

ESTRELLA
 European project for
 Standardised Transparent Representations in
 order to
 Extend Legal Accessibility
 027665



September 19th 2005

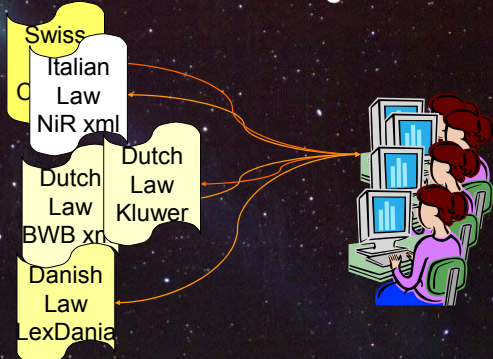
ESTRELLA

The short (but incomplete) version

Radboud Winkels



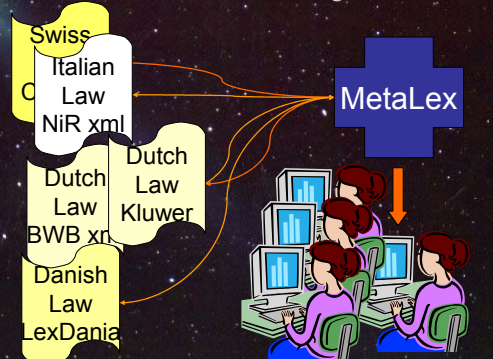
ESTRELLA Different formats describing sources



Swiss
 Italian Law
 NiR xml
 Dutch Law
 Law Kluwer
 BWB xml
 Danish Law
 LexDania

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ESTRELLA Different formats and interchange format

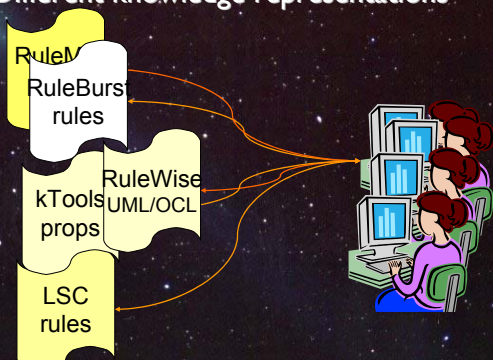


Swiss
 Italian Law
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MetaLex

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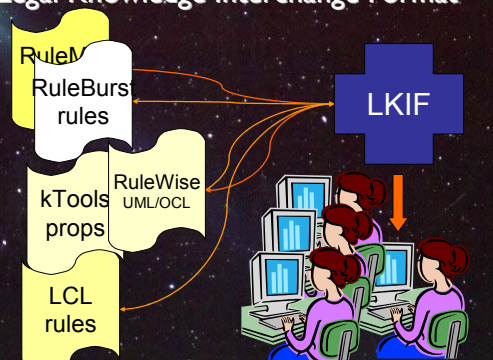
ESTRELLA Different knowledge representations



RuleM
 RuleBurs rules
 RuleWise UML/OCL
 kTools props
 LSC rules

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ESTRELLA Legal Knowledge Interchange Format



RuleM
 RuleBurs rules
 RuleWise UML/OCL
 kTools props
 LCL rules

LKIF

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The longer (but incomplete) version.

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Motivation

- ★ Increasing complexity and quantity of legislation and regulations.
- ★ Deregulation and efforts to reduce bureaucratic red tape are insufficient
- ★ The trend towards ever more complex laws reflects complexity of relationships in a global economy


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Motivation (2)

- ★ Legal complexity causes severe problems for businesses, citizens and public administrations (2002 figures):
 - ✓ Bureaucracy costs currently make up between 2 and 5 percent of the German Gross National Product and have risen more than 25% in the last eight years
 - ✓ In the Netherlands the total administrative costs is 16 billion per year, including 4 billion administrative cost for tax-related obligations
 - ✓ The bureaucracy costs for small and medium size companies currently reduce their profits by 50%.

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Motivation (3)

- ★ All citizens are expected to know and abide by the law
- ★ To the extent citizens are not able to understand their rights and obligations, they will lose faith and trust in our political institutions and the legitimacy and credibility of democracy will suffer.


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Solution

- ★ Legal knowledge systems (LKS) are the key technology for managing the complexity of legislation
- ★ LKS enable new online e-government services in which determinative transactions requiring the application of complex legislation such as tax benefits or social security administration
- ★ LKS can give citizens and businesses immediate access to a personalized and transparent assessment of their rights and obligations.

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LKS take-up Problem

- ★ Although LKS have a proven track record of successfully developing and deploying systems for public administration which enable citizens businesses and public administrations to cope with complex legislation
- ★ The further acceptance and dissemination of legal knowledge technology, and thus the further growth of this market, is severely hampered by the lack of an open platform.
- ★ Public administrations are understandably reluctant to invest heavily in closed, proprietary solutions.

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Estrella's Aims

- ★ ESTRELLA will solve this problem by bringing experts and representatives of all stakeholders together to collaborate on the development of an innovative open platform for legal knowledge systems that advances the state of the art, enabling new services, while protecting investments by enabling legal knowledge systems to interoperate.

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Estrella's Objectives

- ★ Develop and validate an open, standards-based platform allowing public administrations to develop and deploy comprehensive legal knowledge systems, without becoming dependent on particular products
- ★ Support the integration of legal document management and legal reasoning support systems

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Estrella's Objectives (2)

- ★ Provide a complete solution for improving the quality and efficiency of the determinative processes of public administration requiring the application of complex legislation and other legal sources.
- ★ Facilitate a market of interoperable components for legal knowledge systems.
- ★ Opportunities to exchange and couple LKs across jurisdictions and frontiers.

