



The Multilingual Web, Policy Making and Access to Digital Knowledge for All
Handout
Reinhard Schäler
LRC, University of Limerick

This handout has been prepared as background information for the Multilingual Web Workshop held in Madrid, 26-27 October 2010, by Reinhard Schäler. The programme of the workshop is available on:

<http://www.w3.org/International/multilingualweb/madrid/program>

Recent Surveys

Interoperability within the Supply Chain — It's Time!

Author: Sven Andrä

Date: October 2010

Survey results:

http://www.surveymonkey.com/sr.aspx?sm=8Jjl1edl9Nlg1mlhVXkCEaHKWlv_2fNoz_2bLwoQgNkdlnA_3d

The Multilingual Web, Policy Making and Access to Digital Knowledge for All

Author: Reinhard Schäler

Date: October 2010

Survey results:

http://www.surveymonkey.com/sr.aspx?sm=UQPSaGUxepboE_2fjNBGilQnE_2fvHHlrwmYeUA8EImeU3g_3d

Standards – A Genesis

The genesis towards automation, the use of standards and interoperability could be described as going through the following development phases.

- **Individual Effort**
Where issues are dealt with in a fire fighting mode facing up to them as they occur.
- **In-house Tools Support**
Where individual tasks are automated for specific, specialised parts of processes.
- **Third Party Tools**
Mainstream development companies take up the tasks above to handle individual parts of the process.
- **Best of Breed**
Where tools and processes start to be combined such as terminology tools and translation memories.
- **"Ad-Hoc" Standards**
Where individual groups start to promote their own processes as standards such as TMX and TBX.
- **Open Standards**
Where large sections of industry leaders join together to develop a common standard using the combined experience that has been learned to produce viable standards that can be used throughout the industry as a whole. Examples of these are XLIFF and Trans-WS.

Open standards are a pre-requisite for interoperability, and interoperability is a pre-requisite for flexible, adaptable, open, and automated localisation and translation processes.

Standards and Standards Organizations

The following are some of the standards organizations, and some of their standards and guidelines relevant to localization. This list has been prepared to give readers an indication of the type and number of standards organizations, and the standards developed by them. While care has been taken in its preparation, the author does not guarantee its accuracy and completeness.

Note: Some of the information in this section has been prepared as part of the EU funded IGNITE project.

International Standards

Body	Relevant Standards	Links
1. ECMA International	1. Ecma International facilitates the timely creation of a wide range of global Information and Communications Technology (ICT) and Consumer Electronics (CE) standards.	http://www.ecma-international.org
2. European Committee for Standardization	2. European quality standard for translation services (disbanded)	http://www.cen.eu
3. Free Standards Group Open Internationalisation Initiative	3. Open18N is a workgroup of the Free Standards Group with the goal to propose and coordinate any techniques, conventions, guidelines, and activities within the open-source community.	http://www.open18n.org/
4. Internet Engineering Task Force (IETF)	4. The mission of the IETF is to make the Internet work better by producing high quality, relevant technical documents that influence the way people design, use, and manage the Internet.	http://www.ietf.org/
5. Internet Society (ISOC)	5. an independent international nonprofit organisation founded in 1992 to provide leadership in Internet related standards, education, and policy around the world.	http://www.isoc.org
6. Interoperability Now (IN)	6. is not a standards organization but a platform for the discussion of interoperability issues in localization	http://interoperability-now.org
7. ISO	7. Technical Committee 37 - Terminology and other language resources 8. ISO 639 - Language Codes 9. ISO 639-1:2002 : Alpha 2 codes for the Representation of Names of Languages 10. ISO 639-2 : Alpha-3 Codes for the Representation of Names of Languages 11. Terminology Data Categories - ISO 12620 12. MARTIF - ISO 12200 - Machine-readable terminology interchange format 13. Terminology Work - ISO 704 14. Vocabulary - ISO 1087-1 - Part 1: Theory and Application 15. Vocabulary - ISO 1087-2 - Part 2: Computer Applications 16. Terminological Markup Framework -	http://www.iso.org/

