



Setting the Standard for Automation™

*Automation Standards Compliance Institute*

**A Proposal for Launching and Operating  
The  
ISA Security Compliance Institute (ISCI)**

May 31, 2007

DISTRIBUTION OF THIS DOCUMENT IS LIMITED TO THE  
INITIAL SPONSORING MEMBERS OF THE ISCI

**Contacts:**

Andre Ristaino, Managing Director, Automation Standards Compliance Institute, [aristaino@isa.org](mailto:aristaino@isa.org)  
Chip Lee, Director, Standards, Publishing, and Technology Services, ISA [tlee@ISA.org](mailto:tlee@ISA.org)  
Dave Lounsbury, Vice President, The Open Group <mailto:d.lounsbury@opengroup.org>  
Mike Hickey, Director, The Open Group [m.hickey@opengroup.org](mailto:m.hickey@opengroup.org)  
Sally Long, Director, The Open Group [s.long@opengroup.org](mailto:s.long@opengroup.org)

## 1 Executive Summary

Industry leaders from a number of major control system operators and manufacturers have investigated the feasibility of creating an organization to establish a set of well-engineered specifications and processes for the testing and certification of critical control systems products. The proposed organization, called the Control Systems Security Certification Organization (CSSCO), has a projected mission to decrease the time, cost and risk of developing, acquiring, and deploying control systems by establishing an industry-based program to:

- Facilitate the independent testing and certification of control system products to a defined set of control system security standards;
- Use existing control system security industry standards where available, develop interim standards where they don't already exist, and adopt new standards when they become available;
- Accelerate the development of industry standards that can be used to certify that control systems products meet a common set of security requirements.

Despite the complexity of the undertaking, the rewards to industry are likely to be significant. A well designed and managed certification process for product security will likely result in reduced costs and time commitment in product selection for end users. It will also help ensure that products are more secure 'out of the box' which will result in improved process reliability and safety. For vendors the certification process will provide a single conformance framework and an industry stamp of approval, resulting in faster time to market and lower development and integration costs. Finally, for the standards bodies and government agencies developing industrial security specifications, the result will be better, field-tested standards that are clearly being followed by industry.

This document outlines how this proposed organization would be established and managed within the Automation Standards Compliance Institute (ASCI). It details the necessary stages involved in forming the organization, establishing suitable governance and management systems, defining the scope and technical basis for operating the certification program, ongoing operational parameters, and how the organization might evolve over time.

Based on the assumptions outlined in this proposal, it is estimated that the launch of a certification program will require approximately 21 months and a financial budget of \$1,500,000 during that period. The ongoing operation of the program, starting in Q2 2009, has an estimated annual operating budget of \$750,000.

*The industry leaders elected to rename this consortium from the CSSCO to the ISA Security Compliance Institute (ISCI) during a group meeting in May 2007. It will therefore be referred to as ISCI or ISA Security Compliance Institute from here forward.*

## 2 Background

In 2006, three white papers were commissioned by a group of early industry supporters to assess the feasibility of formally launching a certification initiative for testing and certification of critical control systems products. The feasibility study was conducted by Eric and Joann Byres of Byres Security Inc, and the results of the study were presented to the industry supporters at a meeting at ISA EXPO 2006 in October 2006.

Based on the results of the feasibility assessment and the discussions at the October 2006 meeting, the initial supporters agreed to consider a proposal from ISA to establish and operate the ISA Security Compliance Institute (ISCI) within the Automation Standards Compliance Institute (ASCI).

The Automation Standards Compliance Institute is a non-profit organization separately incorporated by ISA in 2006 to provide a home for certification, conformance, and compliance assessment activities in the automation arena. The ASCI extends the work that ISA has done for 50 years in standards development by facilitating the effective implementation of automation industry standards. ISA provides professional management services to the ASCI, including a managing director and other allocated services and expertise from its staff of 75.

In the preparation of this proposal, ISA retained The Open Group to assist in a review of the initial feasibility study and the definition of the specific actions necessary to formally launch the ISCI. It is anticipated that The Open Group will partner with ASCI in the formation and operation of the ISCI. The Open Group is a vendor and technology-neutral consortium that facilitates access to integrated information within and between enterprises based on open standards and global interoperability. In more than 20 years of efforts focused on consensus building, project management of collaborative initiatives and development of industry-based certification programs, The Open Group has developed considerable expertise in providing support services to industry consortia operating certification, conformance, or compliance assessment programs

ISA anticipates that The Open Group will play an integral role in the operation of the certification program. The following proposal reflects that assumption in its articulation of roles and responsibilities. For simplicity purposes, the collective professional services team is referred to as the ASCI Management Team in this proposal.

More background information about ISA, ASCI, and The Open Group, including key staff engaged in this initiative, can be found in Appendix A.

Appendix B contains the three background white papers prepared in 2006 that provide the foundation for the current proposal.

### **3 Business Drivers for a Security Certification Program**

The rewards to the automation controls industry and your company are significant. A ISCI group discussion of the need for a security certification program identified the following business drivers:

For asset owners, a well designed and managed product security certification process results in reduced costs and time commitment in product selection and deployment. Key benefits include:

- Certification saves time and costs for validation and verification of security capabilities.
- Certification provides assurances that products are more secure 'out of the box', leading to improved process reliability and safety.
- The security certification stamp provides instant recognition of product characteristics and capabilities.
- Asset owners are able to specify and successfully procure compliant products that interoperate.
- Certification can mitigate government security compliance regulation with full industry participation.
- Organizations are positioned favorably for insurance requirements that may be emerging for security compliance levels.
- The same kind of assurance "stamp" that exists for safety will exist.
- The program leverages industry capabilities for reduced overall cost of delivery.

For suppliers and integrators, the certification process provides a single compliance framework and an industry stamp of approval, resulting in faster time to market and lower development and integration costs. Key benefits include:

- Suppliers are able to make and substantiate clear claims of compliance to a consensus open, industry standard.
- Certification responds to a common need for a shared security vision to be executed by suppliers, asset owners, and consultants. This helps suppliers build what users want.
- The program provides security requirements guidance from industry to suppliers based on testing standards.
- The program addresses the security characteristics of the product that allow it to be integrated into a larger system.

Finally, for the standards bodies and government agencies developing industrial security specifications, the result will be better, field-tested standards that are clearly being followed by industry.

## 4 Return on Investment

The need for a security compliance program was driven by ISA membership including asset owners, integrators, and suppliers. ISA members who deal with the practical application of industrial automation ‘know’ that security and security compliance is the ‘right’ thing to do. Further, the three whitepapers commissioned by the initial ISCI group elegantly articulate the need for a security conformance program (See Appendix B). Nonetheless a rational question for consortium members is ‘What is my return on investment and how do I compute it?’ The answers will depend upon whether you are an asset owner, supplier, or integrator. While circumstances will vary, the following are considerations for determining ROI:

### Asset Owner

- Conformant products will reduce the time and cost expended on security validation and verification (for example if you are spending \$425,000 annually on validation and verification efforts, the \$50,000 ISCI fee may mitigate \$200,000 of the validation and verification spending)
- Conformant products will reduce the engineering time required to specify configurations and procure products (via the conformant products list published by ISCI)
- Conformant products can lead to reduced insurance costs and reduced costs related to regulatory oversight

### Suppliers

- Security conformant products will receive favorable treatment in the asset owners’ procurement process (asset owners will gravitate towards products on the conformant products list published by ISCI)
- Over time, suppliers will become efficient at security conformance testing as it becomes imbedded with the manufacturing process
- Security conformant products will mitigate uncompensated security validation and verification activities
- Suppliers can plan more effectively based upon a known set of security conformance requirements
- The sales cycle will be compressed for security conformant products

### Integrators

- Security conformant products will behave more predictably, reducing validation and verification activities associated with custom integrated systems
- Integrators can plan more effectively based upon a known set of security conformance requirements

- Engineering and system specification time will be compressed when standardizing on security conformant products

## 5 Volunteer Time Commitments

To ensure continuity and rapid launch of ISCI the members suggested that ISCI use full time paid SME's to draft the test specifications with review/revision/approval from volunteers for faster turnaround of conformance work products. The ISCI budget includes funding for this requirement.

The ISCI will operate using a blend of Subject Matter Experts comprised of retained full time experts and volunteers from membership rolls. The objective of this approach is to use a rapid process for generating conformance requirements and benefit from the expertise of volunteer members. The full time resources will be focused upon drafting conformance requirements without disruption with volunteers subsequently reviewing and refining the drafts based upon their subject matter expertise.

This approach mitigates the need for extended leave for key company personnel since much of the work can be accomplished via email and teleconferences.

The ISA Security Compliance Institute is a volunteer based organization with expectations that member organizations will commit staff time on volunteer committees to achieve the goals of the consortium. Professional staff manage the business activities under the oversight of the ISA Security Compliance Institute Governing Board. Volunteers who make commitments to voting positions on the Governing Board and Technical Committee will be expected to fulfill their obligations for attendance and contributions. Specific policies and guidelines for admission and replacement of voting members will be established by the initial Board during the Formation Phase of ISCI.

Board meetings will occur quarterly while Technical Committee meetings will occur monthly and working group meetings will be scheduled as needed, most likely via weekly teleconferences with monthly face-to-face meetings.

## 6 Fair Representation of Membership Interests

The ISA Security Compliance Institute strives to represent a fair cross section of the automation controls community, using policies and guidelines to ensure that the organization has a good balance of asset owners, suppliers, and other significant stakeholders.

During the Formation Phase of ISCI, the initial Board will be tasked with establishing policies and guidelines to ensure that the organization has a good balance of asset owners, suppliers, and other significant stakeholders. Further, the Board will explore alternatives that allow vertical sector industry groups like the API or Chemical Institute to participate, even if without a vote, since some companies may not desire to participate at the Strategic level.

## 7 Legal Considerations

ISCI will be established as an Interest Group within ASCI. ASCI is a non-profit organization that is wholly owned by ISA, incorporated in the state of North Carolina for the purpose of organizing and managing industry standards conformance programs. ASCI bylaws share the open constructs of ISA with modifications to account for requirements of a conformance organization versus a standards development organization.

Antitrust, liability, and Intellectual Property Rights (IPR) are addressed in the ASCI membership agreement that is given to prospective members. The membership agreement is available for review and download on the ASCI website <http://www.isa.org/ISASecure>

As part of its mission, ISA provides standards to member organizations including ASCI Interest Groups at no charge. As ISCI develops conformance requirements for the ISA standards, ISCI agrees to share their work products (such as recommended changes and augmentation of ISA standards) with the respective ISA Standards Committees for inclusion in periodic updates to the ISA Standards.

