

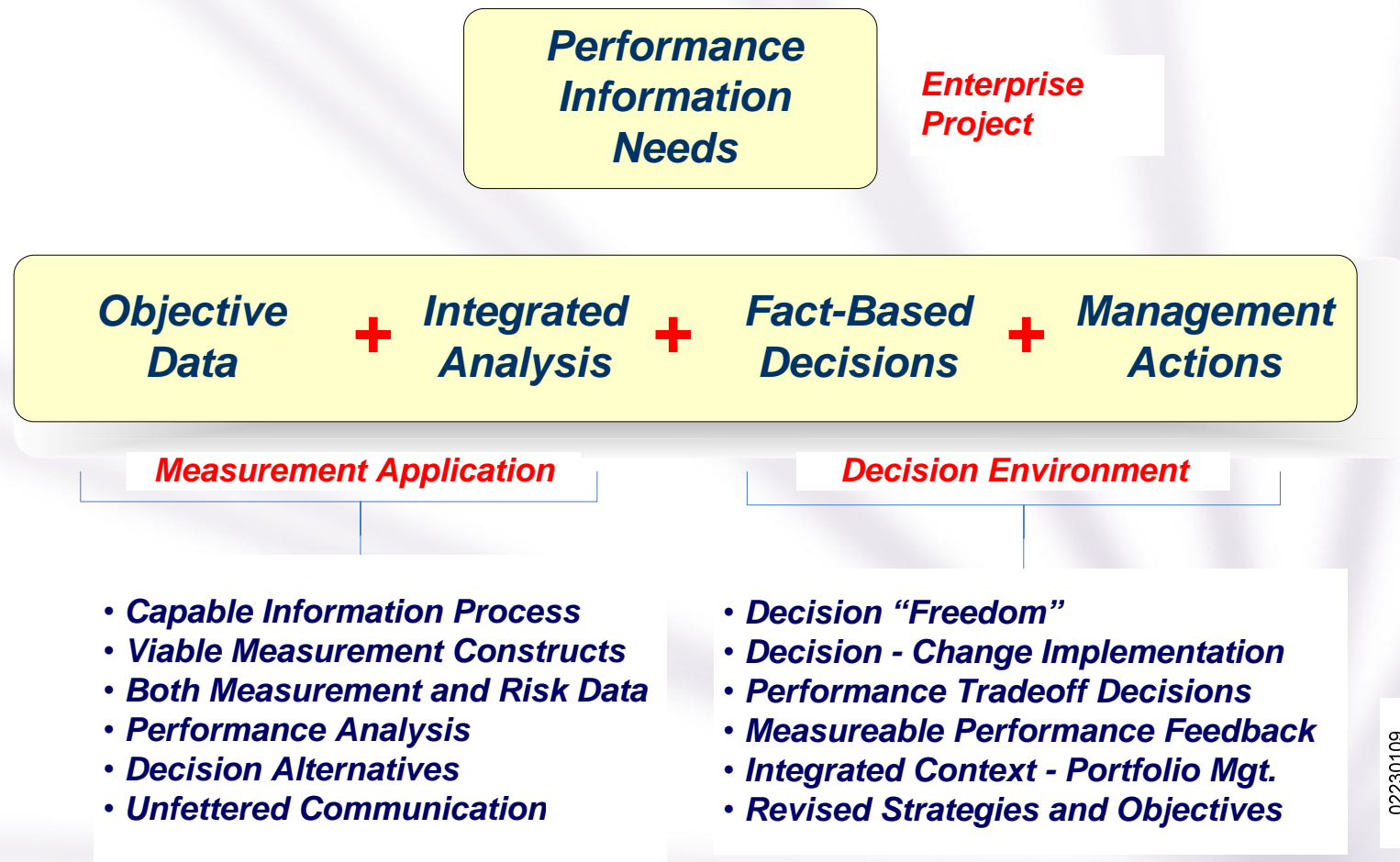
# Decision Making in Engineering Management

