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## BUSINESS PLAN FOR JTC1/SC32: 2008-2009

## **PERIOD COVERED:**

## May 2008 through June 2009 with Chairman's remarks to August 2009

The Business Plan was approved by the SC32 plenary meeting at Jeju on 2009-06-25 (SC32N1887 SC32 Jeju Resolutions).

## **SUBMITTED BY:**

Bruce Bargmeyer — ISO/IEC JTC1/SC32 Chairman

#### 1.0 MANAGEMENT SUMMARY

## 1.1 CHAIRMAN'S REMARKS

SC32 participants are progressing a wide range of projects as shown below. These projects are to develop standards that range from revisions of relatively mature technologies to new standards for emerging technologies. Participants include major vendors, academics, and users, including government agencies. Contributions are received from North America, Asia, Australia, and Europe—a resource that is beneficial to the quantity and quality of the standards. These strengths stand against substantial risks of shifting priorities and support within participating organizations as well as competition from other standards development organizations.

SC32 WG1 is continuing e-Business standards development work based on the Open-edi reference model. This work is in close liaison with UN/CEFACT and ITU-T under the auspices of the MoU concerning standardization in the field of electronic business.

SC32 WG2 has approved an FCD ballot for the core part of the third edition of ISO/IEC 11179 – *Metadata Registries (MDR)*. This substantially extends metadata registry capabilities to register and manage semantics. Substantial efforts are being made to align these standards within SC32 and between WG2 and OMG, W3C and OASIS through a series of liaison and informal meetings.

WG2 is also releasing new parts of the ISO/IEC 19763 – *Metamodel Framework for Interoperability (MFI)* that provides standards for the development of a unified framework for registry interoperability to register administrative structural information and computable semantics about ontologies, processes and services. These standards are intended to lead the development of emerging technologies in these areas rather than to consolidate current industry practice. In addition to the standards specifications, prototype systems are being built to confirm the validity of the standards specifications.

SC32 WG3 has completed a substantial revision to all nine parts of ISO/IEC 9075 *Database Languages – SQL*. Among the new capabilities in ISO/IEC 9075:2008 is support for the new W3C XQuery Update facility. WG3 is currently working on adding additional capabilities to the SQL standards.

SC32 WG4 has started the revision (4th Edition) of ISO/IEC 13249 *SQL/MM Part 3: Spatial*, which supports Geographic Information System requirements based on SQL. This new edition extends its capabilities to support 3D geometry. 13249 *SQL/MM Part 7: History* is now in FCD stage and supports the use of history records for SQL applications. A new 13249 *SQL/MM Part 8: Metadata Registries (MDR)* provides an SQL based service interface for any metadata registry (MDR) as defined in ISO/IEC 11179 and supports standardised access for MDR applications.

## 1.2 JTC1 SC32 STATEMENT OF SCOPE

#### JTC1/ SC32

**Title:** Data Management and Interchange

**Area of Work:** Standards for data management within and among local and distributed information systems environments. SC32 provides enabling technologies to promote harmonization data management facilities across sector-specific areas. Specifically, SC32 standards include:

- 1. reference models and frameworks for the coordination of existing and emerging standards;
- definition of data domains, data types and data structures, and their associated semantics;
- 3. languages, services and protocols for persistent storage, concurrent access, concurrent update and interchange of data;
- 4. methods, languages, services and protocols to structure, organize and register metadata and other information resources associated with sharing and interoperability, including electronic commerce.

### JTC1/ SC32/WG1

Title: e-Business

**Area of Work:** Standardization in the field of generic information technology standards for open electronic data interchange needed to attain global interoperability among the information technology systems used by organizations. Such interoperability is viewed from both business and information technology perspectives.

Within this context the scope includes:

- establishment of methodology and framework for identification and modelling of business activities through business scenarios and their components, such as roles, information bundles, and semantic components;
- 2. identification and specification of formal description techniques for describing classes of business requirements and their contextual and semantic specifications;
- identification and specification of formal description techniques for developing business scenarios and their components;
- 4. identification and specification of information technology services and service interfaces for accomplishing business transactions;
- 5 . identification and specification of facilities to manage business scenarios and their components.

