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Navy Enterprise Open Architecture

Open Architecture Assessment Tool

Overview



31 March 2005

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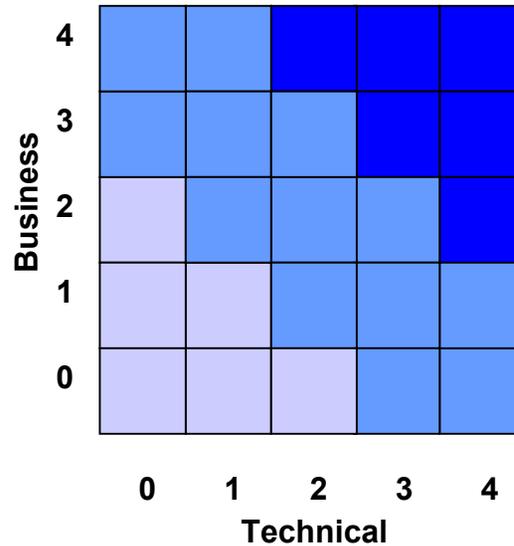
Navy Open Architecture Assessment Tool

- Extension of MOSA Programmatic Assessment Review Tool (PART)
- Designed to assess the openness of key Navy programs
- Information about the business and technical practices of a program is entered into the Excel-based tool
- The tool produces graphical and tabular summaries that show the current program relative to the OA Assessment Model
- Will be customizable to OA Program scope

Open Architecture Assessment Model

Business and Acquisition Characteristics

- 4 – Open Competition
- 3 – Common Acquisition Approach
- 2 – Migrating to Openness
- 1 – Limited Competition
- 0 – Isolated



Architecture Characteristics

- 4 – Enterprise
- 3 – Common Across the Domain
- 2 – Layered & Open
- 1 – Layered
- 0 – Closed



Tool consists of several different worksheets

■ Reference Materials

- About OAET
- User's Guide
- References
- Definitions/Glossary

■ Data Collection and Summarization

- Assessment Information
- Implementation Questions
- Total Score
- Assessment Report



Example of OA Assessment Tool Implementation

Microsoft Excel - OAET-ARTPrototype-V1.0.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

75%

Arial 10

B I U

Microsoft Excel - OAET-ARTPrototype-V1.0.xls

1	Program Name:								
2	Questions	Progress	None	Little Extent	Moderate	Fully Compliant	Rationale or Explanation	Supporting Evidence or Data	
3	Business Section								
4	General Programatics								
5	A1: Is there an IT Architect, contracted separately from the System Integrator, that has and exercises the primary responsibility for the system being developed?	<input type="checkbox"/> Included <input type="checkbox"/> Partially <input checked="" type="checkbox"/> Not Included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
6	A2: Is there a Contract-level IT Architect, contracted separately from any System Integrator, that has and exercises the primary responsibility for contract-level architecture?	<input type="checkbox"/> Included <input type="checkbox"/> Partially <input checked="" type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
7	A3: To what extent do organization-wide "open processes" provide the capability to connect and integrate modern systems and processes?	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
8	A4: To what extent do organization-wide "open processes" provide the capability to connect systems and organizational architecture, and create commonality across systems?	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
9	A5: To what extent do organization-wide "open processes" provide the capability to enable ad-hoc, long-lasting, and ad-joinable systems and products?	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
10	A6: Is the Private System Integrator an industry recipient?	<input type="checkbox"/> Included <input type="checkbox"/> Partially <input checked="" type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
11	A7: To what extent has the organization established an organization-wide training program to ensure adequate MCOA and open system concept knowledge and training? (MCOA - C&M)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
12	A8: To what extent does the organization collect work products, measurements, and improvement information derived from planning and performing the MCOA process to support the future use and improvement of the organization's processes and process assets? (MCOA - C&M)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
13	Contracts								
14	A9: In the Contract, structured such that Component suppliers are contracted separately to maximize acquisition flexibility?	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
15	A10: To what extent are component providers and the prime system integrator incentivized (e.g. award fees) to coordinate, coordinate, and perform work on the system as a whole, at least during or later?	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
16	A11: Are the associated contracts structured to limit vendor collaboration, that coordinated behavior between the Architect, the Private System Integrator, the associated contractors, and separately contracted independent	<input checked="" type="checkbox"/> Included <input type="checkbox"/> Partially <input type="checkbox"/> Not Included	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			

