# ISASecure®

## Securing the Supply Chain

for Commercial off the Shelf (COTS)
Industrial Automation and Control Devices and Systems
Using IEC 62443 Standards

www.isasecure.org

*July 13, 2016*

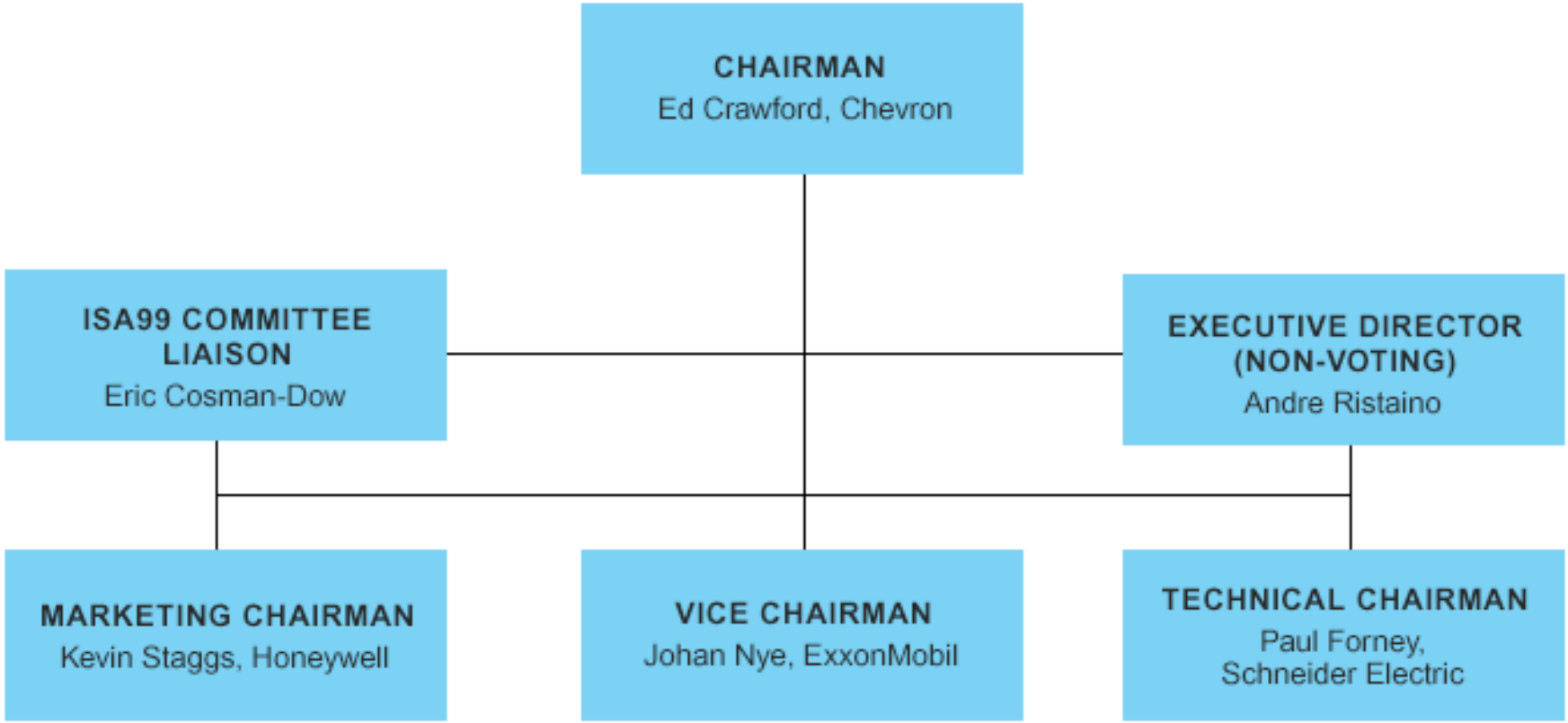
Andre Ristaino
Managing Director,
ISA Automation Standards Compliance Institute

# Agenda

- About ISA Security Compliance Institute
- IEC 62443 Standards and structure
- Structure of ISASecure scheme
- Description of ISASecure Certifications
- ISASecure Roadmap

# ISCI Organization

501 c 6 Not for profit
Conformity Assess Subsidiary of ISA



# Supporters-ISCI Member Companies

**ISCI membership is open to all organizations**

- Strategic membership
- Technical membership
- Government membership
- Associate membership
- Informational membership

**Member organizations**

- Chevron
- Bedrock Automation
- Aramco Services
- CSSC
- Codenomicon
- exida
- ExxonMobil
- Honeywell
- IT Promotion Agency, Japan
- KPMG Consulting Ltd. Japan
- Schneider Electric
- TSC Advantage
- WisePlant HQ
- Yokogawa
- ISA99 Committee Liaison

