metadata of the whole publication per se. The legislative documents express and embed cultural values, legal principles, a territory’s sovereignty, the political management class’ intellectual occupations, and historical traditions. For these reasons it is incumbent upon us to represent all this knowledge in the best way, so as to preserve the legal values for the next generation.

**DESCRIPTIVENESS.** The Akoma Ntoso standard preserves the document’s original description and avoids an excessive generalization of the elements. That helps the back-office mark-up phase to recognize the correct application of the tags, and it helps also the document’s external application by making it self-explanatory. The tag vocabulary guides the users to understand the meaning (e.g., article tags obviously represent the basic normative unit; block tags are too general and ambiguous).
PRESCRIPTIVENESS. The Akoma Ntoso standard implements rules and constraints directly drawn from the legal domain, and they can be used to increase the quality of available legal information (e.g., by supporting local legal-drafting rules). The rules embedded into the XML schema improve quality and provide a grid that the authors, editors, and documentalists must use in achieving harmonization over time.

STRUCTURE MODELING. The Akoma Ntoso standard fully describes the document’s original structure when expressed in XML. The proper attention is given to the textual content and to the metadata associated with it, so as to respect the author’s subdivision of the document. The official gazette’s cover page is no longer a subsidiary part of the gazette: it is the expression of a procedural step, representing a precise lawmaking provision.

STRONG SEPARATION OF LEVELS. The Akoma Ntoso standard strongly separates all the layers of the semantic Web: content, structure, metadata, ontology, and rules.

STRONG NAMING POLICY. The Akoma Ntoso standard adopts at all levels a syntax based on URIs that can be used to precisely refer to the concept being sought. This makes it possible to correctly and specifically support a large class of references, including static legal references, dynamic legal references, data-level object inclusion, and ontological references.

STRONG TEMPORAL MODEL. The Akoma Ntoso standard correctly represents the temporal model underlying the concept of a legal document’s dynamicity over time. Based on the naming policy, it makes it possible to represent versions, variants, and documents containing a plurality of versions, as well as static and dynamic references.

STRONG WORKFLOW MODEL. The Akoma Ntoso standard includes a mechanism for expressing workflow events connected as well with a strong context ontology.

INTERCHANGE DOCUMENT FORMAT. The Akoma Ntoso standard provides a data-interchange format from one standard to another, as well as between legacy systems, application layers, and different data formats. It is both an interchange and interoperability standard.

HOMOGENEOUS PUBLISHING FORMAT. The Akoma Ntoso standard provides an open document infrastructure for publishing heterogeneous collections of legal resources, independently of the type of legal document and legal system, and independently of jurisdiction.

Technical Requirements of Akoma Ntoso

The technical requirements are as follows.

NEUTRAL AND OPEN DOCUMENT FORMAT. The Akoma Ntoso standard provides a homogeneous infrastructure for representing the structure of heterogeneous legal resources. The standard should be public, open, well documented, and distributed across the community. A closed and proprietary XML standard will not help any Open Government Initiatives, even if the data format becomes the vogue.

RELIANCE ON EXISTING STANDARDS. The Akoma Ntoso standard completely and correctly makes use of, and is based on, Web standards: XML, URIs, XML Schema, XML Namespace, RDF, OWL, etc.

METADATA MODELLING. The Akoma Ntoso standard associates documents with a rich set of meta-data elements, designed for providing not just values, but the semantics associated with them, and providing a principled framework for reasoning on and comparing abstract and concrete concepts the documents and their content.

MINIMAL REQUIRED METADATA SET FORMAT FOR QUERIES. The Akoma Ntoso standard guarantees a minimal metadata set for the interoperability of queries within heterogeneous
collections of legal documents expressed in different local and national standards. It increases interoperability between different document databases. Initiatives such as N-Lex or Eur-Lex could take advantage of those requirements to manage all legal sources coming from different countries with the same data software architecture and tools without the need to have the actual data format converge into a single one.