Implementation Questions

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Implementation Questions worksheet

- Each question asks for a rating of that program on the basis of whether it is:
 - Included, or
 - Not included
- The program is then rated as:
 - Fully compliant,
 - Moderately compliant,
 - Compliant to a little extent, or
 - None
- Each question also provides the opportunity to submit the rationale or explanation for the rating and supporting evidence or data

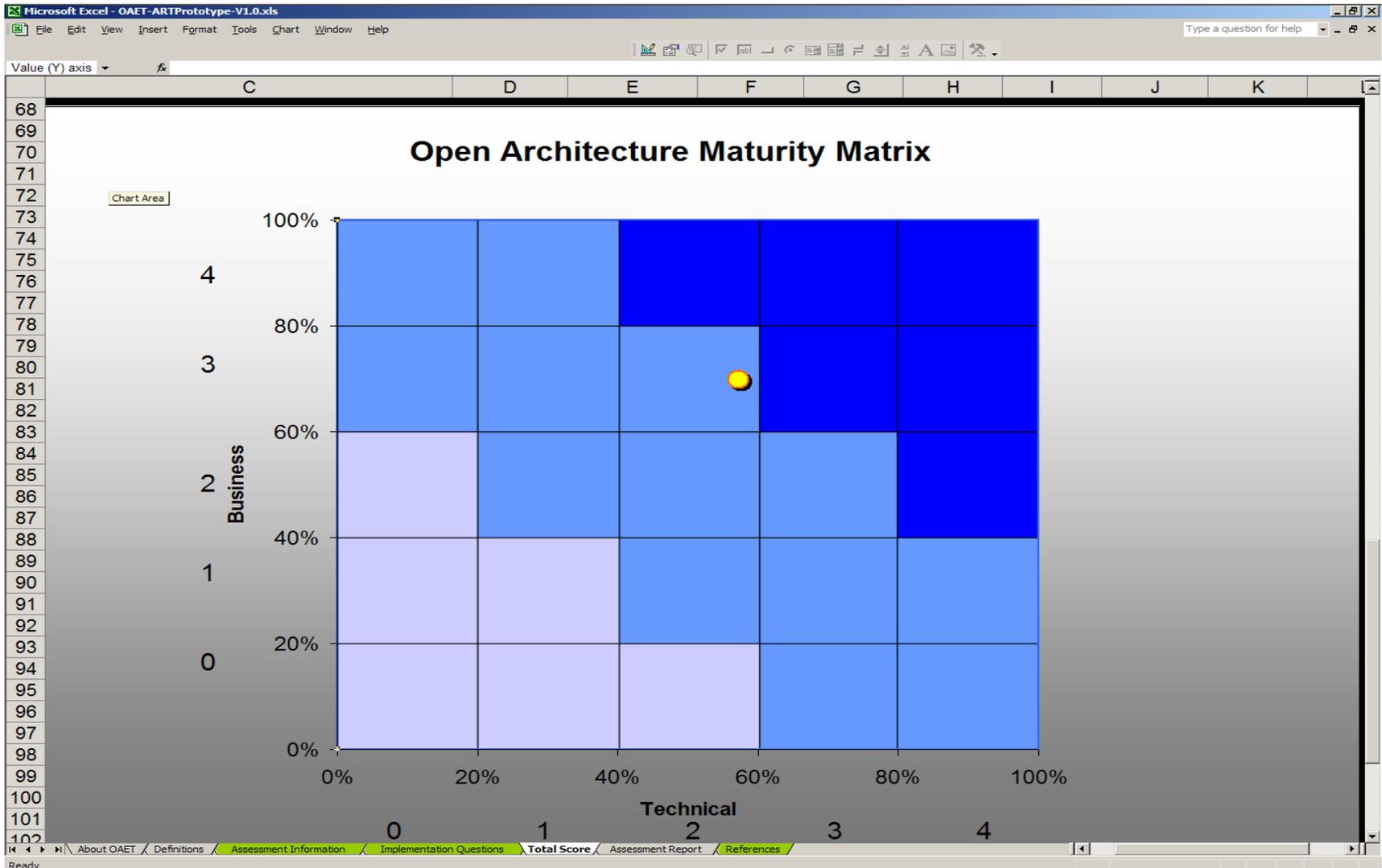
Outputs

- Total Score worksheet provides a graphical view of the assessment
 - Broken down by categories within each dimension, by dimension, and overall score
 - Places programs on the Assessment Model based on whether they were included, partially included, or not included, as well as overall score