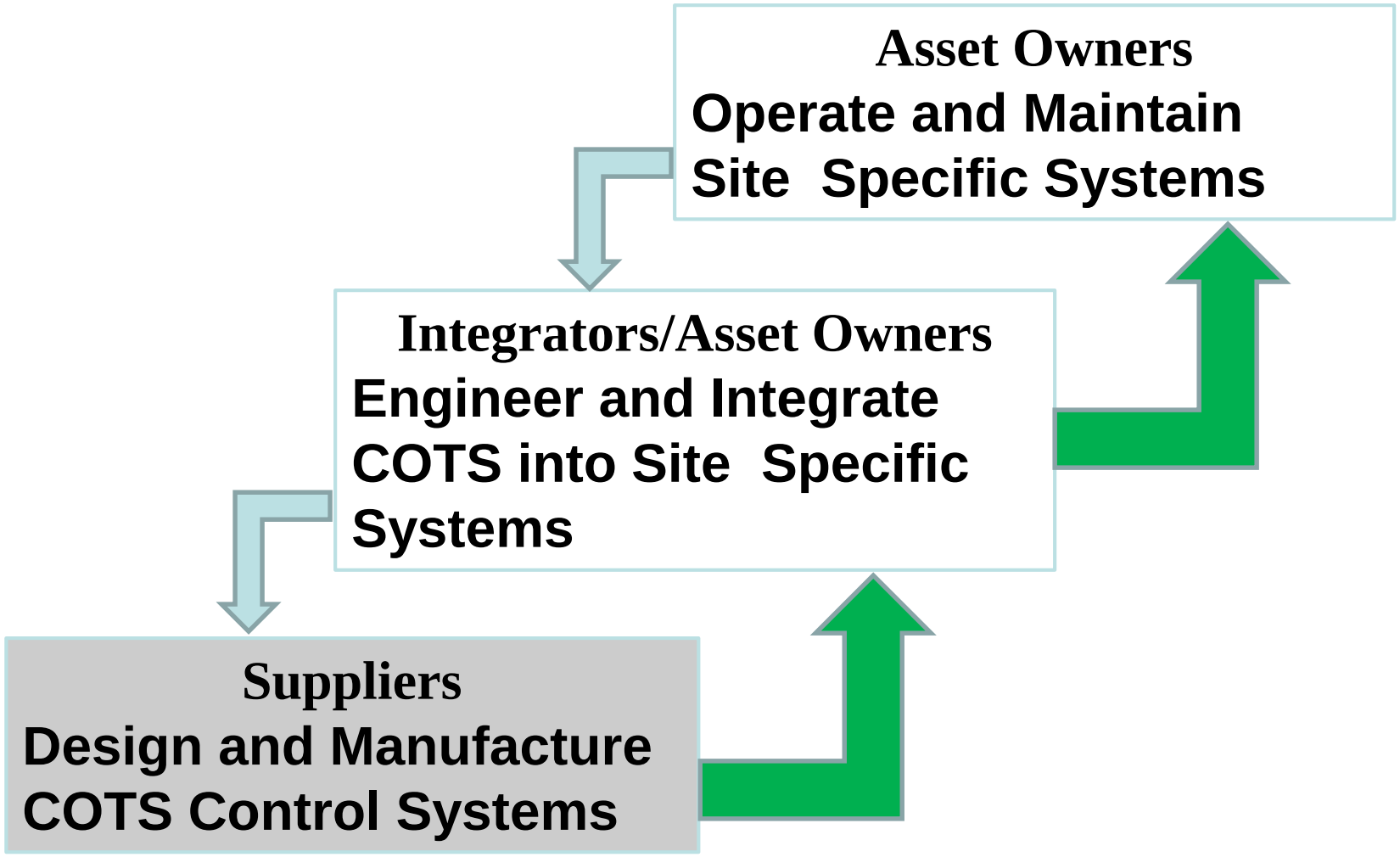
# Why Certify COTS Products?

1. Security capabilities are **independently assessed** and certified by experts at accredited ISASecure labs

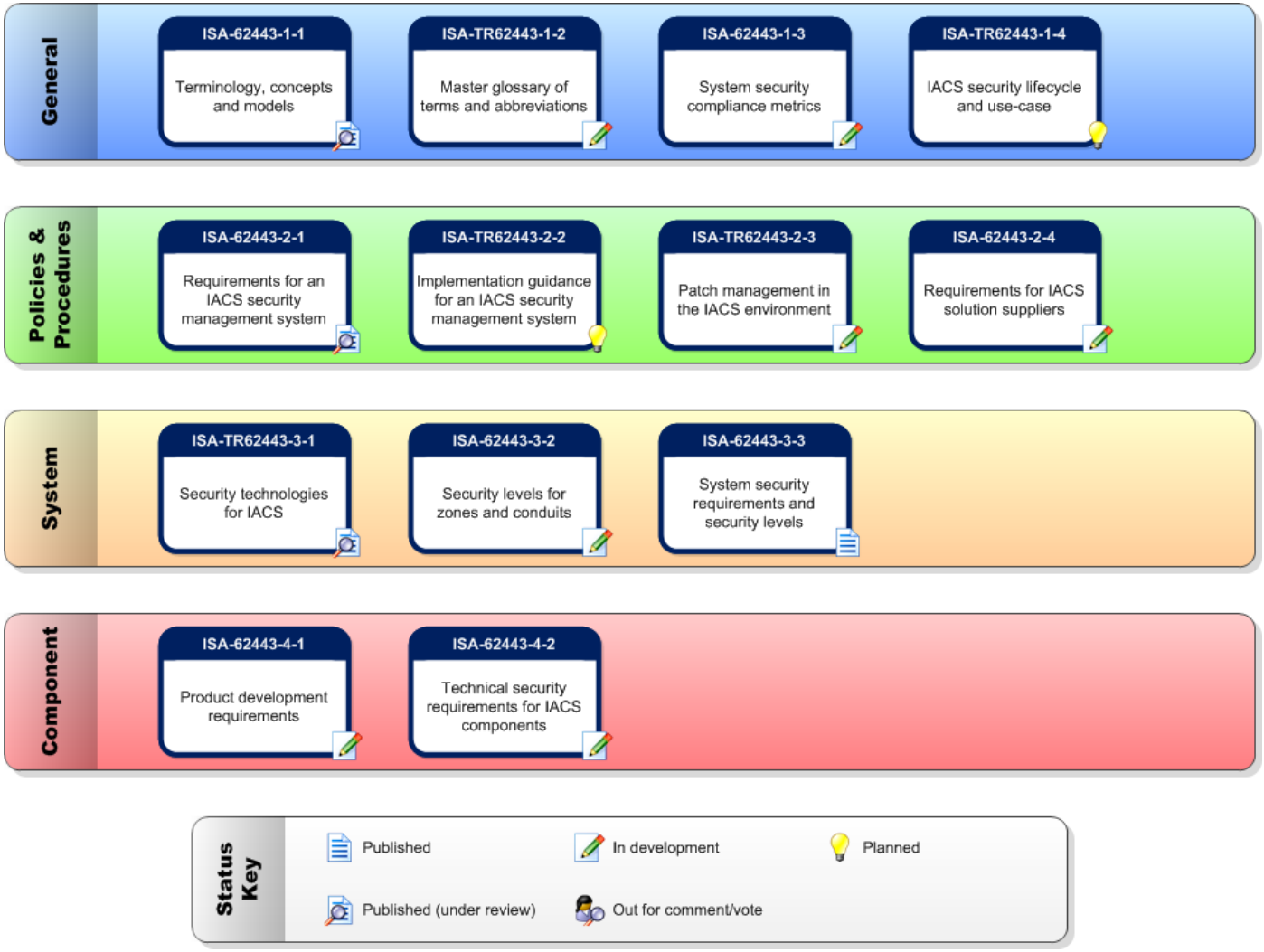
2. **Reduces effort** for end user to validate and verify security capabilities

3. **Objective metrics** for security capabilities based on industry standards. (hundreds of years of SME and knowledge codified into IEC 62443-x-x from hundreds of committee participants.)

