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BUSINESS PLAN FOR ISO/IEC JTC1 SC36

Information Technology for Learning, Education, and Training (ITLET)

<http://isotc.iso.org/livelink/livelink?func=ll&objId=806742&objAction=browse&sort=name>**Period Covered:** September 2009 through September 2010**Submitted By:** JTC1/SC36 Secretariat, Channy Lee, JTC1/SC36 Chair, Bruce E. Peoples

1 MANAGEMENT SUMMARY

1.1 Chair Remarks

An ISO and IEC International Standard embody the essential principles of global openness and transparency, consensus and technical coherence. In ISO/IEC JTC1 SC36, these principles are safeguarded through development of International Standards representative of all interested National Member Bodies (NB), and Liaison Organizations (LO), utilizing proven and “value added” processes. These principles also have enabled the production of global and market relevant Standards and Technical Reports, which are recognized and implemented by global users to 1) Facilitate global trade, 2) Improve quality, security, and consumer protection, and 3) Global dissemination of technologies and good practices, all of which contribute to economic and social progress. As part of the proven and “value added” processes used, the ISO/IEC JTC1 SC36 Business Plan is developed and used to provide the necessary information and strategies to effectively manage the activities for the development and execution of the SC36 program of work. The overall strategic direction contained in the SC36 Business Plan is in line with, and implements key objectives and added values of ISO’s Strategic Plan 2005-2010 approved unanimously in Geneva in September 2004 by the ISO General Assembly.

Formal Business Planning Processes are important in creating a stable and realistic Business Plan. The extension of Formal Business Planning Processes to ISO/IEC JTC1 SC36 has been formalized by the use of a SWG on Business Planning. The intent of utilizing these business planning processes is to 1) Assist in alignment of the SC 36 work program with expressed business environment needs and trends, 2) Assist SC 36 to prioritize among different projects, 3) Identify the benefits expected from the availability of International Standards, 4) Assist in use of collaboration tools within SC36 and 5) Assist in the development and implementation of the SC36 Business Plan.

ISO/IEC JTC1 SC36 continues to serve as the pre-eminent international forum for standards development in Information Technology (IT) for Learning, Education, and Training (LET). In fulfilling a leadership role in the IT LET standards and specifications domain, ISO/IEC JTC1 SC36 has an emerging reputation for quality and innovation – by utilizing proven, value added processes and procedures in producing International Standards and Technical Reports. Only by ensuring quality and innovation for the implementers and users of SC36 products,

will the global use of Information Technologies in Learning, Education and Training achieve its potential.

1.2 ISO/IEC JTC 1 SC36 STATEMENT OF SCOPE, VISION, PURPOSE AND CORE VALUES

Scope:

Standardization in the field of information technologies for learning, education, and training to support individuals, groups, or organizations, and to enable interoperability and reusability of resources and tools.

Excluded:

The SC shall not create standards or technical reports that define educational standards, cultural conventions, learning objectives, or specific learning content.

In the area of work of this SC, standards and technical reports will not duplicate work done by other ISO or IEC TCs, SCs, or WGs with respect to their component, specialty, or domain. Instead, when appropriate, normative or informative references to other standards shall be included. Examples include documents on specialty topics such as multimedia, web content, cultural adaptation, and security.

Vision:

A unified set of IT standards widely accepted by the intended class of users in the Learning Education and Training Market.

Purpose:

- Provide quality IT LET standards that meet stakeholder needs.
- Promote the use of IT LET standards produced by providing supporting materials.
- Provide leadership in IT LET standardization through:
 - The development of a comprehensive set of integrated standards with broad international and professional consensus;
 - Initiating cooperative work with international professional and standards producing organizations;
 - A framework that:
 - Facilitates the integration of standards developed in other standards producing organizations;

- Facilitates cooperation in the development of standards produced in SC36 and in other international standards producing organizations;
- Minimizes the inconsistencies between related standards including those developed by other standard producing organizations.

Core Values:

International Consensus:

- Active engagement and participation of National Member Bodies and Liaison Organizations
- Full and open deliberation
- Informed participation
- Use of advanced collaboration tools

Leadership & Expertise

- Utilization of proven “value added” processes
- Expertise in the development of International Standards and related guidance
- Engagement of international and regional networks, initiatives and policies through National Member Bodies and Liaison Organizations
- Dissemination of new technologies, new business methods, and effective management.

Quality & Innovation

- Commitment to quality
- Development of a coherent set of deliverables based on best practice
- Awareness of emerging and related technologies
- Recognition of the importance of continuity in standards development

Informed and Responsive Development

- Awareness of the market
- Maintaining awareness of software, system, learning, education, and training best practices
- Ability to quickly adjust to changing markets

Inclusion of Different Educational, Cultural and Linguistic Paradigms

- Ability and willingness to accommodate the needs of linguistic and cultural diversity within International Standards and related guidance
- Active recruitment of National Member Bodies and Liaison Organizations

- Participation in related activities of National Member Bodies and Liaison Organizations

1.3 Project Report

As of 2009-09, SC36 has 22 projects under active development. During the past year, SC36 was responsible for six projects published as IS and TR. SC36 estimated that approximately 3-6 NPs are expected to be approved during the next 12 months. SC36 expects project subdivisions on one or more of its projects.