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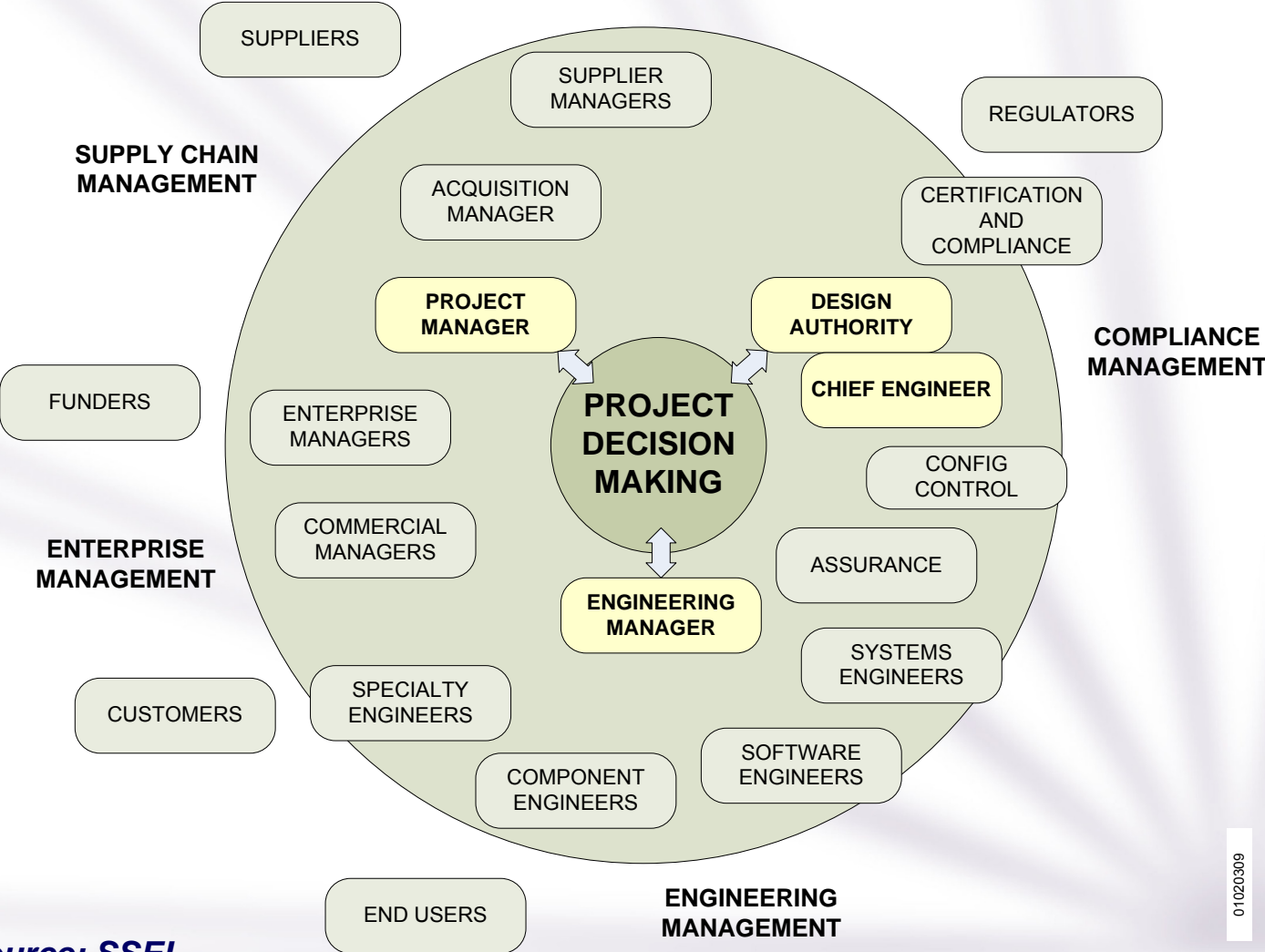
24<sup>th</sup> June 2009

