BUSINESS PLAN FOR JTC 1/SC 37 'BIOMETRICS'

PERIOD COVERED:

July 2008 – September 2009

SUBMITTED BY:

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1.0 MANAGEMENT SUMMARY

CHAIRMAN'S REMARKS

During this reporting period the Subcommittee has continued the development of the "second generation" of biometric standards with the goal of improving the existing standards, adding functionality to the published standards and reflecting technology innovations and new customers' needs. As shown in Table 1 below (Published International Standards and Technical Reports) twenty-nine International standards and four Technical Reports developed by JTC 1/SC 37 have been published. Five International standards and one Technical Report were published during this reporting period (these documents are highlighted in the table). Table 2 below (Project/Subproject Status) summarizes the status of the SC 37 projects. It is expected that during the next reporting period many of these draft standards will be in their last development stage, some of them will be published and others will be awaiting publication. SC 37 Standing Document 1 (SD1) – SC 37 Programme of Work (PoW), developed by the JTC 1/SC37 Secretariat, includes the list of the published standards as well as the ongoing projects, their development status and their expected completion date when appropriate.

Development of the SC 37 PoW continues to be performed through six Working Groups.

WG 1 – *Harmonized biometric vocabulary* recently developed version 12 of the harmonized biometric vocabulary (Standing Document 2). WG1 has already specified over one hundred harmonized terms and definitions. As part of this work, WG1 has continued developing Concept Maps for the Harmonized Vocabulary (included as an Annex in SD2). The harmonized biometric vocabulary is periodically sent to SC 37 liaison organizations including SC 17, SC 24, SC 27, and ITU-T SG17. An online vocabulary corpus supporting this work is maintained by Purdue University. This corpus provides a resource for currently utilized biometric –related terms and definitions. A proposal for a New Work Item on Harmonized Biometric Vocabulary is under ballot (a combined NP/CD was issued after the July 2009 meeting in Moscow, Russia). WG 1 also has responsibility for the development and maintenance of the Overview Standards Harmonization document (Standing Document 11).

WG 2 – *Biometric technical interfaces* continues to address the standardization of all necessary interfaces and interactions between biometric components and sub-systems, including the possible use of security mechanisms to protect stored data and data transferred between systems. New parts of the existing biometric technical interface standards are under development. Representative projects include Part 4 of the BioAPI standard (ISO/IEC 19784-1: 2006, BioAPI specification): Biometric sensor function provider interface and an amendment to Part 1 to specify support for the interchange of certificates and security assertions and other security aspects. A new part of ISO/IEC 19785, Common Biometric Exchange Formats Framework (CBEFF) is under development: Part 4: Security Block Format Specification. Amendments to Parts 1 to 3 of the 19785 standard to support required additional data elements, are under development as well. Tenprint Capture Using BioAPI (1.37.29141) reached FDIS status during this period and Framework Free BioAPI (1.37.19784.1 Amd 2) was recently published. ISO/IEC 24708, BioAPI Interworking Protocol (BIP), a joint development project with ITU-T SG 17, was also recently published. WG2 is also developing a conformance testing methodology multi-part standard for BioAPI (two parts have been published and two more parts are under development).

WG-3 – *Biometric data interchange formats* addresses the standardization of the content, meaning, and representation of biometric data formats which are specific to a particular biometric technology or technologies. The ISO/IEC 19794 multi-part standard (eleven parts already published during previous reporting periods) specifies biometric data interchange formats for a number of biometric modalities including finger, face, iris, signature/sign and vascular data. Two parts for other modalities are under development: Voice data (1.37.19794.13) and DNA data (1.37.19794.14). The WG continued work on the revision projects for the existing 19794 standards and the development of biometric sample quality standards. Development of conformance testing methodology standards for the biometric data interchange formats is also underway. Amendment 2 of Part 5 of the 19794 standard - Three Dimensional Face Image Data (1.37.19794-5 Amd 2) reached FDAM status. Part 1 of the Conformance testing methodology standard: Generalized CT Methodology (1.3.7.29109-1) and Part 1 of the Biometric Sample Quality standard- Part 1: Framework (1.37.29794-1) was recently published. Two additional parts of the biometric sample quality multi-part standard (Part 4: Finger Image Data and Part 5: Face Image Data) reached TR status and development of Part 6: Biometric Sample Quality, - Iris Image has been initiated. The conformance testing methodologies standards for the revised biometric data interchange formats are now being developed as amendments to the data interchange format standards.