1.3.1 Active Projects

Project/Title	WD	CD	FCD	FDIS	IS
SC36/WG1: Vocabulary					
001.36.02382.036.01 ISO/IEC 2382-36 2 nd Edition Information Technology Vocabulary -- Part 36: Learning, Education, and Training	2008-11	2010-04	2010-10	2011-04	2011
SC36/WG2: Collaborative Technology					
001.36.29127.000.01 ISO/IEC 29127 (TR) System Process and Architecture for Multilingual Semantic Reverse Query Expansion for LET (Technical Report)	2008-03-11	PDTR 2008-11-29		DTR 2009-04	TR 2009-10
SC36/WG3: Participant Information					
001.36.24763.000.01 ISO/IEC 24763 (TR) Information Technology for Learning, Education and Training – Conceptual Reference Model for Competencies and Related Objects (Technical Report)	2007-07-25	PDTR 2008-12-15		DTR 2009-10	TR 2010-06
001.36.29140.000.01 (TR) ISO/IEC 29140-1 Information Technology for Learning, Education and Training – Nomadicity and Mobile Technologies (Technical Report)	2008-10-31	PDTR 2009-12		DTR 2010-10	TR 2011-06
001.36.29140.000.01 (TR) ISO/IEC 29140-2 Information Technology for Learning, Education and Training – Nomadicity and Mobility Technologies (Technical Report)	2008-07-25	PDTR 2008-12-15		DTR 2010-10	TR 2011-06
SC36/WG4: Management and Delivery					
001.36.19788.001.01 ISO/IEC 19788-1 ITLET -- Metadata for Learning Resources -- Part 1: Framework	2005-06-23	CD2 2008-05-28	2009-10	2010-05	2010-09
001.36.19788.002.01 ISO/IEC 19788-2 ITLET -- Metadata for Learning Resources -- Part 2: Core elements	2006-08-04	CD2 2008-06-02	2009-11	2010-05	2010-09

Project/Title	WD	CD	FCD	FDIS	IS
001.36.19788.003.01 ISO/IEC 19788-3 ITLET -- Metadata for Learning Resources -- Part 3: Core Application Profile	2008-08-22	2009-10	2010-11	2011-06	2011-10
001.36.19788.004.01 ISO/IEC 19788-4 ITLET -- Metadata for Learning Resources -- Part 4: Technical Elements	2008-09-03	2009-10	2010-11	2011-06	2011-10
001.36.19788.005.01 ISO/IEC 19788-5 ITLET -- Metadata for Learning Resources -- Part 5: Educational Elements	2008-08-30	2009-10	2010-11	2011-06	2011-10
001.36.19788.006.01 ISO/IEC 19788-6 ITLET -- Metadata for Learning Resources -- Part 6: Availability, Distribution, and Intellectual Property Elements	2008-09-03	2009-10	2010-11	2011-06	2011-10
001.12785.001.01 ISO/IEC CD 12785-1 Information Technology for Learning, Education, and Training -- ITLET -- Content Packaging -- Part 1: Information Model	2008-08	2008-05-07	2008-10-30	2009-05	2009-09
001.12785.001.02 ISO/IEC CD 12785-2 Information Technology for Learning, Education, and Training -- ITLET -- Content Packaging -- Part 2: Content Packaging XML Binding	2009-03-22	2009-10	2010-05	2010-12	2011-04
001.12785.001.03 ISO/IEC CD 12785-3 Information Technology for Learning, Education, and Training -- ITLET -- Content Packaging -- Part 3: Best Practice and Implementation Guide	2009-03-22	2009-10	2010-05	2010-12	2011-04
SC36/WG5: Quality Assurance and Descriptive Frameworks					
001.36.19796.002.01 ISO/IEC 19796-2 ITLET -- Quality Management, Assurance and Metrics-Quality Model	2007-02-07	2008-06	2009-11	2010-03	2010-03
001.36.19796.004.01 ISO/IEC 19796-4 ITLET -- Quality Management, Assurance and Metrics-Best Practice and Implementation Guide	2006-01-26	PDTR 2009-05		DTR 2009-11	TR 2010-05
001.36.19796.005.01 ISO/IEC 19796-5 ITLET -- Quality Management, Assurance and Metrics- Guide "How to use ISO/IEC 19796-1	2006-12-19	PDTR 2009-05		DTR 2009-11	2010-05
SC36/WG6: International Standardized Profiles (ISP)					

Project/Title	WD	CD	FCD	FDIS	IS
001.36.24725.001.01 ISO/IEC 24725-1 ITLET -- Supportive Technology and Specification Integration-Part 1 Framework and Taxonomy	2004-02-16	PDTR 2006-10-15		DTR 2009-06	TR 2010
001.36.24725.002.01 ISO/IEC 24725-2 ITLET – Supportive Technology and Specification Integration Part 2-Profile of Rights Expression Language (REL) - Commercial Applications	2003-08-29	PDTR 2003-12-16		\ DTR 2009-09	2010-03
001.36.24725.002.03 (TR) ISO/IEC 24725-3 Supportive Technology and Specification Integration Part 3- I Platform and Media Taxonomy	2003-08-01	PDTR 2008-09		DTR 2009-04	TR 2010
SC36/WG7: Culture, Language, and Human Functioning Activities					
001.36.24751.010.01 ISO/IEC 24751 Part 10: ITLET – Access for All User Interface Characteristics	2009-05	2010-04	2010-10	2011	2011
001.36.24751.009.01 ISO/IEC 24751-9, Access for All Personal User Interface Preference	2009-05	2010-04	2010-10	2011	2011

1.4 Cooperation and Competition

SC36 has identified two aspects of cooperation in successfully planning, implementing and completing a program of work. The first aspect focuses on the internal cooperation of JTC1 SCs and JTC1 SWGs, and ISO TCs, with SC36. The second aspect focuses on cooperation with standards development organizations, consortia, and fora, external to SC36. External standards development organizations, consortia, and fora could be considered competition. From a Business Planning perspective, SC36 views these organizations as partners in planning, developing and completing a global market relevant program of work.