**PATTERN DESIGN ORIENTED.** The Akoma Ntoso standard is designed to respect classes of patterns [4]. In other words, we define classes of tags with properties in line with a certain content model, which identifies the structure allowed within the element. Most of the elements in the Akoma Ntoso standard have very similar structural descriptions. These structural descriptions (the patterns) are seven, and any other tags in the schema belong to them. The advantages of this approach are the modularization of the schema, flexibility with respect to extensions, and the consistency of behaviours for each class of elements. Especially this last feature favours the development of tools.

The Akoma Ntoso standard is designed to enable all the aforementioned characteristics; and this gives us an advantage in achieving the goal of long-term preservation. Still, we want to analyse now how an XML file could acquire legal binding proprieties, and how it is possible to keep these properties as a stable requirement for preserving authenticity, integrity, and validity over time in the face of technological change.

First of all, the properties we refer to must be given new definitions on a legal-informatics approach. There are four definitions in particular:

**AUTHENTICITY** in this context consists in having certain elements for declaring that the document is endorsed by an empowered authority, through an official chain of power and roles, and that the content is compliant with the document’s original version, meaning the version the authors, acting through their sovereign powers, wanted and decided to issue.

**INTEGRITY** consists in being able to detect any changes that may have intervened between the document’s individual digital items (physical copies) and the original master file. Also, any alteration or graphical transformation could modify the human cognitive perception of the normative and legal content, and so integrity is not confined to guaranteeing the correctness of the hash-algorithm control, but is also meant to preserve the layout form, which is as well an instrument for communicating the correct interpretation of the law.

**VALIDITY** is achieved once all the normative rules are applied (including the signature) with which to produce an enforceable and legal binding document.

**PERSISTENCY** consists in storing the document in the long run, and in archiving all the connected information concerning the XML standard’s entire logical schema, the history of the document and how it is produced (e.g., hardware, software, etc.), the different layers of annotations, and the various persons in charge during mark up. In other words, persistency consists in having information with which to trace the document’s whole lifecycle.
**Akoma Ntoso Schedule and Plan**

The schedule is defined as follows, distributed over four years:

| First Year | Publication of the draft standard specification document for the 30-days public review  
Collection of the comments  
Consolidation of the draft version  
Publication of the draft standard specification document for the 30-days public review  
Collection of the comments  
OASIS Standard Candidate, Public Review (60-days) and Ballot |
|---|---|
| Second Year | Add new functionalities to the standard  
Maintain the standard  
Disseminate and exploit the standard  
Support applications and tools based on the standard |
| Third Year  
(and following) | Maintain the standard  
Disseminate and exploit the standard  
Support applications and tools based on the standard |

**First year roadmap**

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<th>WP</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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</table>
| First round | 1. Specifications definition  
2. Documentation  
3. Publication of the draft standard specification document for the 30-days public review | | | |
| Second round | | 1. collection of the comments  
2. consolidation of the draft version  
3. Specifications definition  
4. Documentation  
5. Publication of the draft standard specification document for the 30-days public review | | | |
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<th>Third round</th>
<th>1. Pilot Cases candidature</th>
<th>2. OASIS Standard Candidate, Public Review (60-days) and Ballot</th>
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<th>Fourth round</th>
<th>1. Standard fixed</th>
<th>2. Documentation</th>
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<td>3. Pilot Cases documentation</td>
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References


To LegalXML Steering Committee

To whom it may concern

On behalf of the CIRSFID, University of Bologna, I herewith confirm our interest to participate in the above mentioned Akoma Ntoso initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

My institution is active in the field of the above mentioned Akoma Ntoso community since 2006. Monica Palmirani is a technical member of Akoma Ntoso Technical Committee and she is legal designer of the standard with Fabio Vitali, professor of the Computer Science of the same Bologna University and member of the CIRSFID doctoral board.

CIRSFID has been involved since the beginning to the creation of Akoma Ntoso standard. It promoted tools (e.g. Norma-Editor), legislative drafting guidelines compliant with Akoma Ntoso, developed teaching documentations, proof-of-concept of the usage of Akoma Ntoso.