WG-4 - *Biometric functional architecture and related profiles* addresses the standardization of biometric functional architecture and related profiles that bind together the various biometric-related base standards in a manner consistent with functional blocks of operation of biometric systems. These profiles identify the pertinent biometric-related base standards. They also define which optional fields of the base standards shall be used, as well as how to set the configurable parameters, in order to achieve interoperability within a set of pre-defined constraints. Two parts of the ISO/IEC 24713 multi-part standard were published at the end of the previous reporting period - Part 1:

Overview of biometric systems and biometric profiles and Part 2: Physical access control for employees at airports. Part 3 of the multi-part standard: Biometric Based Verification and Identification of Seafarers (1.37.24713.3) has been recently published (August 2009). This profile was developed within the ongoing liaison relationship between SC 37 and the International Labour Organization (ILO). WG4 has initiated the development of two Technical Reports: Guidance for Biometric Enrolment and Passenger Processes for Biometric Recognition in Automated Border Crossing Systems.

WG 5 - *Biometric testing and reporting* addresses the standardization of testing and reporting methodologies and metrics that cover biometric technologies, systems and components. Three parts of the Biometric performance testing and reporting multi-part standard (1.37.19795) have been published as International standards: Part 1: Principles and framework, Part 2: Testing methodologies for technology and scenario evaluation and Part 4: Interoperability performance testing. Part 3, Modality-specific testing, has been published as a Technical Report. Three additional parts are under development: Part 5, Access Control Scenario and Grading Scheme, Part 6, Testing methodologies for operational evaluation and Part 7, Testing of ISO/IEC 7816-based verification algorithms. WG 5 is also addressing the development of a multi-part standard to specify Machine readable test data for biometric testing and reporting, a Technical Report that will provide guidance for specifying performance requirements to meet security and usability needs in applications using biometrics and the characterization and measurement of difficulty for fingerprint databases for technology evaluation. Development of a new Technical Report was recently initiated: Characterization and measurement of difficulty for fingerprint databases for technology evaluation.

WG 6 - *Cross-jurisdictional and societal aspects of biometrics* addresses standardization in the field of cross-jurisdictional and societal aspects in the application of international biometrics standards. Within this context, the scope of work includes the support of design and implementation of biometric technologies with respect to accessibility, health and safety, support of legal requirements and acknowledgement of cross jurisdictional and societal considerations pertaining to personal information. Part 1 of a multi-part Technical report addressing jurisdictional and societal considerations for commercial applications: General guidance, was published in December 2008 as ISO/IEC TR 24714-1:2008. The WG is also developing another multi-part Technical Report on Pictograms, Icons and Symbols for use with Biometric Systems (1.37.24779). Part 1 provides an overview and the others parts are intended to address pictograms and symbols for specific biometric modalities – Part 2, Fingerprint Applications and Part 3, Vascular Applications, are under development. During the previous period, a new project was initiated: Technical report - The use of biometric technology in commercial Identity Management applications and processes. Recently, the development of a new Technical Report was approved: Guidance on the Inclusive Design and Operation of Biometric Systems.

As part of SC 37's business planning activities, WGs developed WG Roadmaps (SC 37 Standing Documents 14-1 to 14-6). These roadmaps provide additional information on current projects, their status, interdependencies between WGs, new work items and

perceived requirements for new standards/prospects for future standardization. Updated versions of these roadmaps are posted approximately every six months as a result of each of the SC 37 WG meetings.