1.4.1 Organizations

The following standards development organizations, consortia, and fora are related to JTC1/SC36 activities:

- **ADL (Advanced Distributed Learning):** The US government ADL initiative started originally in 1997 within the US Department of Defense, but now includes other Federal agencies. There is collaboration between ADL participants and IMS, IEEE, and AICC organizations. AICC has a category A liaison with SC36.
- URL: <http://www.adlnet.org>
- **AICC (Aviation Industry CBT [Computer-Based Training] Committee):** This consortium has existed since 1988 and focuses on a particular user community: the aviation industry. This organization has developed specifications and test suites. Their

specifications (e.g., CMI, a learning management system) have had the largest adoption in the marketplace. AICC has a category A liaison with SC36.

URL: <http://aicc.org>

- **AUF (Agence Universitaire de la Francophonie):** This organization coordinates educational activities for French-speaking universities. AUF has a category A liaison with SC36.
URL: <http://www.auf.org>
- **CEN/ISSS WS-LT (Learning Technologies Workshop):** This workshop within CEN/ISSS has produced a report on critical standardization areas for Europe. CEN/ISSS WS-LT has a category A liaison with SC36.
URL: <http://www.cenorm.be/iss/Workshop/LT>
- **CEN TC 353 Information and Communication Technologies for Learning, Education and Training:** The Technical Committee focuses on the development of standards for vocabularies and frameworks, quality and competencies and works in close cooperation with the existing CEN Workshop on Learning Technologies. CEN TC 353 has a Category A liaison with SC36.
- **DCMI (Dublin Core Metadata Initiative):** The DC-Education WG was established in 1999-09 for the purposes of describing educational resources to achieve interoperability within the framework of DCMI. SC36 has a category C liaison with DCMI.
URL: <http://dublincore.org> and <http://dublincore.org/groups/education>
- **IEEE LTSC (Learning Technology Standards Committee):** This committee has active working (or study) groups developing learning technology standards. IEEE LTSC has a category A liaison with SC36.
URL: <http://ltsc.ieee.org>
- **IMS Global Learning Consortium:** IMS originated in 1997 in the US with its membership drawn from academic and commercial organizations. It has quickly grown to include international participation and its investment membership has broadened to include content developers and government agencies. IMS has over 200 "development network" members that review and use IMS-developed specifications. IMS specifications are aimed at delivering interoperability for systems that support online learning, education and training. IMS has a category A liaison with SC36.
URL: <http://imsglobal.org>
- **LETSI International Federation for Learning-Education-Training Systems Interoperability:** LETSI is a non-profit consortium of e-learning adopters and associations, standards bodies, systems integrators, policy makers, and educational product and services vendors. The LETSI community seeks to finally realize in education and training the revolutionary impact technology has had in other aspects of our lives. By creating free and open interoperability frameworks for software

systems, LETSI promotes the long-term sustainability of major e-learning initiatives: reducing overall risk, stabilizing markets, stimulating investment, and leveling the innovation playing field. LETSI has a category A liaison with SC36.

URL: <http://www.letsy.org/display/welcome/Home>

1.4.2 Liaisons

Cooperation with standards development organizations, consortia, and fora related to JTC1/SC36 activities are a key to the accomplishment of the work program. In order to facilitate efficient production and adoption of needed global standards and specifications, SC36 has created liaison relationships with organizations both internal and external to JTC1. As market requirements evolve the program of work, SC36 continually evaluates the need to create new liaison relationships. Where appropriate, to focus on specific technology areas, SC36 has defined specific WGs within these organizations in executing liaison relationships.

Fifteen external organizations are liaisons with SC36:

- ISO TC37/SC3: Terminology Management Systems and Content
- ISO TC37/SC4: Language Resources Management
- ISO TC46 Information and Documentation
- ISO TC 204: Intelligent Transport Systems
- ISO TC215: Health Infomatics
- ADL: Advanced Distributed Learning
- AICC (Aviation Industry CBT [Computer-Based Training] Committee)
- AUF: Agence Universitaire de la Francophonie
- CARTAGO: Vocabulary/Concept Systems
- CEN/ISSS/WS-LT: Learning Technology Workshop (Focus on CEN ISSS CDFG)
- CEN TC 353 Information and Communication Technologies for Learning, Education and Training
- DCMI: Dublin Core Metadata Initiative
- IEEE LTSC: Learning Technology Standards Committee (Focus on WG20, WG12)
- IMS: IMS Global Learning Consortium
- LETSI: International Federation for Learning-Education-Training Systems Interoperability

Nine Internal Organizations are liaisons with SC36

- JTC1/SC17: Cards and Personal Identifications
- JTC1/SC 27: IT Security Techniques
- JTC1/SC32: Data Management and Interchange
- JTC1/SC37: Biometrics
- JTC1 Web Services Study Group (WSSG)
- JTC1 Special Working Group on Accessibility
- JTC1 Technology Watch Workshop
- JTC1 Study Group on Sensor Networks
- JTC1 Vocabulary Maintenance Team

1.4.3 Related Projects

The following projects are related to JTC1/SC36 activities where PWIs are discussed or NPs are proposed:

- IEEE 1484.11, Computer Managed Instruction; AICC CMI. Notes: SC36 WG4 is collaborating with IEEE LTSC in reviewing documents and providing inputs.
- IEEE 1484.12, Learning Object Metadata (LOM); IMS LRM; CEN/ISSS/WS/LT, Localization of Learning Object Metadata. SC36/WG4 has a Multi-Standard project titled ISO/IEC 19788 Metadata for Learning Resources. SC36/WG4 is collaborating with these organizations.
- IEEE 1484.20, Competency Definitions. Notes on Related Work: An SC36 WG3 Technical Report entitled “Conceptual Reference Model for Competencies and Related Objects” is in progress. Collaboration/Harmonization with IEEE LTSC on both projects are ongoing.
- CEN/ISSS WS-LT, CWA 14644 Quality Assurance Standards. Notes: An IS has been finalized for “Quality Management, Assurance and Metrics” in SC36/WG5. The project was subdivided and work continues on the other parts. Collaboration continues between CEN/ISSS WS-LT and SC36/WG5 as development of parts 2, 3, and 4 continue.
- CEN/ISSS WS-LT, CWA 15903: Metadata for Learning - Learning Opportunities - Advertisement (MLO-AD); the final version has been approved and published. The CWA has been transferred to CEN TC 353 for the already started NWI MLO-AD as EN. This work will serve as a basis for future SC36 projects.
- CEN/ISSS WS-LT, CWA 15966: Agricultural Learning Resource Metadata Application Profile (AgrLRM_AP); the final version has been approved and published. The CWA has been transferred to CEN TC 353 for consideration. This work will serve as a basis for future SC36 projects.
- CEN/ISSS WS-LT, CWA xxx: Curriculum Exchange Format (CEF); an interim version has been submitted and is under review. The work in progress is in parallel with CEN TC 353 activities. This work will serve as a basis for future SC36 projects.
- CEN/ISSS WS-LT, CWA xxx: Simple Publishing Interface (SPI); an interim version has been submitted and is under review. The work in progress is in parallel with CEN TC 353 activities. This work will serve as a basis for future SC36 projects.
- CEN/ISSS WS-LT, CWA xxx: European Learner Mobility Model (ELM); the CWA project has been approved and work on the project is underway. The work in progress is in parallel with CEN TC 353 activities. Collaboration between SC36 WG3 and CEN/ISSS WS-LT has begun.

- CEN TC 353, EN xxxxx: Curriculum Exchange Format (CEF); the first WD has been submitted and is under review. This work will serve as a basis for future SC36 projects.
- CEN TC 353, EN xxxxx: Metadata for Learning Opportunities - Advertisement (MLO-AD); The project has been approved and work on the project is underway. Collaboration between SC36 WG4 and CEN TC 353 has begun.
- CEN TC 353, EN xxxxx: European Learner Mobility Model (ELM); the project has been approved and work on the project is underway. The work in progress is in parallel with CEN/ISSS WS-LT. Collaboration between SC36 WG3 and CEN TC 353 has begun.
- IMS: Learner Information Package Accessibility for LIP, Access for All Meta-data Specification. Note. SC36/WG7 is developing this work. Collaboration and close co-operation between IMS and SC36/WG7 continues on these projects.
- IMS: Content Packaging; SC36 has initiated a Multi-Standard project based on IMS Content Packaging, ISO/IEC 12785 Content Packaging.

The following projects are related to possible future JTC1/SC36 activities:

- CEN/ISSS WS-LT, CWA 14645 Availability of alternative language versions of a learning resource in IEEE LOM.
- CEN/ISSS WS-LT, CWA 15966: Agricultural Learning Resource Metadata Application Profile (AgrLRM_AP)
- CEN TC 353, EN xxxxx: Curriculum Exchange Format (CEF)
- CEN TC 353, EN xxxxx: Metadata for Learning Learning Opportunities - Advertisement (MLO-AD)
- CEN TC 353, EN xxxxx: European Learner Mobility Model (ELM)
- IMS: Sequencing and Navigation
- IMS Common Cartage
- IEEE: Competency
- IEEE: CMI

1.4.4 Related Activities

The following is a sampling of projects and activities related to ISO/IEC JTC1/SC36:

- **ARIADNE (Alliance of Remote Instructional Authoring and Distribution Networks for Europe):** ARIADNE is a European foundation developing concepts and tools for computer-based and telematics-supported remote authoring, teaching, and learning, with a strong emphasis on the sharing and reuse of electronic learning materials. The foundation partners contribute to international standardization activities, notably for metadata, and have developed an operational infrastructure.

ARIADNE has been collaborating with the Learning Object Metadata (LOM) working group of the IEEE LTSC.

URL: <http://www.ariadne-eu.org>

- **AICTEC (Australian Information and Communications Technology in Education Committee):** AICTEC is a cross-sectoral, national committee responsible for providing advice to all Australian Ministers of Education and Training on the economic and effective utilization of online technologies in Australian education and training. Formerly known as the Education Network Australia (EdNA) Reference Committee, it aims to provide a strategic forum for discerning collaborative and cooperative responses to the challenges and opportunities of the Internet for the education and training sector. AICTEC has formed a sub-committee focused on technical interoperability standards.
URLs: <http://www.aictec.edu.au>
- **eduSource:** A pan-Canadian collaborative project to create a testbed of linked and interoperable learning object repositories. The project is providing leadership in the ongoing development of the associated tools, systems, protocols and practices that will support such an infrastructure. The primary delivery mechanism for this testbed will be the broadband Internet, and in particular CA*Net 3/4. This project is based on national and international standards; it is fully bilingual; it will be accessible to all Canadian including those with disabilities; and it will share and disseminate its findings across Canada and internationally. It is being sponsored by Industry Canada's CANARIE Initiative, and by a broad range of public and private sector partners.
URLs: <http://www.netera.ca> <http://www.careo.org> <http://www.canarie.ca>
- **World Wide Web Consortium (W3C):** The major developer of web specifications. The relationship with W3C is being investigated.
- **Resource Discovery Services (several organizations):** SC36 also recognizes the potential synergy that exists with many organizations and projects associated with generic or discipline-specific resource discovery services, such as "subject gateways". Many of these projects and organizations target their services to particular communities within education, e.g., research communities. There is an emerging massive breadth of digital media resources that may potentially be purposed for education. The IMS Digital Repositories Interoperability Working Group has a particular focus on addressing this.