- Assessment Report worksheet breaks out the submitted data question-by-question



Sample OA Assessment Tool Plot



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Summary of Open Architecture Assessment Tool

- Provides for objective measurement of business and technical practices
- Integral part of OA business case analysis
- In line with MOSA PART, NCOW, and GIG ES
- Configurable to specific domain, platform, or program requirements

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Navy Enterprise Open Architecture



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Background

- **OA EXCOMM I (October 2003)**
 - ASN(RD&A) redirected that the Navy Enterprise pursue a common OA approach vice the Surface-Centric One
 - Established DD(X) Combat System as OA Baseline for all Surface Combatants
- **Red Team Assessment (March-May 2004)**
 - Focus more on Business Strategy & Model vice technical details
 - Identify cross domain commonalities, standards, and guidance
- **OA EXCOMM II (June 2004)**
 - Provide standards, definitions, and guidance to establish a common approach to OA.
 - ASN(RD&A) Signed Enterprise OA Policy August 5, 2004
 - Ensure that domain unique OA aspects are preserved
 - Establish common, cross domain, consistency



Given Today's Situation...

- Currently many Naval systems are not:
 - Rapidly upgradeable
 - Affordable in production and modernization
 - Able to reuse components across programs or domains
- Business processes that take advantage of broad competition and innovation are inconsistently applied across the Naval Enterprise

...The OA Solution Set

- A set of business processes and technical approaches that result in:
 - Modularity of components
 - Functional and Technical architectures that are open and non-proprietary
 - Have the ability to contract separately for components where it makes sense to do so
 - Enable greater competition
 - Foster innovation
 - Implement practices that reduce closed architectures



The Challenges for Industry in this New Paradigm

- Provide non-proprietary solutions to solve warfighters' needs
- Emphasize capabilities-based spiral development processes
- Develop partnerships (include small businesses)
- Deliver capabilities that are “born joint” – quicker

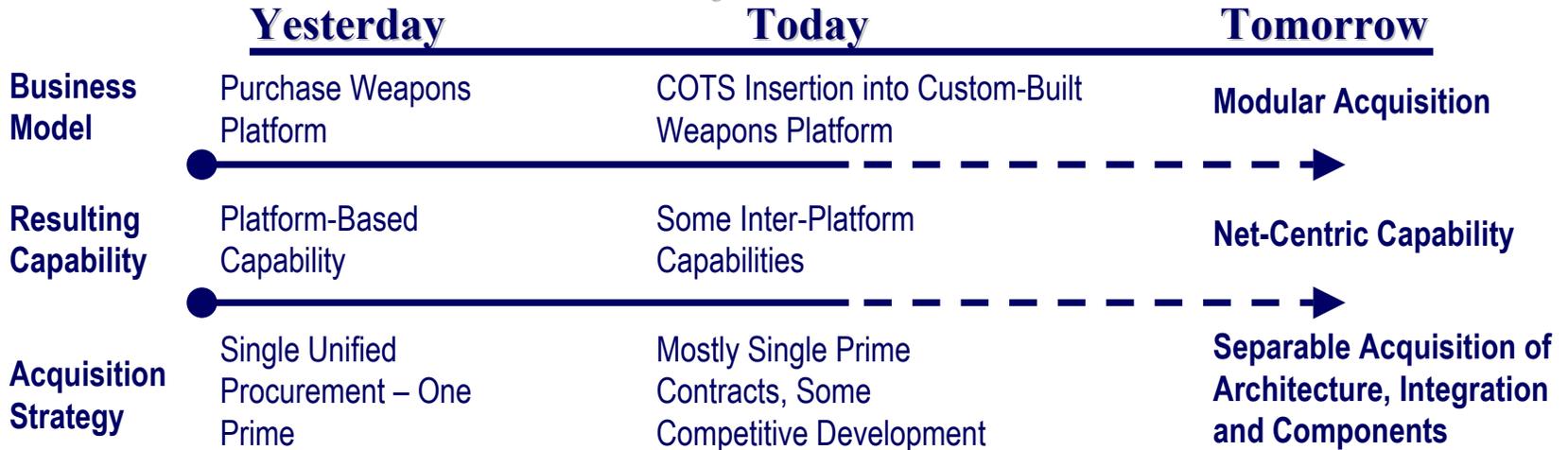
OA Begins as a Navy Transformation

- Fundamentally Change the Government's Perspective
- Drive Real Changes through Business, Functional, and Technical Areas
- Face Industry With A Strong Navy (Corporate) Message
- The Market Will Respond:
 - New Innovators will be attracted
 - Current contractor will accelerate their transformations