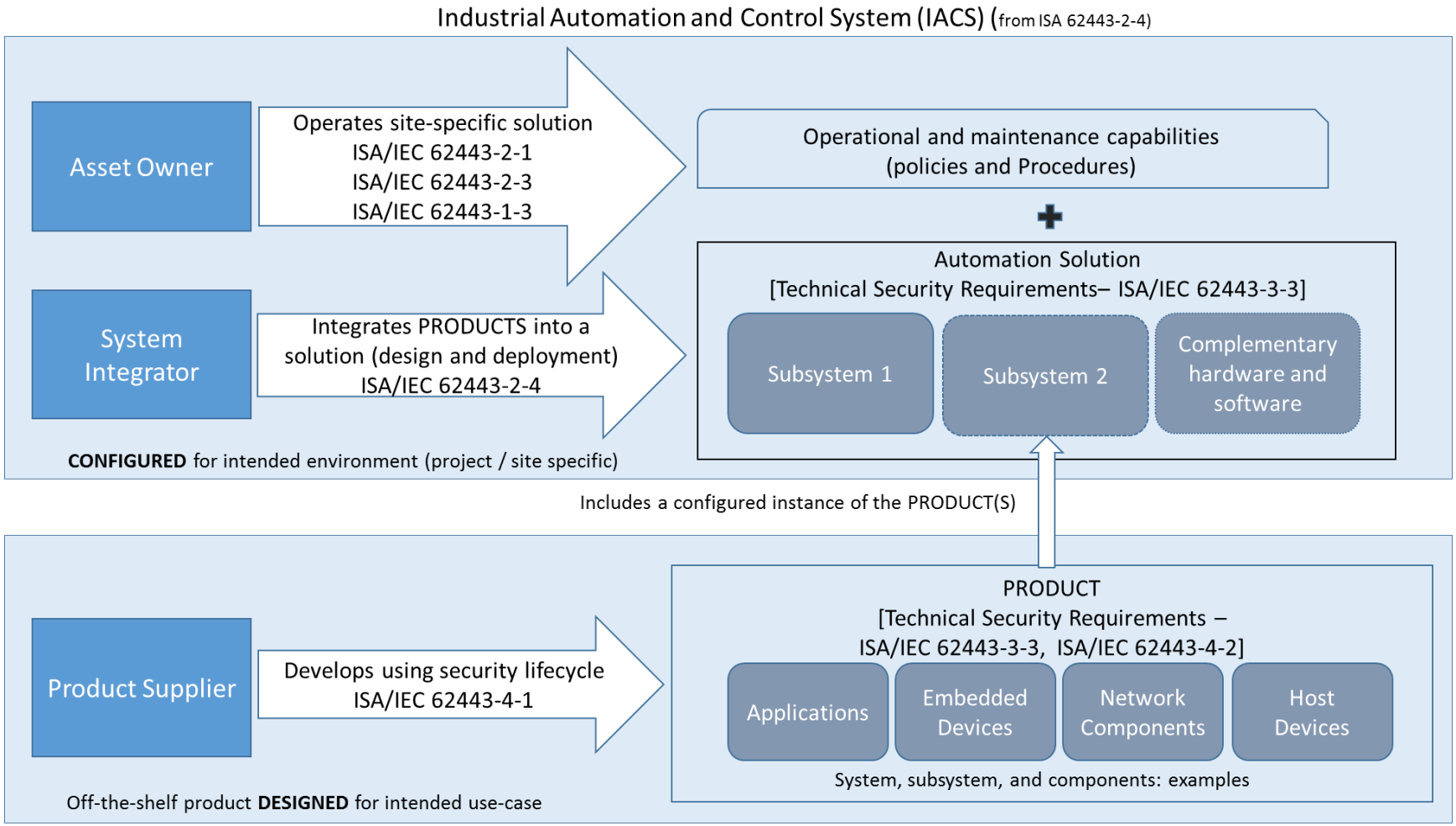
# IACS Security Lifecycle



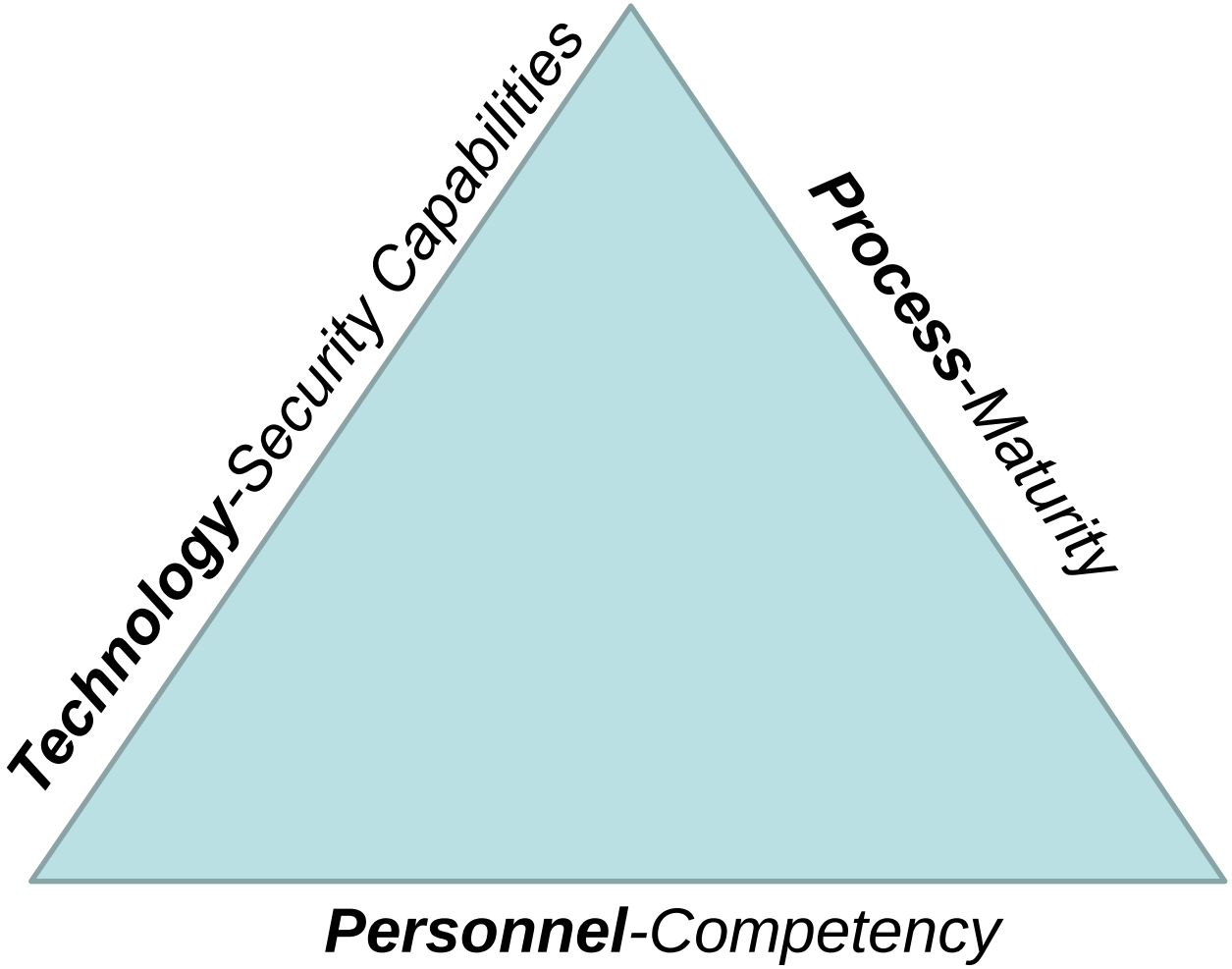
# IEC 62443 Standards Family



# IEC 62443 Standards Family - Roles



# Owner Operator Risk Reduction



# Internationally Accredited ISO/IEC 17065 Conformance Scheme

ISASecure certification programs are supported by labs accredited to ISO/IEC 17065 and ISO/IEC 17025 lab operations by international ISO/IEC 17011 accreditation bodies (AB).

- Provides global recognition and acceptance of ISASecure certifications
- ISASecure can scale on a global basis using independent CB's