2 PERIOD REVIEW

2.1 Market Requirements

It has been estimated that the learning, education, and training industry is over 1 trillion Euros per annum worldwide. Much effort is being spent on information technology and its

integration within the learning environment. Regional entities, such as the EU and Asian e-Learning Network 2, are spending considerable effort on multi-cultural learning resources and environments.

With an expanding market for information technology related implementations of learning, education and training, there continues to be a strong need for international standards and technical reports on information technology to be used by key stakeholders from within the industry — such as learning content developers, government educational authorities, learning systems developers, training service providers, and university consortia, etc.. While currently evolving Internet and web technology specifications can be effectively harnessed for learning, education, and training they do not specifically accommodate the range of requirements that are needed to support rich learning experiences on a global scale.

Most learners and learning institutions are under funded. Successful international standards would allow learners, institutions, and other consumers to purchase information technology for LET that worked "right" and interoperated. Not only would the development and use of international standards produce a direct cost savings, but the LET information technology systems could be used in a wider range of applications, and used more efficiently.

The "learners" include home users, nomadic users, institutional users, children and adult users. The variety of learning environments includes standalone, classroom, networked, internet-based, nomadic, federated (groups of resources), distance, collaborative, asynchronous, synchronous ones, and so on. With all these environments and international participants, international standards are critical for high interoperability and convergence in the marketplace.

Learning environments are unique in that standardization and interoperability are required across many "qualities of implementations", including the low-end (e.g., a standalone PC workstation), the middle (e.g., workstations with high-speed internet access), and the high-end (e.g., high-fidelity simulators and trainers). Interoperability is necessary among low-cost, consumer, high-cost, and specialized learning technology systems.

Effective communication with NBLO's and market stakeholders is key in identifying and verifying LET IT "best practices" and needs. These identified "best practices" and needs are used as inputs for determining Market Requirements. SC36 has begun to incorporate specific strategies in capturing existing practices and needs. Built on SC36 RG1 Marketing activities, each SC36 Plenary meeting now has a co-located forum, funded entirely outside of SC36, where regional government and industry leaders participate. Besides offering qualified speakers to the forums, SC36 NBLOs are able to receive needed regional information on "best practices" and needs from the forums. This information is utilized in the SC36 Business Planning process in identifying verifiable Market Requirements. Data and information collected over time, enables SC36 to identify current and emerging technologies and market trends.

Conversely, these forums are key in disseminating information about the SC36 program of work to the international community. The sharing of information on emerging SC36 Standards and Technical Reports allows key stakeholders an insight into the globalization of

technologies and “best practices” in Information Technologies for Learning, Education and Training. SC36 has also begun participation in global forums such as the WSIS e-learning Form in both collecting and disseminating critical market information.

SC36 also utilizes its Liaison structure to gather critical market information. For example, SC36 utilizes the JTC1 Technology Watch to gain insights on emerging technologies and issues germane to SC36 activities. Intelligent Systems was an area of emerging technologies identified at the 2005 JTC1 Technology Watch meeting at Banff, Canada. In response to the JTC1 request for identifying “best practice” in the area of Intelligent Systems, SC36 issued a call for contributions for Intelligent Systems “best practice” use for Learning, Education and Training at its March 2006 Plenary meeting in Turku Finland. Several contributions have been received and the study period has resulted in one NP on Cross-Lingual Semantic Reverse Query Expansion. SC36 will utilize this information in identifying the market requirements for this specific technology area.

Based on current information, the work focus of ISO/IEC JTC1 SC36, and its current structure aligns with the marketplace in several major areas of technical specification (non-exhaustive list):

- **Vocabularies and Taxonomies:** Standards are necessary for terminology, both human readable and machine interpretable.
- **Architectures:** Standards are necessary for architectures from a variety of perspectives, such as: component-based, lifecycle-based, communication-based, collaboration-based.
- **Learning Content:** Standards are necessary for cataloging, content formats, content structure, localization, and internationalization.
- **Participant Information:** Specification of information such as regarding capabilities and accessibility needs (e.g. of learners), availability (e.g. of tutors) and available substitution (e.g. by an automated helpdesk), and learning context (e.g. job context of an employee).
- **Management Systems:** Standards are necessary for harmonizing procedures and data models for the purpose of exchanging information among many categories of participants (represented by humans or software agents), many categories of stored information (like learning content or participant information), and many categories of functional components (like learning management systems and content repositories) in IT-supported learning environments.
- **Collaboration:** Standards are necessary for collaboration technologies that are specific to learning environments.
- **Assessment:** Standards are necessary for technologies that support interoperability of evaluation, questioning, certification, and accreditation systems and components.
- **Descriptive Frameworks:** Standards are necessary for the provision of accurate, well-defined descriptions of software, services, content, quality etc. Standards are necessary for conceptual frameworks.