Summary of Recently SC 37 Approved Projects

- ISO/IEC 29794 – 6, Biometric Sample Quality, Part 6 - Iris Image (WG 3)
- Technical Report on Guidance for Biometric Enrolment (WG 4)
- Technical Report - Passenger Processes for Biometric Recognition in Automated Border Crossing Systems (WG 4)
- Technical report - Characterization and measurement of difficulty for fingerprint databases for technology evaluation (WG 5)
- Evaluation Methodology for Environmental Influence in Biometric Systems (WG 5)
- Technical Report on Accessibility and usability of biometric systems (WG 6)

Proposals for New Work Item Under Ballot

- Proposal for a New Work Item on Operational evaluation of operator-led biometric systems (due date: 2009-11-27)
- Proposal for a New Work Item on Harmonized Biometric Vocabulary (due date: 2009-11-23)
- Proposal for a New Work Item on ISO/IEC 29109-2 AMD 1: Level 3 Conformance Testing for Finger Minutiae Data (due date: 2009-11-10)
- Proposal for a New Work Item on ISO/IEC 19794-1 AMD 1: Framework for XML encoding (due date: 2009-11-10)

The overall progress in this period has been excellent as evidenced in the SC 37 PoW by the number of documents that progressed to the following development level, the addition of several new projects and the proposal for New Work Items under ballot. Accounting for amendment projects, the revision of existing standards and new projects, the SC 37 PoW currently includes twenty-two projects subdivided into nine-five subprojects (published and ongoing projects are included). At least four standards as well as two Technical Reports are expected to be published early 2010.

1.2 JTC 1 SC 37 STATEMENT OF SCOPE

The Statement of Scope has not changed since it was approved at the first meeting of SC 37 held in December 2002. It is included below for convenience.

"*Standardization of generic biometric technologies pertaining to human beings to support interoperability and data interchange among applications and systems. Generic human biometric standards include: common file frameworks; biometric application programming interfaces; biometric data interchange formats; related biometric profiles; application of evaluation criteria to biometric technologies; methodologies for performance testing and reporting and cross jurisdictional and societal aspects.*

Excluded is the work in ISO/IEC JTC 1/SC 17 to apply biometric technologies to cards and personal identification.

Excluded is the work in ISO/IEC JTC 1/SC 27 for biometric data protections techniques, biometric security testing, evaluations, and evaluations methodologies."

The hierarchy and interrelationships between the scopes of work in SC 37, SC 27, and SC 17 and work conducted in these SCs remains the same.

1.3 PROJECT REPORT

The SC 37 PoW is posted in the SC 37 web site as Standing Document (SD1). The last update (April 2009) reflects the results of SC 37 WG and Plenary meetings in Busan, Korea held in July 2008 as well as the results of the SC 37 WG meetings held in Kauai, Hawaii, USA in January 2009. A revised version, to be posted soon, will reflect the progress made at the recently held SC 37 WG and Plenary meetings in Moscow, Russia.

1.4 COOPERATION AND LIAISON ACTIVITIES

SC 37 actively collaborates with a number of liaison organizations. During this reporting period, SC 37 biometric experts, via SC 37 Special Groups or on an as needed basis, have provided their expertise to other JTC 1 SCs and external organizations in their biometric-related projects. Examples of cooperation with these organizations follow.

1.4.1 SC 17

The technologies addressed by SC 17 and SC 37 are, for some applications, complementary in nature. The potential contributions that SC 37 can make to SC 17 through this liaison activity are substantial, particularly in the specification of use of biometric data within their projects. Most recently, SC 37 experts are collaborating through liaison reports on Information technology — Identification cards — On-Card matching (1.SC17.24787). SC 37's experts also offered to assist SC 17 in relation to the use of CBEFF (ISO/IEC 19785 Part 1 -3) patron formats within this project. SC 37's collaboration with SC 17 on this project is expected to continue.