## 8 ISCI Mission Statement

*“The organization’s mission is to decrease the time, cost, and risk of developing, acquiring, and deploying control systems by establishing a collaborative industry-based program among asset owners, suppliers, and other stakeholders to:*

- *Facilitate the independent testing and certification of control system products to a defined set of control system security standards;*
- *Use existing control system security industry standards, where available, develop or facilitate development of interim standards where they don’t already exist, and adopt new standards when they become available;*
- *Accelerate the development of industry standards that can be used to certify that control systems products meet a common set of security requirements.*

*The standards, tests, and conformance processes for control systems products will allow the products to be securely integrated. An ultimate goal is to push the conformance testing into the product development life cycle so that the products are intrinsically secure.”*

## 9 Technical Scope of ISCI

The technical scope of ISCI is organized into tactical (near term) and strategic (long term) conformance topics. Strategically, the technical scope extends from the device level to the gateways in alignment with the SP99 reference model shown on page 12 Figure 1 in the draft ISA99 Part 1 standard (shown on next page). However, ISCI conformance requirements development and testing will be rolled out in phases based priorities identified by ISCI members during the May 2007 startup meeting in Houston. Near term (tactical) conformance testing will start with the following devices in the following sequence:

1. Wired IP network devices
2. Wireless IP network devices
3. Windows-based devices

Strategically, the technical scope of ISCI includes any device in the range of Level 0 to Level 3, the interface between Level 3 and Level 4 (gateway), and system management for security.

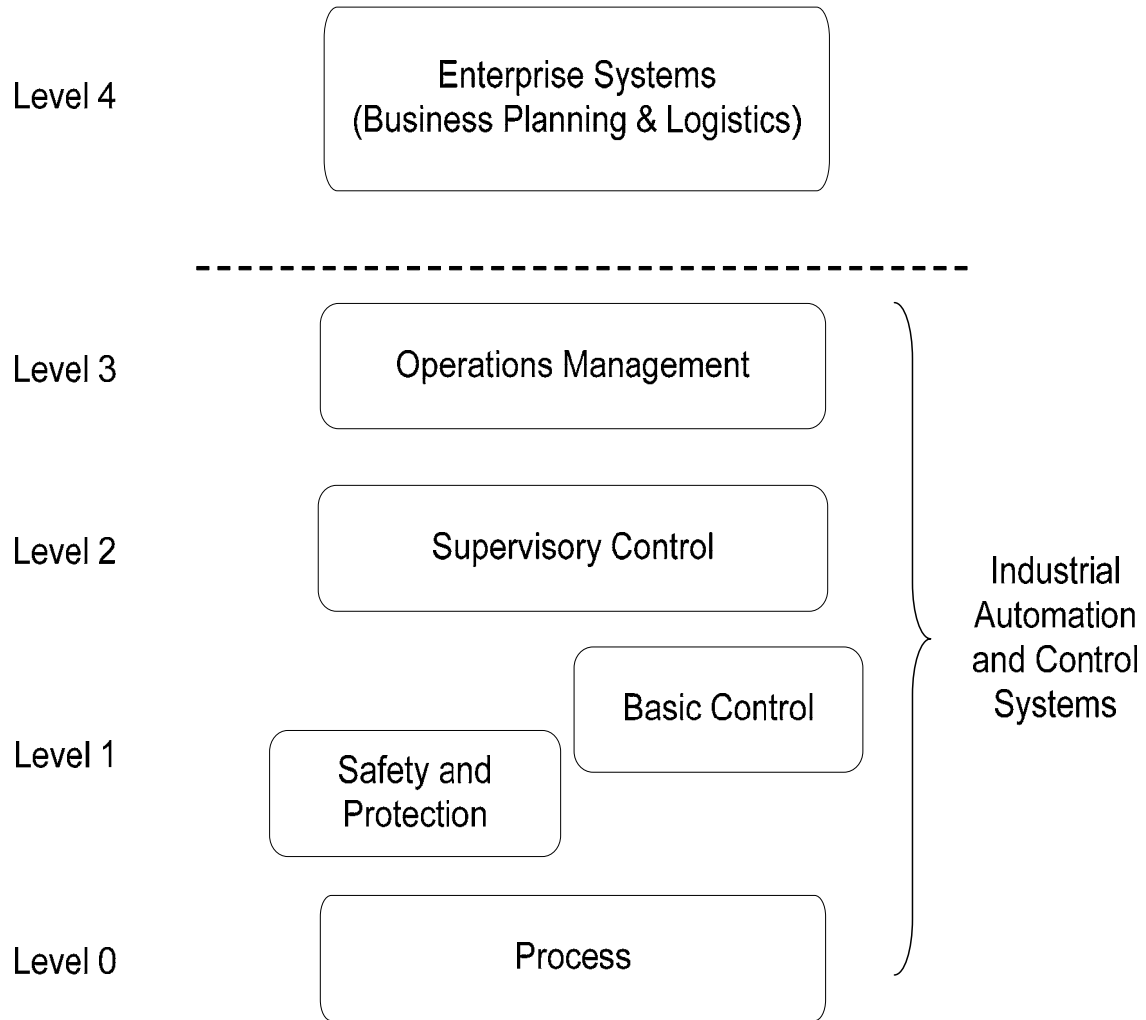
For their currently installed base of applications, the asset owner may need to test their existing products to understand vulnerabilities and identify remedial measures. This establishes a value proposition for asset owners particularly if future regulatory action emerges.

Certification can address any one or all of testing and validating:

- the product
- the integration of the product
- the operating policies and procedures

Although all 3 levels of conformance testing are needed for a secure installation, the ISCI will focus on the **product** initially to keep the program manageable and universally applicable to a broad class of asset owners.

The asset owners can continue to address security policies and procedures and the issues surrounding integration.



*Figure 1 – Reference Model*

## 10 Phased Deliverables and Services for Establishing the ISCI

This section outlines the following phases necessary for forming, standing-up and operating the ISCI in a way that will meet organizational objectives in a reliable and timely manner:

- Formation
- Definition of Technical Direction, Certification Scope and Approach
- Identification and Development of Standards and Profiles
- Definition of Certification Program
- Implementation of Certification Program
- Operation of Certification Program
- Ongoing Operation of the ISCI
- Evolution of the ISCI

Each phase includes Objectives, Deliverables and Services, Roles and Responsibilities, Estimated Time Frames, and Assumptions and Dependencies.

### 10.1 Formation

#### 10.1.1 Objectives

During the formation phase of the ISCI, the ASCI Management Team will work with the organizations who are interested in becoming founding members (“Interested Parties”) to define, form, and stand-up the organization. This includes defining the organizational and support structure; charters and procedures, including the review and approvals procedures which will be used for approving major ISCI deliverables and terms and conditions for membership. The ASCI Management Team will also work with the Interested Parties to disseminate information and “sign-up” a critical mass of Founding Members.

#### 10.1.2 Organizational and Support Structure

The ISCI is proposed to be constituted as an industry group with its own oversight board under the legal corporate umbrella of ASCI. ASCI is structured to allow specialty industry groups to be established with flexibility to define operating parameters and governance structures uniquely needed by each industry group. As part of ASCI, the activities of ISCI will be considered non-profit under US IRS Tax Code Article 501(c) 6. Forming the ISCI under ASCI:

- Eliminates legal and incorporation expenses associated with forming a new corporate entity
- Establishes the ISCI activities as non-profit without requirements for separate IRS filings
- Reduces initial and ongoing legal, insurance, and accounting expenses by leveraging the work done by ASCI in these areas on behalf of all of its specialty industry groups

Professional management services to ISCI will be provided by ISA and its contractors and partners. This affords several advantages:

- Professional staff services are purchased on an as-needed basis thus allowing flexibility to respond to opportunities and demands without fixed staffing infrastructure costs.
- A broad range of expertise is accessible as needed from a staffing infrastructure of 125 professionals (including ISA and its anticipated partners). This includes expertise in business development, standards development, certification, testing, marketing, finance and accounting, membership services, training, publishing, and more.
- Access to ISA’s customer base of nearly 150,000 automation professionals around the world is immediately available to market the work of ISCI

### 10.1.3 Deliverables and Services

During the Formation phase, the ASCI Management Team will:

- Facilitate a formational meeting(s) at which the Interested Parties are expected to accomplish the following actions:
  - Affirm the initial goals and general scope of ISCI
  - Define the business drivers for the formation of ISCI that will engender support from corporate management of member organizations
  - Articulate the degree of commitment in terms of time and resources that can be pledged to ISCI
  - Form an interim governing board for ISCI
  - Affirm the basic acceptance of the proposed organizational structure of ISCI as an entity within ASCI
- Work with the interim governing board of ISCI to:
  - Define basic governance and general operational policies
  - Establish membership structure and fees of ISCI
  - Approve an initial operating budget
  - Assist in the initial recruiting of Founding Members and establishment of financial and timing milestones that will determine if and when ISCI becomes fully operational
  - Facilitate the election of an Executive Board, associated officers, and Technical Steering Committee members
- Work with the Executive Board and Technical Steering Committee to:
  - Establish the general processes for development and adoption of technical specifications and for certification/compliance/conformance
  - Define a business roadmap that outlines the critical milestones and actions necessary to achieve organizational objectives
  - Provide ongoing operational services including legal, IT, and web infrastructure, program management and marketing as outlined in Section 3.7.

### 10.1.4 Roles and Responsibilities

Primary Responsibility: ASCI Management Team as facilitator

Secondary Responsibility: Interested Parties for guidance and action to proceed

### 10.1.5 Estimated Time Frame

This phase is estimated to run from September 2007 thru February 2008.

### 10.1.6 Assumptions and Dependencies

The time frames are based on obtaining a critical mass of Founding Members and associated membership dues to fund services during startup. The “deadlines” for subscription of Founding Members that is finally set by the interim governing board will dictate the final deadline for formation of ISCI.

## 10.2 Definition of Technical Direction, Certification Scope and Approach

### 10.2.1 Objectives

During this phase, the ASCI Management Team will work with the Founding Members of ISCI to define the technical objectives, the certification approach and scope, and a technical roadmap for the organization.