SC36 will develop standards on these mature technologies, relevant technical reports as these technologies mature, and as the market demands. Supported by its Business Planning

Processes, the structure and resources of SC36 can quickly react to rapidly changing market needs.

The market also demands "standards" in non-technical areas, such as "education standards". The development of non-technical standards is well *outside* the scope of SC36. SC36 will not create these kinds of local, regional, culture-specific, or political standards, but SC36 technical standards and other technical standards may facilitate, accommodate, or disseminate non-technical standards.

2.1.1 Marketing Objectives

SC36 believes that marketing is an effective tool for activities such as identifying market trends, promoting SC36 products, disseminating information to the public, increasing participation, and assisting National Member Bodies in promoting IT for LET. As a result, SC36 has created a Marketing Rapporteur Group to oversee this activity. Objectives of the RG are to help promote and encourage the work of SC36 by:

- Providing accurate market information for use in the Formal Business Planning Process
- Convincing stakeholders of the importance and relevance of e-learning standardization.
- Promoting the effectiveness of e-learning standards in a public environment for the development of cost-effective and efficient learning solutions.
- Mobilizing stakeholders who could be early adopters of SC36 products.
- Assisting National Member Bodies and Liaison Organizations in promoting and implementing IT solutions for LET based on SC36 products.
- Identify and actively recruit governments and organizations for National Body membership or potential Liaison relationships with SC36 in identifying, producing and disseminating globally relevant IT based Standards and Technical Reports for LET.

2.2 Achievements

SC36 has had nineteen Plenaries and has gathered the interest of thirty six National Body members (both P and O members), and twenty one Liaison Organizations. Attendance and participation have been steadily increasing at Plenary and related WG meetings.

Over the past year, SC36 has accomplished the following major milestones:

- ISO/IEC 29163-1 SCORM 2004 3rd Edition - Sharable Content Object Reference Model – Overview (Technical Report); Published

- ISO/IEC 29163-2 SCORM 2004 3rd Edition - Sharable Content Object Reference Model – Content Aggregation Model (Technical Report); Published
- ISO/IEC 29163-3 SCORM 2004 3rd Edition - Sharable Content Object Reference Model – Run-Time Environment (Technical Report); Published
- ISO/IEC 29163-4 SCORM 2004 3rd Edition - Sharable Content Object Reference Model – Sequencing and Navigation; Published
- ISO/IEC 19796-3:2009 Information technology -- Learning, education and training -- Quality management, assurance and metrics -- Part 3: Reference methods and metrics; Published
- ISO/IEC 29127 System Process and Architecture for Multilingual Semantic Reverse Query Expansion for LET (Technical Report); Awaiting Publication
- CEN TC 353, EN nnnnn: Adoption of ISO/IEC 19796-1 (RFDQ) as European Norm (EN); the adoption is approved by CEN TC 353. SC36/WG5 has appreciated and supported this adoption as well as other adoptions of this standard in further countries (currently planned within Korea, Russia, Germany, and Japan)
- Initiated Testing of a Concept Mapping Tool
- Extended study period on the integration of automated processes for supporting collaborative activities
- Extended the study period related to managing and exchanging participant information (e-portfolio implementation projects; semantic information models).
- Initiated study period on e-Assessment with particular focus on (1) e-Testing, (2) quality of e-Assessments and (3) quality and validation of single e-Assessment items
- Initiated a project on individual accessibility, language accessibility and Human Interface Equivalencies (HIEs)
- Initiated a project on User Interface and Content personalization and implementation
- Initiated a project on Identification of Privacy Protection requirements pertaining to learning, education and training (LET)
- Assisted Member National Bodies in planning international forums run before or after Plenary meetings

2.2.1 Meetings

Since the 1999-11 JTC1 Plenary in Seoul, SC36 holds plenary meetings every 6 months in the months of March and September. Since its formation, SC36 has had increasing participation by National Bodies (NBs) and Liaison Organizations (LOs). Interest in the work of SC36 continues to grow as reflected by the historical trend in attendance at meetings. The list of past meetings and approximate meeting attendance for the past SC36 Plenary and WG/RG meetings are:

#	Date	Location	Approximate Total Attendance
19	2009-03	Wellington, New Zealand	62
18	2008-09	Stuttgart, Germany	68
17	2008-03	Jeju Island, Korea	73
16	2007-09	Toronto, Canada	70
15	2007-03	London, UK	73

14	2006-09	Wuhan, China	75
13	2006-03	Turku, Finland	81
12	2005-09	Durham, US	79
11	2005-03	Tokyo, Japan	78
10	2004-09	Dublin, Ireland	61
9	2004-03	Montreal, Canada	75
8	2003-09	Seoul, Korea	50
7	2003-03	Paris, France	85
6	2002-09	Lawrence, Kansas, US	50
5	2002-03	Adelaide, Australia	40
4	2001-09	Copenhagen, Denmark	Cancelled
3	2001-03	New York City, US	35
2	2000-09	Sedona, US	25
1	2000-03	London, UK	35

2.3 Resources

SC36 has the resources of 36 National Bodies and 21 Liaison Bodies to staff seven Working Groups, 1 Special Working Group, and 1 Rapporteur Group. Section 1.4.2 lists the current Liaison Organizations actively working with SC36. Currently, SC36 has a Secretariat provided by the Republic of Korea, and a Chair, provided by the United States.