# PSM 2010/ July 08 Workshop



Source: PSM

# Project Decision Makers



Source: SSEI

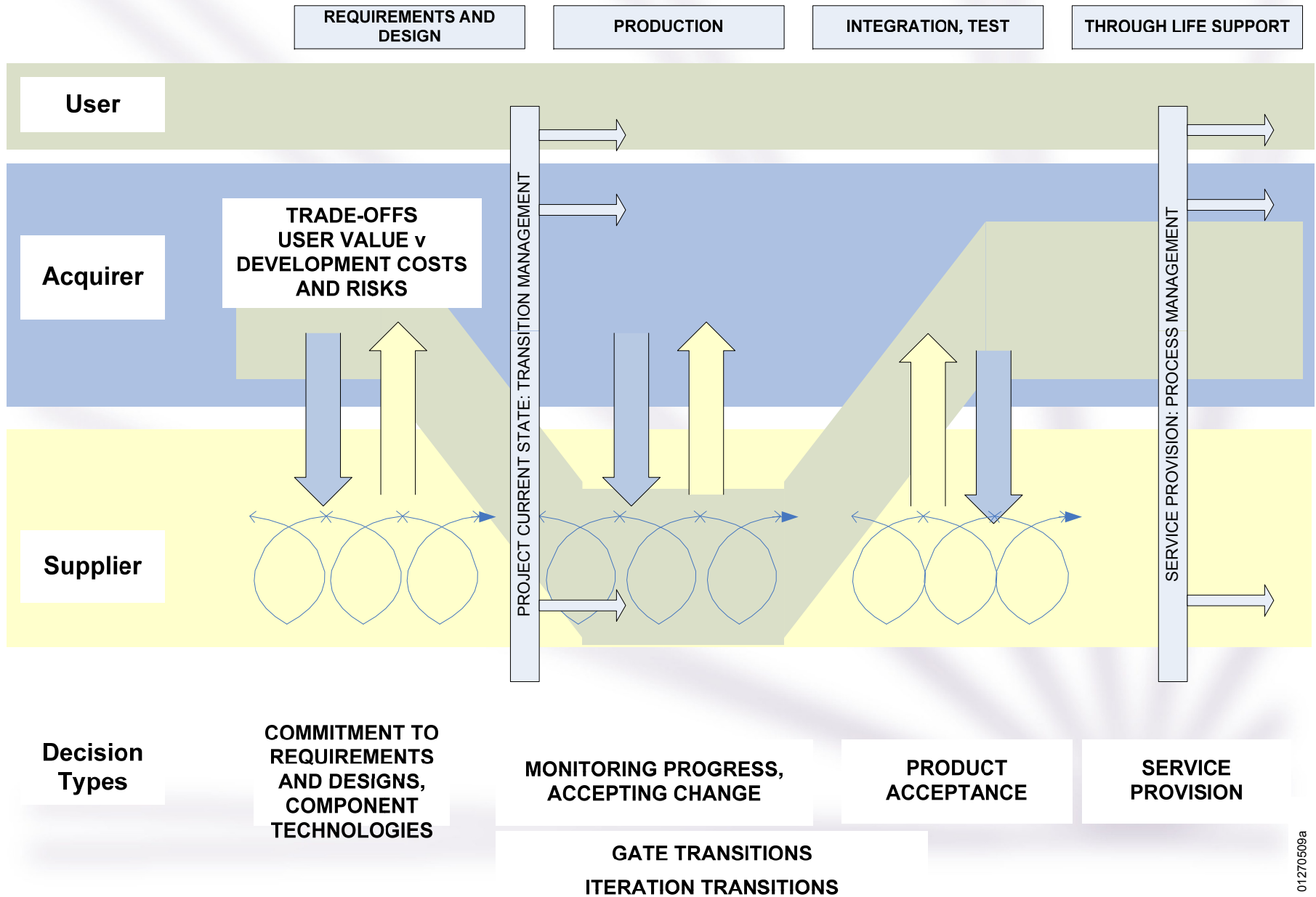
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# Motivation and Objectives

- Complex defense projects often perform poorly from external perspectives
- Engineering perspective: strive to develop and support products that are fit for purpose and that use resources as efficiently as possible
- Hypothesis: better support and promotion of the engineering view, integrated through supply chains and through the lifecycle, will produce improved project performance
- OBJECTIVE: to promote and support engineering, integrated through supply chains & lifecycle; to provide a better balance with other stakeholder interests



# Supply Chain View



# What Hinders Integrated Engineering?

## ■ Individual Level

- Insufficient knowledge , experience, understanding
- Insufficient time
- Insufficient information – not being able to detect that a decision, action is needed, not being able to understand the situation sufficiently
- Insufficient generation of solution options
- Insufficient analysis
- Insufficient support/ guidance information
- Risk aversion