1.4.2 SC 27

The complementary nature of SC 27 and SC 37 projects facilitates close and anticipated long term collaboration between experts from both SCs. SC 37 experts worked with SC 27 experts in the development of Security Evaluation of Biometrics (1.27.19792) and Authentication Context for Biometrics (ACBio - 1.27.24761) and hope to also contribute to the Biometric Template Protection project (1.27.24745). SC 27 feedback on SC 37 biometric interface standards led to the development of Part 4 of the 19785 standard, CBEFF Security Block Format specification(s). As stated above, SC 37 is also developing Amendment 3 of the BioAPI specification (19784-1.3) to provide support for the interchange of certificates and security assertions and other security aspects. Given SC 37/WG 6's scope of work, SC 37 is also interested in other SC 27 projects including Framework for Identity Management (1.27.24760), Privacy Framework (1.27.29100) and Privacy Reference Architecture (1.27.29101).

1.4.3 ITU-T SG 17

Coordination of work and close collaboration between SC 37 and ITU-T SG17 continues within the well-established collaborative procedures between ITU-T and JTC 1 in areas such as security requirements, specifications and authentication. Recently, this collaboration led to the approval and publication of ISO/IEC 24708:2008, Biometric Interworking Protocol (BIP), which is a joint effort between SC 37 and ITU-T. SC 37 hopes to also further contribute to ITU-T's efforts in Identity Management.

1.4.4 BioAPI Consortium

The BioAPI Consortium is actively participating in the SC 37 standards activities that are related to the development of the BioAPI standard.

1.4.5 The International Biometric Industry Association (IBIA)

IBIA serves as the Common Biometric Exchange Formats Framework (CBEFF) Registration Authority (project 1.37.19785). SC 37 maintains an active liaison with this organization and assists them in fulfilling this important role. IBIA is also contributing to the SC 37/WG 6 work on the 1.37.24714 project and the Harmonized Biometric Vocabulary under development in SC 37/WG 1.

1.4.6 International Labour Office of the UN

SC 37/WG 4 developed a Biometric Profile for Seafarers (1.37.24713-3) as a result of SC 37's collaboration with ILO. This work takes into account ILO's requirements for a detailed biometric profile for verification and identification of seafarers with as much information on the architecture and implementation as possible (with reference to ILO Convention No. 185, and ILO's technical requirements). ISO/IEC 24713-3 was recently published.

2.0 PERIOD REVIEW

Membership in SC 37 consists of 25 P-Members and 7 O-Members. SC 37 has a number of liaisons with other JTC 1 SCs and external organizations. The most active liaison relationships during this period have been addressed above. SC 37 Working Groups continue to meet approximately every six months and the SC 37 Plenary meets approximately once a year (co-located with its Working Groups). The SC 37 National Bodies remain very active in meetings and they are very responsive to ballots and calls for comments and contributions. About seven hundred documents have been posted in the SC 37 Document register during this period.

Excellent progress during this period is illustrated by:

(a) the recently published biometric standards;
(b) the advancement of many of the projects to the next development level;
(c) the significant number of other standards expected to be completed in the next reporting period or at the beginning of the following one; and
(d) the close and fruitful collaboration with other SCs and external organizations.

Participation in both the SC 37/WGs and Plenary has been excellent. The intensified level of work and the technical challenges presented by the development of the second generation of biometric standards are being successfully addressed through the dedication of over 120 experts from the National Bodies and Liaison organizations. During this reporting period, the SC 37 WGs and Plenary met in Busan, Korea in July 2008, the SC 37 WGs met in January 2009 in Kauai, Hawaii, USA and the SC 37 WGs as well as the Plenary met in July 2009 in Moscow, Russia.

2.1 MARKET REQUIREMENTS

SC 37 is achieving one of its main goals; that is, the development of international standards that support the mass market adoption of biometric technologies. Adoption of SC 37 standards is underway which shows market acceptance of the standards. SC 37's additional goals are: (a) adoption of its standards by other JTC 1 SCs and ISO/IEC TCs (i.e., use of these standards by reference within their own standards projects) and (b) adoption of these standards by external organizations for their own requirements.

Using biometric technologies for identifying human beings offers some unique advantages since used alone, or together with other authentication technologies such as tokens, they can provide higher degrees of security than other technologies and can also be used to overcome their weaknesses. Biometric technologies are currently required in many public and private sector applications worldwide to authenticate an individual's identity, secure national borders and restrict access to secure sites including buildings and computer networks. Biometrics provides for secure transactions, positive identification, and augmentation to human judgment.