	ISO DIS 16642	
8. LISA	<p>17. TMX - The purpose of TMX is to allow easier exchange of translation memory data between tools and/or translation vendors with little or no loss of critical data during the process.</p> <p>18. TBX - is an open XML-based standard format for terminological data.</p> <p>19. SRX - Segmentation Rules eXchange (SRX) is an XML-based standard for description of the ways in which translation and other language-processing tools segment text for processing.</p> <p>20. GMX - Global Information Management Metrics eXchange (GMX) is a family of proposed standards concerning translation-related metrics.</p> <p>21. QA - Quality Assurance Standard/Guidelines</p>	http://www.lisa.org/
9. OASIS	<p>22. XLIFF - the XML-based Localisation Interchange File Format</p> <p>23. Trans-WS - the Translation Vendor Web services Standard (not active)</p> <p>24. OAXL - Open Architecture for XML Authoring and Localization Reference Model TC</p>	http://www.oasis-open.org/
10. OLIF2 Consortium	<p>25. OLIF - is XML-compliant and offers support for natural language processing (NLP) systems, such as machine translation, by providing coverage of a wide and detailed range of linguistic features.</p>	http://www.olif.net/
11. Termnet	<p>26. International Network for Terminology - is a non-profit association with the objective of promoting the international terminology market</p>	http://linux.termnet.org/
12. Text Encoding Initiative	<p>27. A consortium which collectively develops and maintains a standard for the representation of texts in digital form.</p>	http://www.tei-c.org/index.xml
13. Translation Automation User Society (TAUS)	<p>28. A think tank for the translation industry, undertaking research for buyers and providers of translation services and technologies.</p>	www.translationautomation.com
14. Unicode	<p>29. An International Standard Character Repertoire and Code Points fully synchronised with ISO/IEC 10646</p>	http://www.unicode.org/
15. Unicode CLDR	<p>30. Common Locale Data Repository (CLDR) Project - The purpose of the Common Locale Data Repository project is to provide a general XML format for the</p>	http://www.unicode.org/cldr/

	exchange of locale information for use in application and system development, and to gather, store, and make available a common set of locale data generated in that format.	
16. W3C	<p>31. CSS - Cascading Style Sheets</p> <p>32. DOM 1-Document Object Model Level 1</p> <p>33. HTML 4.0 - HyperText Markup Language</p> <p>34. The Internationalization Tag Set (ITS) Working Group - developing a set of elements and attributes that can be used with new DTDs/Schemas to support the internationalization and localization of documents; and provide best practice techniques for developers of DTDs/Schemas that show how to enable internationalization of their documents.</p> <p>35. XHTML 1.0, 1.1, and Modularization</p> <p>36. XML 1.0 - Extensible Markup Language</p>	<p>http://www.w3.org/</p> <p>http://www.w3.org/International/</p> <p>http://www.w3.org/International/its/</p>

De Facto Standard Standards

Body	Brief Description	Links
IBM	<p>Coded character sets and related resources</p> <p>Character Data Representation Architecture (CDRA) Reference</p> <p>Coded Character Set Identifier (CCSID)</p> <p>Code pages</p> <p>Character sets</p> <p>Graphic character identifiers</p>	<p>http://www-306.ibm.com/software/globalization/g11n-res.jsp</p>
Microsoft	Language, Locale and Codepage conventions	<p>http://www.microsoft.com/globaldev/nlsweb/</p>
The WordForge Project	WordForge is a project that attempts to simplify the process of localisation of Software. It is developed with Free and Open Source software in mind, but its process and tools are also applicable to other types of software.	<p>http://www.wordforge.org/</p>

International Standards used for Content Development

Body	Brief Description	Links
Accellera Organization	Standards and open interfaces in electronic design automation	<p>http://www.accelera.org/</p>
ASTM International (American Society for Testing and Materials)	American Society for Testing and Materials	<p>http://www.astm.org/</p>
Automotive Open System Architecture (AUTOSAR)	For vehicular software, user interfaces and management	<p>http://autosar.org/</p>
International Bureau of Weights and Measures (BIPM) / General	Three organisations established to maintain the International System of Units (SI)	<p>http://www.bipm.org/</p>