Note: Priority is on work required to support the needs of electronic commerce, electronic administration, electronic business, etc. The basis of work is the Open-EDI Reference Model (ISO/IEC 14662).

## JTC1/ SC32/WG2

Title: Metadata

**Area of Work:** The development and maintenance of standards that facilitate specification and management of metadata, metamodels and ontologies. Use of these standards will enhance the understanding and sharing of data, information and processes to support, for

example, interoperability, electronic commerce and model- and service-based development. The scope shall include:

- 1. establishment of a framework for specifying and managing metadata, matamodels and ontologies;
- 2. specification and management of metadata, matamodels and ontologies;
- 3. specification and management of data about processes, services, and behaviour;
- development of facilities to manage metadata, matamodels and ontologies, including registries and repositories;
- 5. development of facilities to exchange metadata, matamodels and ontologies, including semantics, over the Internet, intranets and other media.

#### JTC1/ SC32/WG3

Title: Database Languages

**Area of Work:** The terms of reference of ISO/IEC JTC1/SC32/WG3 Database Languages are:

- develop and maintain languages for the dynamic specification, maintenance and description of database structures and contents in multi-user environments. The specifications may include the data type, behaviour and any integrity constraints on the contents of the defined structures. The specifications may include mechanisms for the creation and generation of new data types and behaviours so as to support the specification of other international standards.
- 2. provide additional support for the integrity of database systems through transaction commitment, recovery, and security facilities.
- develop and maintain languages which provide for the storage, access and manipulation of data in database structures by multiple concurrent users. These languages may be computationally complete and may contain features for the packaging and storage of modules and procedures in database structures.
- 4. provide interfaces for the languages developed to other standard programming languages.
- 5. provide interfaces or access to other standards describing data types, behaviour or database content to users of the languages developed.

#### JTC1/ SC32/WG4

**Title:** SQL Multimedia & Application Packages

**Area of Work:** Specification of packages of abstract data types for use in various application areas. Specify each package of abstract data type definitions using the facilities for user-defined type provided in the Database Language SQL/Foundation. This should include packages such as Full-Text, Spatial, Still Image, Still Graphic, Animation, Full Motion Video, Audio, Seismic, and Music.

#### 1.3 PROJECT REPORT

http://jtc1sc32.org

# 1.4 CO-OPERATION AND COMPETITION

A complete listing of SC32 liaisons is listed in the following tables. SC32 is continually reevaluating its liaisons and assessing areas of internal and external cooperation and competition. SC32 has requested JTC1 to remove the liaisons that have not expressed an interest in the work of SC32.

# **Internal Liaison Membership**

internal Liaison Menn	persuih
IEC B3 JWG15	Design Automation
ISO/IEC JTC1/SC 2	Coded character sets
ISO/IEC JTC1/SC 6	Telecommunications and information exchange between systems
ISO/IEC JTC1/SC 7	Systems Engineering -ODP & Modelling Languages
ISO/IEC JTC1/SC 7/WG7	Software engineering/Life cycle management
ISO/IEC JTC1/SC 17	Cards and personal identification
ISO/IEC JTC1/SC 22	Programming languages
ISO/IEC JTC1/SC 22/WG20	Programming languages/Internationalization
ISO/IEC JTC1/SC 24	Computer Graphics and Image Processing
ISO/IEC JTC1/SC 27	IT Security Techniques
ISO/IEC JTC1/SC 31	Automatic identification and data capture techniques
ISO/IEC JTC1/SC 34	Document Description and Processing Languages
ISO/IEC JTC1/SC 35	User Interfaces
ISO/IEC JTC1/SC 36	Information Technology for Learning, Education & Training
ISO/IEC JTC1/SC 37	Biometrics
ISO/TC 37	Terminology (principles and coordination)
ISO/TC 37/SC 2	Terminology and other language resources - Terminography and Lexicography
ISO/TC 37/SC 3	Terminology/Computer Applications
ISO/TC 37/SC 4	Terminology and other language resources
ISO/TC 46	Information and documentation
ISO/TC 46/SC 4	Information and documentation/Computer applications
ISO/TC 46/SC 11	Archives / Records Management
ISO/TC 46/WG2	Information and documentation/Coding of country names and related entities
ISO/TC 68/SC 2	Banking, securities and other financial services/ Security management
ISO/TC 127/WG2	Mobile construction machinery - Work-site data exchange
ISO/TC 154	Documents and data elements in administration, commerce and industry
ISO/TC 184	Industrial automation systems and integration
ISO/TC 184/SC 4	Industrial automation systems and integration/ Industrial data
ISO/TC 204	Transport Information and Control Systems
ISO/TC 211	Geographic information/Geomatics
ISO/TC 215	Healthcare Informatics