## ■ Inter-organizational Level

- Commercial interests, competition
- Low Trust
- Risk transfer
- Contracts
- Market power
- Political interests
- Difficulty in promoting whole-project interests
- Technology optimism
- Perceived transaction costs in short term

## ■ Organization Level

- Insufficient authority – pass up the management chain; gap between knowledge and authority
- Risk aversion
- Blocks to information flow
- Stakeholder issues - different criteria, different goals
- Different cultures and ‘tribes’
- Bureaucracy

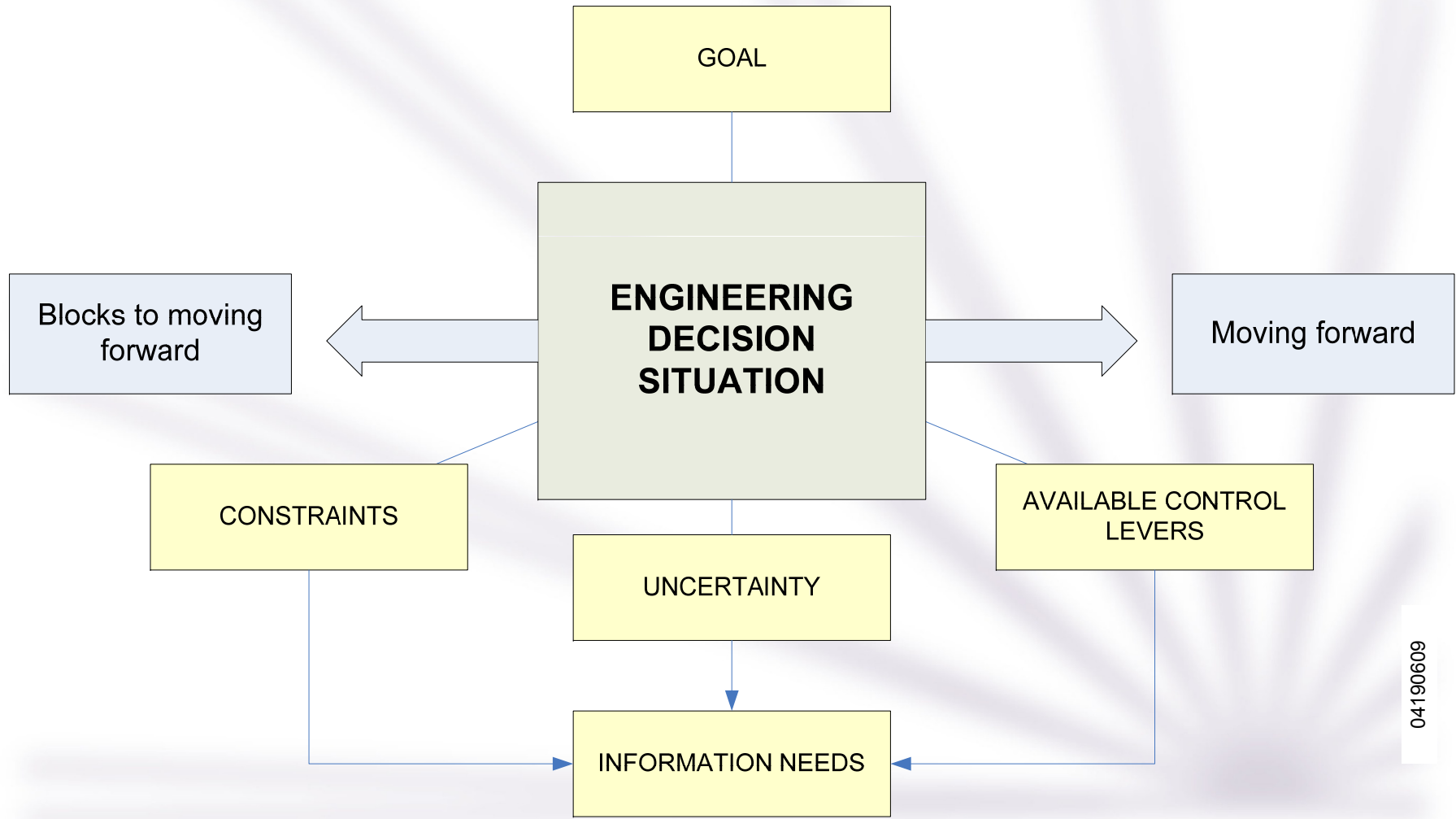


# Improving Integrated Engineering

- Enabling integrated engineering across contractual, specialty boundaries
- Balancing engineering 'realities' with other stakeholder interests
- Enabling trade-offs of end-delivered value to users, development costs, schedule, risks
- Managing delivery of engineering capabilities to projects; enactment, coordination and integration of activity on a project
  