Conference on Weights and Measures (CGPM) / International Committee for Weights and Measures (CIPM)		
CableLabs	Standards organisation serving the US cable television industry	http://www.cablelabs.com/
Ecma International (European Computer Manufacturers Association)	Standardising information and communication systems	http://www.ecma-international.org/
Fédération Aéronautique Internationale (FAI)	A standard setting and record-keeping body for aeronautics and astronautics	http://www.fai.org/
Global Grid Forum (GGF)	The development of Standards relating to Grids and the building of Communities within the overall Grid community	http://www.ggf.org/
GS1 (Global supply chain standards)	design and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains globally and across sectors	http://www.gs1.org/
Infiniband Trade Association (IBTA)	InfiniBand is a high performance, switched fabric interconnect standard for servers	http://www.infinibanda.org/
International Electrotechnical Commission (IEC)	standards organisation dealing with electrical, electronic and related technologies	http://www.iec.ch/
Institute of Electrical and Electronics Engineers (IEEE)	scientific and educational, directed towards the advancement of the theory and practice of electrical, electronics, communications and computer engineering, as well as computer science, the allied branches of engineering and the related arts and sciences	http://www.ieee.org/
IETF (Internet Engineering Task Force)	The Internet Engineering Task Force (IETF) is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet.	http://www.ietf.org/
ISO (International Organization for Standardization)	ISO is a network of the national standards institutes	http://www.iso.org/
ITU (The International Telecommunication Union)	An international organisation within the United Nations System where governments and the private sector coordinate global telecom networks and services	http://www.itu.int/
IUPAC (International Union of Pure and Applied Chemistry)	The International Union of Pure and Applied Chemistry (IUPAC) serve to advance the worldwide aspects of the chemical sciences and to contribute to	http://www.iupac.org/

	the application of chemistry in the service of Mankind	
Liberty Alliance	The consortium is committed to developing an open standard for federated network identity that supports all current and emerging network devices	http://www.projectliberty.org/
N3P (Neutral Third Party)	N3P is a community of individuals and organisations that promulgates standards for the Universal Enterprise Infrastructure, or infra, an online database application system	http://www.n3p.org/
OASIS (Organization for the Advancement of Structured Information Standards)	OASIS is a not-for-profit, global consortium that drives the development, convergence and adoption of e-business standards	http://www.oasis-open.org/
SI (Système International d'Unités) (International System of Units)	This is a standard, rather than a standards organisation. See BIPM above (ISO and many other standards organisations are also involved in maintaining this standard).	http://www.bipm.org/en/si/
WMO (World Meteorological Organization)	The World Meteorological Organization (WMO) is a Specialized Agency of the United Nations. It is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces, and the resulting distribution of water resources.	http://www.wmo.ch/
W3C (World Wide Web Consortium)	The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential.	http://www.w3.org/

Continental and Transnational Standards Organisations

Body	Brief Description	Links
CEN	European Committee for Standardization	http://www.cenorm.be/
CENELEC	European Committee for Electrotechnical Standardization	http://www.cenelec.org/
ETSI	European Telecommunications Standards Institute	http://www.etsi.org/

National Standards Organisations

Country	Organisation	Links
Algeria	IANOR - Institut algérien de normalisation	http://www.ianor.org/
Argentina	IRAM - Instituto Argentino de Normalización	http://www.iram.com.ar/
Armenia	SARM -National Institute of Standards and Quality	http://www.sarm.am/
Australia	SAI - Standards Australia International	http://www.standards.com.au/
Austria	ON - Austrian Standards Institute	http://www.on-norm.at/

