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Alleviating Unreasonable PM-SE Constraint Risks

Changing the Acquisition Game

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Strategic Technical Planning Initiative

IS2018 Paper # 111

Changing the Acquisition Game: Alleviating Unreasonable Constraint Risks

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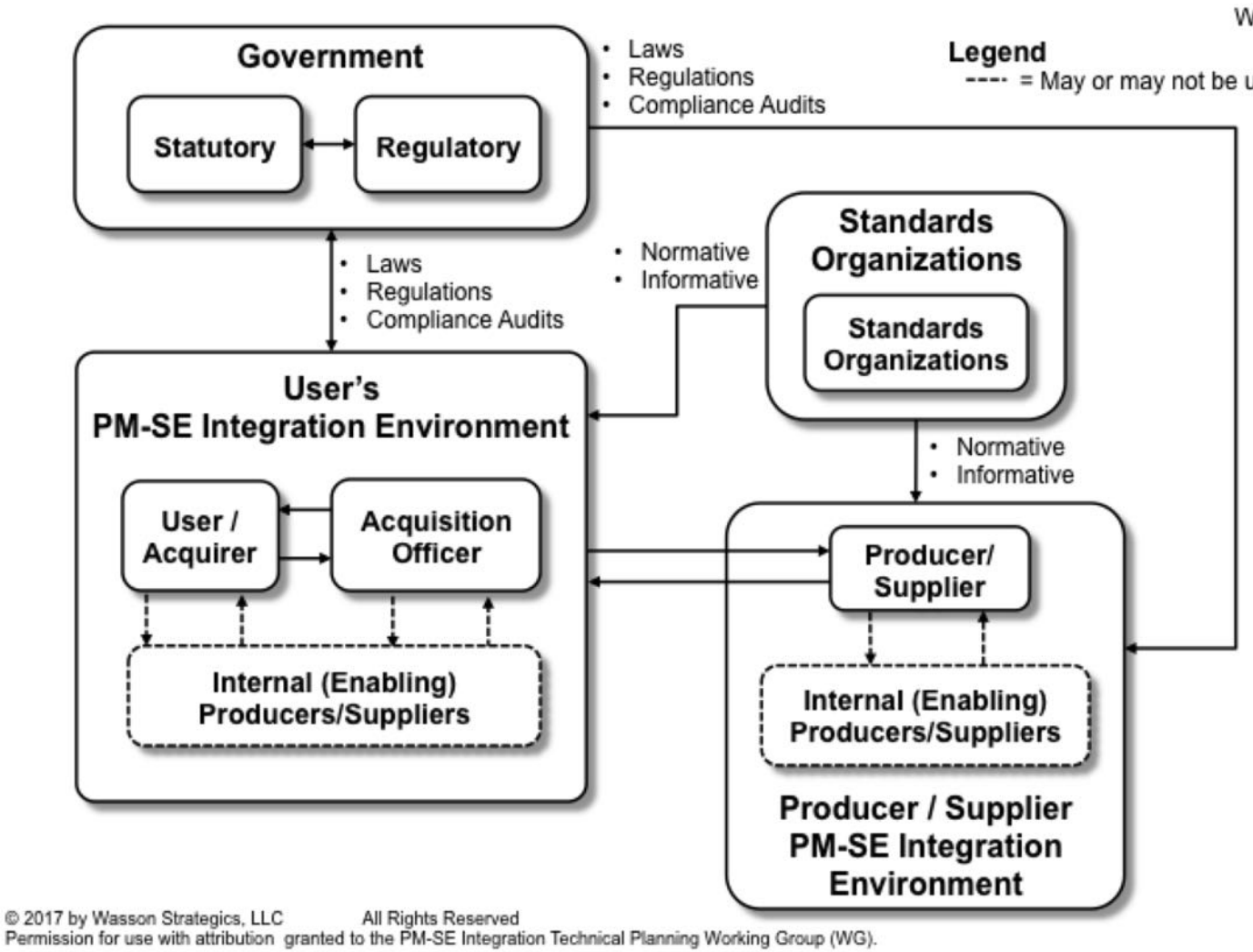
EVERYONE has a story (or ten!) about struggling and failed projects.
Most have few real success stories.

- **GAO reports keep reporting on major defense program challenges:**
  - 2007 – only 15% of programs on-time, on-budget & meeting performance criteria
  - 2017 – 58% of programs saw cost increases and schedule overruns, which averaged 30.8 months!

- **A number of initiatives have been explored:**
  - "Better Buying Power" memoranda of 2010 required programs to conduct affordability and "should cost" analyses
  - DOD-sponsored studies by third-party corporations and researchers (Systems-2020 and SERC Roadmap)
- **BUT WHY IS SUCCESS SO ELUSIVE?**

"*Better to dissolve a problem than to solve it*" (Ackoff, 2006)

- "*Different people in the same structure tend to produce the same results. When there are problems it is easy to find someone or something to blame. But, more often than we realize, systems cause their own crises, not external factors or individuals' mistakes*." (Senge, 2010)
- In a systems thinking perspective, we can consider it a game where the players have learned how best to personally succeed (contracts, promotions, re-election, etc.)
- If we want to see a different outcome we must redesign the game – it isn't enough to implore people to play it differently.
- Before we can design the ideal system, though, we need to understand the problems within the current system – the antipatterns at work that yield more negative outcomes than positive.