Change is Already Underway

Navy's Evolution



Parallel Supplier Response



Problems and Solutions

Problems

Weapons Platform Build

Cannot afford to continue as is

Does not fully interoperate

Not agile enough

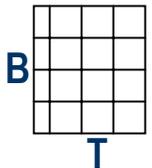
Solution

Modular
Acquisition

+

Modular
Development

Measurement



Technical
Architecture

Functional
Architecture

The Navy's Behavior Will Drive the Supplier Base

- If the Navy acquires modularly, the marketplace will adapt to participate
- OA principles provide the flexibility to drive the marketplace to change
 - Roles adapt to modular acquisition
 - Supplier market broadens to respond to business opportunities
 - Architects
 - Integrators
 - Component vendors
 - Custom developers
- These roles co-exist, and operate fluidly, in the commercial marketplace today

Leveraging All Potential Contributors

- Create an Open Business Environment.
 - Fund the development of open architectures and designs
 - “Open Source” the architectures/designs so the contractor community can comment
 - Use open architectures/designs as the basis for systems development
- Protect Intellectual Property (IP) Rights
 - IP rights apply across system life cycle – but our focus here is during R&D
 - If the Government pays for the systems R&D, then the Government obtains full use rights
 - If contractors develop product with their R&D funds, then they retain IP rights
 - If a system is to be developed with a mixed IP model, it is incumbent upon the contractor to:
 - Clearly identify any IP they have brought to the system development
 - Ensure that the contractor owned components are delivered with well defined, open standards-based interfaces

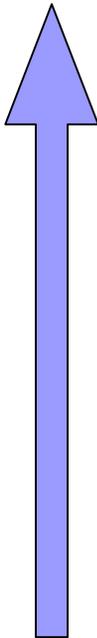


The ROI is Increased Warfighter Effectiveness

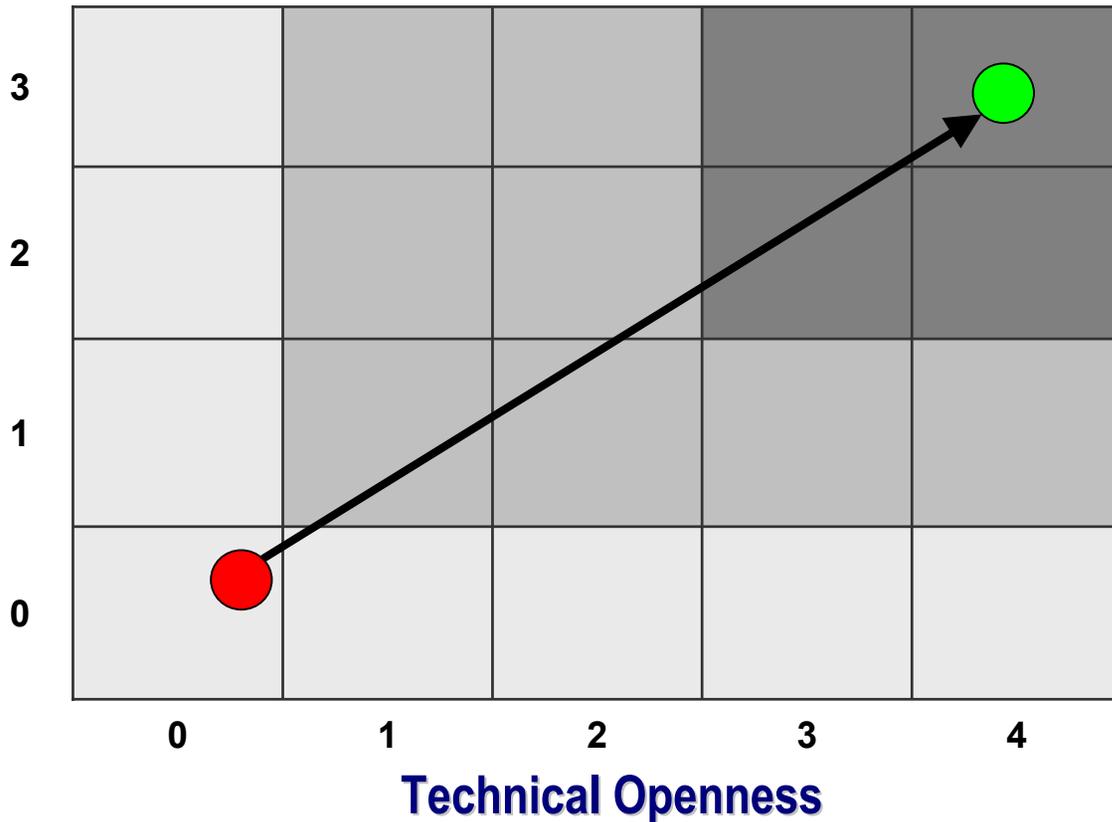
- OA will increase mission effectiveness for the warfighter
 - Net-centric warfare is enabled by open architectures
 - Faster upgrades get capability to the warfighter earlier
- Open Business Practices + Open Architecture = ROI
 - Open business practices increase competition
 - Open architecture allows smaller more standard components