### **10.2.2 Services and Deliverables**

The ASCI Management Team will work with the Founding Members, Executive Board, and Technical Steering Committee to:

- Define initial technical objectives that are practical and achievable. Some desirable objectives may not be economically or technically certifiable or testable.
- Define approach and scope of the overarching certification program. This will include educating the members of the consortia on The Open Group certification methodology and determining whether the scope of the initial program will include only a product/technology component or will also include test suite certification and test agency certification components.
- Produce a draft technical roadmap that articulates a sequence of actions and resources that will be necessary to achieve the business objectives of ISCI.
- Identify and prioritize technical focus areas, by working with Founding Members to determine the security requirements for control systems products and identify priority control system components that require security certification (the latter may significantly influence technical objectives).
- Based on prioritized focus areas, create appropriate Technical Working Groups, and determine resource requirements and budget for implementation.
- Elect Working Group Chairs, define Working Group charters and objectives, and define milestones and schedules for achieving objectives
- Identify appropriate technical resources that serve as subject matter experts in security testing standards and methodologies. These may be from Founding Members or outside consultants, and may be from outside the industrial controls world.
- Revise the technical roadmap to account for Working Group objectives, producing ISCI Technical Roadmap V1.0 for review and approval by Membership.

### **10.2.3 Roles and Responsibilities**

Primary Role: Membership for policy, objectives, and direction

Secondary Role: ASCI Management Team as facilitator and benchmark experience

### **10.2.4 Estimated Time Frame**

This phase is estimated to run from January 2008 thru May 2008.

### **10.2.5 Assumptions and Dependencies**

Obtaining commitment from the Founding Members to provide technical resources and subject matter expertise for this and the following phase is critical to success.

This Phase will overlap the formation phase since the draft technical roadmap is an important part of the recruitment of Founding Members and subsequent members.

## **10.3 Identification and Development of Standards and Profiles**

### **10.3.1 Objectives**

During this phase the ASCI Management Team, Technical Steering Committee, Member subject matter experts, and technical consultants, if necessary, will work with the Working Groups to assess available industry standards to determine their suitability for certification/compliance/conformance programs. In the absence of sufficient existing standards, the processes will be initiated to adapt or develop standards, or to aggregate multiple standards and options together into profiles or product standards, which can then be approved by ISCI members to serve as the basis for certification/compliance/conformance programs.

The ASCI Management Team will work with the Working Group participants, editors, and the subject matter experts during the development of technical standards and profiles. The ASCI Management Team will be responsible for overseeing the production of draft documents for submission to a formal review process. This will require not only that the documents are in acceptable format with required content (primarily supplied by the members as subject matter experts) and meet applicable legal criteria for acceptance, but also will require consensus-building efforts to gain buy-in from participating members and subject matter experts.

After a technical standard or profile has been developed sufficiently, it will be submitted to the formal review and approval process. A professional staff serving as the review manager will oversee the entire review process in accordance with established review and approval procedures, including managing the review process to the defined schedule, monitoring change requests, collating them for review, editing them for coherency and consistency with the rest of the document, maintaining revision control and tracking. This professional staff will also oversee web site services provided for online collaborative review and comment, and the balloting process so that it is executed in an open and neutral fashion according to the approved review and approval procedures.

### **10.3.2 Services and Deliverables**

The ASCI Management Team will work with the Working Group members to:

- Research existing security standards, including those arising from industry standards groups like ISA, internationally adopted standards, documentation arising from US federal government sponsored activity, and corporate standards and specifications, for the purpose of compiling a current “Body of Knowledge” on existing control system security products requirements.
- Define the standards requirements that satisfy the certification/compliance/conformance requirements of ISCI, including validation of Working Group recommendations through the Technical Steering Committee and Executive Board.
- Conduct a gap analysis by comparing the current “Body of Knowledge” with ISCI needs analysis of security requirements for control systems products. This will identify what standards or profiles are needed to satisfy the requirements and allow determination of whether it is necessary to create the standards/profiles or preferably to adopt and adopt existing standards to bridge the gap.
- Facilitate development of the standards or profiles within the Working Group(s) while ensuring that the definition of the standards/profiles is done in a way that allows them to progress efficiently to the Certification Phase.
- Conduct an open and neutral formal review and approval process for two standards/profiles that emerge from the Working Group analysis.

### **10.3.3 Roles and Responsibilities**

Primary Role: Membership for technical subject matter expertise and alignment of technical objectives with ISCI business drivers.

Secondary Role:

- ASCI Management Team to assure standards are certification-ready in final form and to conduct the review and approval process
- Test planners as subject matter experts for input on conformance requirements for standards, test specifications and/or test suites.

### **10.3.4 Estimated Time Frame**

This phase is estimated to run from March 2008 thru August 2008.

### **10.3.5 Assumptions and Dependencies**

The time estimate for this phase is strongly dependent on:

- The number and quality of technical resources applied to the development, whether volunteers from member companies or paid technical consultants.
- The degree of effort involved – which will vary depending on whether the WG(s) are creating standards from scratch, profiling existing standards, or adapting existing standards. Profiling is the recommended approach where feasible.
- The number of standards/profiles being developed.
- The scope of activities required for research, providing gap analysis, and prioritizing the standards/profiles as work items. The length of time and scope of these activities should be bounded by the working groups prior to execution in order to maintain the proposed schedule for deliverables.

## **10.4 Definition of Certification Program**

### **10.4.1 Objectives**

The ASCI Management Team will work with the members to define a certification program for ISCI standards and profiles. The definition of the program for specific standards/profiles will align with the scope and approach that was agreed to by the ISCI during the Technical Direction Phase. The definition of the program will be submitted to the formal review process and approved by the membership prior to implementation. It will be modeled after the proven methodology embraced by The Open Group [http://www.opengroup.org/consortia\\_services/certification.htm](http://www.opengroup.org/consortia_services/certification.htm) as summarized here.

Certification provides formal recognition of a product's conformance to an industry standard specification, advantages to suppliers and buyers are that:

- Suppliers are able to make and substantiate clear claims of conformance to a standard
- Buyers are able to specify and successfully procure conforming products that interoperate

Certification programs are based on a supplier's claim of conformance, which may (depending on the certification program that is defined and approved by the members) use testing as an indicator of conformance. Suppliers often use test suites to establish confidence that their product conforms, and to achieve certification, the supplier must provide a warranty of conformance, indicating that their product is conformant.

This warranty ensures that:

- Products conform to an industry standard specification
- Products remain conformant throughout the life of the product
- If there is a non-conformance, the product will be fixed in a timely manner

This warranty of conformance by suppliers is usually based on the use of a trademark in connection with certified products. The terms under which the trademark is licensed include a strong legal representation by the supplier that the product registered in the program fully conforms to the relevant specification(s). In the programs operated by The Open Group, the warranty is made by suppliers, not the owner of the specification, owner of the trademark, or the Certification Authority.

A Certification Program is tailored to fit the needs of consortia, and depending on the definition of the program, could include but is not limited to some or all of the following options:

- Certification of conformant products by validating the indicators of conformance, which may or may not include test suites, along with a supplier's warranty of conformance
- Certification of test suites developed by third parties, which may then be used as tools or as indicators of compliance for suppliers when certifying conformant products
- Certification of test agency authorities, who may do the testing for applicants and validate the results for submission to the certification authority as an indicator of conformance when certifying products

The methodology for *testing*, if it becomes part of the Certification Program will be modeled after existing practice (<http://www.opengroup.org/testing/testprocs/process.html>).

The methodology for *certification* will be modeled after existing practice as described below.

#### 10.4.2 Services and Deliverables

The ASCI Management Team will work with the members within the Working Group(s) to define and build consensus for approval of the overarching ISCI Certification Program, which involves agreeing on and documenting the following elements of the Overarching Program:

- **The Certification Process**  
The certification process must be clearly defined, including any pre-requisites that must be met prior to registering a product or procedure for certification. The steps required to achieve certification must be clearly described along with the expected timeframes for the process.
- **The Indicators of Conformance**  
The policies must define the appropriate steps to be taken to validate that a product or procedure is conformant. In this step, the alternatives will be discussed to determine what validation steps make sense and policies will be established for any necessary validation procedures, tools, or test suites.
- **The Obligations and Rights of Certification Customers**  
The program must clearly identify any obligations on customers who either wish to certify or have certified a product or procedure in the program, as well as any rights the customer may have as a result of participating in the program.
- **The Problem Reporting and Interpretations Process**  
An effective certification program must be able to provide applicants with a responsive service through which they can get answers to questions of interpretation about the standard or best practices guide, or report problems with any test suites, validation procedures or the certification system.
- **The Renewal and Appeals processes and Confidentiality policy**  
The renewal process covers identification of the period of time for which a certification registration is valid, requirements for maintaining the certification, and the process for renewal.
- **The Certification Requirements for modifications of a Certified Product or Procedure**  
The policy must define the requirements for maintaining certification when making modifications to a certified product or practice. This involves defining the types of modifications that could be made and identifying the re-certification requirements in each case.
- **Agree on logo and trademark to be used in conjunction with the certification program and register with PTO.**

Once the overarching policies have been defined for each of the areas described above, they will be incorporated into a Certification Policy document. Once agreement on the overarching program definition has been reached within the Working Group(s), the Certification Policy will be submitted to the formal review and approval process.

As technical standards and profiles are approved, the following specific areas will be defined for each of the technical standards/profiles and will together with the General Policy described above, comprise the definition of the supplemental certification program for a particular standard/profile:

- **Conformance Requirements**  
The conformance requirements for a technical standard or profile certification are specified in a Conformance Requirements Document. A Conformance Requirements Document is a precisely defined and documented set of requirements against which Certifiable Entities may be certified.
- **Conformance Statement Questionnaire**  
A Conformance Statement is the Organization's documented set of claims describing precisely the way in which the Certifiable Entity meets the Conformance Requirements, including which optional requirements are implemented. It provides a precise characterization of the Certified Entity. A Conformance Statement is produced by completing the relevant Conformance Statement Questionnaire.
- **Supplemental Certification Policy**  
A supplemental policy will only be necessary if any of the general policy requirements need to be altered to accommodate the specific standard/profile that is being developed. (For instance - if the ISCI decided to certify a set of best practices versus a set of technical standards, the indicators of compliance might be a set of documented procedures from the applicant rather than a set of test suite results).

#### **10.4.3 Roles and Responsibilities**

Primary Responsibility:

- The ASCI Management Team to facilitate the process based on the proven experience of The Open Group. It is our intent that The Open Group will serve as a neutral Certification Authority.
- Test planners as subject matter experts for input on conformance requirements for standards and/or test suites.