## External Liaison Membership Category - A

INTELSAT International Telecommunications Satellite Organization

ITU-T International Telecommunication Union - Telecommunication Standardization Sector

UN/ECE UN/Economic Commission for Europe/CEFACT

## External Liaison Membership Category - B

CISAC International Confederation of Societies of Authors and Composers

SWIFT Society for Worldwide Interbank Financial Telecommunication

WMO World Metrological Organization

## External Liaison Membership Category - C

DCMI Dublin Core Metadata Initiative

DAMA-I Data Management Association International \*
ebXML OASIS OASIS Registry/Repository Technical Committee \*

Eurostat Eurostat

IEEE LTSC Learning Technology Standards Committee

OECD Organisation for Economic Co-operation and Development

OGC Open GIS Consortium

OMG Object Management Group

W3C World Wide Web Consortium

\* Pending JTC1 Approval

## 2.0 PERIOD REVIEW

Excellent progress has been made in developing SQL, SQL MM, e-Business, Metamodel and Metadata Registry standards. We expect that progress to continue in the future. A major revision of the SQL standards was completed in June 2008 and planning is in progress for the next revision.

## 2.1 MARKET REQUIREMENTS

Market requirements for SC32 standards are driven by the rapid pace of hardware and software advancement as well as by the explosive growth of World Wide Web/Internet/Intranet/Extranet applications and related semantic technologies. These advances drive a stream of market requirements that are addressed by SC32 standards for data management and interchange, including metadata ontologies, registries and other tools. The data management market continues to grow rapidly.

SC32 projects respond to an increasing market demand for semantics management and semantic computing. Better semantics are needed to ground the concepts used in databases, XML messages, text in documents (which may be stored in databases), the semantic web, etc. The work underway connects several ISO standards for terminology content and structure with standards for data management and interchange. SC32 is exploring the market requirements for semantics management and potential extensions to new and existing standards in order to articulate and then fill unmet needs. Work is also ongoing in WG2 on projects dealing with the relationship between metamodels and metamodel management. This work is needed to contribute to tools and technologies needed for Semantic Service Oriented Architectures and

Model Driven Architectures. Study periods are underway to explore potentially new areas of standardization, including metadata registry for semantic web, metamodel management, registry of registries to support interoperation, layering ontologies upon data exchange agreements, and topics such as ontology evolution and alignment, and a metamodel for on-demand model selection.

The market demand for SQL database products remains strong, both from commercial vendors and open-source projects. The clear acceptance of the SQL:2003 standards by the database community is very encouraging. The new capabilities in SQL:2008 were driven by market priorities, so we expect vendor acceptance of the enhancements. WG3 is currently reviewing a variety of options for additional extensions and expansions of the SQL standards.