Initial OA Assessment Model

Increased Competition



Business Openness



Openness Characterization

Low
Moderate
High

Platform

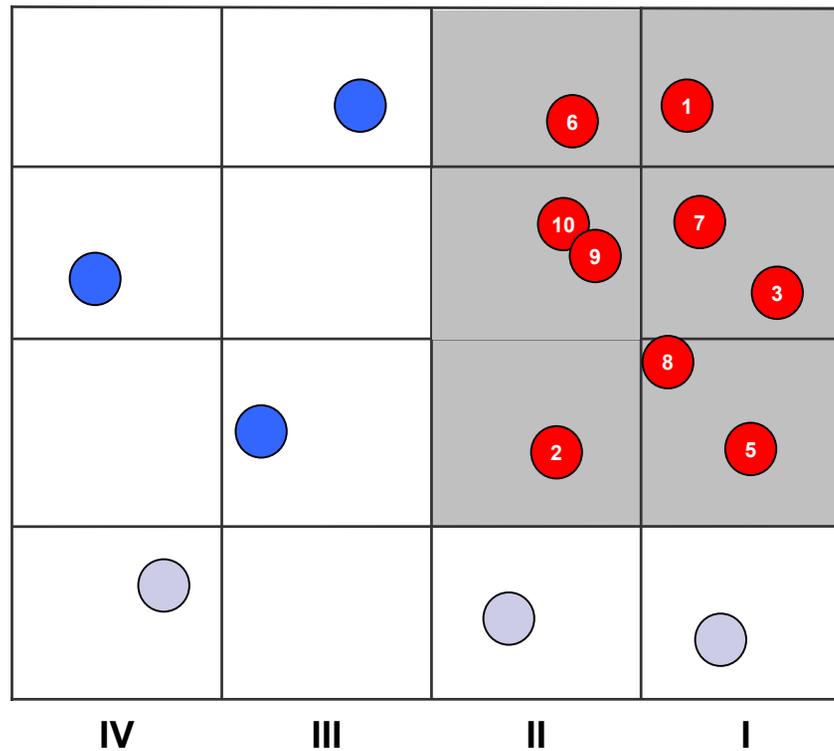


Component

System Census is the First Step

NII/Fn Categories

- 4 New Start, Early in Development
- 3 Long Life, Multiple Upgrades
- 2 Some Upgrades Planned
- 1 No Upgrades, Near Retirement