2.3.1 Membership

38 NBs are members of SC36 as of 2009-09: 23 P-members and 15 O-members.

- P (participating) members: Algeria (IANOR), Australia (SA), Canada (SCC), China (SAC), Denmark (DS), Finland (SFS), France (AFNOR), Germany (DIN), India (BIS), Italy (UNI), Japan (JISC), Kenya (KEBS), Republic of Korea(KATS), Luxembourg (ILNAS), Netherlands (NEN), New Zealand (SNZ), Norway (SN), Russian Federation(GOST R), Spain (AENOR), Sweden (SIS), USA (ANSI), Ukraine (DSSU), United Kingdom (BSI)
- O (observing) members: Belgium (NBN), Colombia (ICONTEC), **Czech Republic (UNMZ)**, Hong Kong, China (ITCHKSAR), Hungary (MSZT), Indonesia (BSN), Ireland (NSAI), **Kazakhstan (KAZMEMST)**, Malaysia (DSM), **Portugal (IPQ)**, **Romania (ASRO)**, Saudi Arabia (SASO), Singapore (SPRING SG), Switzerland (SNV), Turkey (TSE).

Note: In the past 12 months, 4 additional O members have joined; Czech Republic (UNMZ), Kazakhstan (KAZMEMST), Portugal (IPQ), Romania (ASRO)

Note: SC36's goal in 2010 is to add 1 P-Member and 2 O-Members

2.3.2 Organizational Structure

To accomplish the SC36 work program in an efficient manner, SC36 currently has seven Working Groups, one Rapporteur Group, and one Special Working Group. The organizational structure reflects the needs in efficiently fulfilling and managing the current program of work. Since there are relationships between projects, there are several members who participate in more than one WG. To ensure effective vocabulary harmonization, there are members who serve as Liaisons between WG1 and the other WGs. Each WG has specific responsibilities in developing International Standards and Technical Reports in a specific technology area. The Marketing RG plays a key role in supporting WG activities such as identifying market trends, promoting SC36 products, disseminating information to the public, increasing participation, and assisting National Member Bodies in promoting IT for LET. The Special Working Group on Business Planning assists in SC36's Formal Business Planning Process.

- WG1: Vocabulary - developing domain-specific terminology standards harmonized with the existing ISO/IEC 2382 series for IT vocabulary.
- WG2: Collaborative and Intelligent Technology - developing several standards to support the IT aspects of learner collaboration and the use of intelligent technology in LET environments.
- WG3: Participant Information - developing standards that specify data models, bindings, codings, APIs, protocols, etc., for data interoperability and data exchange of information associated with learners (e.g. grades, preferences, competencies, objectives, portfolios and peers), and Nomadicity and Mobile Learning.
- WG4: Management and Delivery of Learning, Education, and Training - focused on producing a multi-part standard and metadata for learning resources. The proposed data model includes a flexible framework for specifying disjointed conceptual schemas that define structures and data elements for metadata instances associated with learning resources.
- WG5: Quality Assurance and Descriptive Frameworks - focused on developing standards that provide guidelines and support functions specifically for the field of learning, education and training, in particular e-learning.
- WG6: International Standardized Profiles - developing profile standards consisting of existing ISO, IEC and consortia standards, enabling the use of needed multiple domain standards that support e-learning environments.
- WG7: Culture, Language, and Human Functioning Activities - developing a framework for content and user interfaces to be accessible by users with disabilities – where ‘disability’ is conceived not as something a person lacks, being instead a mismatch between learner needs and the education delivered.

- RG1: Marketing Rapporteur Group (MRG) - responsible for coordinating and in many cases delivering marketing and communications to support the engagement of stakeholders in the standards development process and awareness and adoption of our work products.
- SWG Business Planning – focused on implementing and maintaining a formal business planning process for SC36.

3 Focus Next Work Period

3.1 Deliverables

The SC36 work programme expects to deliver 8 projects as final over the next year. The expected deliverables are listed below.

- ISO/IEC 29140 (TR) ITLET – Nomadicity and Mobility Part 1 (Technical Report)
- ISO/IEC 29140 (TR) ITLET – Nomadicity and Mobility Part 2 (Technical Report)
- ISO/IEC 24763 (TR) ITLET – Conceptual Reference Model for Competencies and Related Objects (Technical Report)
- ISO/IEC 19788-1 ITLET – Metadata for Learning Resources – Part 1: Framework
- ISO/IEC 19788-2 ITLET – Metadata for Learning Resources – Part 2: Core Elements
- ISO/IEC 12785-2 ITLET – Content Packaging – Part 2: Content Packaging XML Binding
- ISO/IEC 12785-3 ITLET – Content Packaging – Part 3: Content Packaging Best Practice and Implementation Guide
- ISO/IEC 24725-1 ITLET -- Profiles of standards and specifications-Part 1 Framework and Taxonomy

3.2 Strategies

The following strategies will be employed in implementing the Scope, Vision, Purpose, and Values of SC36 and in efficiently executing the SC36 program of work. These Strategies are in line with, and implements key objectives and added values of ISO's Strategic Plan 2005-2010.

- Adherence to the ISO/IEC JTC1 directives: Work in strict accordance with the ISO/IEC JTC1 directives in all matters.
- Establish active liaisons with other internal and external organizations, whenever applicable.
- Improve communication within the SC36 structure by incorporating advanced collaboration tools.

