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Linguaserve specializes in multilingual web advanced solutions for 21st Century Challenges.

Experience in interoperability since 2002
and real-time multilingual web publishing since 2008.

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Why ITS 2.0?

- ITS 2.0 is a conceptual system of elements and attributes for the internationalization, translation and localization of web content.
- ITS 2.0 is not merely a tagging or labelling standard.
- ITS 2.0 can be represented in different formats.
- ITS 2.0 success is expected to materialize in real-life implementations (currently 20).
- ITS 2.0 looks for the broad consensus across communities.
Standards, they are great. Everyone should have their own.

- Standards are sometimes produced in excess, making them compete with one another for the same purpose.

- By contrast, new technologies and paradigm shifts that occur in all disciplines require new rules for new needs.

- In this context, the viability of the Web's multilingualism needs a certain level of metadata standards.
Time flies like an arrow

- The multilingual information and knowledge society demands the development, dissemination and adoption of new standards.

- The problem is that the speed of this society does not allow this to take as long as the 'Space Shuttle and the horse's Rear End' did.
Standards help everybody

- They help SMES to:
  - Compete better and faster.
  - Be more compatible, avoiding customer reluctance.
- And help large companies to:
  - Lead the market by leading standards.
  - Facilitate new extensions and features by using standards.
- Open source communities could certainly become open-open, i.e. open source based on open standards.
- And... of course: users.
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The W3C MultilingualWeb-LT Working Group receives funding by the European Commission (project name LT-Web) through the Seventh Framework Programme (FP7) in the area of Language Technologies. Grant Agreement No. 287815.

Linguaserve is a member of MultilingualWeb-LT because:

- Standards help us (as an SME).
- There is no magic button: human language and translation are extremely complex.
- Web content annotation greatly helps to improve results in Multilingual Web Linguistic Technology.
MultilingualWeb metadata requirements

- Information in Web content that is relevant for language technology processing.

- Processes for creating Web content via localization and a content management workflow.

- Language technology applications, tools and resources used in applications that use or support this standard.
ITS 2.0 data categories

- Translate
- Localization Note
- Terminology
- Directionality
- Language Information
- Elements Within Text
- Domain
- Text Analysis
- Locale Filter
- Provenience
- External Resource
- Target Pointer
- Id. Value
- Preserve Space
- Localization Quality Issue
- Localization Quality Rating
- MT Confidence
- Allowed Characters
- Storage Size
Formats supported by ITS 2.0

- ITS 2.0 supports XML-based formats and HTML5, and it is useful for XHTML, and CMS-based ‘deep web’, DITA, DocBook, and mapped to RDF/NIF and XLIFF.

- ITS 2.0 also introduces or modifies important mechanisms like local and global explicit selection rules.

- See http://www.w3.org/TR/its20/
ITS 2.0 implementations

- More than 20 implementations in different areas (see http://www.w3.org/International/its/wiki/Use_cases_-_high_level_summary).

- Two are presented here:
  - Interchange between Content Management System and Translation Management System
  - Content Internationalization and Advanced Machine Translation

- MultilingualWeb-LT has also laid the technical foundations for new business opportunities.
Automated off-line translation system (Interoperability)
04. ITS 2.0 interoperability CMS/TMS

www.w3.org/International/its/wiki/ITS_Implementations

#CMS_Integration
Use case: VDMA

- VDMA: German machinery and plant manufacturers' association
- Largest industrial association in the capital goods industry in Europe (3170 industrial members)
- Highly export-oriented
Use case: Scope

- 150 press releases annotated, processed and translated
- 75,000 words annotated and processed with ITS 2.0
- Using Drupal MLW-LT modules
- ITS 2.0-aware automatic content round-tripping
- Languages: DE > FR, ZH
High level flow

WEB SITE

CMS

Webservices

TMS

Engine (Processing)
Workflow (Management)
CAT Tool / Machine Translation

GLOBALIZATION MANAGEMENT SYSTEM

PLATFORM for LOCALIZATION, INTEROPERABILITY and NORMALIZATION of TRANSLATION

www.vdma.org
Drupal – GBC Server/PLINT
ITS 2.0 in CMS/TMS processing
Test case statistics

- **Data categories**: Translate, Allowed Characters, Localization Note, Storage Size, and Language Information.

- **5,544 tags**: 4,700 *manually annotated tags* and the rest *automatically annotated*

- **Density**: 39.3 tags per document

- **From** German **into** French and Chinese

- **Other** two data categories were annotated: Provenance and Readiness (ITS 2.0 Extension)

- **Distribution** of data categories: Translate (with value: no) 69.3%; Allowed Characters 11.3%; Provenance 5.4%; Language information 4.3%; Localization Note 3.8%, Storage Size 2.3%; and Readiness 2.3%.
ITS 2.0 impact

![Bar chart showing the impact of ITS 2.0 on management costs, process efficiency, translation costs, and translation quality. The chart compares the scenarios of no metadata, ITS 1.0, and ITS 2.0.]
Opportunities rise from needs

- Very frequently updated web sites that need efficient multilingual updates and maximum control:
  - Corporate and industry information
  - e-Government
  - e-Commerce
  - Educational web sites
- Highly distributed content creation through the CMS
- Web 2.0 and user content created
  - Applying MT systems for immediacy
- Using ITS 2.0 for multilingual SEO
Multilingual Web Publishing System (Real-Time)
06. Conclusions
Use case: the Spanish Tax Agency

• www.agenciatributaria.es is the user in the “Online MT System” showcase in MLW-LT

Spain: General Indicators 2011
• Spain is a country that is regionally structured into 17 autonomous communities and 2 autonomous cities with 5 co-official languages
• Population: 47,190,493 inhabitants (12.2% foreign residents)