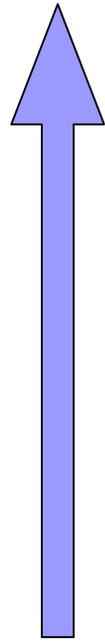


ACAT Levels

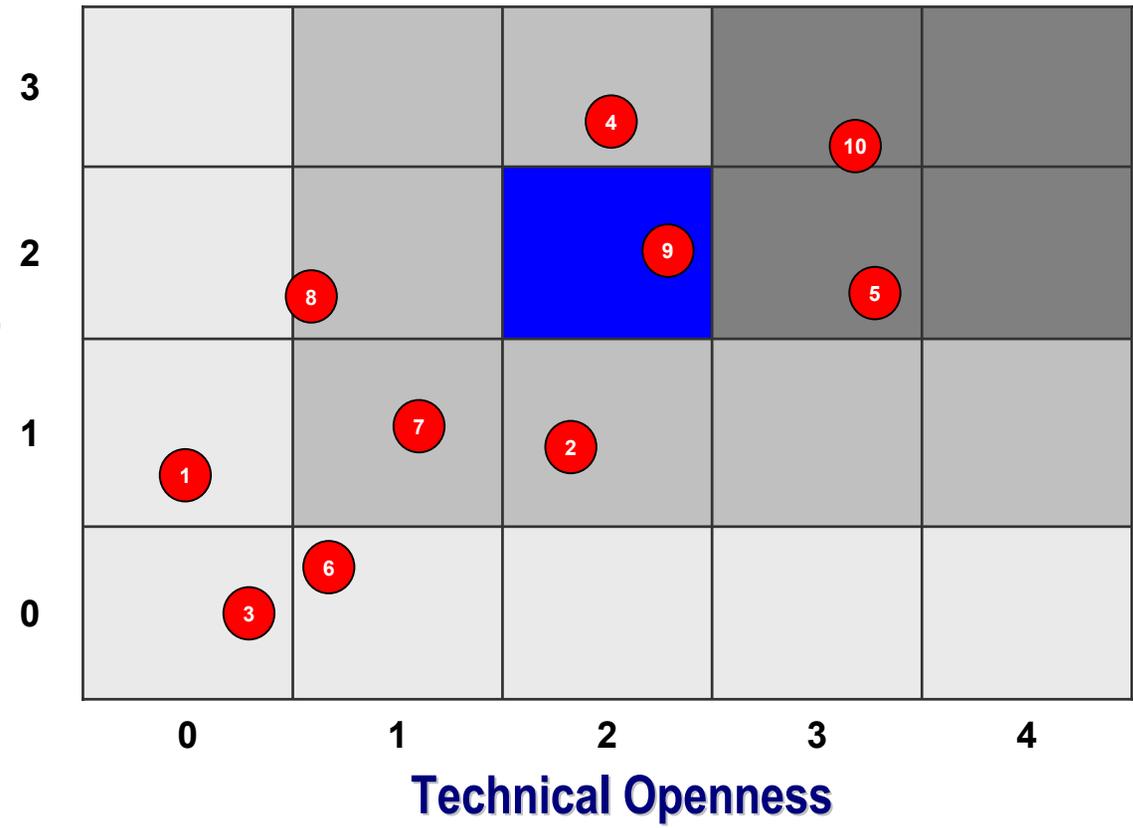
Priority of Assessing For OA	Low
	Moderate
	High