Bangladesh	BSTI - Bangladesh Standards and Bangladesh Standards and Testing Institutio,	http://www.bstibd.org/
Belarus	BELST - Committee for Standardization, Metrology and Certification of Belarus	http://www.gosstandart.gov.by/
Belgium	IBN - The Belgian Institution for Standardization	http://www.ibn.be/
Bolivia	IBNORCA - Instituto Boliviano de Normalización y Calidad	http://www.ibnorca.org/
Bosnia and Herzegovina	BASMP - Institute for Standards, Metrology and Intellectual Property of Bosnia and Herzegovina	http://www.basmp.gov.ba/
Brazil	ABNT - Associação Brasileira de Normas Técnicas	http://www.abnt.org.br/
Brunei Darussalam	CPRU - Construction Planning and Research Unit, Ministry of Development	http://www.mod.gov.bn/
Bulgaria	BDS - Bulgarian Institute for Standardization	http://www.bds-bg.org/
Canada	SCC - Standards Council of Canada	http://www.scc.ca/
Chile	INN - Instituto Nacional de Normalizacion	http://www.inn.cl/
China	SAC - Standardization Administration of China	http://www.sac.gov.cn/
	CSSN - China Standards Information Center	http://www.cssn.net.cn/ http://www.china-cas.com
Colombia	ICONTEC - Instituto Colombiano de Normas Técnicas y Certificación	http://www.icontec.org.co/
Costa Rica	INTECO - Instituto de Normas Técnicas de Costa Rica	http://www.inteco.or.cr/
Croatia	DZNM - State Office for Standardization and Metrology	http://www.dznm.hr/
Cuba	NC - Oficina Nacional de Normalización	http://www.nc.cubaindustria.cu/
Czech Republic	CSNI - Czech Standards Institute	http://www.csni.cz/
Denmark	DS - Dansk Standard	http://www.ds.dk/
Ecuador	INEN - Instituto Ecuatoriano de Normalización	http://www.inen.gov.ec/
Egypt	EO - Egyptian Organization for Standardization and Quality Control	http://www.eos.org.eg/
El Salvador	CONACYT - Consejo Nacional de Ciencia y Tecnología	http://www.conacyt.gov.sv/
Estonia	EVS - Eesti Standardikeskus	http://www.evs.ee/
Ethiopia	QSAE - Quality and Standards Authority of Ethiopia	http://www.qsae.org/
Finland	SFS - Finnish Standards Association	http://www.sfs.fi/en/
France	AFNOR - Association française de normalisation	http://www.afnor.fr/
Germany	DIN - Deutsches Institut für Normung	http://www.din.de/
Greece	ELOT - Hellenic Organization for Standardization	http://www.elot.gr/
Grenada	GDBS - Grenada Bureau of Standards	http://www.spiceisle.com/homepages/gdbs/
Guatemala	COGUANOR - Comisión Guatemalteca de Normas	http://www.mineco.gob.gt/
Guyana	GNBS - Guyana National Bureau of Standards	http://www.sdn.org.gy/gnbs/

Hong Kong	ITCHKSAR - Innovation and Technology Commission	http://www.info.gov.hk/itc/
Hungary	MSZT - Magyar Szabványügyi Testület	http://www.mszt.hu/
Iceland	IST - Icelandic Council for Standardization	http://www.stadlar.is/
India BIS	Bureau of Indian Standards	http://www.bis.org.in/
Indonesia	BSN - Badan Standardisasi Nasional	http://www.bsn.or.id/
Iran	ISIRI - Institute of Standards and Industrial Research of Iran	http://www.isiri.org/
Ireland	NSAI - National Standards Authority of Ireland	http://www.nsai.ie/
Israel	SII - The Standards Institution of Israel	http://www.sii.org.il/
Italy	UNI - Ente Nazionale Italiano di Unificazione	http://www.uni.com/
Jamaica	JBS - Bureau of Standards, Jamaica	http://www.jbs.org.jm/
Japan	JISC - Japan Industrial Standards Committee	http://www.jisc.go.jp/
Jordan	JISM - Jordan Institution for Standards and Metrology	http://www.jism.gov.jo/
Kazakhstan	KAZMEMST - Committee for Standardization, Metrology and Certification	http://www.memst.kz/
Kenya	KEBS - Kenya Bureau of Standards	http://www.kebs.org
Republic of Korea	KATS - Korean Agency for Technology and Standards	http://www.ats.go.kr/
Kuwait	KOWSMD - Public Authority for Industry, Standards and Industrial Services Affairs	http://www.pai.gov.kw/
Kyrgyzstan	KYRGYZST - State Inspection for Standardization and Metrology	http://nism.gov.kg/
Latvia	LVS - Latvian Standard	http://www.lvs.lv/
Lebanon	LIBNOR - Lebanese Standards Institution	http://www.libnor.org/
Lithuania	LST - Lithuanian Standards Board	http://www.lsd.lt
Luxembourg	SEE - Service de l'Energie de l'Etat, Organisme Luxembourgeois de Normalisation	http://www.see.lu/
Malaysia	Department of Standards Malaysia	http://www.dsm.gov.my/
Malta	MSA - Malta Standards Authority	http://www.msa.org.mt/
Mauritius	MSB - Mauritius Standards Bureau	http://msb.intnet.mu/
Mexico	DGN - Dirección General de Normas	http://www.economia.gob.mx/
Moldova	MOLDST - Department of Standardization and Metrology	http://www.ournet.md/~standard/
Morocco	SNIMA - Service de Normalisation Industrielle Marocaine	http://www.mcinet.gov.ma/snima/
Netherlands	NEN - Nederlandse Norm, maintained by the Nederlands Normalisatie Instituut (NNI)	http://www.nen.nl/
New Zealand	SNZ - Standards New Zealand	http://www.standards.co.nz/
Nicaragua	DTNM - Dirección de Tecnología, Normalización y Metrología	http://www.mific.gob.ni/
Nigeria	SON - Standards Organisation of Nigeria	http://www.sononline-ng.org/
Norway	SN - Standard Norge (Standards Norway)	http://www.standard.no