Mission of the Spanish Tax Agency
• Effective application of Spain’s tax and custom system
• Management of tax resources on behalf of other public administrations when required by Law or Agreements

General taxpayer census
• Individual taxpayers: 46,509,231
• Companies: 2,674,547
• Other organisations: 2,293,939
• Total taxpayers: 51,477,717
Use case: Scope

- Online MT System Internationalization showcase components:
  - ITS 2.0
  - HTML5
  - ATLAS RT (Linguaserve’s Real-time Multilingual Publishing System)
  - Lucy Software MT (Rule-based Machine Translation)
  - MaTrEx, from Dublin City University (Statistical Machine Translation)
  - [www.agenciatributaria.es](http://www.agenciatributaria.es) (CMS: OpenText WEM)
- RTMPS implementation and deployment in pre-production
  - ITS 2.0 data categories: 6 (Translate, Localization Note, Language Information, Domain, Provenance, Localization Quality Issue)
- Prototypes, test suite engines, and use case
- 250 web pages ES-EN and 30 web pages ES-FR, ES-DE
  - Content annotation and MT post-editing (EDI-TA methodology)
Online MT System I18N
Online MT System I18N

Pre-Production/Pre-filters
Translate ▶ Adds constant marks to block non-translatable text nodes and attributes.
Domain ▶ Generates a HTML section per domain, and adds such information to the section sent to the MT System to select the appropriate TM and vocabulary (glossary).
Localization Note ▶ Encoding of information to convey it to the post-editor.
Localization quality issue ▶ Encoding of information to convey it to the post-editor.

Content Editor + FMT:
Localization Note ▶ Blocked by the Content Editor but visible for the post-editors.
Domain ▶ Stores the revised texts in the domain specific TM.
Provenance ▶ Adds and blocks the information about the reviser.
Localization Quality Issue ▶ Adds and blocks the quality issue inserted by the reviser.

Post-production/Post-filters:
Language Information ▶ Updates the language attributes in the translated content.
Provenance ▶ Adds and blocks the information about the MT System.
05. Online MT Internationalisation

ITS2 in Online MT System I18N

MT Interface
Locale Filter
Translate
Provenance
MT Confidence
MT Post-processing
Post-Editing
Content Post-processing
Publication
Content I18N
Translation Request
HTML5 Formatter
HTML5
ATLAS RT HTML5
Content Pre-processing
Domain
Localisation Quality Issue
Language Information
Localization Note
HTML5
Lucy RBMT
MT Kernel
DCU MaTrEx SMT
Decoder (MT)
De-Segmenter
De-Formatter
HTML5

ATLAS RT HTML5

Shifting gears: New cost structure

- Traditional project
- Real-time Multilingual Publication System

Bar chart showing overall costs for different stages:
- Preparation/Management
- Translation
- Human Revision/Post...
- Localization
- QA & Testing

The chart compares costs between traditional and real-time multilingual publication systems.
MLW-LT Online MT Business Case

**Strengths**
- Lower translation costs (MT + PE) depending on % of post-editing (E.g. 100% post-edited: -30%)
- Management costs: higher setup / lower maintenance (-60% -80%)
- Non-invasive technology
- Real-time or fast post-edition

**Opportunities**
- Web sites with daily high volume updates: E-commerce, Administration, Corporate news and publications, user content generated (social media)
- In house installation for > 1 million words and frequently updated

**Weaknesses**
- Viability depending on:
  - Language combination and MT system output
- Recent MT approaches (Hybrids, vertical sectors/users…)

**Opportunities**
- Control, performance and security:
  - The client might lose control of translation: solved with ITS 2.0
- Real-time performance of MTs
- Security level in shared RTMPS
- Needs pre-editing and post-editing tools (ITS 2.0 and HTML5)
Opportunities rise from needs

- **e-Commerce**
  - Very high volume and rotation
  - Short texts and repetitive descriptions
    - Better for MT
    - Quicker to post-edit
  - Very sensitive to ITS 2.0 benefits

- **e-Government**
  - Controlled language and content policies

- **HTML from several CMS and other applications**
  (Content source independent)

- **Web 2.0 and user content created**
  - GIST translation
  - Immediacy
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ITS 2.0 benefits (I)

- **Translate**: Translatability control from data. E.g. it allows to add “non-translatable” terms to be used by several specific glossaries or MT systems.

- **Localization Note**: Direct communication between webmasters, PMs, translators, and post-editors. When alert type, it can be used for triggering certain processes in the Translation Workflow. Activation rules for MT post-editing.

- **Domain**: Automatic selection of CAT/MT terminology, dictionaries, and translation memories.

- **Language Information**: Quality checks to ensure the content’s source language or part of it.

- **Allowed Characters**: Quality check for the target content.
ITS 2.0 benefits (II)

- **Storage Size**: Quality check for both original content and target content. Can also be used for translators’ visual control.

- **Provenance**: Identification of agents, possibility to reassign the same translator/reviewer in new versions, and inform the Project Manager. Tracking control in the CMS.

- **Localization Quality Issue**: Quality aspects reported to translation consumer or post-editor.

- **MT Confidence**: Post-editors judge quality of translation.

- **Readiness (ITS 2.0 extension)**: Control of processes to be done, date control for availability, delivery and priority.
Win-win business

- More efficient control over the content and faster fine-grain communication between localization chain actors (e.g. webmaster/project manager).
- Localization platforms and format independent.
- Better web and linguistic technology machine/machine interaction.
- Better web and localization human/machine interaction.
- Increasing fully automatic processes and localization expert systems in CMS and TMS.
- Opens up ways for connectors, pre- and post-editing, CAT tools, SEO…
- Time reduction by increasing the efficiency of the process.
- Cost savings in management and translation.
Thank you!

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