- Establish official representation and participation in discussion lists and forums to ensure the SC36 presence in emerging sectors.
- Encourage official representation at and participation in important events.
- Continuation of a Business Planning Process to keep up to date with trends in multiple sectors. This will assist in identifying :
 - New areas for standardization
 - Existing work that can be used as input material for new standards
 - Existing standards that can be fast tracked
 - Standards in need of revision
 - Standards that should be withdrawn
 - New liaison partners
- Adapt standards to emerging trends
 - Exploit systematically the awareness system.
 - Early assignment of an emerging trend to an appropriate Working Group.
- Timely publication
 - Utilize processes to create new work items quickly
 - Make a decision quickly on the standards process to be used, either the International Standard/Technical Reports/International Profiles
 - Leverage the existing work of National Member Bodies and Liaison Organizations
- Dissemination of information by various distribution channels (seminars, workshops, leaflets, websites, etc).
- Establish the value of each standard
- Ensure full and open discussion
- Focus on quality

3.2.1 Risks and Risk Mitigation Strategies

SC36 intends to proactively manage risks through the application of a Formal Business Planning Process. Below are identified key risk areas, with Risk Mitigations.

- There might not be enough administrative support or experience to meet the needs of SC36.
 - SC36 has several participants with substantial JTC1 experience, which may mitigate these risks.

- Committee not sufficiently representative of cultures and regions.
 - SC36 is actively recruiting new Member National Member Bodies and Liaison Organizations. Several are added each year.
- Lack of Global awareness of SC36 Work Program, Standards and Technical Reports.
 - SC36 has and will continue to support e-learning related forums in conjunction with SC36 Plenary meetings.
 - SC36 is actively involved in publishing articles for use in international publications such as the ISO Focus and ISO Management Magazines,
- Lack of collaboration between meetings.
 - SC36 has established a SWG on Business Planning to recommend and assist in implementing appropriate collaboration tool sets
- The tasks of drafting standards, managing working groups, etc., are largely dependant on a "volunteer" work force (i.e. the experts who perform these functions are supported in their work by an organization other than the SC36 itself). SC36 projects are dependant on the skills of these experts.
 - SC36 is committed to incorporate advanced collaboration tools to reduce the number of interim meetings in order to reduce travel costs, allowing globally recognized experts to actively and efficiently participate.
- ISO/IEC JTC1 procedures can be daunting and/or off-putting to newcomers to the processes used. The reasons for specific procedures are sometimes not clear to the experts who contribute to SC36 work.
 - SC36 is investigating the feasibility of conducting orientation training to acclimate new members to the SC36 program of work and procedures used.
 - For reference purposes, SC36 has developed Standing Documents for “Roles and Responsibilities of Liaison Officers”, “Roles and Responsibilities of Project Editors”, and “Guidelines to be Applied in the SC 36 Ballot Resolution Process”.
- Creating a new standard with minimal base documents can be time consuming.
 - SC36 is committed to leverage its relationship with Liaison Organizations with stable specifications on which to base standards on. Internationalization of consortia and fora is a proven and successful strategy.

3.2.2 Opportunities

SC36 has successfully internationalized work from a key Liaison, IMS (ISO/IEC 24751). Internationalization work continues with IMS on internationalizing Content Packaging. SC36 will continue to employ this strategy with IMS, ADL, AICC and other key Liaison Organizations in producing market relevant Standards and Technical Reports. To enhance relevant internationalization, SC36 is leveraging opportunities and strategies in adding NBLOs' global LET IT experts in support of the program of work.

Effective utilization of resources in RG1 Marketing, SWG on Business Planning and Liaison Organizations, and participation in related forums, is enabling SC36 to identify and document current "best practices" for LET IT. SC36 will begin to develop, publish and support Technical Reports in capturing "best practice". This in turn is allowing SC36 to precisely develop and focus on market relevant technologies. Coupled with other strategies in the Business Planning Process, allows SC36 to rapidly shift resources in reacting to changes in the marketplace.

3.3 Work Program Priorities

SC36 is focusing on successful completion of projects in FDIS stage. These projects are listed in section 3.1 Deliverables. Each SC36 WG has verified the relevancy of their assigned projects by WG resolution. These resolutions are passed to the SC36 Plenary level for confirmation. Adjustments to the SC36 program of work are made accordingly.

SC 36 is also focusing on emerging technologies in the marketplace. Based on NBLO and forum inputs, inputs from RG1 Marketing, and the Business Planning Process, SC36 is focused on studying and reviewing technologies in the areas such as of mobile learning, concept mapping, integration of automated processes for supporting collaborative activities, managing and exchanging participant information (e-portfolio implementation; semantic information models), and e-Assessment with particular focus on e-Testing, quality of e-Assessments, and quality and validation of single e-Assessment items.

Additionally, SC36 is focusing on all other projects in varying stages of development. In doing so, SC36 is effectively utilizing the resources of global experts of NBLO participants. Additional focus on expanding NBLO representatives is a key for achieving relevant internationalization of the SC36 work program.

Regular meetings are a key factor in obtaining and keeping a market relevant focus and adjusting priorities for the SC36 program of work. SC36 has scheduled Plenary meetings every six months:

- Plenary #20; 2009-09; Umeå Sweden
- Plenary #21; 2010-03; Japan
- Plenary #22, 2010-09; USA (provisional)
- Plenary #23, 2011-03; Shanghai, China (provisional)

3.3.1 Archival Policy

SC36 has implemented an archival policy in accordance with Section 4.6 of the ISO/IEC JTC1 Directives. SC36 utilizes livelink as the mechanism for archiving all official SC36 level documents. WG and RG Conveners are encouraged to utilize livelink as their document archive and are instructed to adhere to Section 4.6 of the ISO/IEC JTC1 Directives. However WG Conveners are allowed to maintain their own document archives in accordance with Section 4.6 of the ISO/IEC JTC1 Directives. Upon termination of a WG or RG, all documents are passed to the SC36 Secretariat who archives them in livelink. All N numbered documents are archived for a 20 year period.