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Technical Objectives

- ★ Develop a Legal Knowledge Interchange Format (LKIF) build upon standards of the Semantic Web, including RDF and OWL.
- ★ Application Programmer Interfaces (APIs) for interacting with LKIF compliant legal knowledge systems
- ★ Transfer state of the art results from Artificial Intelligence and Law research into practice.

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Technical Objectives (2)

- ★ The LKIF will allow modelling of legal knowledge including:
 - ✓ meta-level rules for reasoning about rule priorities and exceptions
 - ✓ legal arguments
 - ✓ legal procedures
 - ✓ cases and case factors
 - ✓ values and principles.

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Technical Objectives (3)

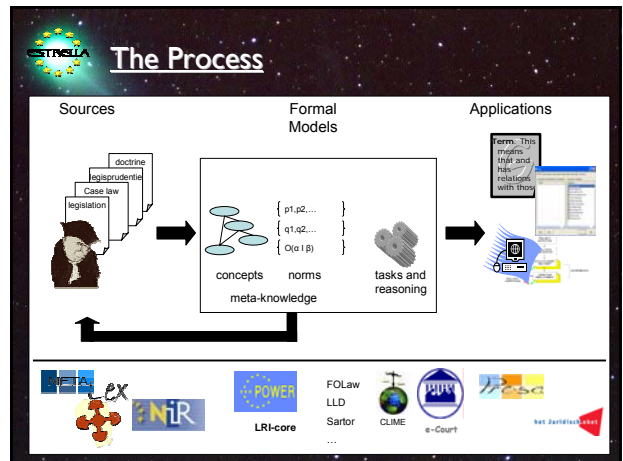
- ★ OWL ontology of basic legal concepts, e.g.:
 - ✓ obligations
 - ✓ permissions
 - ✓ rights and powers
- ★ This ontology can be reused when modelling specific legal domains, such as tax law.
- ★ Reference "inference engine" and run-time environment for LKIF

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ESTRELLA Technical Objectives (4)

- ★ Develop translators between the existing proprietary formats of LKS vendors participating in the project and the corresponding LKIF structures.
- ★ Design a document management system for legal sources, based on a uniform XML format, enabling:
 - ✓ search,
 - ✓ explicating relations with other documents,
 - ✓ drafting of new documents,
 - ✓ version management.

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ESTRELLA Validation (1)

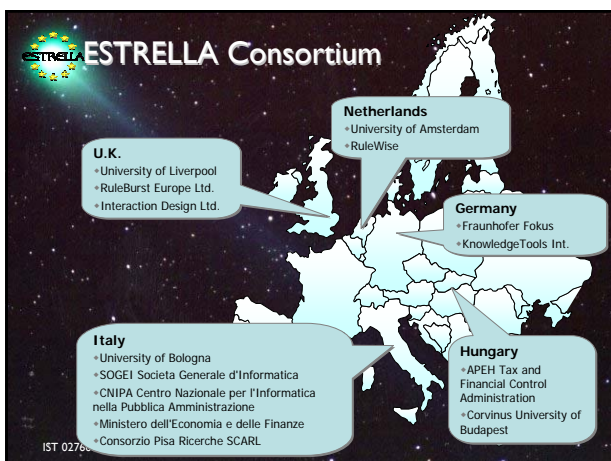
- ★ European legislation and national tax legislation of two European countries will be modelled and used for pilot applications.
- ★ Finance ministries of several European countries are taking part in the project, either as a full partner, or in the Observatory Board.

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ESTRELLA Validation (2)

- ★ The experiences of the partners in the project and in the Observatory Board will assure that although the domain chosen for validation of LKIF is EU and tax-related regulations, the LKIF formalism will be general enough to cover all legal domains.
- ★ The state of the art in AI and law, on which LKIF will be based, covers all of law, not one particular area

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ESTRELLA Consortium: Roles & Tasks

- ★ Academic partners
 - ✓ General framework
 - ✓ Independent Open Standard
- ★ Industrial partners
 - ✓ Take-up and Market Development
 - ✓ Requirements and Validation
- ★ Public Administrations
 - ✓ Provide legal content
 - ✓ User requirements and validation

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ESTRELLA LKIF Requirements

- ★ Theoretical
 - ✓ Academic partners
- ★ Pragmatic
 - ✓ Public Administrations
 - ✓ Industry
 - ✓ Other Users
- ★ Existing Technologies
 - ✓ W3C
 - ✓ Industries

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Visual representation of product information and operational

Visualisation of law based on a simple visual grammar

Enriched with operational processes on the basis of market demands, experience and the strategic orientation of your enterprise

Links

- Hayward BA Links to external information
- Williams G Sources
- Andrews WJ Sources
- Carvery WT Sources
- Lindstrom TJ (websites, images, brochures etc.)
- UKFDS
- Tanner
- ...

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ESTRELLA Rules from STATUTE Expert (RuleBurst)

Source rule s1

The person is eligible for an age pension if:

- The person satisfies the age requirements for an age pension ; **and**
- The person satisfies the residence requirements for an age pension ;

If this is not the case, then it will be concluded that the person is not eligible for an age pension.

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ESTRELLA LKIF Translators

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ESTRELLA LKIF application (2)

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Legal CMS

- ★ Close link to LKIF models
 - ✓ Validation
 - ✓ Justification
 - ✓ Traceability – Maintenance
- ★ General en extensjble
 - ✓ All kinds of legal sources
 - ✓ Jurisdiction and language independent

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