- Independent ISO/IEC 17011 accreditation by global accreditation bodies ensures certification process is open, fair, credible, and robust.
- ISCI is expanding MOU's with Accreditation Bodies and Labs


DaKKS

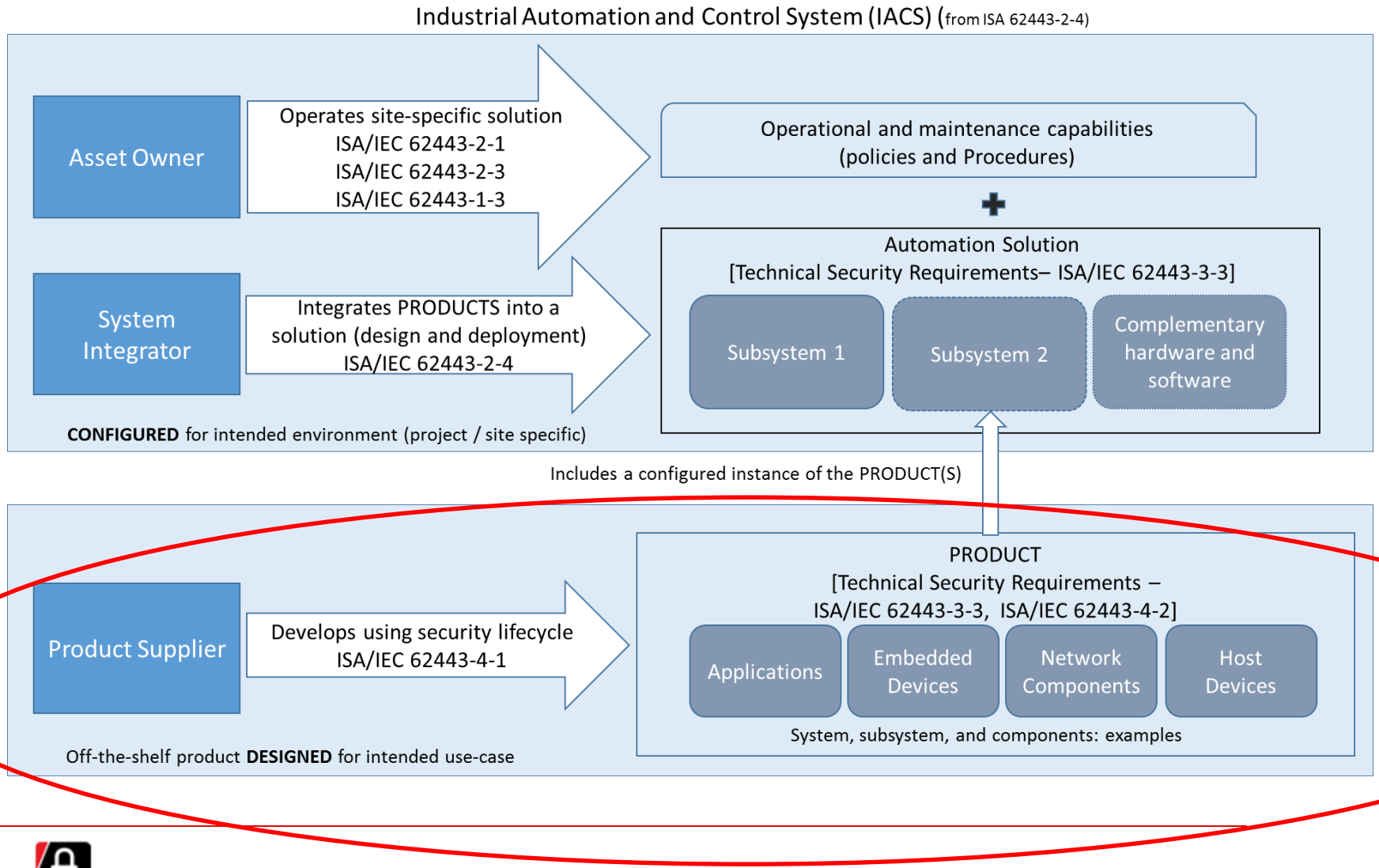
(Germany accreditation authority)

ANSI Accredited Program
PRODUCT CERTIFICATION

ACLASS
ANSI-ASQ National Accreditation Board

PROD
JAB

# IEC 62443 Standards Family - Roles



# Three ISASecure® certifications available

1. **Embedded Device Security Assurance (EDSA)**
   **product certification**
   **IEC 62443-4-2**
   **IEC 62443-4-1**