Measuring ACAT I & IIs

Increased Competition



Business Openness

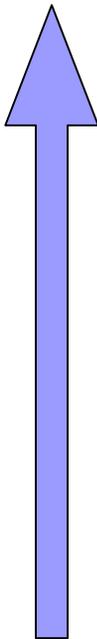


Openness		Low
Characterization		Moderate
		High

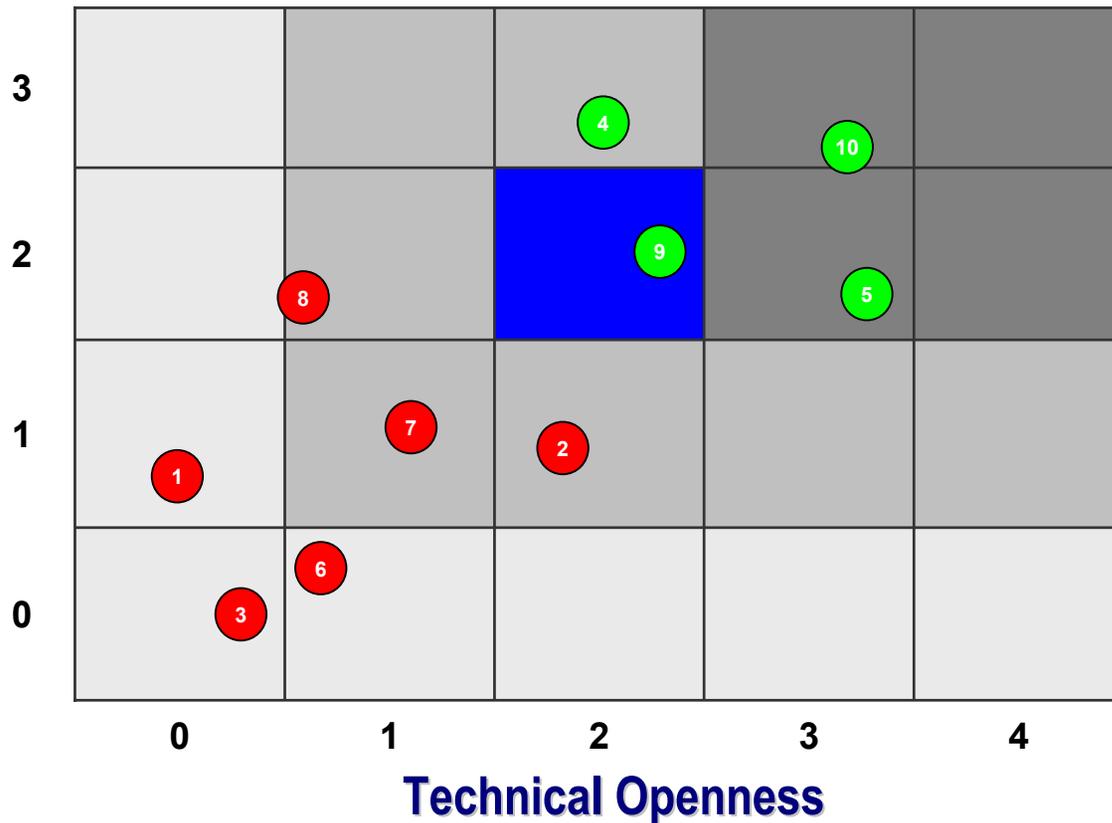
Platform Component

Determining Which Systems Require BCAs

Increased Competition



Business Openness



Technical Openness

Which Systems Require BCAs

- BCA Needed
- Compliant

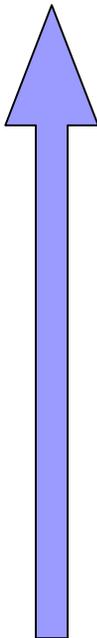
Platform