Secondary Responsibility: The membership to align the business drivers and technical needs with the program definition and to work toward approval of the defined program.

#### **10.4.4 Estimated Time Frame**

This phase, including formal review and approval, is estimated to run from March 2008 thru November 2008.

#### **10.4.5 Assumptions and Dependencies**

The cost and time required for the Definition of the Certification Program phase is dependent on the variety and number of standards/profiles that the certification program needs to accommodate. Customization for each standard/profile is unavoidable to a certain extent, but that will inevitably affect the time and cost. The ideal is to define one over-arching program with similar indicators of conformance and validation methods so that customization for each standard is minimized. The time required for the completion of this phase is also dependent on time it takes for members to reach consensus on the definition of the program and on the scope of the certification program that is defined during the Definition of the Technical Direction phase.

### **10.5 Implementation of Certification Program**

#### **10.5.1 Objectives**

The ASCI Management Team will implement the certification program that is defined during the Definition Phase.

#### **10.5.2 Services and Deliverables**

The implementation work will consist of:

- Creating all the certification documents, software systems, and web-based systems required to launch and operate a certification program. Documentation includes certification agreements, user guides, and registration capability. The infrastructure will be established to facilitate download of

certification and validation specification materials and to submit results of the validation process. This includes materials that automate the web-site process for applicants, as well as procedural documents for the certification operations staff. Software systems include the web-based certification system, and the problem reporting and interpretations system.

- Development or adoption of the validation specifications, tools, and tests will entail working with appropriate subject matter experts.
- Marketing the value of the certification program to suppliers and to test suite developers if appropriate, and to buyers who will increase market adoption through their procurement pull of certified products.

### **10.5.3 Roles and Responsibilities**

**Primary Role:** The ASCI Management Team to facilitate the development of the certification program(s), including the operating infrastructure; facilitate the development or adoption of suitable test suites where appropriate, and to communicate the value of the certification program.

**Secondary Role:** Subject matter experts and test suite developers, if test suites become part of the defined certification program, to develop the necessary, test specifications, test suite(s), or test suite conformance criteria, and membership for review and approval of the certification program, budget, and schedule.

### **10.5.4 Estimated Time Frame**

This phase is estimated to run from June 2008 thru May 2009.

### **10.5.5 Assumptions and Dependencies**

The actual scope of the certification program to be implemented will be established when the certification program has been defined and approved by the ISCI. Therefore, implementation costs and time frames should be seen as a most likely estimate for budgeting purposes, based on the need to establish consensus among the members. Depending whether consensus is reached quickly on technical standards, and depending on the scope of the Certification Program that is approved, these dates may be able to be accelerated. During the definition of the program, the ASCI Management Team will work with the ISCI to define a program that remains within the estimated budget. If the Working Group(s) define a program with a scope that exceeds the estimated budget, the ASCI Management Team will present additional options for adjusting budget and/or scope to the ISCI's Executive Board for their input prior to their approval of the program's definition.

## **10.6 Operation of the Certification Program**

### **10.6.1 Objectives**

The ASCI Management Team will operate the certification program in accordance with the defined certification policy to process registrations for certification and certify successful submissions.

### **10.6.2 Services and Deliverables**

The following represent the major services and deliverables in operating the certification program:

- The Certification Authority will provide responsive email support to prospective applicants and guidance to applicants on progressing through the certification process to achieve certification.
- The Certification Authority will review all certification-related information provided by an applicant who has registered for certification, including their Indicators of Conformance, to determine whether the information demonstrates that the product or procedure meets the requirements for certification.
- The Certification Authority will maintain the web-based certification system and other software systems, along with all of the certification documentation.

- The Certification Authority will maintain in confidence all applications, records and conformance outcomes, not disclosing candidates who have entered the process; only disclosing candidates who have successfully completed the certification process – at which point the successful completion will be registered on the certification registry.

### **10.6.3 Roles and Responsibilities**

Primary Responsibility: The ASCI Management Team

Secondary Responsibility: Testing organizations, if applicable

### **10.6.4 Estimated Time Frame**

Operation of the certification program is ongoing, commencing with the program launch at the completion of the certification implementation phase. Launch is estimated for Q2, 2009.

### **10.6.5 Assumptions and Dependencies**

It is assumed that The ASCI Management team will act as the Certification Authority and that The Open Group's certification methodology, documentation, software, and web-systems, and expertise will be utilized for operation of the certification program. It is also assumed that the business model for certification will be one in which the costs of operation per certification are covered through the applicant certification fees.

## **10.7 Ongoing Operation of the ISCI**

The ASCI Management Team will deliver a set of services required to provide and maintain the legal framework, IT and web infrastructure, collaborative development tools, and the marketing services needed to manage, support and market the consortium's initiatives.

### **10.7.1 Services and Deliverables:**

Some of the infrastructure, support and marketing services that will be provided for the on-going operation of the ISCI are the following:

- Program Manager and support staff to guide and facilitate the activities of the ISCI
- IT Infrastructure including: Email, Web-Access, Public and Member only Web-Site areas with secure access – this includes support and maintenance of the IT infrastructure
- Online Document Review/Comment System for collaborative development
- Legal Framework and documents necessary to support collaborative initiatives including: Membership Agreements, Charters & Procedures, Bylaws, anti-trust considerations and IPR policies
- Administrative and financial support including: processing membership applications, budgeting, invoicing, and accounting services
- Membership support including: membership account management and membership education and expansion
- Marketing services including: content and collateral development and promotion through industry events including ISA Expo, ISA publications including InTech, email and traditional mailings using ISA membership list resources
- Development of implementation guides and implementation workshops for educating vendors and users on how to implement the standards correctly for certification
- Plan and manage Board of Directors meetings

### **10.7.2 Roles and Responsibilities**

Primary Responsibility: The ASCI Management Team

### **10.7.3 Estimated Time Frame**

This phase is ongoing and should continue as long as the consortium is in existence, but for budgetary purposes, in this proposal it is estimated to run from December 2007 thru May 2009.

### **10.7.4 Assumptions and Dependencies**

It is assumed that there will be ISCI Subject Matter Experts to provide input on content for marketing collateral, implementation guides, and workshops.

## **10.8 Evolution of the ISCI**

### **10.8.1 Objectives**

It is expected the ISCI will continue to operate as a consortium beyond the time frame represented in this initial proposal so that it can continue to meet the needs of its membership. It is most likely that the consortium in prioritizing standardization and certification elements for initial focus will need to postpone some of the critical but lower priority work until subsequent years.

Not only is it probable that the consortium will continue to take on additional prioritized work efforts, but it is essential that they remain in existence to evolve and maintain the work that they will have already undertaken. Existing standards and best practices will always require evolution based on issues identified by suppliers as they begin adopting the standards or customers as they begin using the certified products. It is important for the ISCI that the standards, best practices, and certification programs remain current and correct, so that confidence in the integrity of the standards and the certification process can be maintained.

It will also be necessary to work through the ISCI to continue to provide market adoption activities that promote the value of adopting the standards and best practices and procuring certified products.

### **10.8.2 Services and Deliverables**

The assumption is that the on-going activities of the ISCI will be a combination of support, maintenance and revision, new standards and certification components, and market adoption activities to ensure uptake of the standards and participation in the certification programs.

The following represent the major services and deliverables in the ongoing operation of the ISCI:

#### **10.8.2.1 Support, Maintenance and Revision of Existing Standards and Certification Programs:**

- Management services will be provided to allow meetings of the Executive Board and Technical Steering Committee(s) to assess need for maintenance or revision to the certification program
- Conduct the periodic elections for Executive Board and Technical Steering Committee officers and members.
- Management services to facilitate revisions or updates to the certification program and further development or refinement of technical standards and best practices.
- IT infrastructure and management services to operate the consortium

#### **10.8.2.2 Additional Standards and Certification Components**

- Adopt, adapt and approve a new standard/profile to be progressed through to certification in the subsequent year.

- Define an additional certification program component, in association with the ISCI standard/profile that was approved in the previous year
- Implement the certification program as it was defined

#### **10.8.2.3 Market Adoption Activities to Promote Adoption of Standards and Certification**

- Marketing the value of the certification program to suppliers and to test suite developers if appropriate, and to buyers who will increase market adoption through their procurement pull of certified products.
- Ongoing market assessments to ascertain the continued validity of the certification program and identification of market drivers for revisions or updates.
- Develop marketing collateral and web presence for certifications on ISA's extended web sites
- Promote the certification through industry events including ISA EXPO and other events globally
- Promote the certification through ISA publications including InTech, and other industry publications
- Promote the certification through regularly distributed emails and traditional mailings using ISA member and customer list resources
- Develop and present workshops and implementation guides to educate vendors and users on the certifications and how best to achieve them

#### **10.8.3 Roles and Responsibilities**

Primary Responsibility: ASCI Management Team and Membership

#### **10.8.4 Estimated Time Frame**

This phase is expected to begin in June 2009 and represents a continuing activity so long as the certification program remains in use and there is an industry desire to assure that it remains relevant and reflective of consensus needs.

#### **10.8.5 Assumptions and Dependencies**

The effort and cost required for the Evolution of the ISCI will be dependent on whether the ISCI chooses to engage in only the support, maintenance, and evolution of the approved standards/profiles and the existing certification program or whether they choose to engage in development work for adopting, adapting, and approving additional standards and additional certification components of the existing program.

---

## 11 Estimated Budget and Milestones

This section contains timeframes, estimated budgetary costs, and the assumptions the milestones and costs are based upon.

Phase		Timing										
		2007				2008				2009		
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
1	Formation											
2	Definition of Technical Direction, Scope, and Approach of Certification Program											
3	Identification and Development of Standards and Profiles											
4	Definition of Certification Program											
5	Implementation of Certification Program											
6	Operation of the Certification Program - Begins at Launch in Q2 2009											
7	Ongoing Operation of ISCI											
8	Evolution of ISCI – Starts Q2 2009											

### Budget:

The estimated budget for the services and deliverables outlined in Sections 3.1 thru 3.7 of the proposal and which are to be delivered during Q4, 2007 – Q2, 2009 is:

First 12 Months      900,000

Second 9 Months    600,000

**Total                    \$1,500,000**

The annual operating budget for the Evolution phase beginning in June 2009 is estimated to be \$750,000.