The Acquisition Environment – Overview

Multi-Variant System Acquisition Optimization Challenge

Governmental Statutes & Regulations

Politics / Ethics

Competitive/ Adversarial Threats

Technological Advances

Past Performance

Subjective Acquisition and Enterprise Level decision making (soft edges)

Quantified Project Performance Constraints (hard edges)

User Mission & Acquisition Environment

Contract/ Task

Enterprise Leadership Environment

Enterprise Capability & Readiness to Perform

Et al

Finite Resources

Dynamic Market Conditions

Stakeholders

Command Media Processes

Contract, Technical, Cost, & Schedule Requirements

Tools

Project Performance Environment

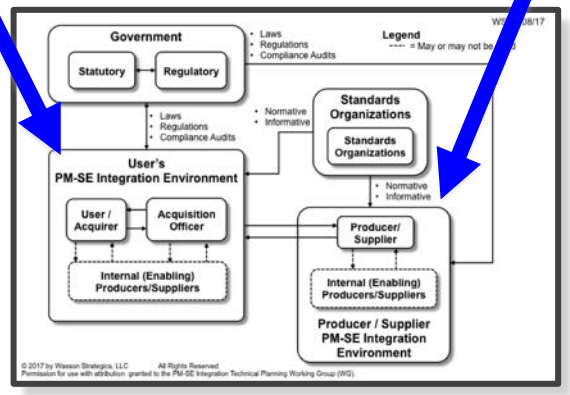
Resources Availability

Subcontractors & Vendors

Risk

Personnel Competency

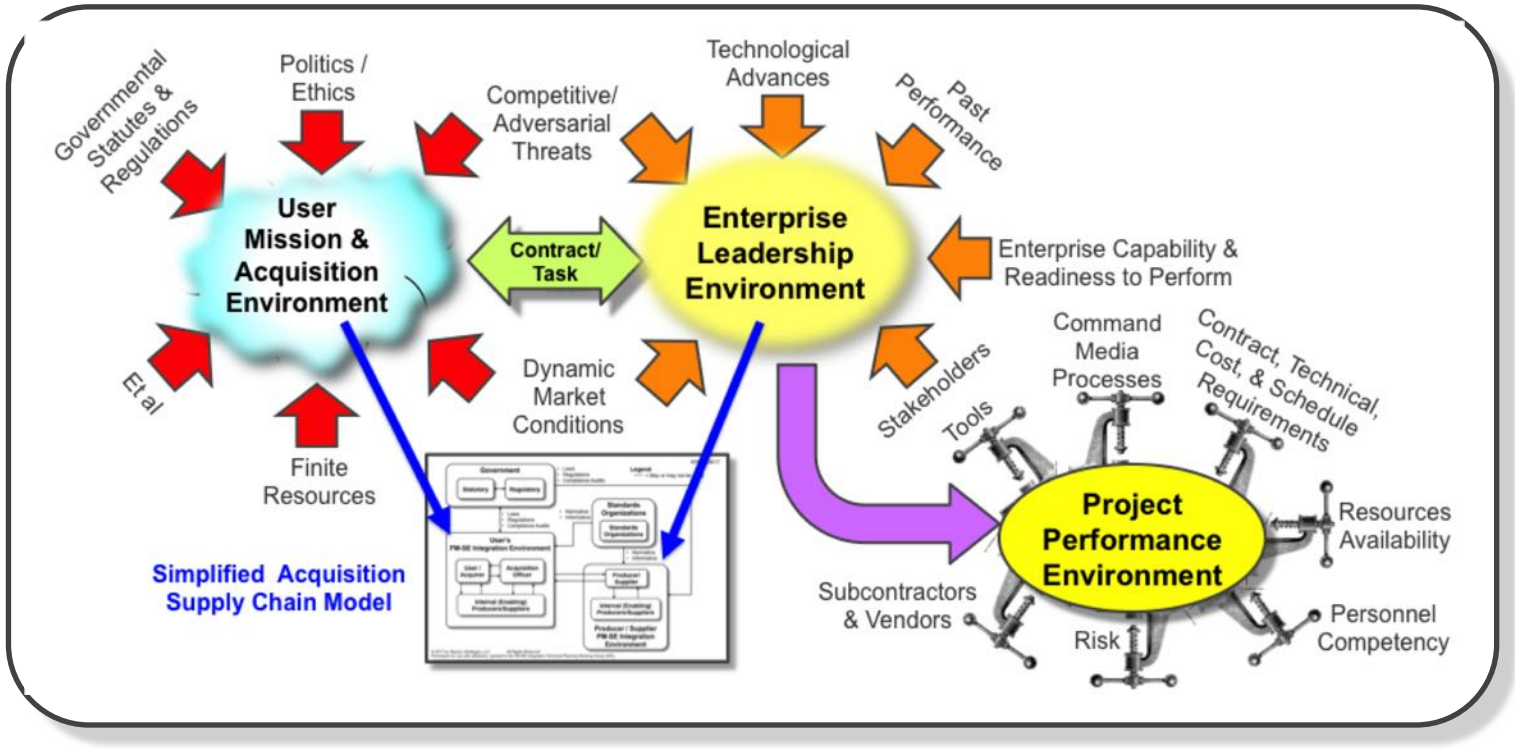
Simplified Acquisition Supply Chain Model