SC 37 is developing international standards keeping in mind the customer's needs (end-users as well as other standards organizations) and the support for the mass market

adoption of these standards. SC 37 strongly promotes the harmonization of biometric standards with security and token-based standards that use biometrics. SC 37 is also closely monitoring the development of ID Management standards with the view of offering its standards. Through its work, SC 37 is helping to ensure that standards-based personal recognition systems and applications based on biometric solutions are more interoperable, scalable and secure.

As reported in previous SC 37 Business Plans, many of the standards developed by SC 37 have been adopted by major international customers such as the International Civil Aviation Organization (ICAO) and the International Labour Office (ILO) of the United Nations as well as by government programs in several National Bodies represented in SC 37.

2.2 ACHIEVEMENTS

Completion of work in a number of standards, advancement of many other standards within its portfolio and successful collaboration with other standards organizations have been addressed above. Table 1 includes the International Standards and Technical Reports published to date and highlights in gray the documents published during this period (five International standards and one Technical Report). Table 2 provides a summary of the status of the SC 37 active projects / subprojects as of July 2009.

Table 1 – Published International Standards and Technical Reports

Project	Title	IS	Publication Date
1.37.19784.1	Biometric application programming Interface – Part 1: BioAPI Specification	ISO/IEC 19784-1: 2006	2006-04-27
1.37.19784.1.1	Biometric application programming Interface – Part 1: BioAPI Specification – Amendment 1: 2007 - BioGUI Specification	ISO/IEC 19784-1:2006/Amd 1:2007	2007-11-26
1.37.19784.1.2	Biometric application programming Interface – Part 1: BioAPI Specification – Amendment 2: Framework-free BioAPI	ISO/IEC 19784-1:2006/Amd 2:2009	2009-07-09
1.37.19784.2	Biometric application programming interface – Part 2: Biometric archive function provider interface	ISO/IEC 19784-2:2007	2007-01-15
1.37.19785.1	Common Biometric Exchange Formats Framework (CBEFF) - Part 1: Data element specification	ISO/IEC 19785-1:2006	2006-04-26
1.37.19785.2	Common Biometric Exchange Formats Framework – Part 2: Procedures for the operation of the Biometrics Registration Authority	ISO/IEC 19785-2:2006	2006-05-04

1.37.19785.3	Common Biometric Exchange Formats Framework -- Part 3: Patron format specifications	ISO/IEC 19785-3:2007	2007-12-13
1.37.19794.1	Biometric data interchange formats – Part 1: Framework	ISO/IEC 19794-1:2006	2006-03-31
1.37.19794.2	Biometric data interchange formats – Part 2: Finger minutiae data	ISO/IEC 19794-2:2005	2005-09-20
1.37.19794.3	Biometric data interchange formats – Part 3: Finger pattern spectral data	ISO/IEC 19794-3:2006	2006-08-16
1.37.19794.4	Biometric data interchange formats – Part 4: Finger image data	ISO/IEC 19794-4:2005	2005-06-10
1.37.19794.5	Biometric data interchange formats – Part 5: Face image data	ISO/IEC 19794-5:2005	2005-06-29
1.37.19794.5.1	Biometric data interchange formats – Part 5: face image data – Amendment 1: Conditions for Taking Photographs for Face Image Data	ISO/IEC 19794-5:2005/Amd 1:2007	2007-12-13
1.37.19794.6	Biometric data interchange formats – Part 6: Iris image data	ISO/IEC 19794-6:2005	2005-06-10
1.37.19794.7	Biometric data interchange formats – Part 7: Signature/sign time series data	ISO/IEC 19794-7:2007	2007-06-12
1.37.19794.8	Biometric data interchange formats - Part 8: Finger pattern skeletal data	ISO/IEC 19794-8:2006	2006-09-22
1.37.19794.9	Biometric data interchange formats – Part 9: Vascular image data	ISO/IEC 19794-9:2007	2007-02-28
1.37.19794.10	Biometric data interchange formats – Part 10: Hand silhouette data	ISO/IEC 19794-10:2007	2007-05-31
1.37.19795.1	Biometric performance testing and Reporting – Part 1: Principles and framework	ISO/IEC 19795-1: 2006	2006-03-24
1.37.19795.2	Biometric performance testing and reporting – Part 2: Testing methodologies for technology and scenario Evaluation	ISO/IEC 19795-2:2007	2007-01-12
1.37.19795.3	Biometric performance testing and reporting -- Part 3: Technical Report: Modality-specific testing	ISO/IEC TR 19795-3:2007	2007-12-06
1.37.19795.4	Biometric performance testing and reporting -- Part 4: Interoperability performance testing	ISO/IEC 19795-4:2008	2008-05-29
1.37.24708	Information technology -- Biometrics -- BioAPI Interworking Protocol	ISO/IEC 24708:2008(*)	2008-12-15
1.37.24709.1	Conformance testing for the biometric application programming interface (BioAPI) - Part 1: Methods and procedures	ISO/IEC 24709.1: 2007	2007-01-29
1.37.24709.2	Conformance testing for the	ISO/IEC 24709.2: 2007	2007-02-02

