



Idaho National Laboratory

Cyber Security Protection Framework for Control Systems

PCSF Presentation

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Jeffrey S. Tebbe, PE
Edward J. Gorski
Idaho National Laboratory

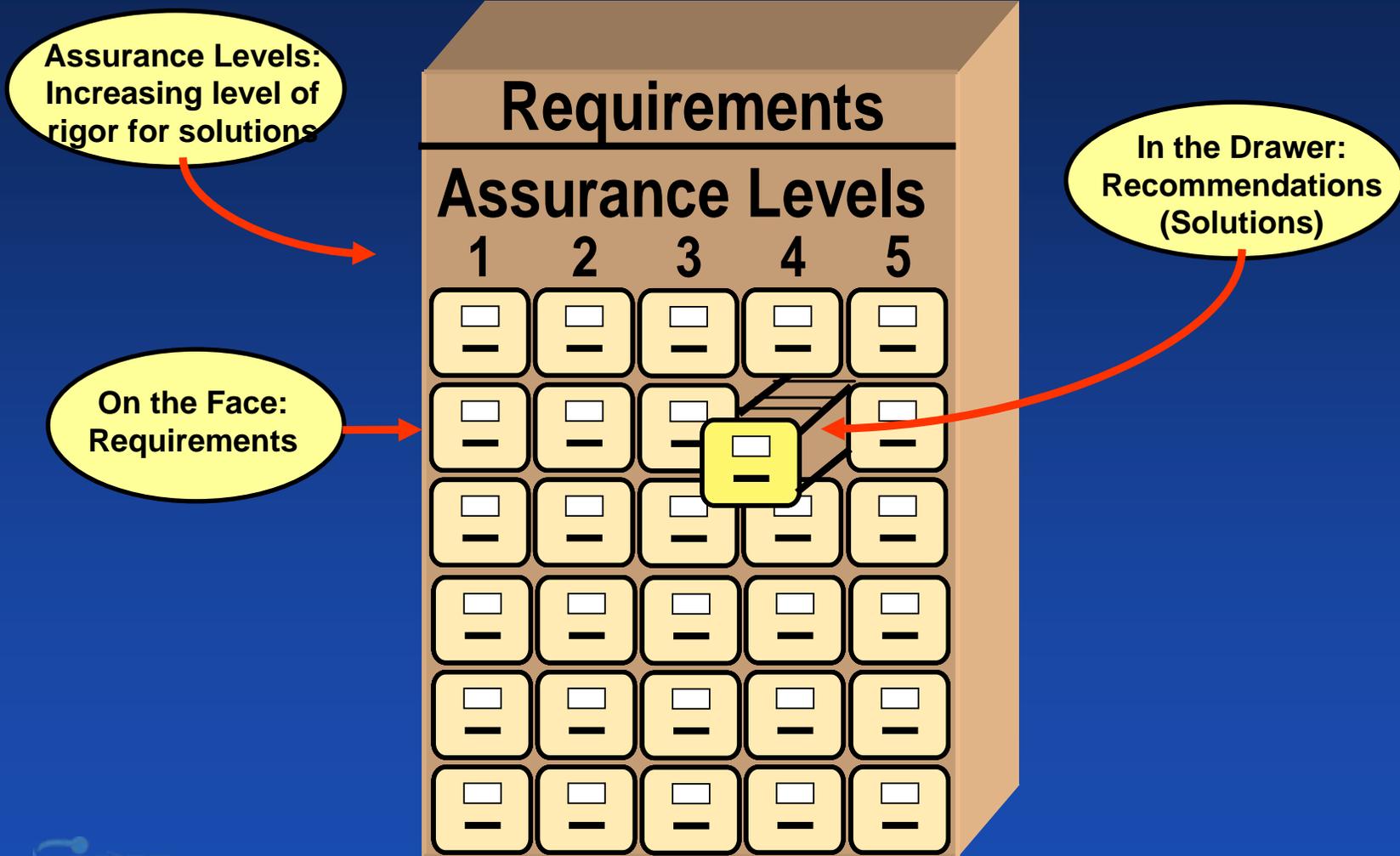
Framework 101

- **What is the Framework and who is funding its development?**
- **Where does the Framework come from?**
- **How is the Framework used?**
- **What is the future for the Framework?**

What is the Framework?