PM-SE Performance - Unrealistic Constraint Environment

Charles Babbage (1864)
"On two occasions I have been asked 'Pray, Mr. Babbage, …

…if you put into the machine wrong figures …



… will the right answers come out?'"

Acquisition-Procurement Supply Chain Application

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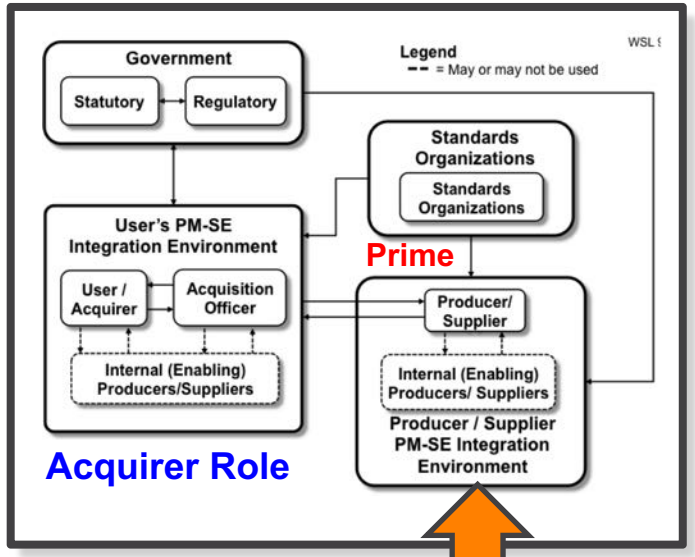
Rev. A

Acquisition-Procurement Supply Chain

User's Acquisition Environment

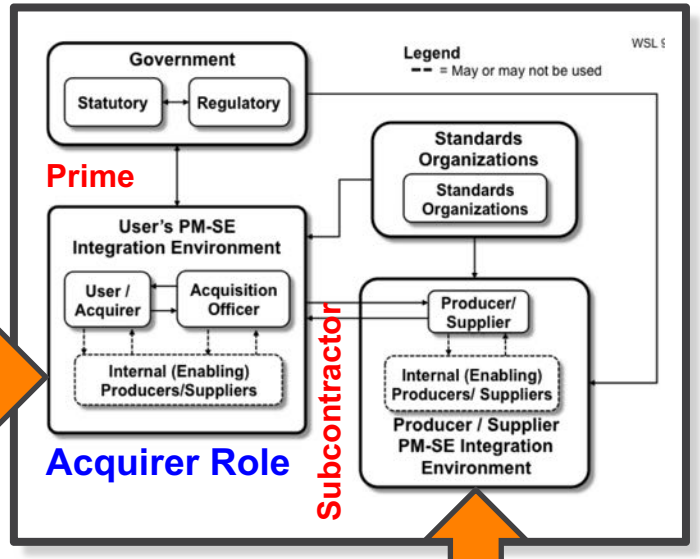


Integration

Acquisition

System/Product/Component
Producer/Supplier Role
context switch to
Acquirer Role
for Commercial Materials

System Development / Services Environment

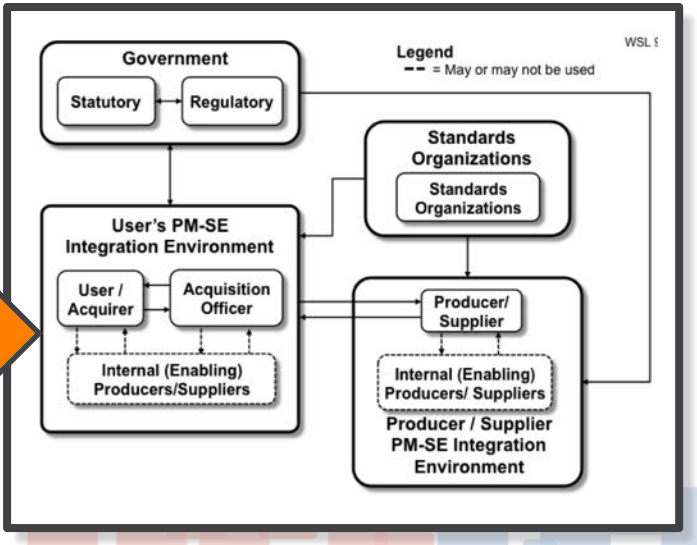


Integration

Commercial Materials
Producer/Supplier Role
context switch to
Acquirer Role
for Material Resources