CIRSFID organizes, with the help of a network of excellence (summerschoollex.cirsfid.unibo.it), every year, since 2007, the Summer School LEX (Legislative XML) for promoting and disseminating Akoma Ntoso into the academia and public administration bodies.

Monica Palmirani

Bologna, 25 September, 2011
Letter of interest

TO: LegalXML-OASIS Steering Committee

The National Council for Law Reporting is a state corporation in The Judiciary of Kenya. Its mandate is to publish the official reports of the judicial opinions of the courts of Kenya, to revise, consolidate and publish the Laws of Kenya and to compile such other related publications. The Council’s website – www.kenyalaw.org - is one of the Africa’s leading public legal information portals.

On behalf of the National Council for Law Reporting (Kenya), I herewith confirm our interest to participate in the above mentioned LegalXML initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

The National Council for Law Reporting is active in the field and in the Akoma Ntoso community since 2007, as a partner of the United Nations Department for Economic and Social Affairs under the Africa i-Parliaments Action Plan in the implementation of Akoma Ntoso and its tools in managing and deploying parliamentary, legal and judicial information in Kenya.

Our role in the initiative will be to apply and promote the use of Akoma Ntoso and its tools in managing and providing access to public legal information in Kenya.

Sincerely,

M.M. Murungi
CEO/EDITOR

Transforming Legal Information into Public Knowledge
Board of Directors
Chief Justice* | Judge of Appeal | Puisne Judge | Attorney General | A Public Officer | Law Society of Kenya** | Dean, School of Law, University of Nairobi | Government Printer | The Editor***

*Chairman, **Two Advocates ***C.E.O.-Secretary.

Technology in Government in Africa Award, 2011
Company of the Year Award (COYA) - Judges Award, 2010
Roma, 29 settembre 2011
Prot. n. 939

To:
OASIS (Organization for the
Advancement of Structured Information
Standards)
LegalXML-OASIS Steering Committee
To whom it may concern

Subject: letter of interest in Akoma Ntoso standardization initiative

On behalf of the ICT Development Office of the Italian Senate, I herewith confirm our interest to participate in the above mentioned Akoma Ntoso initiative, and in particular to open a specific Technical Committee inside of the LegalXML member section.

The mission of the ICT Development Office is to design and develop ICT solutions for the Italian Senate, for improving work processes, and contributing with excellence in order to fulfill Senate's institutional role.

As a consequence, the Office I direct is active in the field of the above mentioned Akoma Ntoso community since 2008.

Our role in the initiative will be technical, contributing to the discussion of Akoma Ntoso standardization, as well as of mentoring.

Yours sincerely,

Il Consigliere parlamentare
reggente l'Ufficio per lo sviluppo dei sistemi informatici automatizzati
(Ing. Carlo Marchetti)
To LegalXML Steering Committee  
To whom it may concern  

Reference:  
Your reference:  
Our reference: mo  

Bern, 30 September 2011  

Akoma Ntoso Initiative  

On behalf of the Center for Official Publications of the Swiss Federal Chancellery, I herewith confirm our interest to participate in the above mentioned Akoma Ntoso Initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.  

Our institution is active in the field of the above mentioned Akoma Ntoso community since 2010. In particular the mission of our institution is to publish weekly the swiss federal legislation since 1849. We will renew our ICT-systems during the next 3 years and are interested to base our new systems on Akoma Ntoso if it becomes an official international standard.  

Our role in the initiative will be technical, contributing to the discussion of Akoma Ntoso standardization.  

Best regards.  

Michel Moret  
Head, Centre for Official Publications  

Federal Chancellery FCh  
Michel Moret  
Feldeggweg 1, 3003 Bern  
Tel. +41 31 322 24 53, Fax +41 31 322 58 51  
michel.moret@bk.admin.ch  
www.bk.admin.ch
To: LegalXML-OASIS Steering Committee  
Subject: Akoma Ntoso TC Proposal

On behalf of PRODASEN (IT Department of the brazilian Federal Senate), I herewith confirm our interest to participate in the Akoma Ntoso initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

My institution is active in the Akoma Ntoso community since 2007.