Market demand for electronic business applications (e.g., e-Commerce, e-Government, e-Logistics), products and services grow as firms struggle to move into the electronic marketplace. Standards for electronic business functions are necessary to facilitate this demand. Standards pertaining to Business Operational View in support of Open-edi are needed and e-Business standardization work is meeting this demand (e.g., economic and accounting ontology). The SC32 work related to eBusiness and business object registries is supporting JTC1 involvement with the ISO IEC UN/ECE MoU Management Group.

Each part of SQL/MM standards is based on explicit requirements from a domain market. In particular, SQL/MM Part 8: MDR, to support metadata registries, and SQL/MM Part 2: Spatial, specifying Spatial Data Management, received much attention. This interest was shown by ISO TC 204 (Intelligent Transport Systems), ISO TC 211 (Geographic information/Geomatics), and OGC (Open GIS Consortium). Our work on SQL/MM Parts 2 and 8 is proceeding under close coordination with TC 211 and OGC. Thus, we believe that our standards meet real market requirements.

## 2.2 ACHIEVEMENTS

Five projects have completed and been published or are in Stage 5 – Publication Stage:

1.32.03.06.03.00 ISO/IEC 9075-3:2008
Database languages - SQL - Part 3: Call-Level Interface (SQL/CLI)

1.32.03.06.09.00 ISO/IEC 9075-9:2008

Database languages - SQL - Part 9: Management of External Data (SQL/MED)

1.32.03.06.10.00 ISO/IEC 9075-10:2008

Database languages - SQL - Part 10: Object Language Bindings (SQL/OLB)

1.32.03.06.13.00 ISO/IEC 9075-13:2008

Database language SQL - Part 13: SQL Routines and Types Using the Java™ Programming Language (SQL/JRT)

1.32.31.01.05.00 ISO/IEC 15944-5:2008

Business operational view - Part 5: Identification and Referencing of Requirements of Jurisdictional Domains as Sources of External Constraints

The following projects are completing Stage 4 – Approval Stage by being submitted to ITTF for final FDIS vote:

1.32.31.01.07.00 ISO/IEC 15944-7:2008

Business operational view - Part 7: eBusiness vocabulary

1.32.31.01.06.00 ISO/IEC TR 15944-6

Business operational view - Part 6: Technical introduction to eBusiness modelling

1.32.30.03.00.00 ISO/IEC CD 14662

Open-edi reference model 3rd Edition

The following projects are completing Stage 3 – Committee Stage with FCD ballot:

1.32.17.01.01.00 ISO/IEC FCD 20944-1

Metadata Registry Interoperability and Bindings (MDR-IB) - Part 1: Framework, common vocabulary, and common provisions for conformance

1.32.17.01.02.00 ISO/IEC FCD 20944-2

Metadata Registry Interoperability and Bindings (MDR-IB) - Part 2: Coding bindings

1.32.17.01.03.00 ISO/IEC FCD 20944-3

Metadata Registry Interoperability and Bindings (MDR-IB) - Part 3: API bindings

1.32.17.01.04.00 ISO/IEC FCD 20944-4

Metadata Registry Interoperability and Bindings (MDR-IB) - Part 4: Protocol bindings

1.32.17.01.05.00 ISO/IEC FCD 20944-5

Metadata Registry Interoperability and Bindings (MDR-IB) - Part 5: Profiles

1.32.19.02.00.00 ISO/IEC FCD 14957

Representation of data elements values: Notation of the format 2nd Edition

1.32.22.01.02.00 ISO/IEC FCD 19763-2 Framework for Metamodel interoperability - Part 2: Core model

1.32.22.01.04.00 ISO/IEC FCD 19763-4

Framework for Metamodel interoperability - Part 4: Metamodel for model mapping

1.32.22.02.03.00 ISO/IEC FCD 19763-3

Metamodel framework for interoperability - Part 3: Metamodel for ontology registration 2nd

1.32.23.01.00.00 ISO/IEC FCD 19773

Metadata Registries (MDR) Modules

1.32.04.03.07.00 ISO/IEC FCD 13249-7 SQL Multimedia and Application Packages - Part 7: History

The following projects are progressing in Stage 3 – Committee Stage:

1.32.31.01.03.00 ISO/IEC CD 15944-3

Business Operational View - Part 3: Open-edi description techniques (OeDT)

1.32.31.01.08.00 ISO/IEC CD 15944-8

Business Operational View - Part 8: Identification of privacy protection requirements as external constraints on business transactions

1.32.24.01.00.00 ISO/IEC CD 24706

Metadata for technical standards and specifications documents

1.32.15.03.03.00 ISO/IEC CD 11179-3

Metadata registries (MDR) - Part 3: Registry metamodel and basic attributes 3rd Edition

1.32.04.04.03.00 ISO/IEC CD 13249-3

SQL Multimedia and Application Packages - Part 3: Spatial 4th Ed.

1.32.22.01.05.00 ISO/IEC CD 19763-5

Metamodel framework for interoperability (MFI) Part 5: Metamodel for process model registration

1.32.03.07.01.00 ISO/IEC CD 9075-1

Database languages - SQL - Part 1: Framework (SQL/Framework)

1.32.03.07.02.00 ISO/IEC CD 9075-2

Database languages - SQL - Part 2: Foundation (SQL/Foundation)

1.32.03.07.04.00 ISO/IEC CD 9075-4

Database languages - SQL - Part 4: Persistent Stored Modules (SQL/PSM)

1.32.03.07.11.00 ISO/IEC CD 9075-11

Database languages - SQL - Part 11: Information and Definition Schemas (SQL/Schemata)

1.32.03.08.14.00 ISO/IEC CD 9075-14

Database languages - SQL - Part 14: XML-Related Specifications (SQL/XML)

The following projects are progressing in Stage 2 – Preparatory Stage:

1.32.04.04.01.00 ISO/IEC AWI 13249-1

SQL Multimedia and Application Packages - Part 1: Framework 4th Ed.

1.32.22.01.06.00 ISO/IEC AWI 19763-6

Metamodel framework for interoperability (MFI) Part 6: Model registration procedure

1.32.09.01.01.00 ISO/IEC WD TR 19075-1

TRs on ISO/IEC 9075 (SQL/TR-REGEX)

1.32.31.01.09.00 SO/IEC NP 15944-9

EDI Bus op view - e-Business traceability

1.32.04.03.08.00 ISO/IEC WD 13249-8

SQL/MM MDR

## 2.3 RESOURCES

Adequate resources are currently available for all projects. SC32 actively seeks and recruits new participants.

## 2.4 ENVIRONMENTAL ISSUES

None

## 2.5 PARTICIPATION METRICS

Indicate the active participation of National Bodies in both meetings and balloting. In particular, note if the 50% voting participation requirement is being met.

## JTC1/SC32 Performance (as of 2009-08-31)

SC32 METRIC	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009 <sup>9</sup>
Attendance at Meetings <sup>1, 6, 8</sup>	73	62	53	47	47	61	37	33	48	60
New Standards Published <sup>2</sup>	4	5	1	5	5	1	0	13	18	5
Total Standards Published <sup>3</sup>	28	34	41	43	37	41	41	54	72	77
Active Projects	38	44	77	64	67	66	66	66	52	30

New Projects 5,	4	0	13 <sup>7</sup>	3	0	2	0	0	3	5

<sup>&</sup>lt;sup>1</sup> Average Attendance at Plenary and Working Group Meetings (where a plenary includes a meeting of all working groups – if working groups do not meet during plenary meetings, a cumulative mean attendance to working group meeting should be used) **(Att. Plena.)** 

## 3.0 FOCUS NEXT WORK PERIOD

SC32 has refined its program of work to ensure that it is focusing on those standards that will meet market requirements. SC32 plans to continue to focus on developing standards for SQL, SQL/MM, eBusiness and data semantics. SQL work is expected to be particularly active. The metadata registry market is very active, driving rapid development of all parts of ISO/IEC 11179 and ISO/IEC 19763.