Procurement

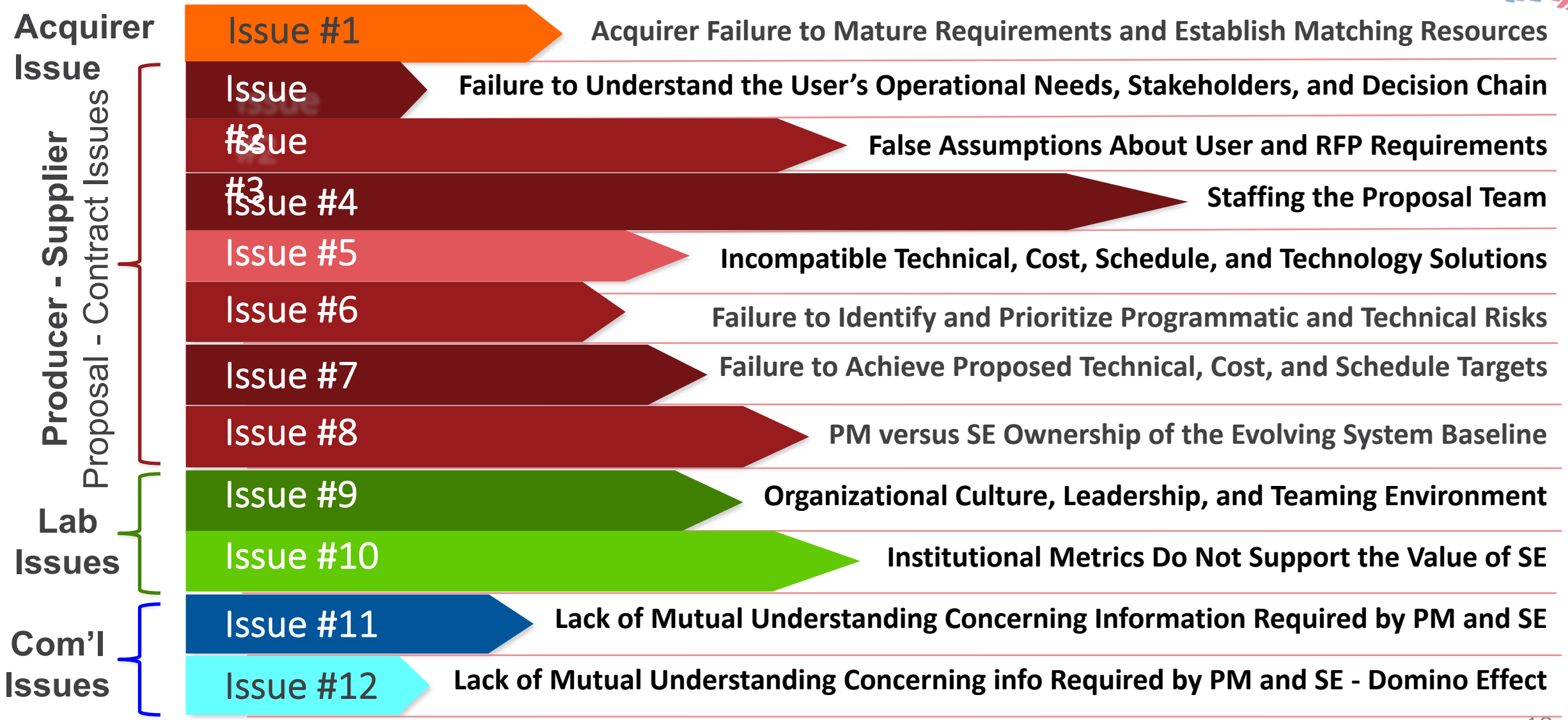
Subcontractor / Vendor Development & Acquisition Environments



Project Environment Characteristics

- Inadequate proposal preparation and analytical due diligence in understanding the user's problem space and operational needs.
- Unrealistic proposal assumptions and contract constraints – such as overly aggressive schedules and inadequate funding.
- Source Selection Evaluation Process that is overshadowed by a highly competitive "Acquisition Game" of perceptions, influence, persuasion, and potential conflicts of interest.
- Project Management and Engineering "stovepipes" that limit understanding of each other's roles, accountabilities, and their respective contributions.
- Contract "requirements creep" by the Acquirer with an expectation or Developer accommodation without appropriate contract cost modification.
- Deficiencies in Engineering and Systems Engineering due to outdated educational and competency paradigms.

