SEBOK Panel Discussion
NDIA SE Conference
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San Diego, CA | October 27, 2010

Dr. John Snoderly

Professor of Systems Engineering Management

- **17 years Civilian Navy**
- **Major Systems include:**
  - **Sea Hawk SH-60, AH-1J, UH-1E, SH-2F**
- **Highlights**
  - **3 years in Flight Test NATC**
  - **2 years Flight Restrictions Office**
  - **6 years Stability & Control Engineer**
  - **6 years LAMPS MK III Program Office**
    - **1 year PM-15 Chief Engineer**
    - **4 years Aircraft/Engine Manager**
    - **1 year Deputy PM Lamps Mk III**
- **Aerospace Engineer**
- **30 years @ DSMC/DAU**
- **West Virginia University BSAE**
- **University of Southern California MSSM, MPA, DPA (1996)**
- **2002-2004 - President INCOSE, CSEP March, 2008**

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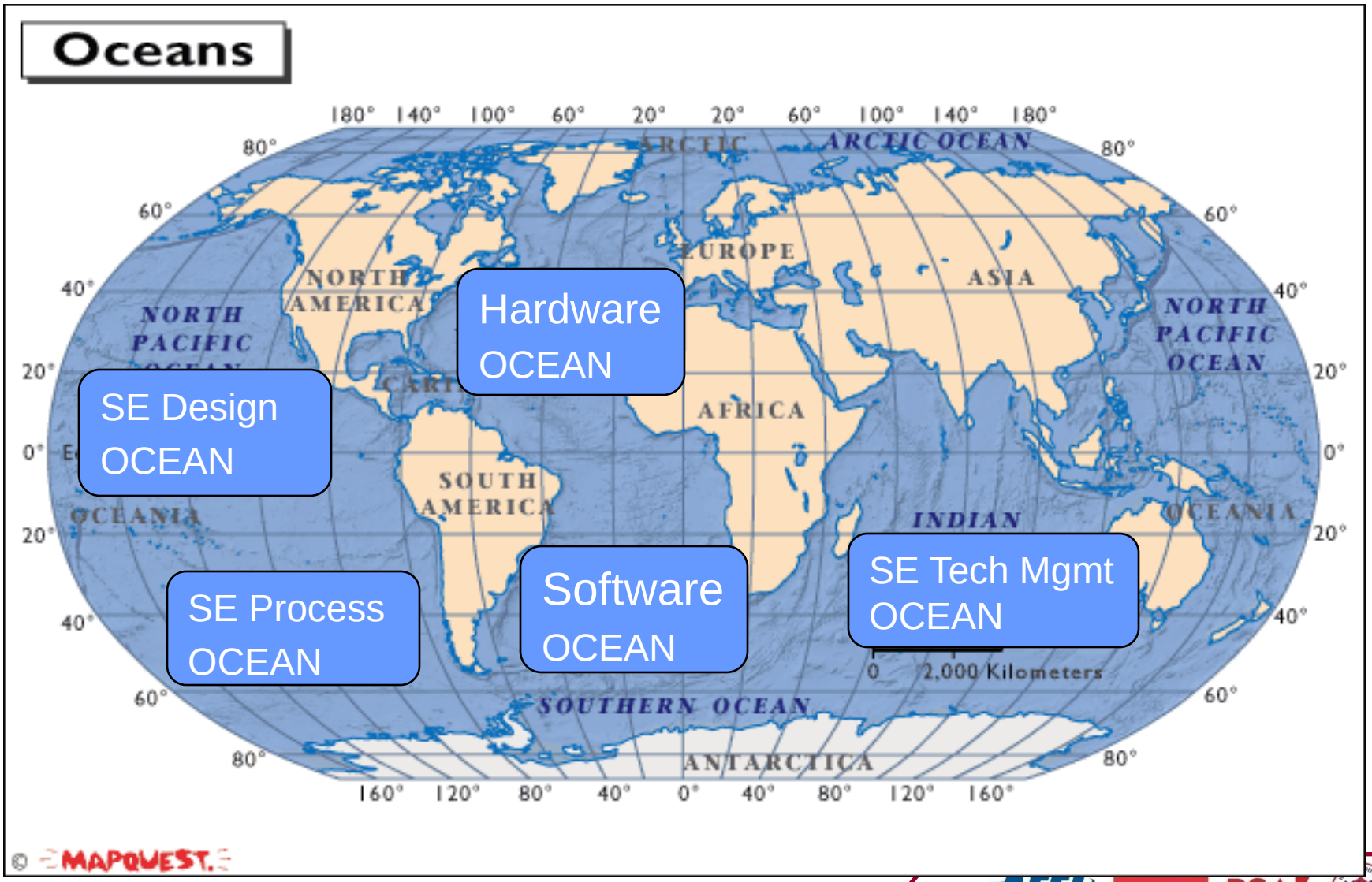
SEBOK OCEAN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ANTARCTICA
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What is BKCASE?