- Managing across boundaries
- Transition management rather than process management



# Decision Situation

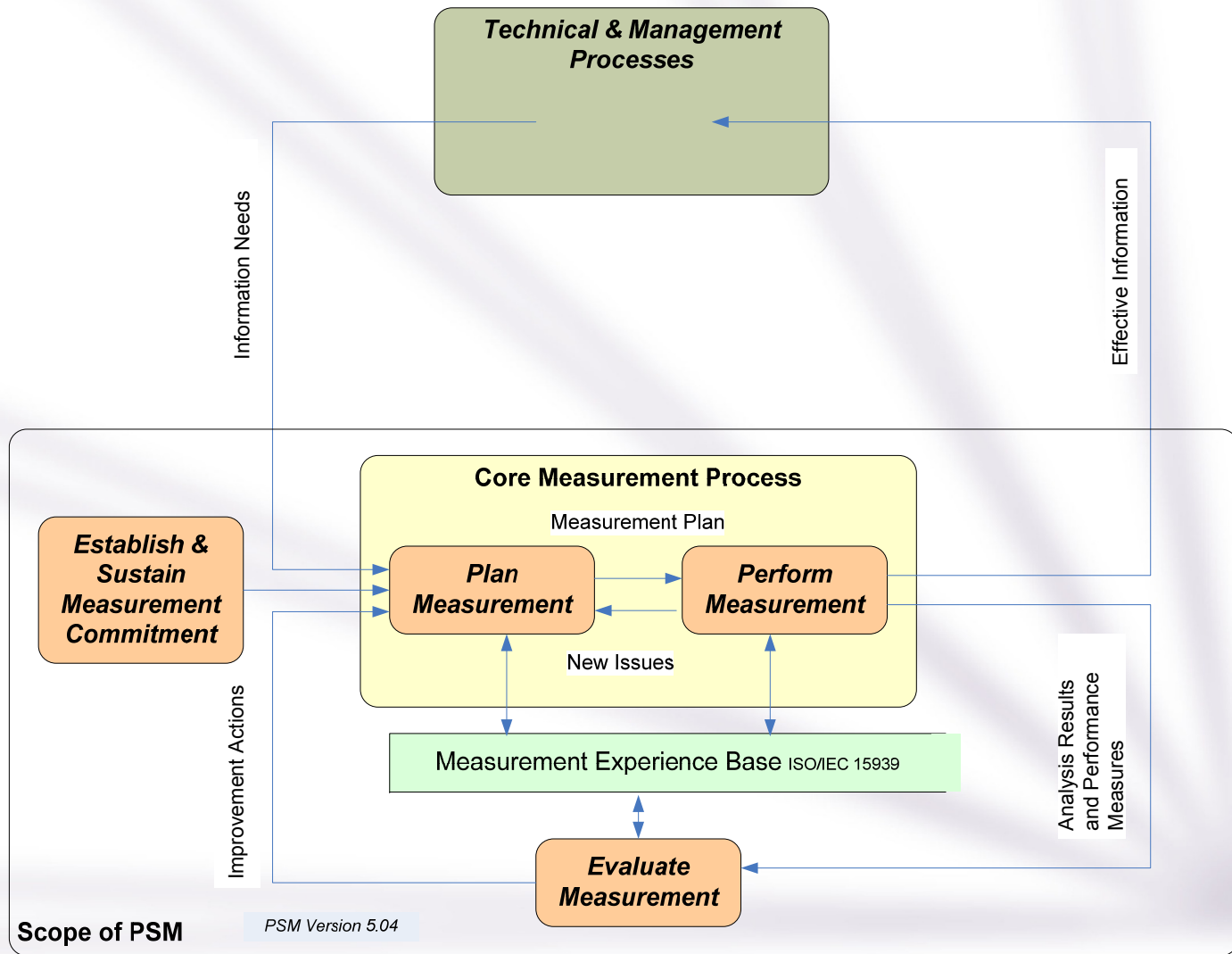




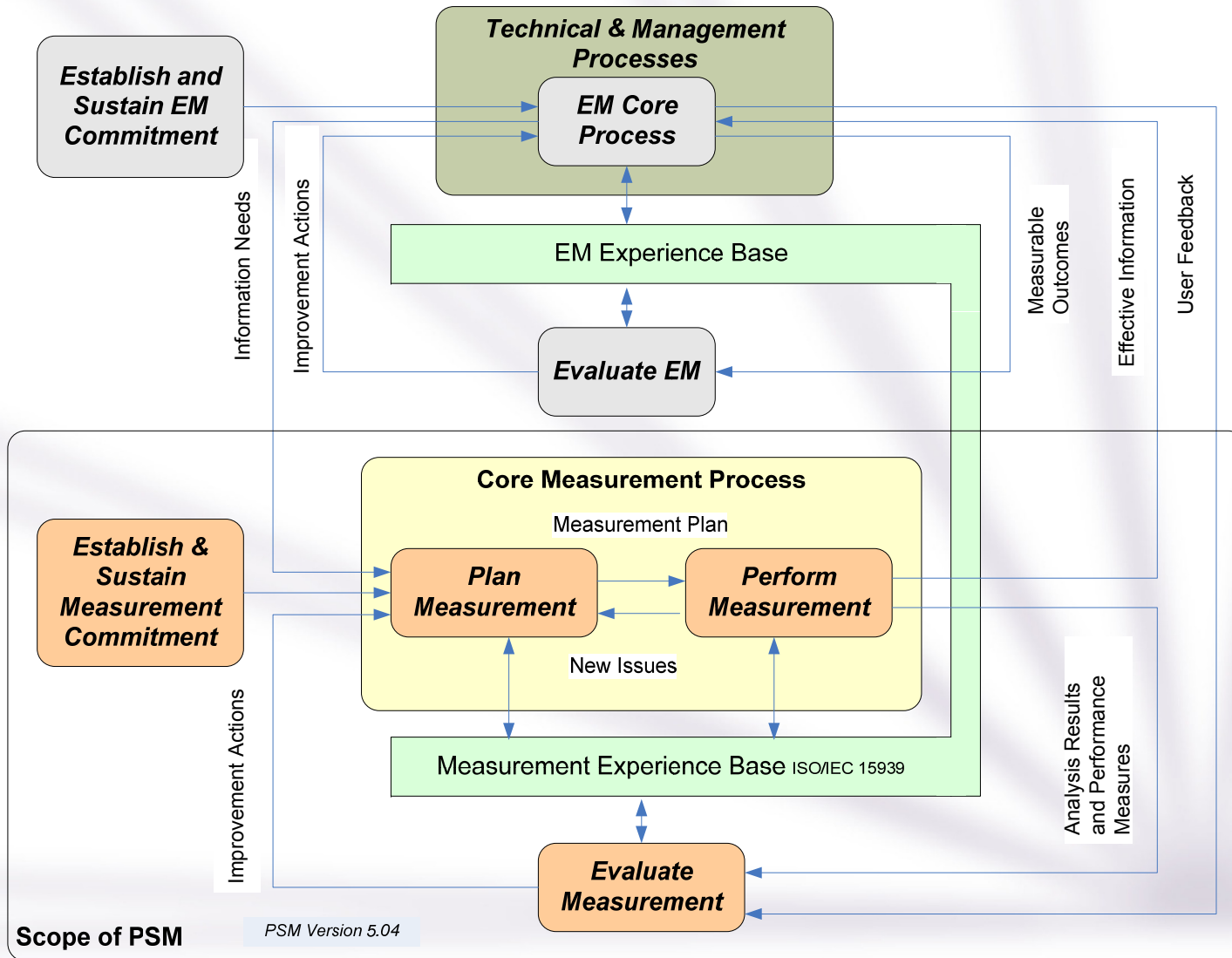
# Linking Measurement and Decisions

- Strengthen Engineering Management
  - Decision guidance plus information need specifications; link to measurement process
  - Model as decision-making
  - Develop a reference, generic decision process
  - Decision planning; architecture; programmed, un-programmed but prepared-for; un-planned
  - Specialise to EM decision types
  - Dealing with constraints
  - Detecting problems