Changing the Acquisition Game – Issues Summary

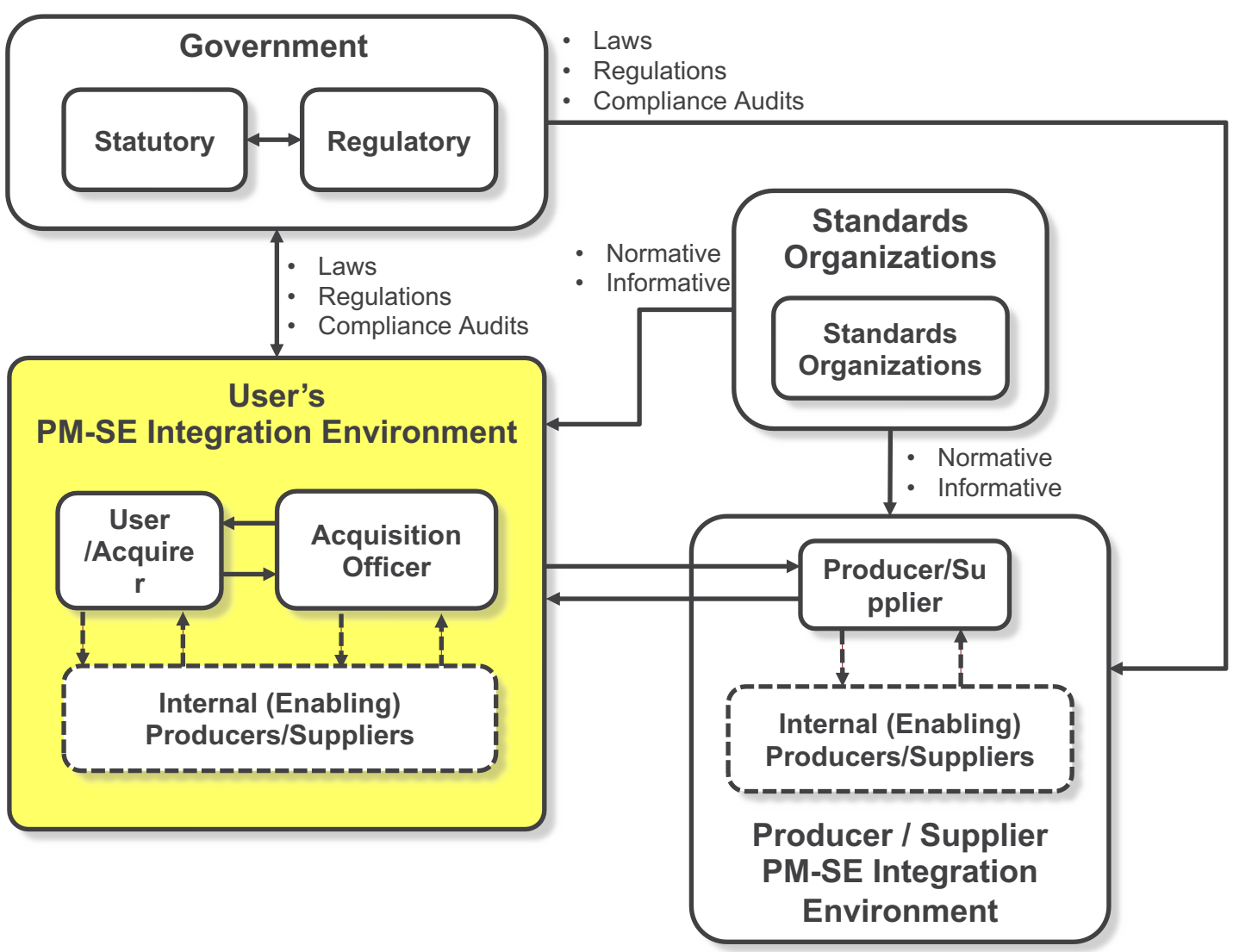


Structure of Issues Addressed in Paper

- **Issue Statement**
- **Mini-Case Studies**
- **Paradigms and Anti-Patterns (Obstacles)**
- **"Changing the Game" Recommendations***