- Project to create:
  - Systems Engineering Body of Knowledge
  - Graduate Reference Curriculum in Systems Engineering (GRCSE™ – pronounced “Gracie”)
- Started in September 2009 by Stevens Institute of Technology and Naval Postgraduate School with primary support from Department of Defense
- Project will run through 2012
- Intended for world-wide use

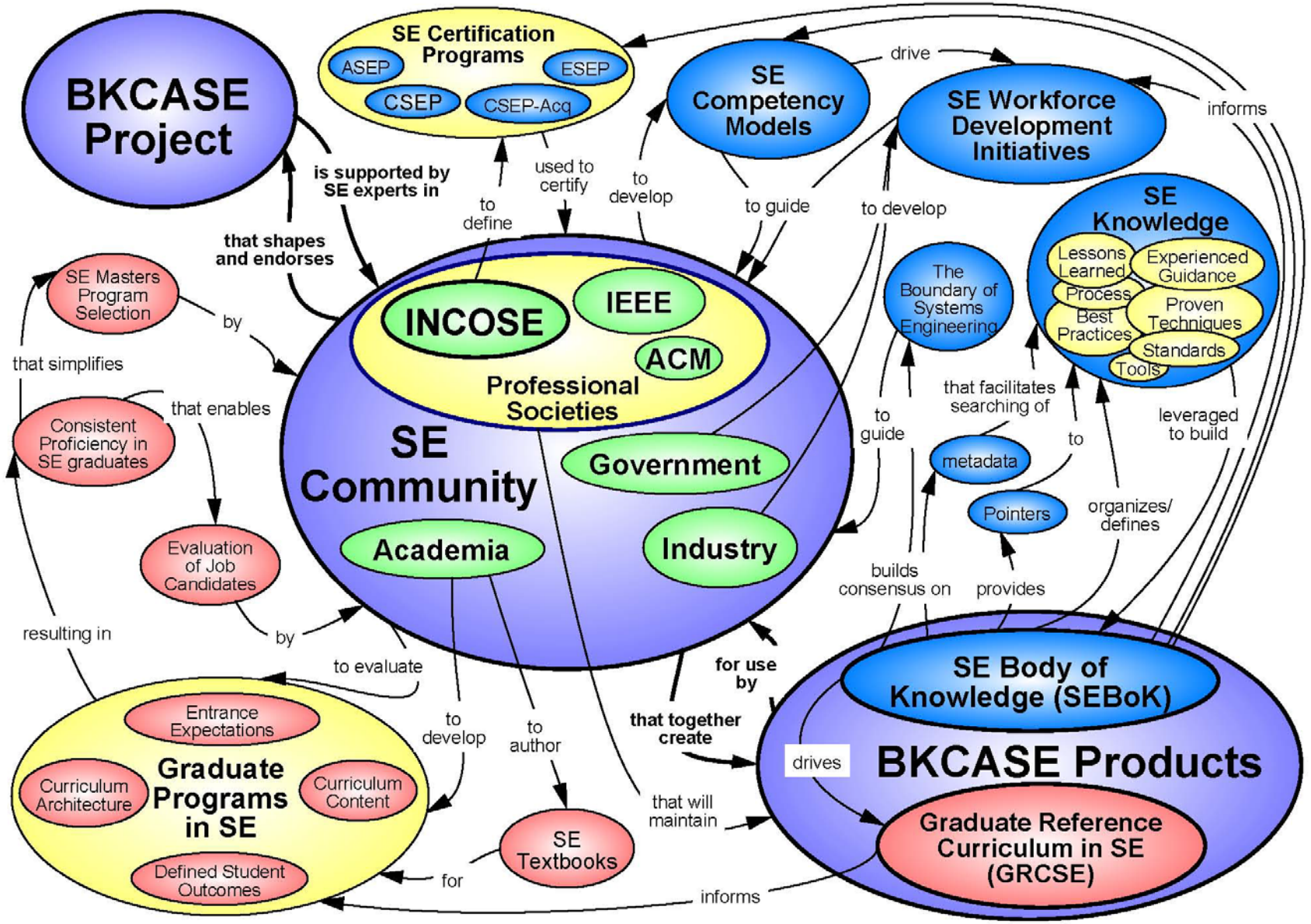
What is the SEBoK?