	biometric application programming interface (BioAPI) - Part 2: Test assertions for biometric service providers		
1.37.24713.1	Biometric profiles for interoperability and data interchange -- Part 1: Overview of biometric systems and biometric profiles	ISO/IEC 24713-1:2008	2008-02-25
1.37.24713.2	Biometric profiles for interoperability and data interchange -- Part 2: Physical access control for employees at airports	ISO/IEC 24713-2:2008	2008-05-22
1.37.24713.3	Biometric profiles for interoperability and data interchange -- Part 3: Biometrics-based verification and identification of seafarers	ISO/IEC 24713-3:2009	2009-08-27
1.37.24714.1	Information technology -- Biometrics -- Jurisdictional and societal considerations for commercial applications -- Part 1: General guidance	ISO/IEC TR 24741-1:2008(*)	2008-12-10
1.37.24722	Biometrics - Multimodal and other multibiometric fusion	ISO/IEC TR 24722:2007	2007-06-22
1.37.24741	Biometrics tutorial	ISO/IEC TR 24741:2007	2007-09-18
1.37.29109.1	Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794 – Part 1: Generalized conformance testing methodology	ISO/IEC 29109-1:2009	2009-07-23
1.37.29794.1	Biometric sample quality – Part 1: Framework	ISO/IEC 29794-1:2009	2009-07-23

Table 2 – Project/Subproject Status

Project/Subproject Status	Number of Projects/Subprojects in this Status
FDIS	4
FCD	10
CD	11
WD	13
Base document	2
TR (awaiting publication)	2

PDTR	0
DTR	0
PDAM	0
FDAM	4
FPDAM	1

Table 3 below includes a list of the Standing Documents developed by SC 37 (some of the SDs were developed by SC 37 Officers and are used as SC management tools). These documents are available at the SC 37 web site.

Table 3 – List of Standing Documents

SD Number	SD Name
SD 1	SC 37 Programme of Work (April 2009)
SD 2	Harmonized Biometric Vocabulary (V11 – January 2009)
SD 3	Project Editor Role and Responsibility (April 2008)
SD 4	Liaison Officer Role and Responsibility (April 2005)
SD 5	Rules for SC 37 Rapporteur Groups (April 2005)
SD 6	Procedures for SC 37 Ballot Resolution Meetings (April 2005)
SD 7	SC 37 Conformity Assessment Report (April 2005)
SD 8	Management of CBEFF Namespaces (Revised November 2008)
SD 9	Register of CBEFF Namespaces (Revised November 2008)
SD 10	SC 37 National Body/Project Editor Comment Template (April 2008)
SD 11	SC 37 Part 1 Overview Standards Harmonization Document (January 2009)
SD 12	SC 37 Project Description Information (August 2006)
SD 13	Rules for the Establishment and Operation of SC 37 Special Groups (R2 – December 2006)
SD 14.1	WG 1 Draft Roadmap (February 2009)
SD 14.2	WG 2 Draft Roadmap (February 2009)
SD 14.3	WG 3 Draft Roadmap (August 2009)
SD 14.4	WG 4 Draft Roadmap (February 2009)
SD 14.5	WG 5 Draft Roadmap (August 2009)
SD 14.6	WG 6 Draft Roadmap (May 2009)