Note

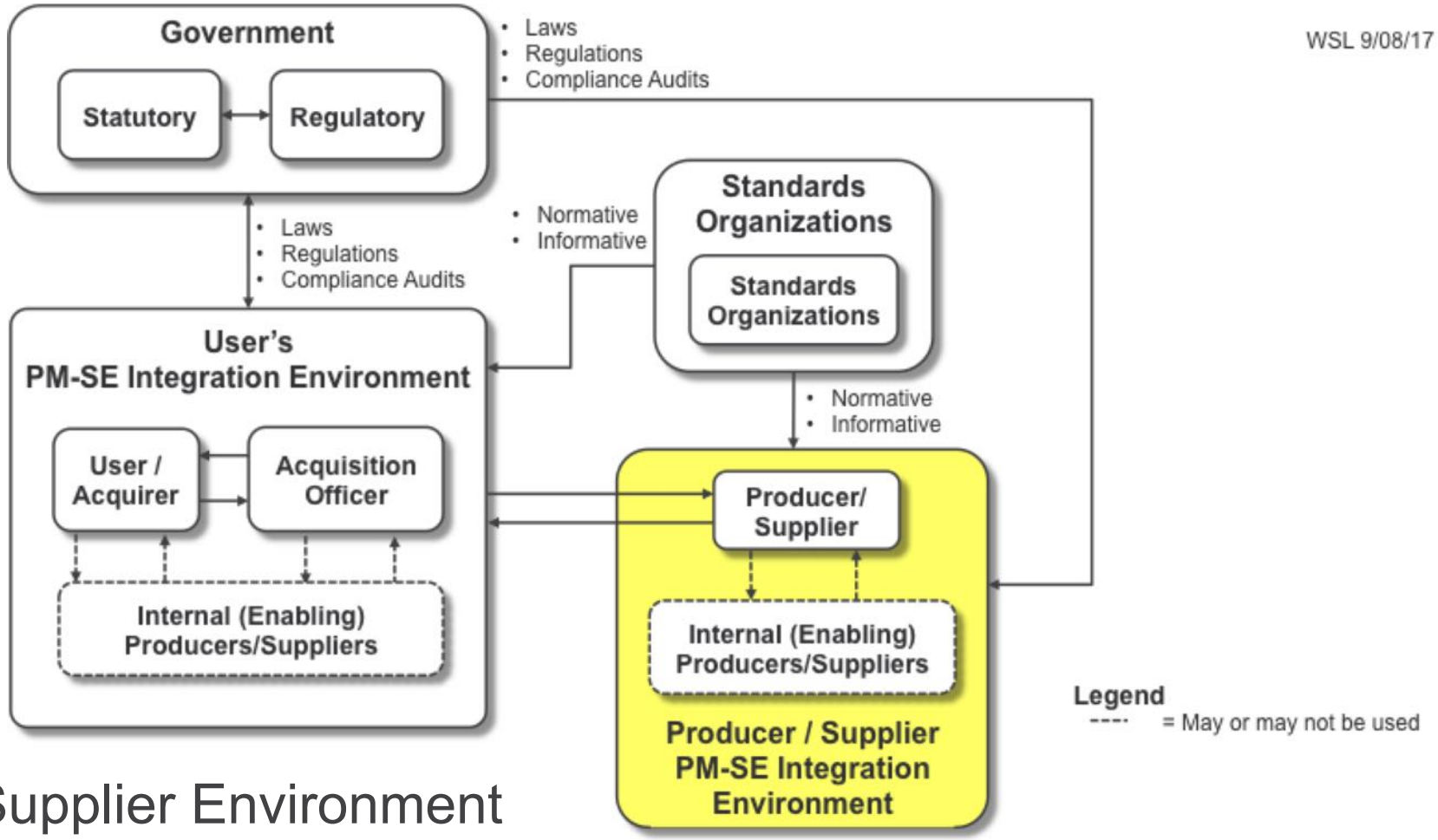
Every acquisition, enterprise, project, and system are uniquely different. Recommendations are derived from actual project situations. Yours may be different. Tailor and adapt recommendations to meet the specific needs of your acquisition or project.



The Acquisition Environment – User's Perspective

Acquisition Environment

- **Issue #1 – Acquirer Failure to Mature Requirements and Establish Matching Resources**
  - US GAO Reports (GAO 2009, 2010, 2011, 2012, 2016)
    - Correlation of project performance success with early introduction of SE (uncharacterized) at the beginning of an acquisition
  - Mini-Case Study #1 – Doomed to Failure
    - Offeror signs a contract, discovers specification requirements are impractical to meet, CO and PM agree on this fact but refuse to modify the contract.
  - Mini-Case Study #2 – Failure to Resolve Organizational Conflicts
    - Knowingly transferring User organizational conflict risk without disclosure to offerors without prior resolution.
    - Places Producer-Supplier in a position of "managing" the Acquirer-User's enterprise and its organizations.