Describes the boundaries, terminology, content, and structure of SE that are needed to systematically and consistently *support:*

Task Name	Task Description
Inform Practice	Inform systems engineers about the boundaries, terminology, and structure of their discipline and point them to useful information needed to practice SE in any application domain
Inform Research	Inform researchers about the limitations and gaps in current SE knowledge that should help guide their research agenda
Define Curricula	Define the content that should be common in undergraduate and graduate programs in SE
Certify Professionals	Certify individuals as qualified to practice systems engineering
Decide Competencies	Decide which competencies practicing systems engineers should possess in various roles ranging from apprentice to expert

Guide to the literature, not all the content of the literature

Body of Knowledge and Curriculum to Advance Systems Engineering (BKCASE)



http://www.BKCASE.org/about-bkcase/bkcase-story/

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Authors, *cont.* as of 10/2010

SEBoK Content

1. The definition of fundamental terms and concepts and primary relationships between those concepts
2. A statement of the principles of SE
3. A description of generally accepted activities, practices, technologies, processes, methods, and artifacts of SE and how they relate to one another
4. How the knowledge of SE varies within individual application domains such as medicine, transportation, and telecommunications
5. References to books, articles, websites, and other sources that elaborate on the information in the SEBoK

Version 0.25 released for limited review on September 15, 2010

Agile Methods

Agile methods generally promote a disciplined project management process that encourages:

1. Frequent inspection and adaptation,
2. A leadership philosophy that encourages teamwork, self-organization and accountability,
3. A set of engineering best practices intended to allow for rapid delivery of high-quality software
4. A business approach that aligns development with customer needs and company goals.

Comparison of SEBOK and AGILE Teams

SEBOK Team

1. Broke into sub teams of 4 to 5 Authors with a team lead
2. Authors were invited based on experience and reputation in their SE area
3. SEBOK has had 4 workshops reviewing progress and pushing ahead with V 0.25
4. Communication is by face to face at Workshops, WEB-X in-between
5. Stevens centralized database is available to everyone of the authors