Work on Database Languages (WG3) is active with the focus on a revised set of ISO/IEC 9075 parts. WG3 is continuing to track the W3C XQuery work as well as reviewing a variety of options for additional extensions and expansions of the SQL standards. The options currently under review are:

- Addressing requirements to manage streaming data
- · Additional OLAP facilities for data warehousing
- · Supporting additional types of metadata
- · Increased interoperability
- Enhanced security capabilities
- Providing underlying support for semantic web capabilities

The eBusiness Working Group (WG1) is concentrating on multiple parts of ISO/IEC 15944: Information technology - Business Operational View – Part 3: Open-edi description techniques, Part 7 eBusiness vocabulary, Part 8 Identification of privacy protection requirements as external constraints on business transactions, Part 9 Traceability framework, and Part 10 Coded domains.

The Metadata Working Group (WG2) is progressing with revisions to the ISO/IEC 11179 family of metadata registry standards and ISO/IEC 19763 *Metamodel framework for interoperability (MFI)*. A major effort is underway to produce a revised metamodel for metadata registries. This has formed the foundation for the next edition (3rd Edition) of the ISO/IEC 11179 family of standards. It is intended to greatly enhance the semantic management capabilities. Close coordination with ISO/TC 37 (Terminology and other language resources) is under way to ensure that metadata registry management of semantics will be consistent with and complimentary to other ISO standards in this area.

Also in WG2, the ISO/IEC 20944 *Metadata registry interoperability and bindings (MDR-IB)* project addresses the exchange of metadata among ISO/IEC 11179-based registries that depends not only on standard-conforming software, but also on contents that are compatible across registries.

<sup>&</sup>lt;sup>2</sup> New Standards published (NSP)

<sup>&</sup>lt;sup>3</sup> Total standards published (and currently valid) (TSP)

<sup>&</sup>lt;sup>4</sup> Active projects **(AP)** 

<sup>&</sup>lt;sup>5</sup> New projects introduced (**NP**)

<sup>&</sup>lt;sup>6</sup> At the National Body level the Working Groups are obtaining considerable participation with electronic participation

<sup>&</sup>lt;sup>7</sup> Project splits (both those approved and those waiting for JTC1 approval)

<sup>&</sup>lt;sup>8</sup> Plus 80 attendees at the Open Forum on Metadata Registries, held concurrent with the SC32 meetings, The attendance number does not include several Open Forum attendees who are also SC32 participants at the National Body level, but who were unable to remain a second week for the SC32 meetings.

<sup>9</sup> Since May 2009

Work is underway to foster interoperation between ISO/IEC 11179 *Metadata registries*, XML registries, UN/CEFACT *Core Component Technology Specification*, UN/CEFACT *Modelling Methodology* (UMM), OASIS *ebXML Registries*, and facilities that will be built in conformance with OMG's *Ontology Definition Metamodel (ODM)* and *Information Management Metamodel (IMM)*. The OMG *Common Warehouse Metamodel (CWM)* is being progressed as a PAS submission, with WG2 handling the process and conducting editing sessions. It is expected that OMG will submit the ODM and IMM as PAS submissions. The WG2 work is positioned to meet the deeper semantic management aspects of data management and interchange. This includes provision of semantics for semantic computing, the semantic web, classification schemes, services and associated metadata.

WG2 organizes an annual *Open Forum on Metadata Registries*. The twelfth *Forum* was held in Seoul, South Korea in June 2009. The thirteenth *Forum* is planned to be held in Kunming City, China, in May 2010.

#### 3.1 DELIVERABLES

See section 1.2 for those projects with upcoming target dates.

## 3.2 STRATEGIES

SC32 is focused on progressing its program of work as quickly and efficiently as possible. The committee is focused on identifying and meeting market requirements, and emphasizes new projects that have well-defined, concrete objectives that are market driven.