2. **System Security Assurance (SSA)**
   **product certification**
   **IEC-62443-3-3, IEC 62443-4-1, IEC 62443-4-2**

3. **Security Development Lifecycle Assurance (SDLA)**
   **process certification**
   **IEC-62443-4-1**

*(Schneider Electric is worlds first vendor to achieve SDLA; at 3 different sites)*

# ISASecure®
# Embedded Device Security Assurance (EDSA)

*IEC 62443-4-1*
*IEC 62443-4-2*

# What is an Embedded Device?

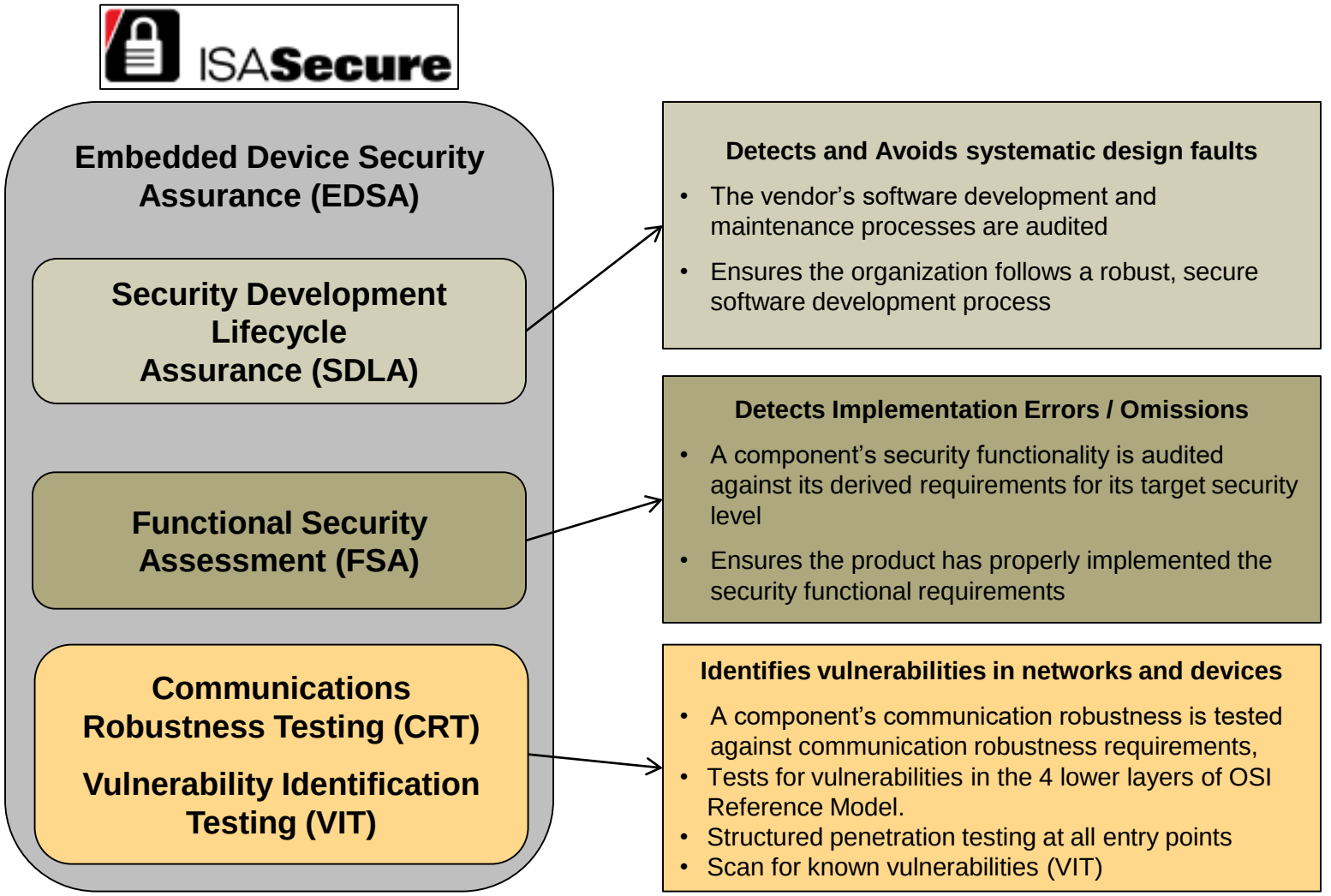
Special purpose device running embedded software designed to directly monitor, control or actuate an industrial process, examples:

- Programmable Logic Controller (PLC)
- Distributed Control System (DCS) controller
- Safety Logic Solver
- Programmable Automation Controller (PAC)
- Intelligent Electronic Device (IED)
- Digital Protective Relay
- Smart Motor Starter/Controller
- SCADA Controller
- Remote Terminal Unit (RTU)
- Turbine controller
- Vibration monitoring controller
- Compressor controller

# EDSA

- Certification that the supplier's product is robust against network attacks and is free from known security vulnerabilities
- Meets requirements of IEC 62443-4-1 and IEC 62443-4-2 for embedded devices (will be revised when IEC 62443-4-1 and IEC 6443-4-2 are updated by IEC)
- Independent certification of the product's security capabilities and security level (SL) as defined by the IEC 62443 standards