### Membership Structure, Entitlements, and Fees:

ISCI is structured to be self-funding through membership. In almost all compliance consortia, except for special cases, certification and testing fees alone rarely do more than cover the certification/testing costs and do not provide any funds for developing new compliance certification programs and updating existing compliance programs.

In light of this, the ISCI will need a membership fee structure that can fund the work necessary to achieve its strategic objectives including compliance activities. Strategic objectives include broadening coverage of standards in the compliance certification program, establishing partnerships with other standards organizations, and obtaining assistance from industry experts for maintaining and improving the compliance program. In addition the membership fees will provide for the management services and infrastructure necessary for the operation of the consortium.

Typically consortia organizations have multiple membership classes offering cascading entitlements and fees. ISCI will have three membership classifications. It should be noted that Founding Membership is limited to the Strategic Member classification. The ISCI Interest Group suggests the following membership classes:

**Strategic Member** Appeals to companies who wish to set the strategic objectives of the consortium.

**Entitlements**

- Strategic Members set the strategic objectives of the consortium and receive a guaranteed board seat. Strategic members enjoy all privileges of lower categories of membership.
- The initial Board (Founding Members) will define the Board structure (size, composition), governing rules and operations.

Founding members are those who sign up by September 1, 2007. They will influence the initial direction of the group and determine how to achieve a balanced view of asset owners and suppliers. No limit will be set on the size of the initial Board comprised of Founding members.

**Fee Structure**

\$50,000 per year	Corporate Membership paid annually
\$133,650	Discounted multi-year Corporate Membership for 3 years paid in full

**Technical Member** Appeals to companies who wish to influence standards setting and compliance processes. Fees for this membership tier will be determined by the initial Board using a sliding scale based on company revenues.

**Entitlements**

Technical Committee Members receive full, voting participation in all technical processes and enjoy all privileges of lower categories of membership.

**Fee Structure**

TBD	Gross company revenues greater than \$1,000,000,000
TBD	Gross company revenues between \$25,000,000 and \$1,000,000,000
TBD	Gross company revenues less than \$25,000,000

**Informational Member** Appeals to Academics, consultants, analysts, and individuals

**Entitlements**

Information Members receive periodic information regarding technical and other programs, as well as standards without access to technical meetings.

**Fee Structure**

TBD (single price regardless of revenues)

**Note:** Participants who commit to ISCI membership during the Formation stage of ISCI will be committing as Strategic Members and are entitled to a position on the ISCI Interest Group Board of Directors. ISCI will accept membership applications for Founding Members through September 1, 2007.

## Control Systems Security Standards Organization (ISCI)

<b>Membership Fees Projections</b>								
Membership Class	Annual Fee	2007 Count	2007 Fees	2008 Count	2008 Fees	Total Fees '07-'08	2009 Count	2009 Fees
<b>Strategic</b>								
Corporate Member	\$ 50,000	15	750,000	15	750,000	1,500,000	15	750,000
<b>Technical Committee</b>								
Large Company	\$ -	0	-	0	-	-	0	-
Medium Company	\$ -	0	-	0	-	-	0	-
Small Company	\$ -	0	-	0	-	-	0	-
<b>Informational</b>								
All companies	\$ -	0	-	0	-	-	0	-
<b>Totals</b>		<b>15</b>	<b>750,000</b>	<b>15</b>	<b>750,000</b>	<b>1,500,000</b>	<b>15</b>	<b>750,000</b>

### 11.1.1 Assumptions

The estimated costs and timing are based on the following major assumptions. As the assumptions are validated or refined during the early stages of the formation of ISCI, the cost and timing estimates will be modified appropriately.

1. ISA and The Open Group will recover direct expenses and costs of allocated professional staff time, with the exception of the following initial support to ISCI provided by ISA as an in-kind contribution
  - a. Oversight of strategic business activity and coordination with other ASCI initiatives via the Managing Director of ASCI
  - b. A legal home for ISCI within the ASCI non-profit entity thus eliminating the costs and time required to establish the appropriate legal and administrative infrastructure
  - c. Access to an existing IT infrastructure for quick creation of website (public and members), IT Support, and web-based collaboration tools
  - d. Access to ISA's accredited standards processes to facilitate any ultimate adoption of specifications through the ANSI-accredited process as desired
  - e. Access to the intellectual property in existing ISA standards
  - f. Program marketing support including:
    - i. Preferential access to programming and visibility at ISA Expo and other ISA Events
    - ii. Access to designated editorial and advertising space in InTech (80,000 monthly readers)
    - iii. Access to ISA Training Institute to conduct relevant training
    - iv. Access to ISA's book publishing program for both IP needed to develop standards as well as an outlet for publication
    - v. Affiliate with ongoing ISA promotional activities (\$1,000,000 annual budget)
  - g. Use of ISA headquarters meeting facilities
2. There will be 15-20 Founding Strategic Member organizations in ISCI
3. Two technical working groups will be formed.
4. Two standards or profiles will be developed during the first two years of operation
5. One overarching certification program will be defined and implemented, and is assumed to include sub-programs that apply to certification of technology, test suites, and test agencies. In addition, each of the sub-programs (referenced above), will have customized components that apply to each standard/profile that is approved by the ISCI for adoption.
6. Formal reviews will include: 1 during Formation: (Charters and Procedures (including review and approval process itself), 4 during Development: (Technical Roadmap, 2 Standards/Profiles, and General Certification Program/Policy).
7. Number of elections will include: Total of 4 based on 1 year term for Chairs [1 during Formation (Chairs for Executive Board) and 1 during Development (Chairs for Technical Steering Committee and Working Groups (WGs)] – repeat when term is up.
8. Number of face-to-face meetings (plenaries) – assume all-member meeting with plenary and working breakout sessions for Executive Board, Technical Steering Committee and Working Groups (1 per quarter: 2 during formation, 6 during Development).
9. Duration of face-to-face meetings will be 3 days.
10. Monthly Executive Board conference calls will be conducted.
11. Technical Steering Committee calls will occur monthly.
12. Working Group calls will occur weekly.
13. Technical subject matter expertise for the development of standards/profiles will be provided by ISCI member organizations at no charge to ISCI. Retention of appropriate technical subject matter expertise to supplement the member contributions and accelerate the work also is assumed and budgeted.
14. The approved certification method will be based on The Open Group methodology.

15. The Open Group will be the Certification Authority and operate the certification program.
16. Certification definition is dependent on achieving consensus and approval from the Consortium.
17. The cost for implementing the certification program is dependent on the program to be defined and approved by the members therefore the implementation costs are for budgetary purposes only and will be finalized after the definition.
18. The estimates for Certification Definition and Implementation include the certification of products/technology and include estimates for certification of underlying test suites or testing agencies. They do not include the development of test suites.
19. The overarching certification program includes:
  - Certification of Technology/Products
  - Certification of Test Suites
  - Certification of Test Agencies

Each new standard/profile that is approved for certification will require services and deliverables in all three of the certification areas listed above.

**Also it is assumed that if certification of test suites and agencies are decided upon, then test specifications will need to be developed.**

20. The test suite and test agency certification deliverables required for each new standard/profile are the same as currently defined in Section 3.4 and 3.5. Though the deliverables are basically the same, the work effort is different, with additional effort required for the Test Agencies and Test Suites as summarized below:
  - The Open Group's proposed approach is to establish clear documented requirements for a Testing Agency. The requirements will form the heart of the program utilized by the TAA to perform a Conformance Assessment. Documented requirements will also provide the means for potential and existing Test Agencies to prepare for a Conformance Assessment. These documented requirements and test specifications (if they do not exist) will require subject matter expertise and will be done on a per standard/profile basis.
  - The Open Group approaches the validation of Test Suites in a similar manner to the validation used for a Testing Agency. However, in the case of a Test Suite, the basis for the requirements is the underlying standard to be tested and on the underlying test specifications. Our approach, which will require subject matter expertise, will be to evaluate the standards/profiles and extract the requirements into a documentation set we term the Test Suite Acceptance Criteria. These criteria will form the heart of Test Suite certification to determine suitability of a test suite. These criteria can also be utilized by a test suite provider to prepare for a conformance evaluation.
21. The costs for developing the Test Suite and the Test Agency programs are incremental to the cost of developing the Product/Technology certification component.
22. The costs for operating the Certification program will be funded through the certification fees.
23. During the first two years of operation, the ISCI will adopt, adapt and approve 2 standards/profiles as a basis for developing associated certification components. However, the certification program components will only be defined and implemented for one of those standards/profiles during that 2<sup>nd</sup> year.
24. In the 3<sup>rd</sup> year of operation, the first year of the evolutionary phase, the certification program will be defined and implemented for the 2<sup>nd</sup> standard/profile approved in the previous year.
25. In keeping with that above assumptive scheme, if the consortium chooses to engage in new development work for the subsequent evolutionary years, then each year of evolution will typically see the adoption of one new standard/profile and in the following year will have a certification program defined and implemented around it. So that in any one year, the consortium will be working on adopting, adapting and approving an additional standard and during the same year will be working on defining the certification program for the standard/profile that was approved in the previous year.

## **Appendix A Background Information On ASCI, ISA, and The Open Group**

### **Automation Standards Compliance Institute (ASCI) and ISA**

#### **ASCI**

The Automation Standards Compliance Institute (ASCI) was established by ISA in 2006 as a separately incorporated non-profit organizational entity to facilitate programs that assess automation-related standards compliance. The institute's charter includes a wide range of standards compliance assessments including software or hardware products, implementation methods, solutions, companies and individuals.

ASCI provides a vital link between the standards ISA develops and the implementation of those standards. ASCI also offers the opportunity to partner with other organizations and assess conformity of their standards. A feasibility study, market study, and legal assessment performed in 2005 and 2006 indicated that a standards conformity program was needed to provide a useful link between automation standards and the products, services, processes and systems that use them. The studies revealed that automation users are increasingly recognizing the value of adopting true industry standards and that the next step in this evolution was to ensure that the solutions selected in fact adhere to these standards. ASCI is chartered to educate users and help suppliers transform standards into real interoperable products.