SC 37's major achievement is that a number of international and national organizations have adopted many of the biometric standards developed by the Subcommittee. The international organizations include the International Civil Aviation Organization (for Machine Readable Travel Documents - MRTD) and the International Labour Office of the UN for their Seafarer's ID Card (see also above, work completed in SC 37/WG 4 on a related biometric profile which was recently published as an International standard). These adoptions are expected to significantly impact the use of biometrics for MRTD and other documents.

The European Union (EU) password specification working document [1] describes solutions for chip enabled EU passports, based on EU's Council Regulation on standards for security features and biometrics in passports and travel documents issued by Member States[2]. The specification relies on international standards, especially ISO/IEC standards and ICAO recommendations on MRTDs. A number of standards are referred to in this EU document including an ICAO New Technology Working Group's Technical Report[3] as well as the ISO/IEC 19794-4:2005 and ISO/IEC 19794-5:2005 standards developed by SC 37.

Several countries represented in SC 37 are also adopting the SC 37 standards. Examples include requirements for two official documents in Spain [4]. In the United States of America, several organizations continue to require selected biometric data interchange standards, biometric technical interface standards and some of the performance testing methodology standards developed by the Subcommittee. The "*Registry of U.S. Government Recommended Biometric Standards*" developed by the National Science and Technology Council Subcommittee on Biometrics and Identity Management for example[5] recommends some biometric data interchange standards developed by SC 37 as well as the BioAPI specification and its companion conformance testing methodology standard. Two parts of the multi-part performance testing methodology standard developed by SC 37 are also included in the Registry.

SC 37 continues to participate in JTC 1 activities including the Ad Hoc Group on Vocabulary, the Special Group on Accessibility and the JTC 1/SWG on Planning and has responded (via its officers) to a number of inquiries by ISO organizations as well as to JTC 1 requests via JTC 1 resolutions approved in its November 2008 meeting in Nara, Japan. The following contributions were developed:

- Report summarizing the parts of SC work programme and areas of study relevant to the proposed establishment of a new field of technical activity on Fraud countermeasures and controls (in response to JTC 1 Resolution 43[1]).
- Interim response from SC 37 to the JTC 1 SG on Sensor Networks (in response to JTC 1 Resolution 45[2]).

[1] Resolution 43 - Proposal for a new field of technical activity on Fraud countermeasures and controls (ISO/TS/P 206/JTC 1 Nxxx)

[2] Resolution 45 – Contributions to the Study Group on Sensor Networks

- SC 37 report on business planning and information regarding trends, areas of increased/decreased interest for JTC 1 and recommendations for JTC 1 action or further study (in response to JTC 1 Resolution 36[3] and 37[4]).
- SC 37's response to a Questionnaire from the ISO TMB Task Force on Privacy**.**

2.3 RESOURCES

Participation in SC 37's Programme of Work by National Bodies and Liaison Organizations is very good and has increased during this period. See 2.0 Period Review.

2.4 ENVIRONMENTAL ISSUES

Not applicable to this SC.

2.5 PARTICIPATION METRICS

Approximately one-hundred delegates from fifteen countries and multiple liaison organizations participated in the WG meetings in July 2008 in Busan, Korea. Thirteen National Bodies were represented at the Busan Plenary. Over one hundred and ten delegates from seventeen National Bodies and Liaison Organizations participated at the January 2009 SC 37/WG meetings in Kauai, Hawaii, U.S.A. Approximately one hundred and ten delegates from nineteen National Bodies and Liaison Organizations participated at the July 2009 SC 37/WG meetings in Moscow, Russia. Eighteen National Bodies were represented at the Moscow Plenary. The required 50% voting participation was met or exceeded in every ballot.