# ISASecure EDSA Certification Program



# ISASecure®
# System Security Assurance (SSA)

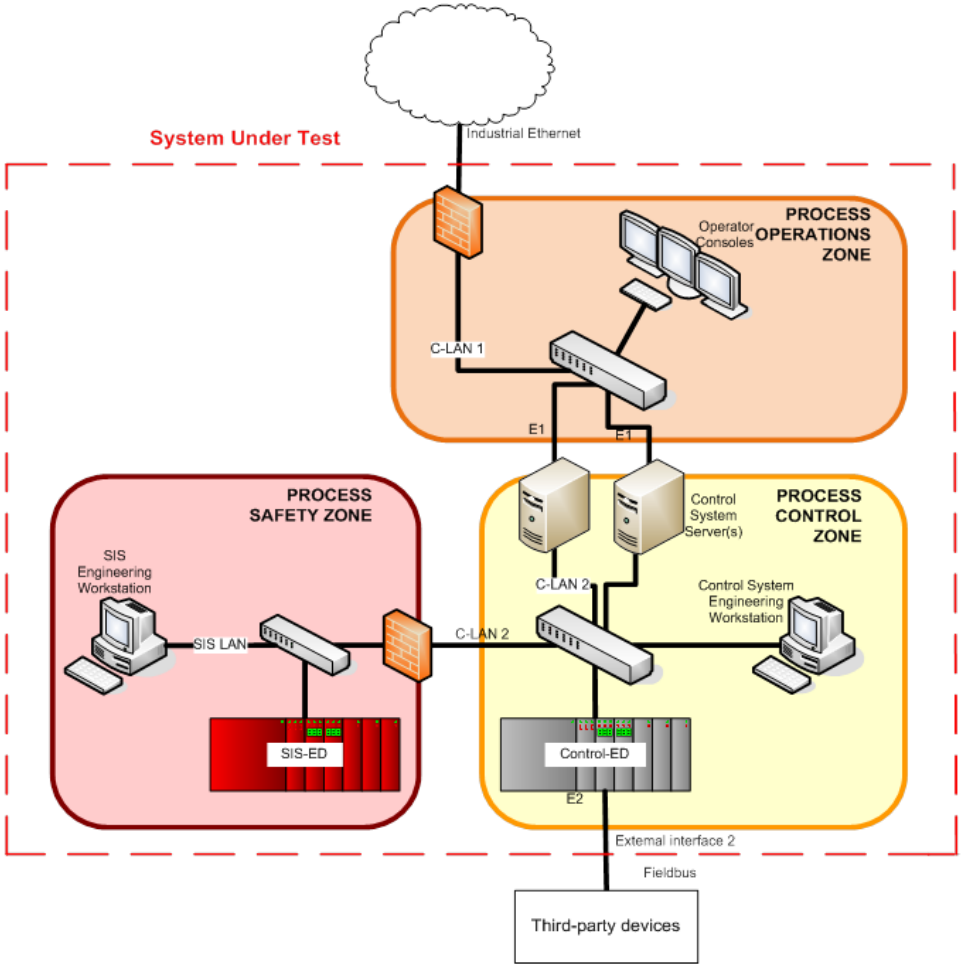
*IEC 62443-3-3*
*IEC 62443-4-1*
*IEC 62443-4-2*

# SSA Overview

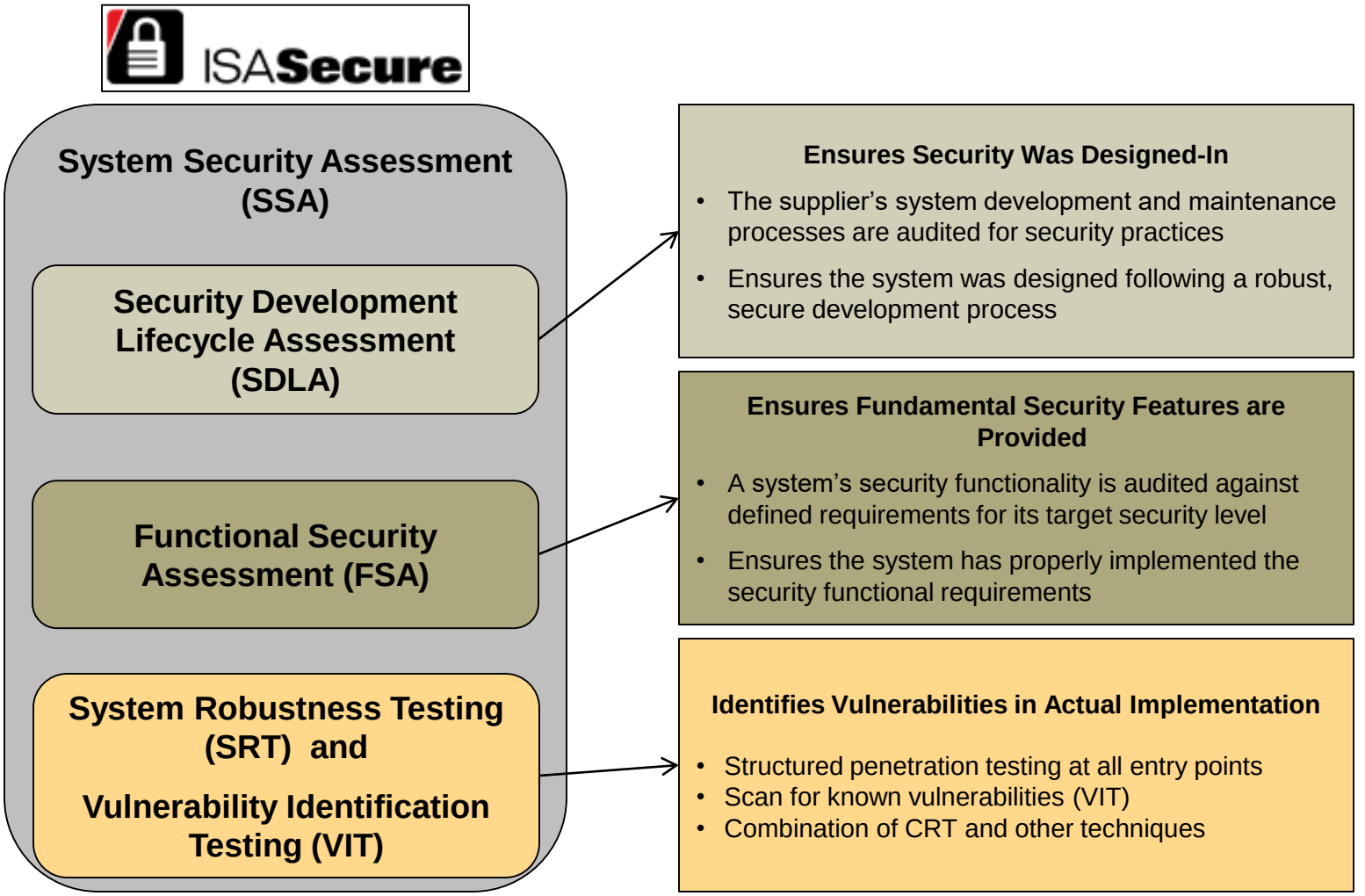
- Certification that the supplier's product is robust against network attacks and is free from known security vulnerabilities
- Meets requirements of IEC 62443-3-3, IEC 62443-4-1 and, IEC 62443-4-2 (SSA was revised in 2013 to align with IEC 62443-3-3 requirements after IEC approval)
- Independent certification of the product's security capabilities and security level (SL) as defined by the IEC 62443 standards

# What is a “System” ?

- Industrial Control System (ICS) or SCADA system
- Available from a single supplier
- Supported by a single supplier (could be a system integrator)
- Components are integrated into a single system
- May consist of multiple Security Zones
- Can be identified by a product name and version
- Off the shelf; not site or project engineered yet



# ISASecure SSA Certification Program



# *IEC 62443-4-1*

# ISASecure®
# Security Development Lifecycle Assurance (SDLA)

# SDLA Overview

- Certification that the supplier's product development sites have work process include security considerations throughout the lifecycle.