SC32 empowers its WGs by delegating everything that can be delegated to a WG, per JTC1 directives, along with the relevant authority and responsibility. The SC does not impose any additional management overhead. SC32 Plenary meetings accomplish those tasks required by the JTC1 directives in as brief a time as possible. Only an opening and closing plenary are held with less than a half-day duration, each. Inter-WG discussions are invited during a tutorial meeting and anytime outside of Plenary. All contentious issues are identified in advance and groups appointed to resolve the issue and prepare a recommendation before the closing Plenary. This strategy is intended to make the SC as productive as the members can be. WGs strive to insure that all National Bodies are actively involved in the technical work and that all of their opinions and contributions are considered.

SC32 maintains extensive contact with software developers and users to keep in close alignment with market forces. The Working Groups continue to utilize electronic editing meetings whenever possible in order to progress the work as rapidly as possible.

SC32 has active liaisons with industrial consortia, including OMG, OASIS, W3C, UN/CEFACT.

#### 3.2.1 **RISKS**

Each of the Working Groups within SC32 sets its own priorities and strategies for achieving objectives. This approach has lead to increasing progress in identifying and establishing critical inter-group understanding and liaisons. Some progress is being made on developing new standards that cut across the WG organizational lines. Considerable effort is being given to reduce the risk of work becoming isolated within a WG. For example, at every SC32 open plenary meeting, each WG conducts a tutorial presentation on its work to the full subcommittee.

There is some risk that major vendors may wish to re-focus their efforts within national bodies or other standards groups, with the intention to progress the resulting standards through JTC1 as Fast Track or PAS submissions. There is a possibility that major standards such as SQL could be declared as mature and not require substantial additional effort within SC32. There is also a possibility that major participant groups within any of the WGs may drop participation for financial,

programmatic, product, or other reasons, thus severely damaging the viability of the WG and/or SC32.

There is always the risk that new project could be initiated that does not have clear objectives and concrete specifications. If this loss of focus occurs, SC32 could risk dilution of its focus and thus could create incentives to produce important standards outside of SC32 and JTC1.

Overlapping scope of projects is an area that needs to be continually monitored and controlled. Changes in market requirements may cause some perturbation in the work schedules. However, if SC32 loses technology leadership, it may lose control. Therefore, rapid development of new standards, as well as producing the next edition of existing standards, is a crucial factor in future success.

If SC32 does not pursue its work aggressively, risks exist that essential capabilities will not be available in the marketplace to support important functions, or that the marketplace will produce multiple incompatible solutions in areas that common approaches and interoperability are essential to users.

The delegation of authority and responsibility to the WGs stands in contrast to the working of some other JTC1 Subcommittees. This management style risks making some participants uncomfortable, because it limits discussion time in Plenary meetings. There is a risk of missing some viewpoints that might be expressed in longer Plenary meetings.

Other standards bodies are very active in areas related to SC32 standards. SC32 must be nimble to maintain its relevance and leadership.

### 3.2.2 OPPORTUNITIES

The Internet, electronic commerce, semantic computing, the semantic web, object technologies, data privacy, and XML represent major areas of opportunity where market forces are creating demand for SC32 standards. SC32 will continue to work with the others involved to identify the specific standardization needs and to respond with current and newly proposed projects.

Semantic Service Oriented Architectures represents a major area of opportunity where market forces are creating demand for standards. SC32 is continually monitoring the work in this area and will react as soon as it sees and appropriate opportunity.

## 3.3 WORK PROGRAMME PRIORITIES

Each WG establishes work programme priorities in their project plan, which is approved in the SC32 Plenary. These can be seen in the material, above. For example, high priority is given to the standardization of an integrated/interoperable information processing environment.

The SC has established a priority of educating each working group about the work and ideas of the other work groups. Pervious SC32 meetings have shown that there is considerable interest in the synergy that can be developed within the committee. The next SC32 plenary meeting will again include tutorials from each work group to facilitate and encourage awareness, communication, and collaboration among the four working groups.