3.0 FOCUS NEXT WORK PERIOD

3.1 DELIVERABLES:

Deliverables expected from the next work period on a project level are reflected in the PoW (SD1). SC 37 will focus on significantly advancing the development of projects within its PoW. A significant number of projects are expected to be close to completion at the end of the next reporting period. Due to the status of a number of projects as shown in Table 2, a number of standards are expected to be at their last development stage, some of them will be published and others will be awaiting publication. SC 37/WGs will continue updating the WG roadmaps. These roadmaps will be reviewed at all future WG meetings.

3.2 STRATEGIES

SC 37 initiates work as required and engages with other organizations as appropriate, to meet the needs of the IT community and other customers in order to promote adoption of

[3] Resolution 36 – Environmental Scanning
[4] Resolution 37 – Request to Subcommittees on Business Planning

the biometric standards and support the market adoption of biometric technologies. As discussed in this report, large external organizations (e.g., ICAO, ILO and the EU) have already demonstrated the need for SC 37 standards.

Technology innovations and new customers' needs are being addressed in the second generation of biometric standards. The SC is also responding to other organization needs (JTC 1 SCs and external organizations) by initiating required new projects in support of their standards and requirements. A summary of recently SC 37 approved projects as well as a list of proposals for New Work Item under ballot are provided in 1.0 above. The adoption of SC 37 standards is also facilitated through the close interaction and participation by a significant number of National Body experts and the promotion of the SC's work through talks in technical conferences, chapters in books, entries in a biometrics encyclopedia and articles published by ISO and other organizations. Examples of such publications include:

- ISO Focus issues
- a technical book on biometrics[6],
- a book on standards [7] that is used in a course of a university graduate program
- Two Springer publications[8], [9]

The SC 37 work has also been reflected in national and a number of International technical conferences and workshops [10], [11], [12], [13], [14], [15], [16] , a University Seminar and college courses[17], and an ISO Press Release [18].

3.2.1 RISKS

Adoption of biometric-based high performance, interoperable systems will depend, in part, on the timely availability of a portfolio of biometric standards that are required by other standards bodies within JTC 1, ISO TCs, external standards organizations and other customers (end-users and industry). The major risk that may jeopardize this consumer adoption is the time associated with the development of these standards. SC 37 is doing its best to mitigate this risk through the use of IT tools, international cooperation and team work, the establishment of OWG to work in-between WG meetings and tight program management.

3.2.2 OPPORTUNITIES

Biometric technologies are already playing a crucial role in a wide range of applications. As the marketplace for biometric-based solutions has widened significantly, the importance of these biometric technologies has also dramatically increased. Homeland defense is the highest priority for many countries. These countries are now seriously considering or have already approved new legislation that calls for the investigation and use of biometric technologies as soon as possible for homeland defense applications (this was, in part addressed in the discussion on adoption above). The prevention of ID theft will also become a significant market for biometrics in the future. Commercial applications are already using biometrics or are considering the role that biometrics will play in current or future personal verification and identification systems.

Standardized biometric-based solutions are becoming mandatory requirements in many of these applications. As SC 37 has demonstrated, the Subcommittee provides the ideal opportunity to develop biometric standards that meet these customer requirements. Based on National Body and Liaison Organization contributions, SC 37 has already addressed the development of the first generation of needed biometric standards which is reflected in early customer adoption. SC 37 is also rising to the challenge of technology innovation and new customers' needs and is addressing new projects and the second generation of biometric standards development to meet these new customers' needs.

3.3 WORK PROGRAM PRIORITIES

SC 37 will continue to focus on market relevant projects as in the current period of reporting. Program priorities include delivering on time the standards and technical reports described above to maximize adoption by JTC 1 SCs as well as external standards organizations and customers. There is consensus in the biometric community that companion standards are required for the base standards which address conformance, interoperability, performance and biometric sample quality and SC 37 is addressing these needs. SC 37 does have some challenges ahead. For example, more work needs to be done in fully defining level 3 conformance testing methodologies for some of the requirements in the data interchange standards. Other required conformance testing methodology standards are not yet being developed.

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