- **Knowledge base of cyber security requirements to secure a control system**
- **Database of solutions to mitigate vulnerabilities**
- **Analysis, Discovery and User interface tools to assist in the evaluation of a control system**

Framework Requirements Matrix



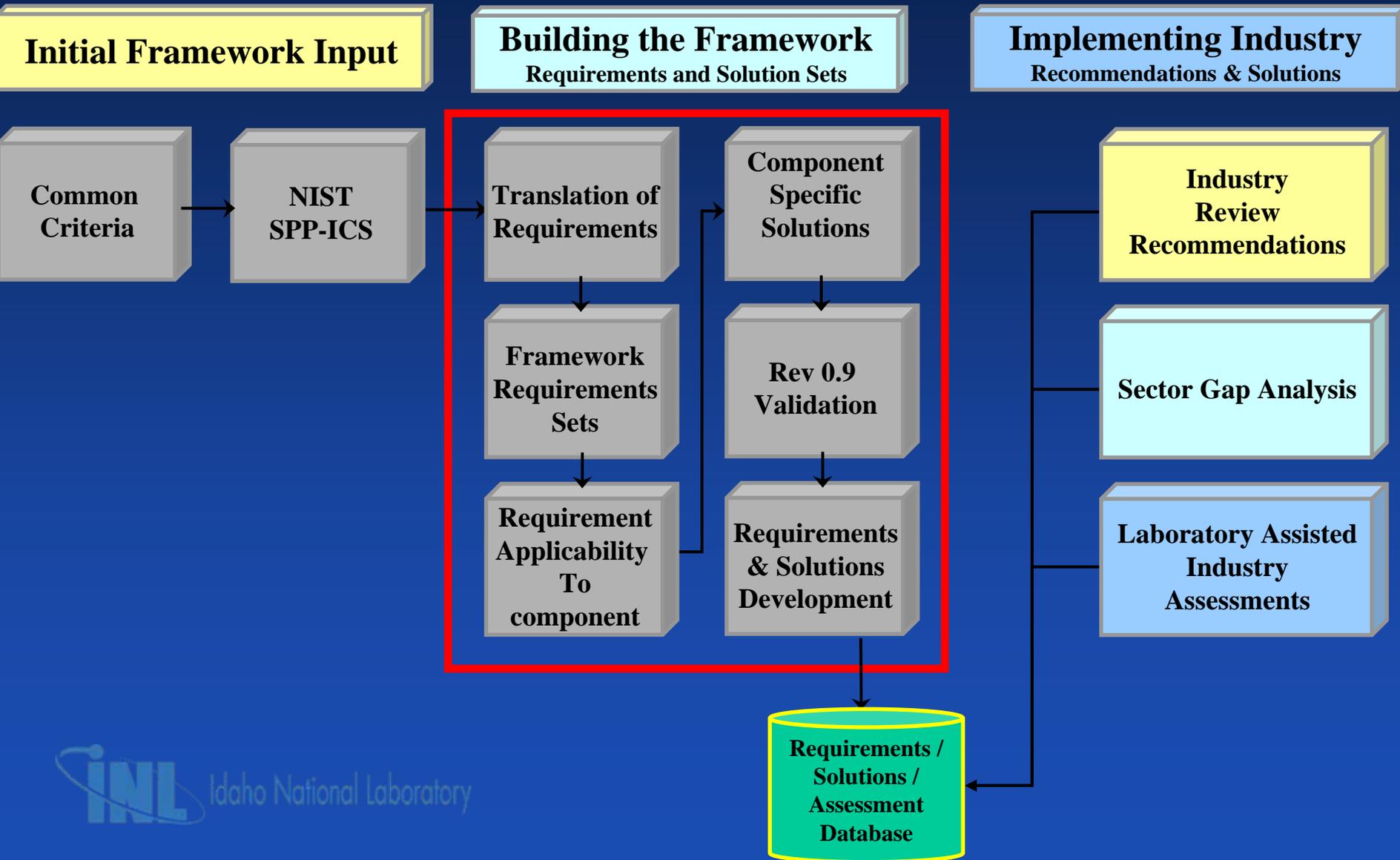
Who is Funding the Program?

- Program within DHS's National Cyber Security Division
- Managed and operated by the Idaho National Lab
- Main function of the Control Systems Security Center (CSSC)

Where does the Framework come from?

- **NIST SPP-CIPCS Rev 1.07**
- **Common Criteria, ISO/IEC 15408**
- **Industry standards and Best practices**
- **Regulations (OSHA, EPA, NRC, IAEA, etc)**

Building the Framework



Concept of Security Assurance Levels

- A method of ranking based on the potential consequence of a successful cyber attack

Step 1 – at the site or zone level

- Based on the potential for lives lost, economic impact, cascading effects

Step 2 – at the system component level

- Based on the importance of a particular component to the security of the system

Determining the SAL

- **Based on Responses to predefined Industry Specific questions**
- **Answers weighted based on impact**
 - **Economic**
 - **Environment**
 - **Life & limb**
 - **Cascading effect on Critical Infrastructure**
 - **Known exploitability / threat**
 - **Psychological effect on public**
- **Sum of weighted answers when normalized provides the SAL level**

Example

- **Question #1:**

- Answer #1 100 points
- Answer #2 200 points ← User selects #2
- Answer #3 300 points
- Answer #4 400 points