Oman	DGSM - Directorate General for Specifications and Measurements	http://www.mocioman.gov.om/
Pakistan	PSQCA - Pakistan Standards and Quality Control Authority	http://www.psqca.com.pk/
Palestine	PSI - Palestine Standards Institution	http://www.psi.gov.ps/
Panama	COPANIT - Comisión Panameña de Normas Industriales y Técnicas	http://www.mici.gob.pa/
Papua New Guinea	NISIT - National Institute of Standards and Industrial Technology	http://www.nisit.gov.pg/
Peru	INDECOPI - Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual	http://www.indecopi.gob.pe/
Philippines	BPS - Bureau of Product Standards	http://www.bps.dti.gov.ph/
Poland	PKN - Polish Committee for Standardization	http://www.pkn.pl/
Portugal	IPQ - Instituto Português da Qualidade	http://www.ipq.pt/
Romania	ASRO - Asociatia de Standardizare din România	http://www.asro.ro/
Russian Federation	GOST-R - State Committee of the Russian Federation for Standardization, Metrology and Certification	http://www.gost.ru/
Saint Lucia	SLBS - Saint Lucia Bureau of Standards	http://www.slbs.org.lc/
Saudi Arabia	SASO - Saudi Arabian Standards Organization	http://www.saso.org.sa/
Serbia and Montenegro	ISSM - Institution for Standardization of Serbia and Montenegro	http://www.jus.org.yu/
Seychelles	SBS - Seychelles Bureau of Standards	http://www.seychelles.net/sbsorg/
Singapore	SPRING SG - Standards, Productivity and Innovation Board	http://www.spring.gov.sg/
Slovakia	SUTN - Slovak Standards Institute	http://www.sutn.gov.sk/
Slovenia	SIST - Slovenian Institute for Standardization	http://www.sist.si/
South Africa	SABS - South African Bureau of Standards	http://www.sabs.co.za/
Spain	AENOR - Asociación Española de Normalización y Certificación	http://www.aenor.es/
Sri Lanka	SLSI - Sri Lanka Standards Institution	http://www.naresa.ac.lk/slsi/
Sweden	SIS - Swedish Standards Institute	http://www.sis.se/
Switzerland	SNV - Swiss Association for Standardization	http://www.snv.ch/
Syrian Arab Republic	SASMO - The Syrian Arab Organization for Standardization and Metrology	http://www.sasmo.org/
Taiwan (Republic of China)	BSMI - The Bureau of Standards, Metrology and Inspection	http://www.bsmi.gov.tw/
Tanzania	TBS - Tanzania Bureau of Standards	http://www.tbs-tz.org/
Thailand	TISI - Thai Industrial Standards Institute	http://www.tisi.go.th/
Trinidad and Tobago	TTBS - Trinidad and Tobago Bureau of Standards	http://www.ttbs.org.tt/
Turkey	TSE - Türk Standardlari Enstitüsü	http://www.tse.org.tr/
Uganda	UNBS - Uganda National Bureau of Standards	http://www.unbs.org/
Ukraine	DSSU - State Committee on Technical Regulation and Consumer Policy of	http://www.dssu.gov.ua/

	Ukraine	
United Kingdom	BSI - British Standards Institution	http://www.bsi-global.com/
United States of America	ANSI - American National Standards Institute	http://www.ansi.org/
	NIST - National Institute of Standards and Technology	http://www.nist.gov/
Uruguay	UNIT - Instituto Uruguayo de Normas Técnicas	http://www.unit.org.uy/
Venezuela	FONDONORMA - Fondo para la Normalización y Certificación de la Calidad	http://www.fondonorma.org.ve/
Vietnam	TCVN - Directorate for Standards and Quality	http://tcvn.gov.vn/