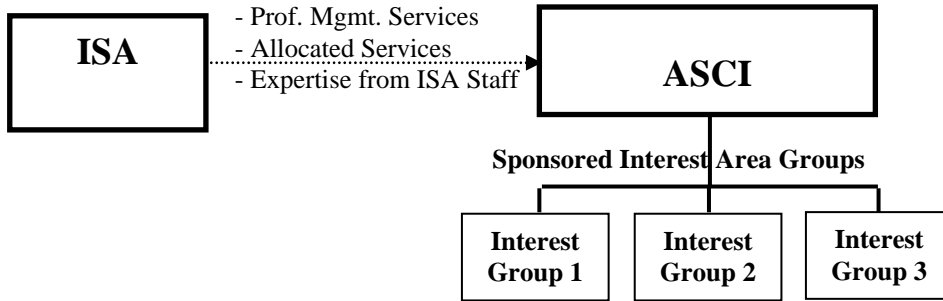
ASCI is governed by a Board of Directors that includes senior ISA officers and staff, and “outside” directors appointed for their business experience with standards conformity programs. Within ASCI, groups are formed to address specific interest areas for standards conformance. Each such Interest Area Group establishes its own membership and governance structure.

Initial Interest Area Groups are in development in the areas of security, safety and wireless, where asset owners, consultants, contractors, and suppliers are all striving to reduce risks and optimize performance. All of these topics are critical to industry where assistance on how best to implement industry standards in an effective and efficient manner is critical. ASCI is in a unique position to evaluate compliance in these areas and facilitate development of ancillary services that assist asset owners, integrators and consultants, and suppliers in understanding and implementing standards.

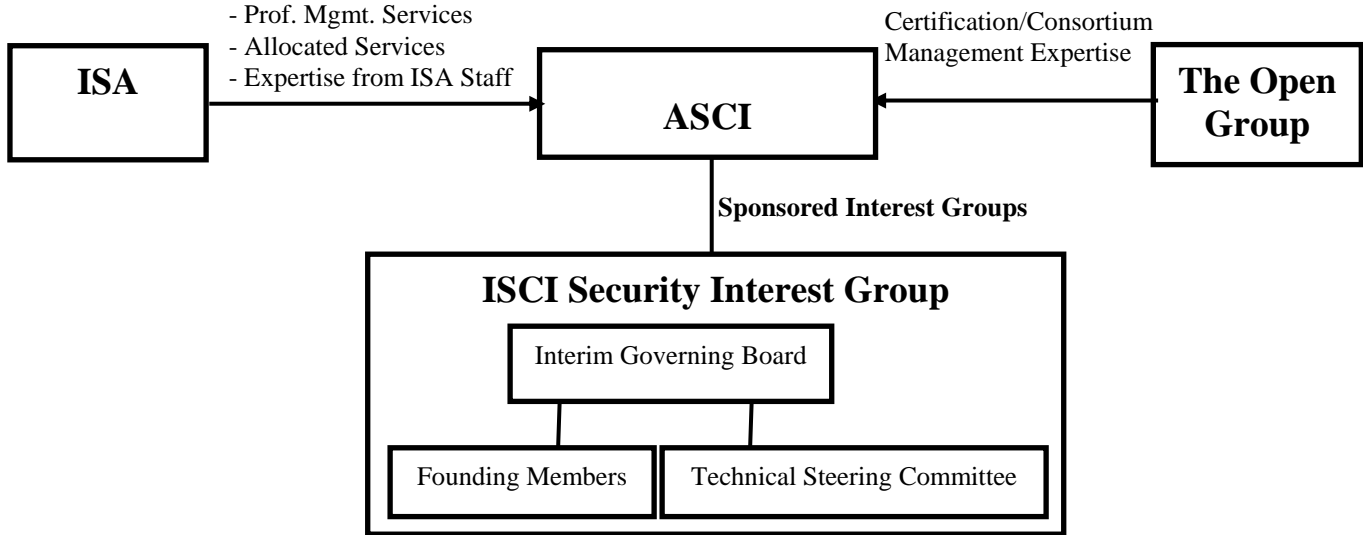
ASCI is financially capitalized by ISA to facilitate cost-effective development of compliance program activities. This includes professional staff management of the programs from a full time managing director as well as allocation of professional staff resources from the 75-member ISA staff. The necessary legal and administrative costs to launch ASCI and facilitate the initial development of Interest Area Groups is being underwritten by ISA. See *Chart A* on the following page.

**Chart A**

**ASCI in Relation to ISA and Compliance Interest Groups**



**Chart B**  
**ISCI Organization Chart**



Security standards compliance certification through ISCI is a compliance program that ASCI is striving to facilitate as an Interest Area Group within ASCI. The general relationship of ISA, ASCI, and Interest Area Groups is shown in *Chart B* above, along with the specific implementation of ISCI.

Other Interest Area Groups that are expected to be facilitated within ASCI during the near future include wireless systems and process control safety.

The ISA-SP100 Committee, Wireless Systems for Automation, addresses wireless manufacturing and control systems in the areas of the environment in which the wireless technology is deployed, the technology life cycle for wireless equipment and systems, and the application of wireless technology. The committee's focus is to improve the confidence, integrity, and availability of components or systems used for manufacturing or control, and provides criteria for procuring and implementing wireless technology in the control system environment. As the standard is developed, ASCI will work with the committee to ensure that criteria are established that can result in future compliance testing. Compliance with the committee's guidance will improve manufacturing and control system deployment, and will help identify vulnerabilities and address them, thereby reducing the risk of compromising or causing manufacturing control systems degradation or failure.

Process industry asset owners typically rely on engineering companies, systems integrators, equipment vendors, and consultants to design and install the safety instrumented systems (SIS) that are the subject of the ISA-84.00.01 standard. Since the asset owner can frequently lack the internal expertise to independently validate that the SIS has been designed and implemented consistent with the standard, it is envisioned that a trusted neutral third party evaluation and certification of equipment being received from contractors will be implemented through ASCI.

## **ISA**

Founded in 1945, ISA ([www.isa.org](http://www.isa.org)) is a leading, global, nonprofit organization that is setting the standard for automation by helping over 30,000 worldwide members and another **150,000 automation** professionals solve difficult technical problems, while enhancing their leadership and personal career capabilities. ISA has a strong end-user focus - over 80% of ISA members are affiliated with non-supplier organizations. While ISA has its roots in the process industries, over 20% of ISA members are affiliated with discrete manufacturing industries and over 35% of InTech readers have that affiliation.

ISA's mission is to facilitate automation and control technology solutions that are open, interoperable, and accessible. Most notably, ISA's consensus industry standards work reflects this commitment, as do the numerous conferences, training, certification, and publications programs.

Based in Research Triangle Park, North Carolina, ISA has a proven track record of success as an established professional society with a solid financial, legal, governance, and staff infrastructure. ISA has:

- very solid finances with over \$30 million in reserves
- established and audited accounting practices to assure continuing financial integrity of the organization
- an established legal framework as a non-profit, tax-exempt organization
- a very effective communications network through a membership of 30,000, an active customer base of 150,000, a web site that attracts about 175,000 visitors each month, and InTech magazine that reaches 80,000 people each month
- an ANSI-accredited standards development process
- a leadership role in IEC as administrator of five US technical advisory groups, secretariat for three IEC committees, and a Class D liaison to IEC 65A on Industrial Measurement and Control - System Aspects (which allows ISA standards to be submitted direct to IEC for adoption)
- a comprehensive series of conferences and trade shows that provide forums for physical meetings and information exchanges
- an established continuing education program that reaches over 15,000 professionals annually with the latest technology and application developments
- professional certification programs that establish the industry standards of knowledge and skills expected of automation professionals and practitioners
- a book publishing program that publishes over 100 reference works and distributes in excess of 20,000 units annually around the world
- a professional staff of about 75 with expertise in non-profit association management, business development, marketing and communications, standards development, publishing, training, meeting management, and more.

Interest Area Groups operating in ASCI have unparalleled access to ISA programs, venues, and services that help facilitate the cost-effective success of the groups in development and communication to the marketplace.

### ***ISA EXPO***

ASCI Interest Area Groups have preferential access to programming and related organizational visibility at ISA EXPO and other ISA events. Over 12,000 industry professionals attend ISA EXPO and hundreds of others attend other ISA technical events each year. ASCI groups are able to conduct highly visible technical programs at these events and significantly enhance their image and brand.

### ***InTech***

ASCI Interest Area Groups have access to designated editorial space in InTech magazine, thus being able to communicate technical developments to the 80,000 monthly readers of InTech.

### ***Standards***

Because of ISA's accredited standards development activity, ASCI groups have ultimate flexibility in options to use and promulgate guidelines and standards. An ASCI group has access to ISA published

standards for open use and adaptation as necessary. Specifications developed with an ASCI group also can be submitted to the ISA standards development process for promulgation as ANSI standards if desired, with ultimate submission for IEC adoption of OMAC through ISA's role in IEC.

### ***Training***

ASCI Interest Area Groups can take advantage of the world-renowned ISA Training Institute to develop and conduct relevant training programs using an established and accredited methodology. These training programs reach thousands of professionals annually.

### ***Publishing***

ASCI Interest Area Groups can leverage its technical activities through use of the extensive ISA book publishing program. By offering topics and authors for ISA published books, ASCI developed technology can reach thousands of automation professionals.

### ***Publicity***

Given ISA's significant annual investment in promotion and marketing (over \$1,000,000), ASCI Interest Area Groups have an opportunity to benefit by an affiliation with ISA to receive attendant visibility within ISA promotions.

### ***Organizational Infrastructure***

ISA has management and administrative systems that facilitate

- efficient strategic planning, and development and execution of annual operating plans
- effective volunteer governance programs including leadership training and director liability insurance
- reliable financial management through annual external audits and use of well-structured and robust accounting practices via Microsoft Dynamics financial system
- robust customer database systems scaled for multiple organizational entities with hundreds of thousands records and full interactive integration to the internet so that business transactions (address updates, meeting registrations, purchases, etc.) are entered directly into the financial management system in an efficient and error-minimized way
- management of intellectual property through copyright and trademark registration expertise, and policies governing open access to intellectual property published by ISA
- access to global markets via an extensive distribution network, and associated marketing system, that achieves world-wide awareness and circulation of information products
- reliable and efficient web sites that are built on a state-of-the-art content management database with access security systems
- email communications through lists using Lyris software that is owned by ISA and hosted on ISA servers, as well as broadcast email systems that can reach ISA's extensive automation professional database
- web conferencing using Microsoft Live Meeting
- collaborative document development and teamwork using tools such as Microsoft SharePoint and wikis.