In particular, PRODASEN’s mission is to provide and manage information and communications technology solutions to the Federal Senate, as well as improving work processes, contributing to fulfill Senate’s institutional role for the benefit of brazilian society.

Our role in the initiative will be technical, contributing to the discussion of Akoma Ntoso standardization.

Sincerely,

João Alberto de Oliveira Lima  
Analista de Informática Legislativa
To LegalXML Steering Committee
To whom it may concern

On behalf of the Chilean Library of Congress, I herewith confirm our interest to participate in the above mentioned Akoma Ntoso initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

My institution is active in the field of the above mentioned Akoma Ntoso community since 2010.

In particular the mission of the Chilean Library of Congress is to serve the National Congress of Chile, promoting the activities carried out by the Senate and the Chamber of Deputies, to update legislation and to collect and provide all citizens with the information gathered from multiple sources. The Library provides knowledge and information in public policy issues to MP’s, and actively collaborates as a link between Parliament and civil society. The Library has a very important role in providing up to date legislation and promoting the comprehension of the laws to all citizens, and provide support to Congress in oversight, legislative representation activities. The Library is responsible of the historical information about the legislative process.

Our role in the initiative will be technical contributing to the discussion of Akoma Ntoso standarization

Christian Sifaqui
Jefe de Sistemas y Servicios de Información en Red
Biblioteca del Congreso Nacional de Chile

Valparaiso, 28 September 2011
To: The Legal CML-OASIS Steering Committee  
From: MIS manager, Parliament of South Africa

**Letter of interests: Participation in the LegalRuleML initiative**

On behalf of the Parliament of South Africa, I herewith confirm our interest to participate in the above mentioned LegalRuleML initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

My institution is active in the field of the above mentioned Akoma Ntoso community.

In particular the mission of the Parliament of South Africa is: "As the freely elected representatives of the people of South Africa, Parliament's mission is to represent and to act as the voice of the people, in fulfilling its constitutional functions of passing laws and overseeing executive action."

Our role in the initiative will be to assist in advancing an overall industry standard information reference framework to improve collaboration between Parliaments and contributing to the Akoma Ntoso standardization.

[Signature]

JJ Pieterse  
(MIS Manager)

Cape Town, 2011/09/30
September 28, 2011

To: LegalXML-OASIS Steering Committee

Letter of Interest

To whom it may concern,

On behalf of the Xcential Group LLC, we herewith confirm our interest to participate in the Akoma Ntoso initiative and in particular to open a specific Technical Committee for a legislative schema inside of the LegalXML member section.

Our business has been active in the field of legal informatics since 2002. In particular, our mission is to provide legislative solutions based on XML and publishing technologies. We developed the XML schema in use by the State of California as well as their bill drafting and publishing solutions. Our products have been in production use by the California Office of the Legislative Counsel since 2004. In addition, we developed a second XML schema for our public facing bill tracking application for presenting and analyzing California bills by the public at large.

We have been working with Akoma Ntoso since 2010 and have integrated Akoma Ntoso into a technology prototype at http://legix.info. This site publishes all available California Bills and Statutes in Akoma Ntoso.

Our role in the initiative will be technical, contributing to the discussion of Akoma Ntoso standardization.

Bradlee Chang & Grant Vergottini
Owners, Xcential Group, LLC
Letter of interests

To: LegalXML-OASIS Steering Committee

Subject: Akoma Ntoso TC Proposal

On behalf of the Department of Electronics, Telecommunications and Informatics of University of Aveiro, Aveiro, Portugal, I herewith confirm our interest to participate in the above mentioned LegalXML initiative and in particular to open a specific Technical Committee inside of the LegalXML member section.

My institution is active in the field and in the Akoma Ntoso community since 2011.

We have been working with the Portuguese Parliament since 1999 and with Ministry of Justice of Cape Vert since 2009.

Our role in the initiative will be a technical role and research supervision to thesis and research works, contributing to the Akoma Ntoso Standard.

Aveiro, 2011-09-29

Professor Joaquim Amado Martins
(Head of Department)