AGILE Team*

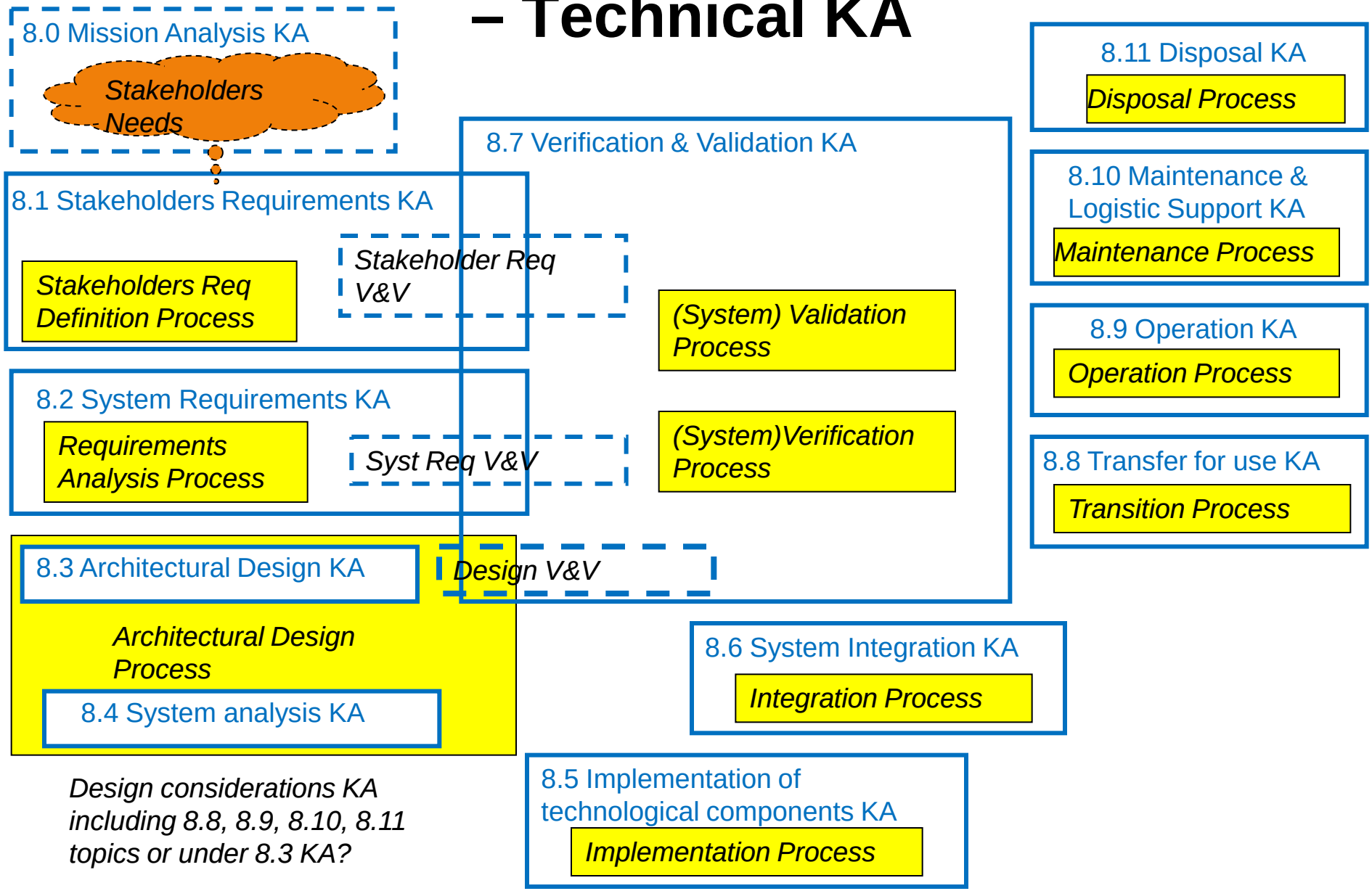
1. Minimize team size, maximize team talent (FIST Manifesto) (Fast, Inexpensive, Simple, Tiny)
2. Agile teams are more successful with more experienced and skilled team members SC
3. Documents and meetings must be short. Have as many as necessary, as few as possible.
4. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation

*Considerations for Using Agile in DoD Acquisition, SEI Report CMU/SEI-2010-TN-002 April, 2010