The Producer-Supplier Environment

The Acqusition Environment – Producer-Supplier Perspective

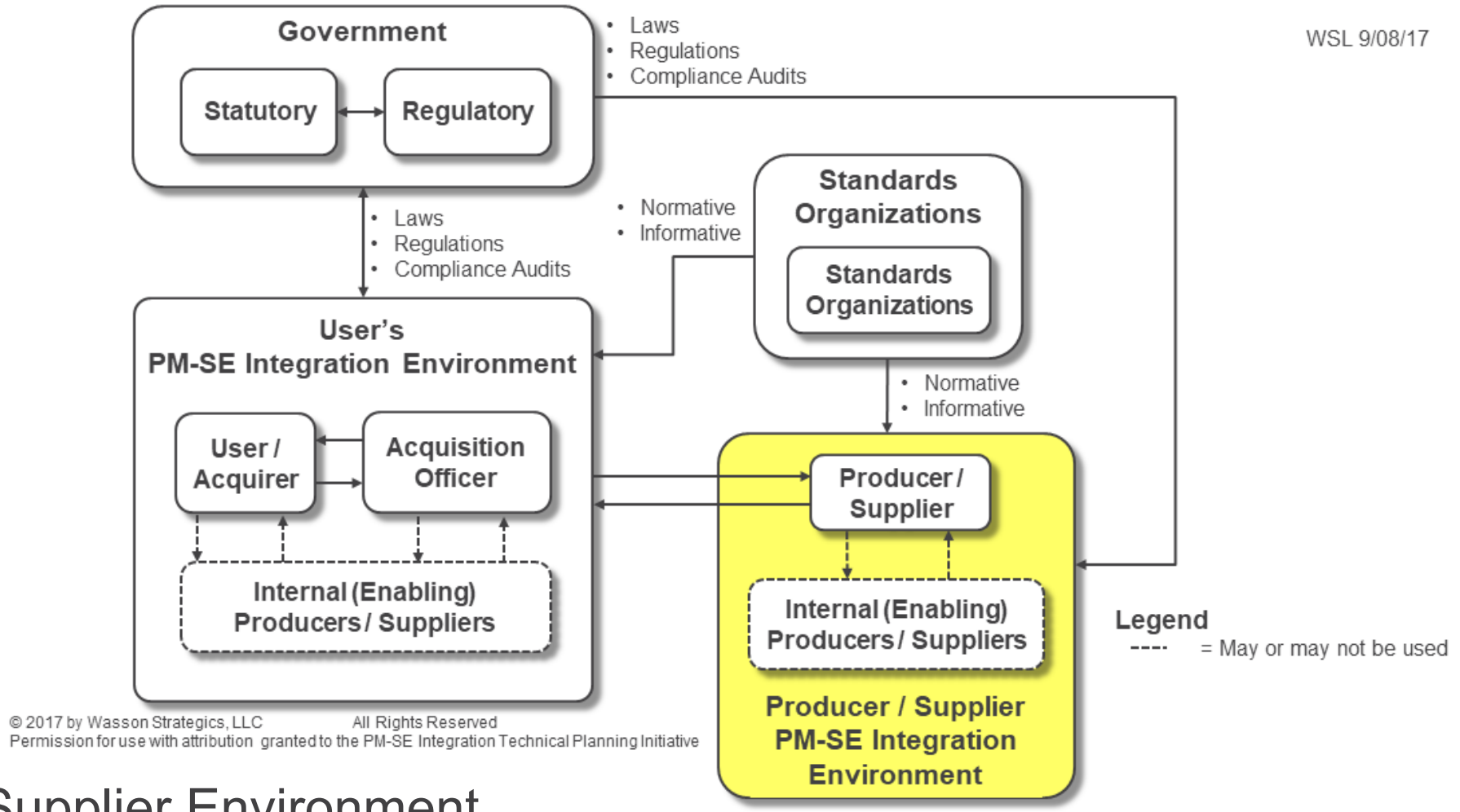
Producer / Supplier Issues (Risks) – Proposal Development Phase

- **Issue #2 – Failure to Understand the User's Operational Needs, Stakeholders, and Decision Chain**
  - Offerors propose technical solutions without due diligence:
    - Compliant with the acquisition requirements that **may or may not** accurately specify and bound the User operational needs – e.g., proposing solutions to the wrong problem.
    - *Responsive* to individual decision-maker priorities but *unresponsive* to the decision-making chain as a whole.

- **Issue #4 – Staffing the Proposal Team**
  - Conflicts emerge due to the timely availability of key SME resources whose availability is restricted by PMs promoting their own success.
  - Staffing a project with SE Level 1 and 2 personnel certified as SEPs when the project system complexity requires Level 3 – 5 SEs.
    - Emphasis on "following a process" versus answering the question: "Will the system work – i.e., be fit for purpose – when realized (Ring 2017)
    - Wednesday, July 11, IS2018 Session #7, ~ 10:40 AM *SE Management is Not SE Core Competency* presentation addresses this issue in detail.

Producer / Supplier Issues (Risks) – Proposal Development Phase

- **Issue #5 – Incompatible Technical, Cost, Schedule, and Technology Solutions**
  - Assignment of proposal work tasks into **independent** technical, cost, management, capability, past performance, et al "stovepipe" volumes that are "loosely integrated" with minimal oversight, communications, reviews, etc.
  - Limited or NO traceability of all source acquisition requirements
    - Vertically - Down to proposal volume contents
    - Horizontally – Across volumes.
  - PM Team independently develops proposed Contract WBS (CWBS) ignoring the technical System Architecture (SA)
  - Executives often unwittingly believe that if … they … finalize subcontract agreements the day before the proposal is due, the technical team can magically integrate, reconcile, and resolve differences overnight.



The Producer-Supplier Environment

The Producer-Supplier Environment - Overview

Producer / Supplier Performance Environment

- **Issue #3 – False Assumptions about User and RFP Requirements**
  - Response possibly tainted by presumptions and assumptions about the type of material solution or service being sought by User (Customer)
- **Issue #6 – Failure to Identify and Prioritize Programmatic and Technical Risks**
  - When the Offeror proposal technical, cost, schedule, and technology solutions are individually created by isolated groups within the Offeror Proposal Teams and are conflicting and unrealistic, the probability of selection as the winning proposal is greatly reduced.
  - If the Offeror “wins” the contract effort; delivery success may be at risk due to the conflicts necessitating contract modifications, assuming the User (Customer) is willing.