  (Development organization process certification-site specific)

- Meets requirements of IEC 62443-4-1

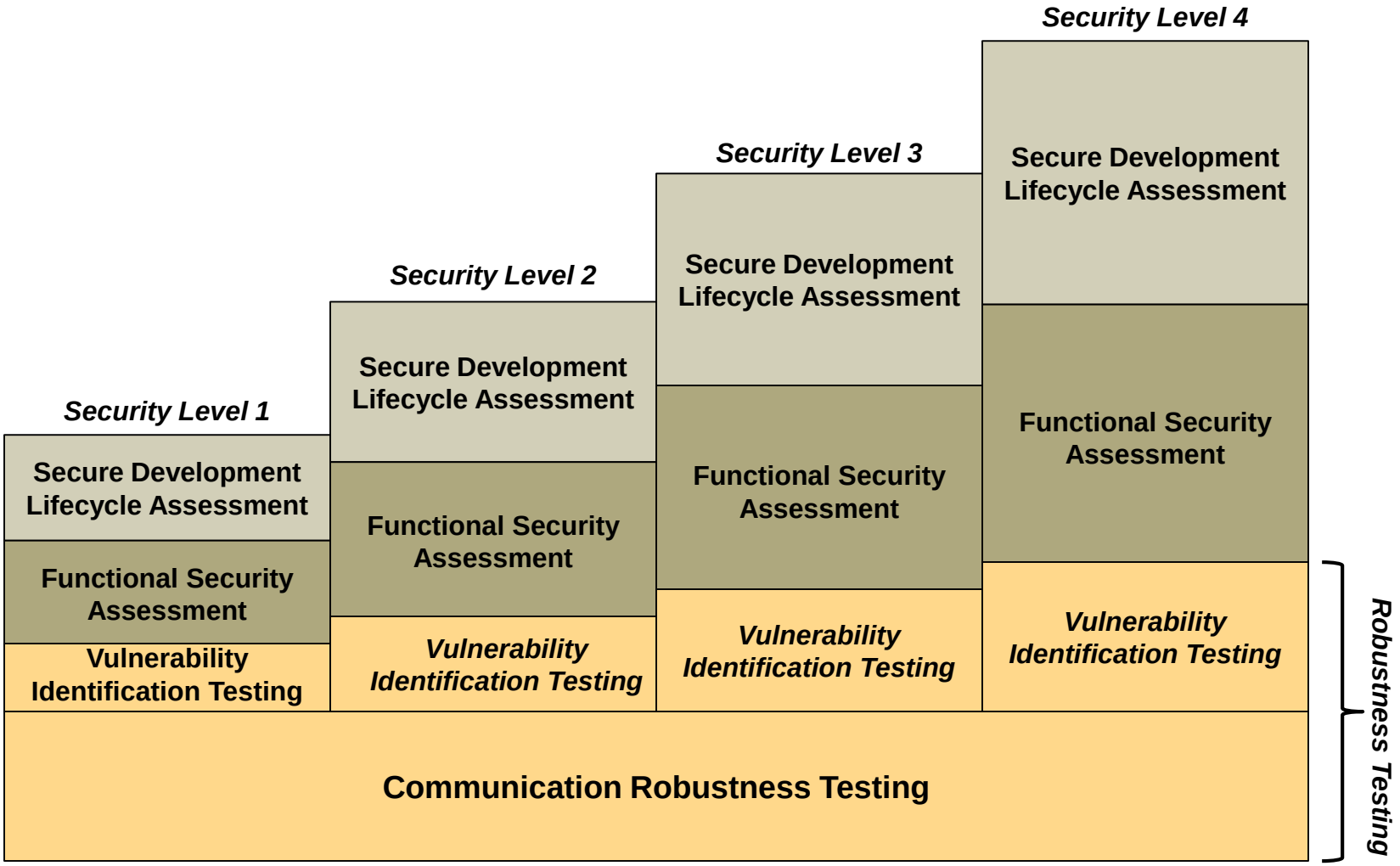
  (will be revised when IEC 62443-4-1 is maintained by IEC)

- Based on several industry-recognized security development lifecycle processes

# SDLA Phases

1. Security Management Process
2. Security Requirements Specification
3. Security Architecture Design
4. Security Risk Assessment (Threat Model)
5. Detailed Software Design
6. Document Security Guidelines
7. Module Implementation & Verification
8. Security Integration Testing
9. Security Process Verification
10. Security Response Planning
11. Security Validation Testing
12. Security Response Execution

