

InterNational Committee for Information Technology Standards  
INCITS Secretariat, Information Technology Industry Council (ITI)  
1250 Eye St. NW, Washington, DC 20005  
Telephone 202-737-8888; Fax 202-638-4922  
Email: incits@itic.org

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**Project Proposal – Information technology – Speaker Biometrics  
Format for Data Interchange**

**1. Source of the Proposed Project**

**1.1 Title**

American National Standard for Information Technology – Speaker Biometrics  
Format for Data Interchange

**1.2 Date Submitted**

December 15, 2005

**1.3 Proposer(s)**

INCITS Technical Committee M1, Biometrics

**2. Process Description for the Proposed Project**

**2.1 Project Type (Development or Revision)**

D – This is a standard development project.

**2.2 Type of Document**

This project is expected to result in an ANSI/INCITS standard and in a VoiceXML standard.

**2.3 Definitions of Concepts and Special Terms**

The following terms are involved in this project:

1. Input

*Text dependent* – Speaker Biometrics technology that requires the voice input of one or more specific passwords or pass phrases.

*Text independent* – Speaker Biometrics technology that can operate on any freeform or structured spoken input

- Text prompted* (also called *challenge-response*) Speaker Biometrics technology that randomly selects words and/or phrases and prompts the speaker to repeat them
2. *Buffering* - partial preprocessing of spoken input that may be used as part of the accept/reject decision. Some products can perform buffering without knowing the identity claims or the type of operation to be performed
  3. *Dialogue* – the turn-taking interaction between a speaker and speech-processing system
  4. *Authentication Interaction* - A segment of the dialogue or interaction with the user that is performed for the purpose of authenticating or enrolling the user. A single session involves one or more types of speaker-recognition with a single set of claims.
  5. *Interaction Turn* – (also *Turn*) A segment of a dialogue with the user that consists of a single request and a single response. If multiple turns are required for authentication then individual turns will be buffered
  6. *Browser* – a software interface that participates in the authentication interaction with the user.
  7. *Adaptation* - The process of automatically updating or refreshing a reference model.
  8. *Speaker recognition* – (also *speaker biometrics*; *SIV*) technology for identifying, verifying, classifying, or otherwise differentiating one speaker from other speakers.
  9. *Speech recognition* (also called *ASR*) - technology capable of interpreting what a speaker has said
  10. *Simultaneous processing* – processing of the content of a single turn by both speech recognition and speaker biometrics.
  11. *Hidden Markov Model* (also *HMM*) – a commonly-used stochastic, pattern-recognition algorithm used to analyze pre-processed speaker-recognition data.
  12. *Gaussian classifiers* – a commonly-used stochastic, pattern-recognition algorithm used to analyze pre-processed speaker-recognition data.

#### **2.4 Expected Relationship with Approved Reference Models, Frameworks, Architectures, etc.**

None.

#### **2.5 Recommended INCITS Development Technical Committee**

INCITS Technical Committee M1, Biometrics

#### **2.6 Anticipated Frequency and Duration of Meetings**

It is anticipated that this project would require one-day meetings approximately quarterly.

#### **2.7 Target Date for Initial Public Review**

The estimated date for initial public review is February, 2007

#### **2.8 Estimated Useful Life of the Amended Standard**

There is no known limit to the useful life of this amendment.

### **3. Business Case for Developing the Proposed Standard or Technical Report**

#### **3.1 Description**

The proposed standard will define a speaker biometric data interchange format for the exchange of speaker data. The standard will contain a specific definition of the fields of information to be included in the format in order to effectively communicate about speaker recognition transactions, a data record format for storing and transmitting the speaker information and data, and a sample record.

The data interchange format for speaker biometrics is proposed to be fully conformant to CBEFF and it is proposed that data conforming to this data interchange format be embedded in a CBEFF data structure.

#### **3.3 Implementation Impacts of the Proposed Standard**

##### **3.3.1 Development Costs**

Development costs for this project are expected to be low, and to be covered by the participating organizations. Project meetings will normally take place in conjunction with regularly scheduled M1 Task Group meetings or via conference calls.

##### **3.3.2 Impact on Existing or Potential Markets**

The relatively modest costs of this project are expected to result in major benefits on two fronts:

1. support the inclusion of speaker biometrics applications that conform to BioAPI and CBEFF including multi-biometric applications, and
2. standardize use of speaker biometrics in VoiceXML applications.

##### **3.3.3 Costs and Methods for Conformity Assessment**

This project should provide a strong basis for the development of uniform, internationally recognized, interoperability and conformance tests. The cost of conformity assessment is not known at this time.

##### **3.3.4 Return on Investment**

There is no known data on which to make an estimate but ROI for this data interchange format.

#### **3.4 Legal Considerations**

##### **3.4.1 Patent Assertions**

Calls will be made to identify assertions of patent rights in accordance with the relevant INCITS and ANSI policies and procedures. INCITS/M1 is not aware of any existing, relevant patent claims.

### **3.4.2 Dissemination of the Standard or Technical Report**

Drafts of the standard will be disseminated electronically. There may be distribution constraints as this document reaches different stages of development and processing within INCITS and ISO/IEC JTC1. There are no known IPR issues.

## **4. Related Standards Activities**

### **4.1 Existing Standards**

- ANSI INCITS 398 (NISTIR 6529-A), Common Biometric Exchange Framework Format (CBEFF)
- ANSI INCITS 358-2002 – Information Technology – BioAPI Specification

### **4.2 Related Standards Activity**

- VoiceXML Forum and the World Wide Web Consortium (W3C) ongoing collaboration of the development of technologies related to speaker identification and verification (SIV) in the context of VoiceXML (specifically for VoiceXML 3.0).
- FDIS 19785 Common Biometric Exchange Formats Framework - Part 1, Data Element Specification & Part 2, Procedures for the Operation of the Biometrics Registration Authority.
- FDIS 19784-1 BioAPI Specification – Part 1

### **4.3 Recommendations for Close Liaison**

VoiceXML Forum recommends forming a liaison relationship with the INCITS/M1 committee to develop and standardize this proposal. Draft Collaboration Principles and Procedures between the VoiceXML Forum and INCITS submitted to INCITS M1 describe a proposed working relationship.

## **5. Units of Measurement used in the Standard**

Indicate units of measurement used in the Standard:

- X\_\_ International Systems of Units (SI)
- \_\_\_ Inch/Pound
- \_\_\_ Both
- \_\_\_ Other
- \_\_\_ Not Measurement Sensitive