- **Question #2:**

- Answer #1 1000 points
- Answer #2 2000 points
- Answer #3 3000 points ← User selects #3
- Answer #4 4000 points

- **Result:**

- Total points Scored = 3200
- Total points Possible = 4400
- Score = $3200 / 4400 * 5 = 3.64$
- **SAL 4**

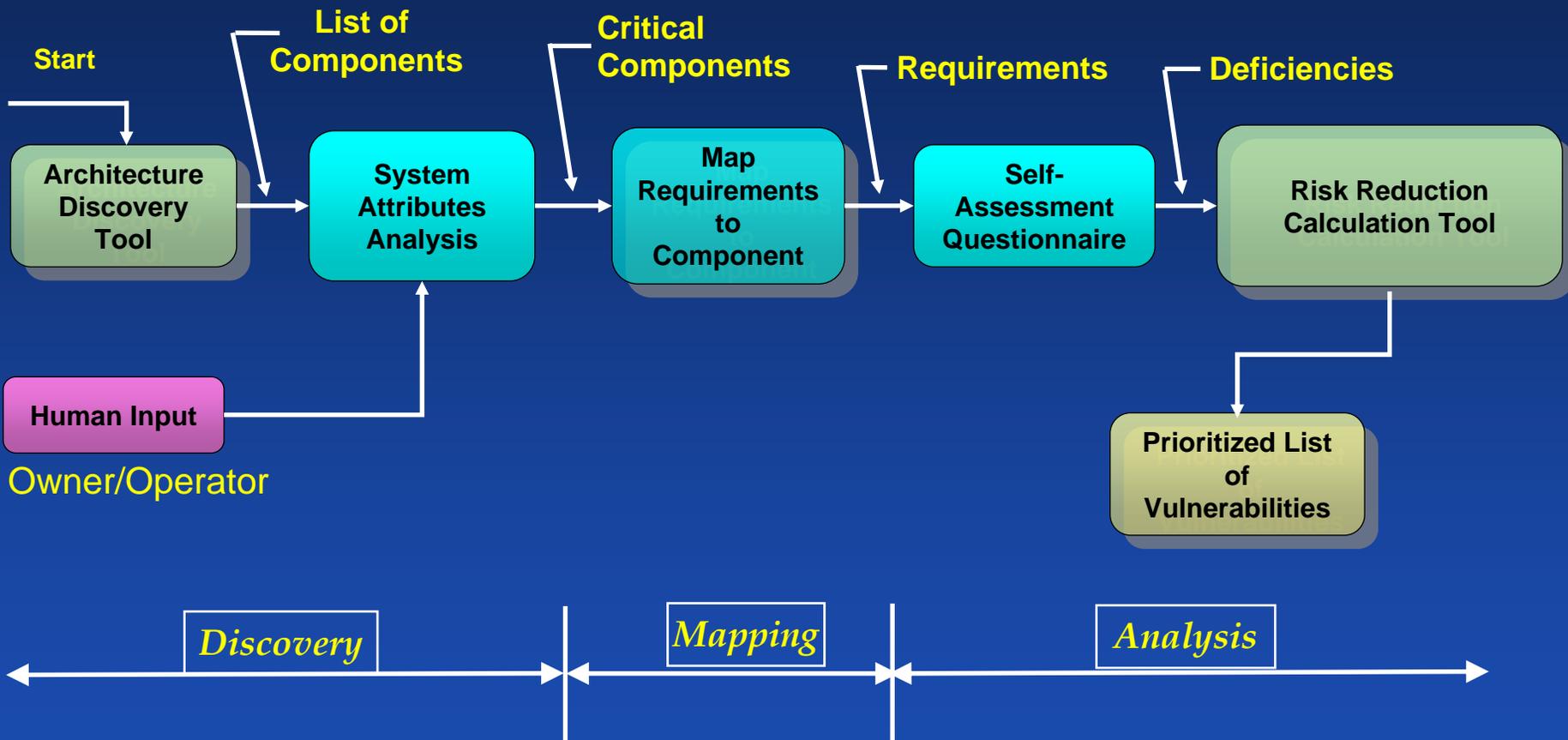
<u>SAL Range</u>	
0.00 – 1.0	= SAL 1
1.01 – 2.0	= SAL 2
2.01 – 3.0	= SAL 3
3.01 – 4.0	= SAL 4
4.01 – 5.0	= SAL 5

How is the Framework used?

- **Discovery Tools**
- **Analysis Tools**
- **R & D Identification**

User Interface Applications

How information is gleaned from the Framework



What is the future for the Framework?

- **Vulnerability assessments**
- **Vendor product evaluations**
- **Self Sustained by Industry**
- **R&D identification**



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Contact Information

Jeffrey S. Tebbe, PE
208.526.6305
jeffrey.tebbe@inl.gov

Edward J. Gorski
208.526.3954
edward.gorski@inl.gov