# Security Levels in ISASecure Certifications

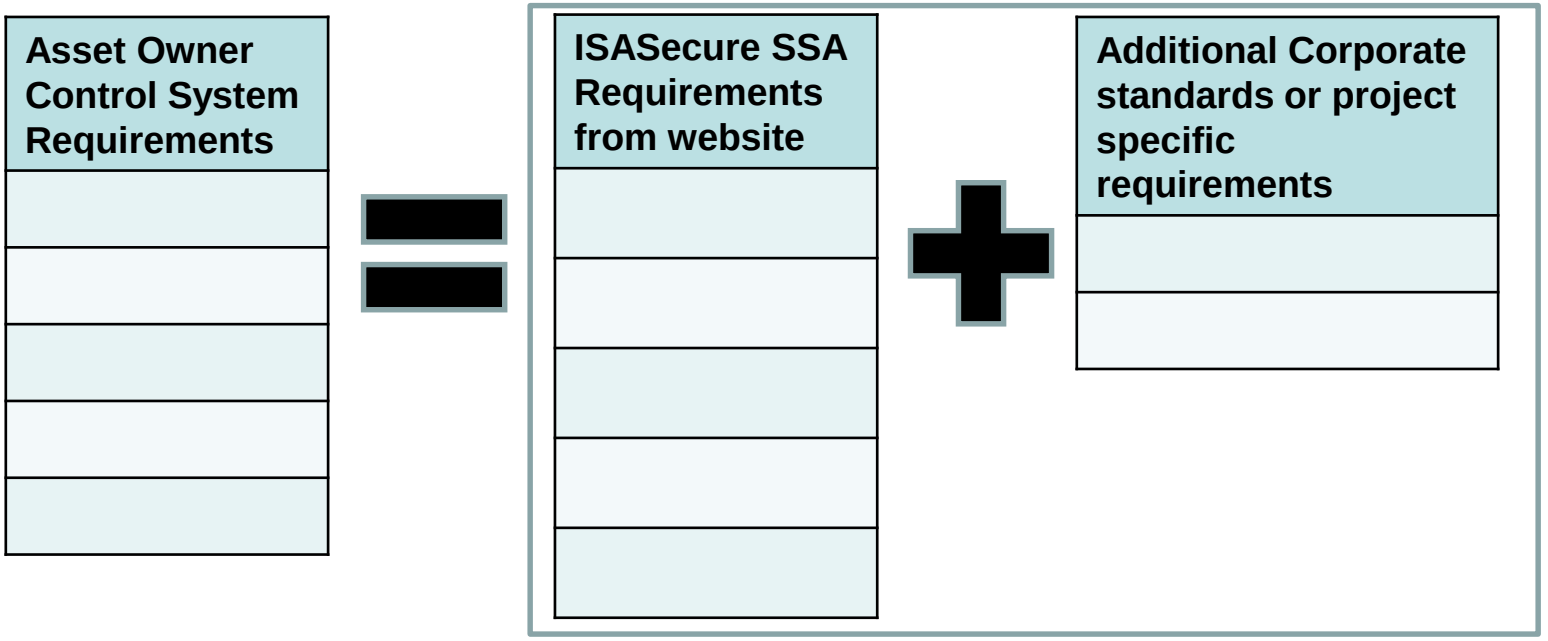


# How to Use ISASecure in Procurement

1. Asset Owner assesses risk and determines required security levels (similar to SIL requirements analysis) for COTS application categories / systems

2. Asset owner downloads and reviews ISASecure certification requirements, noting Security Levels (SL).

3. Specify matching ISASecure SL level in COTS procurement document plus any company or project specific additions.



# ISASecure EDSA Certified Devices

| Supplier | Type | Model | Version | Level | Test Lab |
|---|---|---|---|---|---|
| Honeywell Process Solutions | Safety Manager | HPS 1009077 C001 | R145.1 | EDSA 2010.1 Level 1 | exida |
| RTP Corporation | Safety manager | RTP 3000 | A4.36 | EDSA 2010.1 Level 2 | exida |
| Honeywell Process Solutions | DCS Controller | Experion C300 | R400 | EDSA 2010.1 Level1 | exida |
| Honeywell Process Solutions | Fieldbus Controller | Experion FIM | R400 | EDSA 2010.1 Level 1 | exida |
| Yokogawa Electric Corporation | Safety Control System | ProSafe-RS | R3.02.10 | EDSA2010.1 Level 1 | exida |
| Yokogawa Electric Corporation | DCS Controller | CENTUM VP | R5.03.00 | EDSA 2010.1 Level 1 | CSSC-CL |
| Hitachi, Ltd. | DCS Controller | HISEC 04/R900E | 01-08-A1 | EDSA 2010.1 Level 1 | CSSC-CL |
| AZBIL (formerly Yamatake) | DCS Controller | Harmonas / Industrial-DEO / Harmonas-DEO system Process Controller DOPC IV (Redundant type) | R 4.1 | EDSA 2010.1 Level 1 | CSSC-CL |
| Schneider Electric | Field Process Controller | FCP280 | S91061 | EDSA 2010.1 Level 1 | exida |
| Schneider Electric | Tricon CX | | | EDSA 2020.1 Level 1 | TUV Rheinland |

# ISASecure Certified Development Organizations

| Supplier | Locations | SDLA Version | Security Level (1-4) | Certification Body |
|---|---|---|---|---|
| Schneider-Electric | Foxboro, MA, USA | Version 1 | SDLA Level 1 | exida |
| Schneider-Electric | Worthing, UK | Version 1 | SDLA Level 1 | exida |
| Schneider-Electric | Hyderabad, India | Version 1 | SDLA Level 1 | exida |

*Additional supplier development organizations being assessed for compliance to SDLA.*

# ISASecure Recognized Test Tools

| Supplier | Product Name | Test Coverage |
|---|---|---|
| Tenable | Nessus | Vulnerability Identification Testing against US-CERT NVDB |
| Beyond Security | beSTORM EDSA | CRT, SRT and network robustness testing |
| Hitachi | Raven | CRT, SRT and network robustness testing |
| Synopsys | Defensics X | CRT, SRT and network robustness testing |
| Wurldtech | Achilles Satellite | CRT, SRT and network robustness testing |

*Additional CRT test tools under evaluation for recognition for use in ISASecure conformity assessment scheme.*

# ISO/IEC 17065 / ISO/IEC 17025 Accredited Certification Bodies (CB)

| ISASecure Certification Body | Accrediting Authority | Location(s) |
|---|---|---|
| Exida, LLC | ANSI ANAB | Global operations – HQ Sellersville, PA USA |
| CSSC-CL | Japan Accreditation Board (JAB) | Japan and AP region- HQ Tokyo, Japan |

*Additional CB accreditation in progress in Germany (DAkkS)*

# ISASecure Roadmap-new work

1. Developing an application software only certification **(Application Security Assurance-ASA)**
2. **Collaborating** with Building Automation Systems (BAS) stakeholders to expand IEC 62443 certification to BAS control systems.
3. **Collaborating** with European Union – ERNCIP CA program
4. Reaching out to other stakeholders including UL, industry groups such as LOGIIC, CABA, NAMUR, WIB; seek to **harmonize certifications globally**-EU, Japan, USA
5. **Expanding industrial protocol coverage** for inclusion in CRT certification testing.

# Why Certify COTS Products?

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2. **Reduces effort** for end user to validate and verify security capabilities

3. **Objective metrics** for security capabilities based on industry standards. (hundreds of years of SME and knowledge codified into IEC 62443-x-x from hundreds of committee participants.)

# Thank You!

# Q&A

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