Producer / Supplier Performance Environment

- **Issue #8 – Failure to Achieve Proposed Technical, Cost, and Schedule Targets**
  - Risks that could impact project performance either positively or negatively should be proactively pursued and managed
- **Issue #9 – PM vs. SE Ownership of the Evolving System Design Baseline**
  - Projects leverage and publicize multi-disciplinary team concepts to ensure a focus on product decision-making. Yet, teams continue to have technical compliance issues, overrun budgeted costs, and deliver late due to poor decision-making and implementation performance much to the frustration of Project Managers (PMs) who complain “Engineers can never finish a design and are always tweaking it.”

Commercial Materials Processing Application

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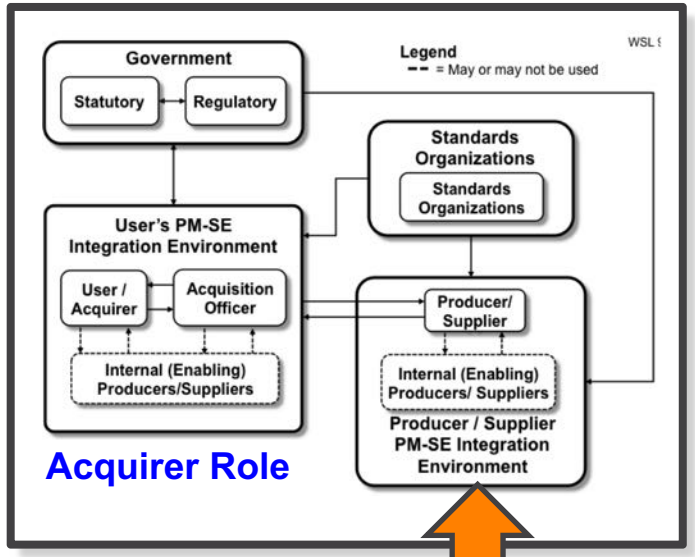
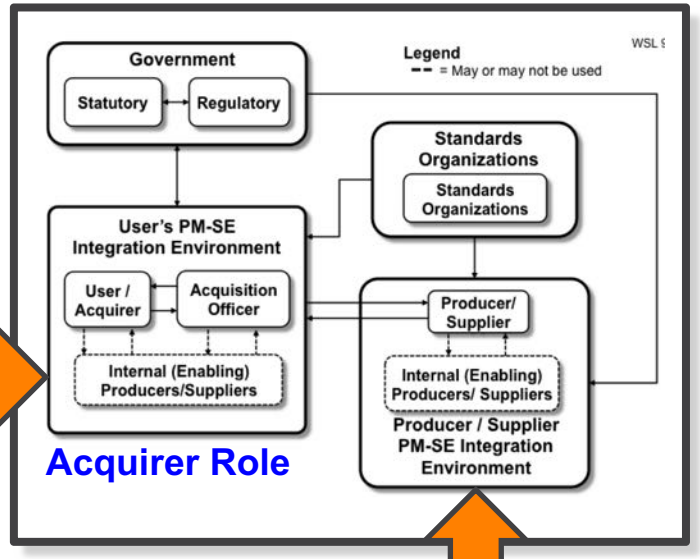
Client User's Acquisition Environment



Acquirer Role

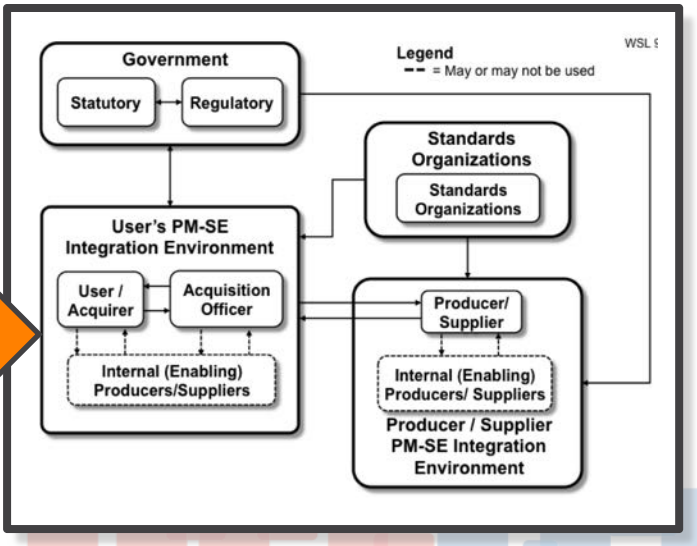
Acquisition-Procurement Supply Chain

Commercial Material Enterprise Development Environment



Acquirer Role

Material Resource(s) Enterprise(s) Development Environments



Acquisition

Procurement

Acquisition

Procurement

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Commercial Materials
Producer/Supplier Role
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Commercial Materials Processing Application

- **Issue #11 - Understanding mismatch between PM and SE within User's PM-SE integration environment possibly due to different approaches and perceptions**
    - Possible ways to address: decentralization of activity, and focus on how/why approach is used
- **Issue #12 - "Domino effect" across acquisition-procurement supply chain from delayed involvement of suppliers and assumptions made by acquirers**
    - Possible ways to address: leveraging of commercial products, involving suppliers early and ensuring that actual needs are clear