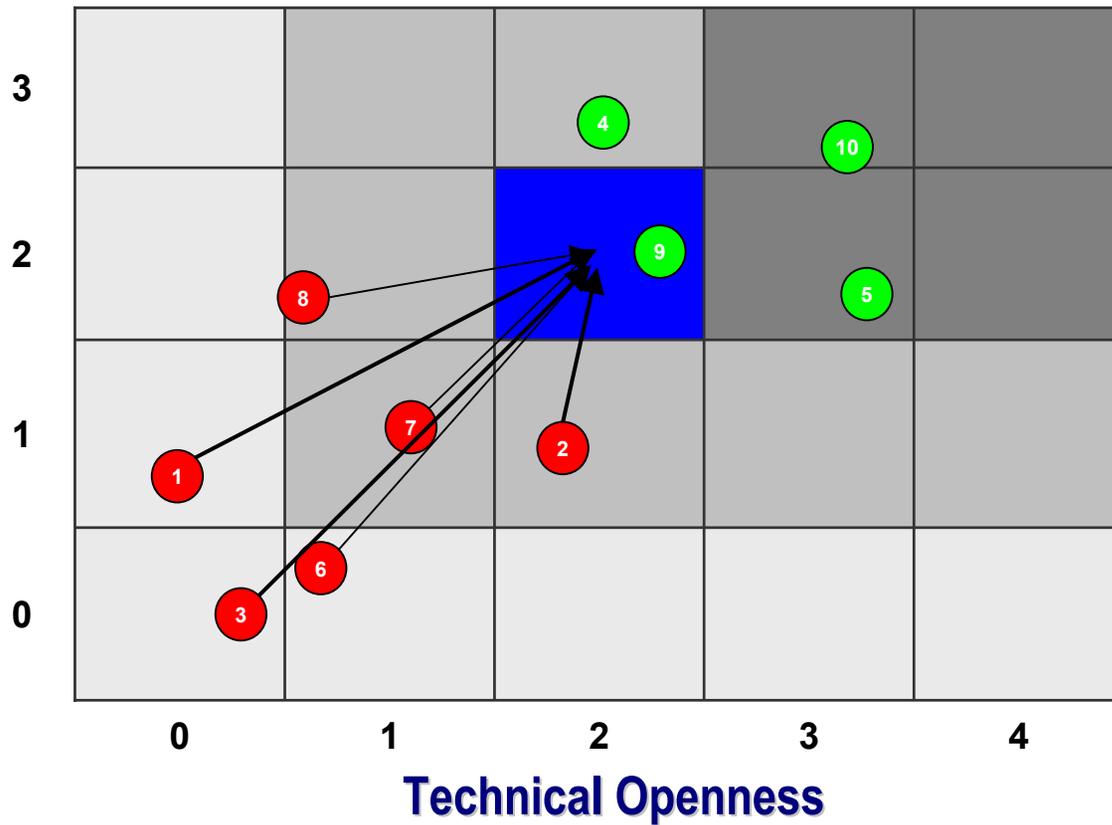
Component

Program Driven BCAs

Increased Competition



Business Openness



Which Systems Require BCAs



BCA Needed



Compliant

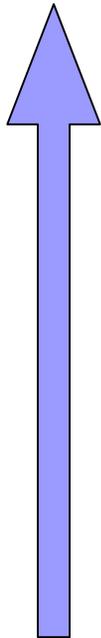
Platform



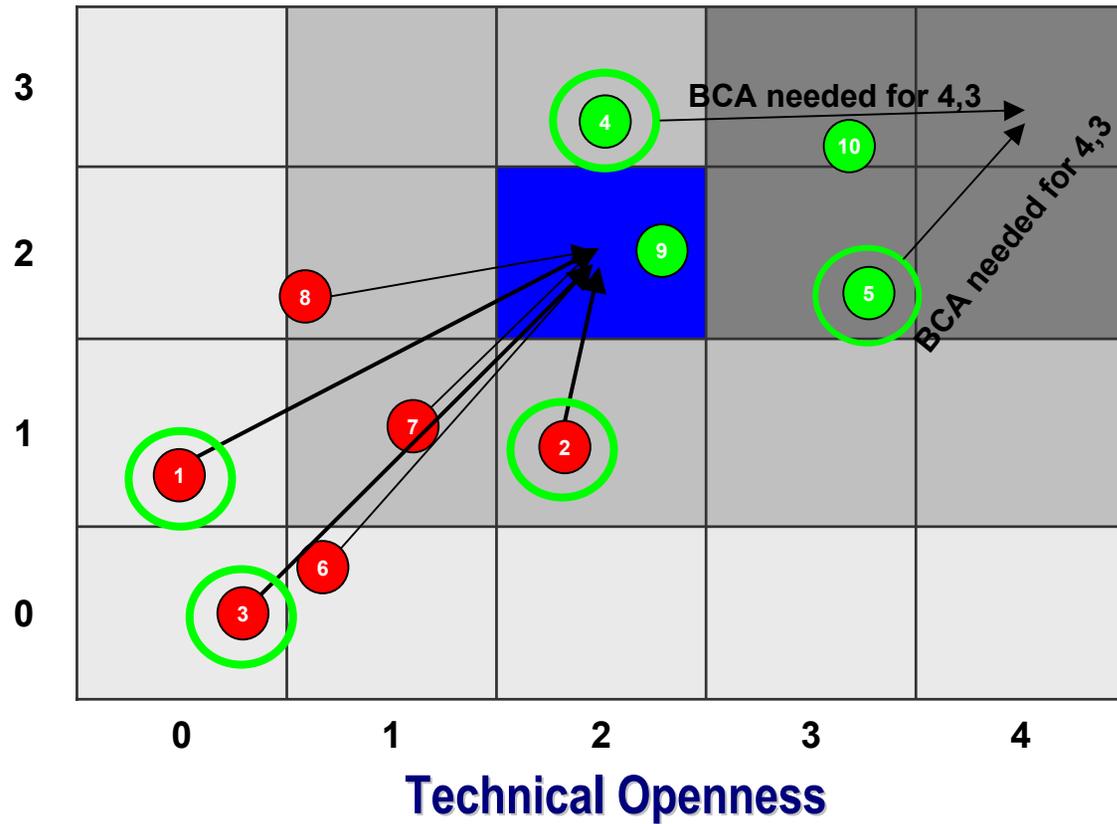
Component

Domain & N7 Driven Recommendations (for POM 08)

Increased Competition



Business Openness



Which Systems Require BCAs

- BCA Needed
- Compliant

Platform



Component