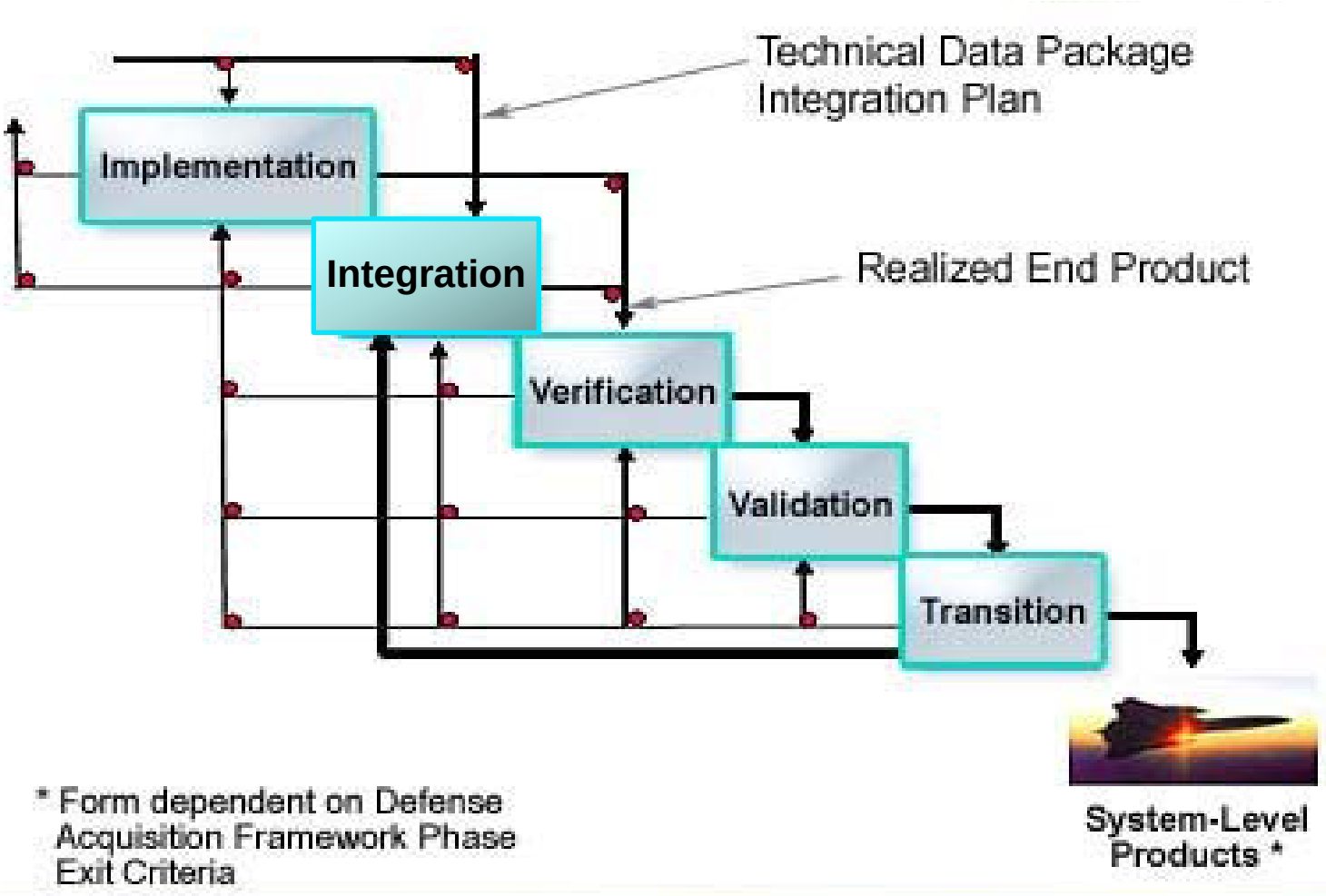
Bounding the Problem

- In our attempt to define the boundaries of the subject, the team defined what is meant by “Technical Knowledge” and how it should best be presented in the SEBOK. If the technical portion of SE is not properly defined and organized then it follows that the development of the system is not going to be successful. Organizing “Technical Knowledge” into its key process components is key to the successful work of systems engineering.
- The organization of technical knowledge processes is very important in the design of the products of a system. The processes must include the operational products and the supporting or enabling products required to produce, support, operate or dispose of a system. Technical processes are also used to realize these system products. These processes, organized and tailored as needed, will apply to the type of system being developed.