ISA fully supports the practice of engaging in collaborative relationships with other organizations and maintains about 50 such agreements with non-profit and commercial organizations around the world. These agreements include elements like shared conference programming, joint standards development, reciprocal member dues arrangements, and information exchanges. Organizational collaborations exist with groups that include ARC, OPC Foundation, MIMOSA, WBF, WINA, CSIA, MCAA, SME, VDM, INSTMC, IICA, NAMUR, UL, CSA, NIST, and ANSI to name a few. In the area of standards development, ISA has an active collaboration with UL and CSA to develop electrical safety standards, and is facilitating a Manufacturing Interoperability Guideline Working Group activity designed to harmonize standards arising from the work of ISA-SP95, OAGi, WBF, OMAC, and OPC Foundation.

Further evidence of ISA's commitment to facilitating collaboration among organizations operating in the automation arena is reflected in ISA's founding sponsorship of The Automation Federation

([www.automationfederation.org](http://www.automationfederation.org)). The Automation Federation is an umbrella organization under which associations and societies engaged in manufacturing and process automation activities can work more effectively to fulfill their missions. It will coordinate the work of member organizations engaged in advancement of the science and engineering of automation technologies and applications. The common objectives of the member organizations are to:

- promote the value and image of the automation profession in contributing to manufacturing effectiveness and efficiency
- facilitate the development and dissemination of educational and informational resources intended to develop new generations of automation professionals, enhance the effectiveness of existing professionals, and advance the automation profession
- facilitate the promulgation of industry standards that enhance the efficiency, cost effectiveness, and safety of automation technology and application.

### **Key Staff – ASCI and ISA**

#### **Andre Ristaino, Managing Director of ASCI**

Andre was selected to lead the Automation Standards Compliance Institute based on his manufacturing industry experience, successes with building organizations, and familiarity with compliance programs.

He began his career as a statistician for NEMA in Washington, DC. His professional experience includes 9 years in management consulting at Deloitte & Touche where he provided Independent Program Assessments and Independent Validation and Verification support for IT modernization projects at the USAF Logistics Command. Andre also provided Data Center Operations Reviews in support of the firm's audit activities for major public utilities and governmental entities.

In the early 1990's, Andre redirected his industry focus to manufacturing consulting where he led manufacturing information systems integration projects and provided consulting services for manufacturing operations improvement. His manufacturing industry experience includes Pulp & Paper, Bottling, Consumer Products, Textiles, Steel Fabrication, Biotechnology, and Pharmaceuticals where he led successful FDA compliance audits for two greenfield sites and one modernization site.

Andre's organizational experience includes the creation of a nationally based Manufacturing and Supply Chain Consulting group and leadership roles in professional services, sales, and business development for nationally based technology and professional services organizations.

He holds a BS in Business Management from the University of Maryland, a MS in Technology Management from the American University, and CPIM certification from APICS.

#### **T.S. 'Chip' Lee, Director, Standards, Publishing, and Technology Services - ISA**

Chip Lee has been involved in senior management of engineering associations for over 20 years and has been with ISA staff management for 15 years. He currently provides strategic direction for ISA's standards development and publishing activities, book publishing programs, and InTech publishing activity. Chip also oversees the ISA IT function including management of the web system infrastructure used by ISA and other member organizations affiliated with ISA. In his tenure with ISA, Chip has played a key role in developing and nurturing strategic relationships with other organizations and was instrumental in developing The Automation Federation and the Automation Standards Compliance Institute. Prior to moving into association management, Chip worked in corrosion engineering research and development for about 15 years. He has a MS and BS in Metallurgical Engineering from the University of Florida.

**Bernard Penney, Director, Marketing and Communications - ISA**

Bernard Penney has 28 years experience in technological research, development, marketing and communications. Bernard began his career with IBM as a Research Staff Member at the T.J. Watson Research Lab, focusing on micro-computer development. This work led to the introduction of the first IBM Personal Computer, and the creation of a new IBM PC Division. He continued with the IBM PC Division in a marketing role as this organization grew to become a major independent business unit generating over \$10B in PC sales and employing a staff of over 12,000. He held positions of increasing marketing responsibility supporting a wide variety of advanced Personal Computer products, culminating in the position of Marketing Director of IBM Internet Servers. From there, Bernard accepted a position with SAS Institute, directing the creation of a new family of PC-based SAS products. Bernard recently joined ISA as the Director of Corporate Marketing and Communications, responsible for all marketing efforts across all ISA core competencies. He holds a Bachelor's of Science Degree in Computer Sciences from the University of Maryland, and a Masters of Science Degree in Computer Sciences from Columbia University.

**Charley Robinson, Standards Manager - ISA**

Charley Robinson serves as manager of standards administration, overseeing the professional staff that facilitate the work of volunteer standards development committees and administer ISA's ANSI-accredited standards development processes. He has been involved in ISA standards for 15 years, working with many of ISA's largest and most visible standards committees. These include ISA-SP100, Wireless Systems for Automation, ISA-SP99, Manufacturing and Control Systems Security, and ISA-SP95, Enterprise-Control System Integration. In this capacity he provides guidance on work direction and processes, and facilitates the use of the infrastructure used for collaborative and consensus development. Charley represents ISA on committees of the American National Standards Institute, including the ANSI Homeland Security Standards Panel. Prior to his work in ISA standards, he served as an associate editor of ISA's InTech Magazine and as a technical editor at Battelle Columbus Laboratories. He holds a B.S. in Industrial Engineering from North Carolina State University.

**Timothy Feldman, Director, Global Operations - ISA**

Tim Feldman was appointed director of global operations at ISA in 2006 and is responsible for the globalization of the ISA core competencies to an audience of automation professionals around the world. Prior to ISA, Tim worked with NEMA as Vice President of Government Affairs, responsible for advocacy of electro industry legislative and regulatory issues in the areas of tax, trade, environment, energy, health and safety, and international affairs. His professional experience includes nineteen years in the electronics and software industry in human resource management and public affairs. Prior to joining NEMA, Tim served as Director of Legislative Affairs at Oracle Corporation. Prior to his experience as Oracle, he was Director of Human Resources for Loral-Fairchild Systems, a subsidiary of Schlumberger, Ltd. He has also held various managerial positions with Eaton Corporation, serving in their Standard Power Control Division, Engine Components, and Defense System Division. Tim received his Bachelor of Science Degree in Industrial and Labor Relations and a Minor in Political Science, Economics and Philosophy from LeMoyne College in Syracuse, New York. He has been a member of the Energy Secretary's Appliance Standards Advisory Committee.

**Patrick Gouhin, Executive Director and CEO - ISA**

Pat Gouhin joined ISA as executive director and CEO in January 2006. In his position, Pat collaborates with volunteer leaders in setting the strategic direction for ISA and its affiliated organizations, the Automation Standards Compliance Institute (ASCI) and The Automation Federation. This role includes collaborating closely with the staff management team and industry area groups within the ASCI to assure that the strategic mission of ASCI to the automation community is fulfilled. Prior to joining ISA, Pat worked with AIAA where he was responsible for developing organizational strategies; launching numerous new ventures; enhancing the effectiveness of publishing, training, and student programs; and conceiving strategic marketing and communications programs. Pat has a bachelor of science degree in



aeronautical and astronautical engineering from The Ohio State University and a master's in engineering management from George Washington University.

## The Open Group

The Open Group is a vendor and technology-neutral consortium, whose vision of Boundaryless Information Flow™ enables access to integrated information within and between enterprises based on open standards and global interoperability.

The mission of The Open Group is to drive the creation of Boundaryless Information Flow™ by:

- Working with customers to capture, understand and address current and emerging requirements, establish policies, and share best practices;
- Working with suppliers, consortia and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies;
- Offering a comprehensive set of services to enhance the operational efficiency of consortia; and
- Developing and operating the industry's premier certification service and encouraging procurement of certified products.

Some general facts about The Open Group:

- Vendor and technology-neutral consortium, operating as 'not-for-profit', with over 20 years of experience
- Global organization with offices in San Francisco, CA, Boston, MA, Reading, UK, and Tokyo, Japan
- Over 250 member organizations from 19 countries, with over 6,000 participants in The Open Group activities
- 50% of members from North America, 25% from Europe, and 25% from Asia-Pacific; all constituents work together in an open process
- Services provided to the members and third parties include: strategy, management, innovation and research, standards, certification, and test development
- Vision of Boundaryless Information Flow™, with enterprise architecture as a critical element for making the vision a reality; TOGAF Architecture Development Method provides an important toolset
- "Making Standards Work®"; extensive experience and track record in facilitating consensus while developing or adopting standards and operating the premier certification service

### **The Open Group Consortia Services**

As an international consortium focused on consensus building and project management of collaborative initiatives for more than 20 years, The Open Group has developed considerable expertise in providing the support services that consortia need throughout their lifecycle in order to be successful.

### **Certification Experience**

The Open Group, with its proven certification methodology and conformance testing expertise, is recognized as a guarantor of the interoperability that enhances the acceptability of international standards. The Open Group has over 20 years of experience in this area, including successful development of certification programs and/or test suites for:

IT Architect Certification Program (ITAC)

North American Association of State and Provincial Lotteries (NASPL)

UNIX® systems  
X Window System  
Secure Electronic Transactions (SET)  
Hotel Technology Next Generation (HTNG)  
Common Data Security Architecture (CDSA)  
Directories (LDAP)  
Linux Standard Base (LSB)  
CORBA  
Common Information Model (CIM)  
Solaris ABI  
Wireless Application Profile (WAP)  
Digital Video Broadcasting Multimedia Home Platform (DVB MHP)  
Schools Interoperability Framework (SIF)  
Open GIS Consortium (OGC)  
POSIX  
IMS Global Learning Consortium (IMS)

The Open Group has experience in the full spectrum of activities required for the successful implementation of an international certification program. The Open Group's experience covers legal, commercial, and operational issues associated with certification programs implemented across a range of different products, services, and industries. Their on-line certification services reduce the cost of individual certifications and provide scalability as a program grows with industry adoption.

As part of The Open Group's work with their own certification programs and with those of their customers, they have developed considerable skills in resolving conflicts and facilitating consensus among the often complex legal, technical, and commercial factors and pressures that underlie any commercially important certification program.

The Open Group provides certification, assessments, and related services with the assurance of experience, fairness, confidentiality, quality and the availability of ongoing operation, support and service in the future.

### **Experience in Test Agency Certification Testing**

The Open Group's experience with Testing Agency accreditation goes back to the early days of UNIX certification in the late 1980s, when The Open Group operated a Test Agency accreditation and certification program for its XPG3 and XPG4 UNIX® certifications. Accredited test laboratories include IBM, Bull, Unisys, Aptest, and Mindcraft.