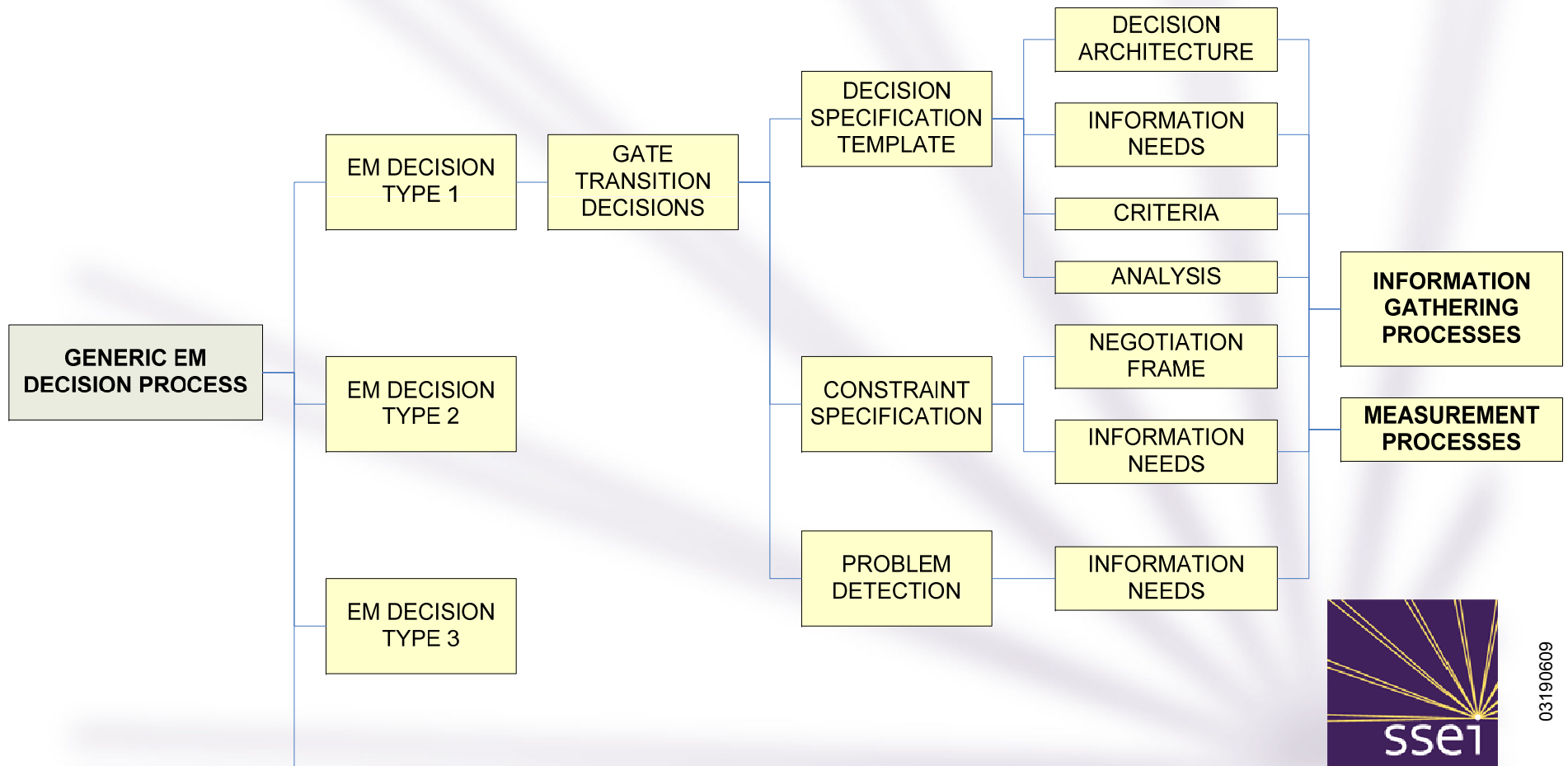
# EM Process



# EM Process



# Solution Map



# Conclusions: How to Improve Integrated Engineering Management?

The workshop will be looking at...

- Is this the right approach?
- What's missing?
- Are we addressing the right problem?
- Other approaches, solutions
- Recommendations
- Next Steps



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24<sup>th</sup> June 2009