Mapping: ISO/IEC 15288 Technical processes – Technical KA



Realization



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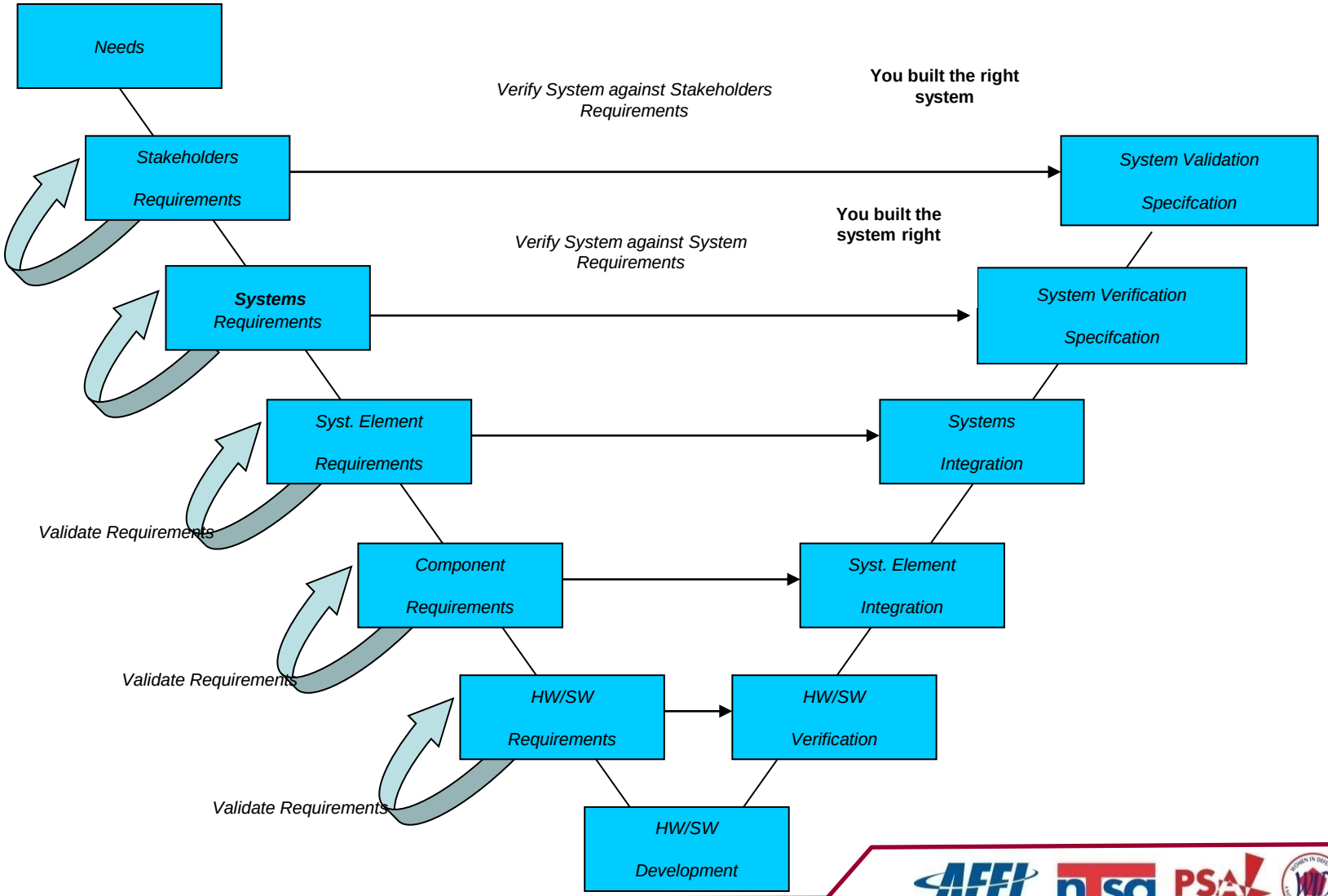

NDIA
National Defense Industrial Association

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