Today, The Open Group currently operates multiple certification and/or accreditation programs. Two of the more applicable, under which The Open Group has developed the assessment and accreditation procedures, acts as the assessor, and as the Certification Authority and operates the web-based certification program are the IT Architect Certification Program (ITAC), the North American Association of State, Provincial Lotteries (NASPL) Standards Initiative Certification Program.

### **Experience in Test Suite Certification**

The Open Group has developed a set of recognized Test Suite Acceptance Criteria that it uses to assess the suitability of test suites for use in conformance testing performed as part of a certification program.

The Open Group's existing test suite acceptance criteria have been used for assessing third-party test suites, test suites developed in-house by The Open Group, and test suites procured by The Open Group under contract from independent test suite developers. The criteria and associated acceptance procedures have been used to accept test suites across multiple technologies and industries and would form a strong basis for the review and acceptance of test suites for use in the a ISCI certification program, if needed.

## **Qualifications**

The Open Group is well suited to function as a services provider to the ISCI during its formation and standards development phase, but also to provide subject matter expertise and guidance when it reaches the standards and certification development phases of its lifecycle.

The Open Group not only builds and operates market-attractive certification programs but also stand alone as the only consortium to operate commercially viable certification programs as a service to other consortia. As a global industry leader with over 18 years experience in providing trusted certification programs that drive down development time and cost, they provide products with a recognized certificate of conformance leading to increased consumer confidence.

The Open Group's approach is "Making Standards Work®". The Open Group recognizes the importance of assured conformance through certification and operate a number of programs, including certification for: Common Operating Environment (COE) Platform, CORBA®, Hotel Technology Next Generation (HTNG), Identity Management and Directory Interoperability, IT Architect Certification (ITAC), LSB®, North American Association of State and Provincial Lotteries (NASPL), POSIX®, Schools Interoperability Framework (SIF), TOGAF, UNIX®, and Wireless Application Protocol (WAP). The Open Group, whose membership and consortia services clients are geographically dispersed, provides assessment, accreditation and certification worldwide as required.

One of the most important indicators of success in the certification field is the number of procured certified products in the market place. Buyers look for The Open Group's Open Brand mark and often mandate that products offered in response to their procurement documents carry the Open Brand. It is worth noting that at the beginning of 2002, over U.S. \$55 billion of IT purchases had so far made use of the Open Brand.

## **Key Staff - The Open Group**

The Open Group has 50 dedicated full-time staff with offices in Burlington, MA, San Francisco, CA, Japan and Reading, England. This section contains biographies for the key staff members available for work on ISCI project. We have noted the staff members likely to fulfil various roles if The Open Group is privileged to work with ISA on this project, but reserve the right to assign alternative individuals.

### **David Lounsbury, Vice President of Government Programs**

David Lounsbury leads the Government Programs division, sets the overall strategy, and oversees government research, particularly in respect to developing adaptive and real-time system software.

His previous executive assignments at The Open Group include Vice President, Open Group Program Management. In this role, David was in charge of coordinating corporate activity for major programs among the development, membership, and specification/test/branding business activities. He also served as Vice President of the Collaborative Development Group.

Prior to that David was a Director of the Distributed Environment Engineering group at OSF. There he managed OSF's DCE efforts, which resulted in the DCE 1.1 and DME 1.1/Network Management Option technologies. David managed DCE efforts since the RTF announcement in 1990.

Prior to coming to OSF, David worked for Prime Computer and managed the Multiprocessor Operating Systems group that worked on systems incorporating CMU Mach and UNIX System V release 4 technology.

David holds a degree in Electrical Engineering from Worcester Polytechnic Institute, and is holder of three U.S. patents.

### **Sally Long, Director of Program Development**

Sally Long has been managing customer-vendor forums and collaborative development projects for the past thirteen years. First as the Release Engineering Section Manager for all collaborative, multi-vendor, development projects (OSF/1, DME, DCE, and Motif) at The Open Software Foundation (OSF), in

Cambridge Massachusetts. Following that, Sally moved to Business Development as a Program Manager for New Projects.

After The Open Software Foundation merged with X/Open in 1997 to become The Open Group, Sally served as, the Program Director for multiple Forums at The Open Group: The Distributed Computing Environment (DCE) Forum, The Enterprise Management Forum, and The Quality of Service Task Force.

Sally was the business development lead on the North American State and Provincial Lotteries (NASPL) project, and is currently the Program Manager for the NASPL Standards Initiative.

Sally has also participated as a Project Manager in the formation and management of the Network Centric Operations Industry Consortium (NCOIC), a not-for-profit international corporation.

Sally has a Bachelor of Science degree in Electrical Engineering from Northeastern University in Boston, Massachusetts, and a Bachelor of Science degree in Occupational Therapy from The Ohio State University.

### **Norm Day, Senior Project Manager**

Norm Day is currently involved in two program areas at The Open Group, the North American Association of State and Provincial Lotteries (NASPL) and the Network Centric Operations Industry Consortium (NCOIC).

Norm is the Technical Lead for the NASPL Standards Initiative, where he brings his prior experience in the lottery industry to the NASPL efforts, providing subject matter expertise on the gaming industry to the NASPL Certification Program, which The Open Group designed and operates as the Certification Authority. In addition Norm has been designated the acting “CIO” for the NCOIC consortium, for the initial phase of its operation.

Prior to joining The Open Group in 2005, Norm was CIO of the Oregon Lottery. He was in charge of the operation of 9500 Video Lottery terminals in 1900 locations throughout the state that were tied in real time via a digital network to a central system.

Norm has worked directly with GLI in testing and in the development of a consistent, repeatable test suite that allowed Oregon to select specific testing activities with established time expenditures and costs. He also led the development of a testing methodology for the acquisition of new terminals and/or games on the terminals.

Before working with the Oregon Lottery, Norm was a Technology Consultant for 15 years and worked in various industries including Insurance, Construction, Mortgage Industry, and Warehousing.

### **James Andrews, Quality Manager**

James Andrews is the Quality Manager for the certification and testing activities of The Open Group, to which role he brings over 25 years experience. James architected the assessment methodologies and procedures that are being utilized by several certification programs operated by The Open Group. He authored The Open Group’s Test Suite Acceptance Criteria and Test Suite Acceptance Procedures, which are the basis for acceptance of test suites in various certification programs.

On the NASPL project, in addition to defining the assessment policy and procedures for the NASPL Quality Assurance Best Practice certification program, James facilitated the development of two of the NASPL/NSI Technical Standards: Bar Codes for Instant Tickets in the Lottery Industry and XML Retail Accounting Reports in the Lottery Industry.

James has over twenty years experience in Information and Telecommunication Technology testing and quality system assessment. James was the Quality Manager at two organizations, The Networking Center (TNC) and Standards Promotion and Application Group (SPAG).

As an international expert on Information and Telecommunication Technology, James has spoken extensively on this subject and written numerous papers, which have been translated into all official European Union languages, Russian, and Japanese.

**Deborah Schoonover, Program Manager, Certification**

Deborah Schoonover is the head of Program Management for Certification Program development. In this role, Deborah both manages and contributes to the development of certification programs for consortia customers. One of the key aspects of this role is to facilitate consensus amongst the various members of the consortia on the policies, procedures, and processes that define and govern the certification program

In the past, Deborah was the Distributed Computing Environment (DCE) Program Manager, responsible for engaging the DCE Community, both customers and vendors, in a collaborative effort for developing and implementing a successful strategy for the DCE technology. She also represented The Open Group's interests in, and managed its participation in, a multi-company collaborative development project involving Microsoft's COM technology and CDE.

Prior to joining The Open Group, Deborah held development, quality management, and marketing roles at Cadence Design Systems. Deborah has a Bachelor of Science degree in Computer Science from Lehigh University and a Master of Business Administration (MBA) degree from Boston University.

**Jim Carroll, Senior Software Engineer**

Since 2005, Jim Carroll has worked on projects involving the NASPL Standards Initiative (NSI), an initiative formed and managed by The Open Group, which brings lotteries from over 48 states and provinces in North America together with gaming vendors and retail representatives to develop open standards, best practices and certification programs that will benefit the lottery industry

Other Open Group projects include an "Open Tool Kit for Mission-Critical Systems" and the QUITE project integration team for the DARPA Quorum program

Prior to joining the Research Institute in 1998, Jim worked for five years with the Open Software Foundation's Distributed Computing Environment as a member of OSF's Systems Engineering team and as an independent contractor specializing in database integration projects; his clients included Arthur D. Little, ATEX Electronic Pre-Press Systems, Andersen Consulting and ISI Systems.

Early career experience includes a position as a research librarian for Morgan Stanley, Dreyfus & Co. and the New York Public Library, and as a concert music broadcaster for WFMR, Milwaukee.

Jim's academic background includes graduate studies in Information Technology Management at MIT's Sloan School and Library and Information Science at the University of Wisconsin-Milwaukee. His undergraduate degree from Columbia University is in music history and theory.

**James de Raeve, Vice President, Certification**

James de Raeve is the Vice President, Certification, overseeing all certification and testing programs of The Open Group, including the popular TOGAF certification and the new IT Architect Certification Program.

Since joining the company in 1989, James has been closely involved with all of the certification and testing activities of The Open Group and its predecessor X/Open, as well as the programs developed for other consortia.

Before joining The Open Group, James worked in business development and technical roles in protocol testing and telecommunications. He holds an MSc in Digital Systems and a BSc in Physics.



## Appendix B – ISCI Initial Feasibility Study

The initial ISCI feasibility study was completed in Q4 2006 and delivered to ISCI in three whitepapers. The whitepaper titles and attachment filenames are:

1. **Whitepaper #1 Control System Security Certification – Organizational Objectives- 9/15/2006**  
*Attachment filename=ISCI Whitepaper 1 - Organizational Objectives (Ver 0.9 Draft).pdf*
2. **Whitepaper #2 Control System Security Certification – Organizational Models-10/01/2006**  
*Attachment filename=ISCI Whitepaper 2 - Organizational Models (Ver 0.9 Draft).pdf*
3. **Whitepaper #3 Control System Security Certification – Legal and Financial Considerations-10/13/2006**  
*Attachment filename=ISCI Whitepaper 3 - Financial and Legal Considerations \_Ver 0.9 Draft\_.pdf*