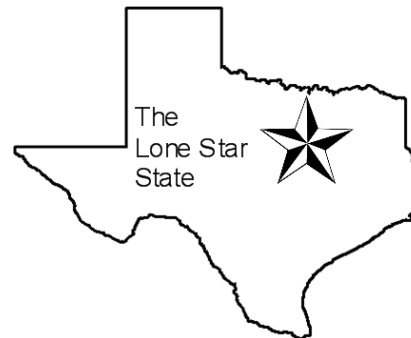# Stakeholder Engagements for Agile at Scale

INCOSE North Texas Chapter

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Ken Garlington (ken.garlington@gmail.com)

Kennie Garlington
Systems Engineer Principal
Engineering & Technology
Lockheed Martin Aeronautics

Kennie Garlington is a Systems Engineer supporting the Engineering and Technology directorate at Lockheed Martin Aeronautics. In this role, he is responsible for providing systems engineering guidance and technical expertise to all lines of business and programs across the enterprise. Mr. Garlington's current areas of interest include model-based systems engineering, software safety and reliability, and the application of Agile principles and practices to large-scale mission-critical systems. Mr. Garlington has over 37 years of experience in software engineering and systems engineering for military aircraft programs.

Mr. Garlington's previous role was the lead systems engineer for various avionics modernization projects for the F-22 Raptor. He has also held systems engineering and software engineering positions on the F-35, F-16 and F-111 platforms.

Mr. Garlington has a Master of Science in Systems Engineering, as well as a Master's of Software Engineering and a Bachelor's degree in Computer Science. In addition, he is certified as a SAFe® Program Consultant (SPC), a Program Management Institute Agile Certified Professional (PMI-ACP)®, and an International Council of Systems Engineering (INCOSE) Certified Systems Engineering Professional (CSEP)
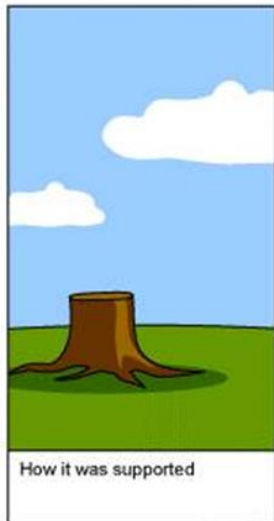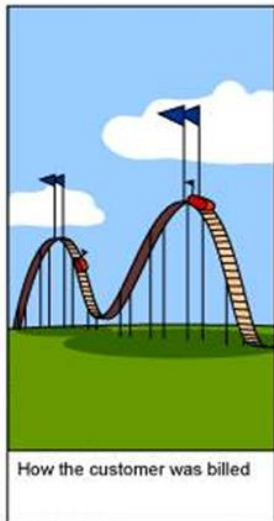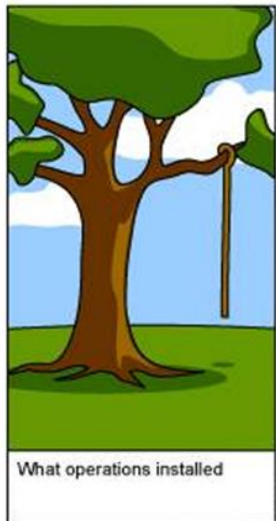
Stakeholders

Typical for systems development:

- Customer Organization
  - Functional
  - Financial ("Bill-Payer")
  - Organizational Risk
  - Political (Leadership)
- Users/Operators
- Prime Supplier(s)/Supply Chain
- Regulators/Society
- Adversaries/Threats
- Stakeholders for Related Systems
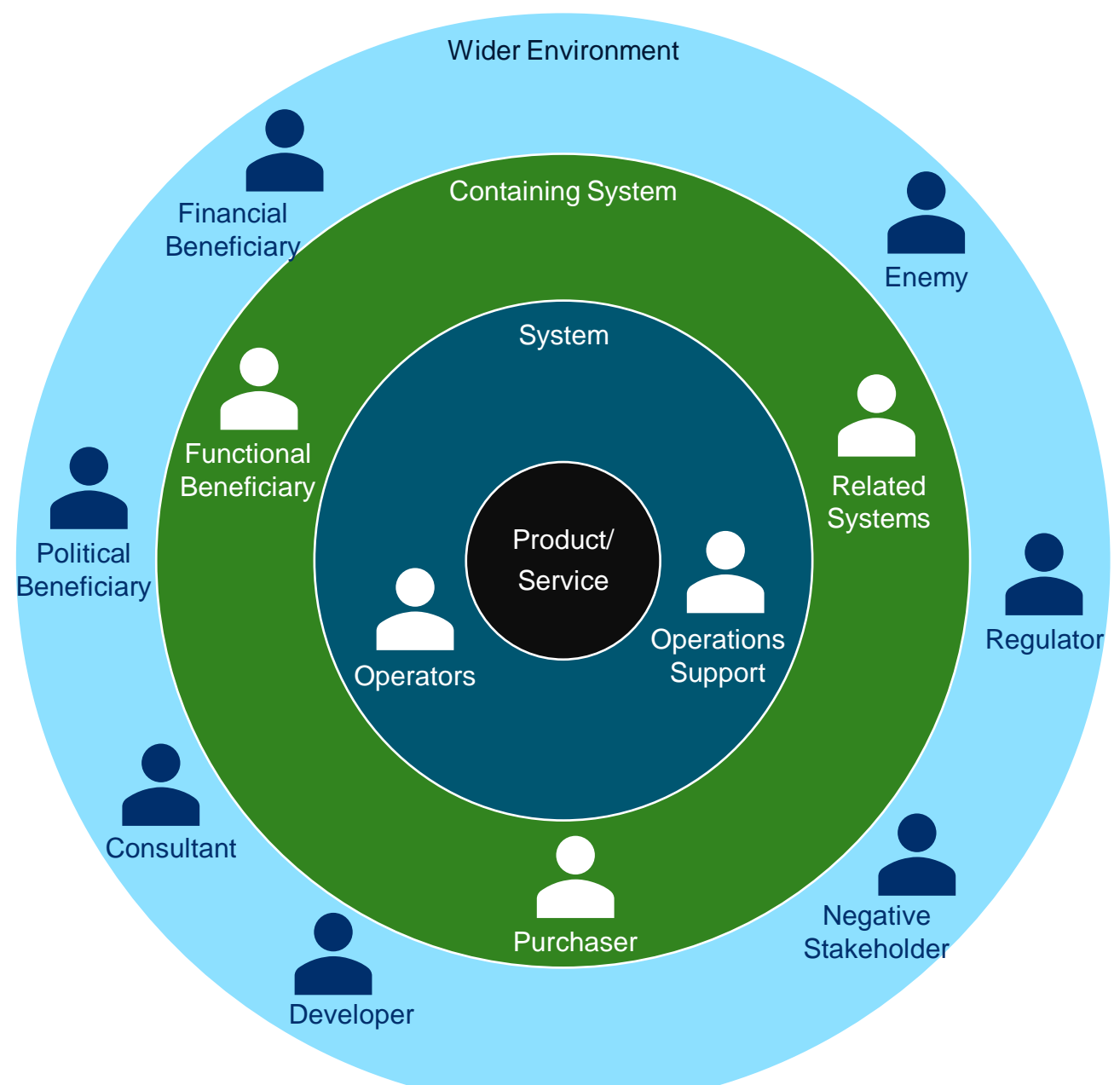
Adapted from Ian F. Alexander, "A Taxonomy of Stakeholders: Human Roles in System Development," International Journal of Technology and Human Interaction, Vol 1, 1, 2005, pages 23-59

Stakeholder Needs

How the customer explained it | How the Project Leader understood it | How the Analyst designed it | How the Programmer wrote it | How the Business Consultant described it

How the project was documented | What operations installed | How the customer was billed | How it was supported | What the customer really needed
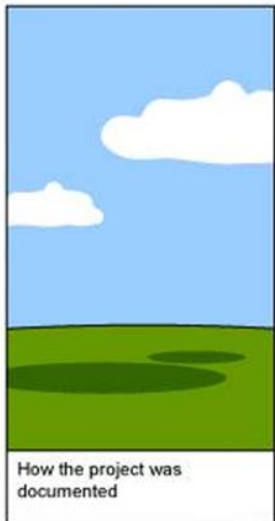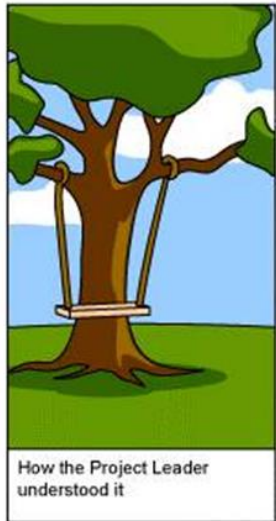
Customer wants something "good"
- May be unable to define "good"
- May be unable to admit uncertainty

Marketing wants revenue… NOW
- Willing to take risks
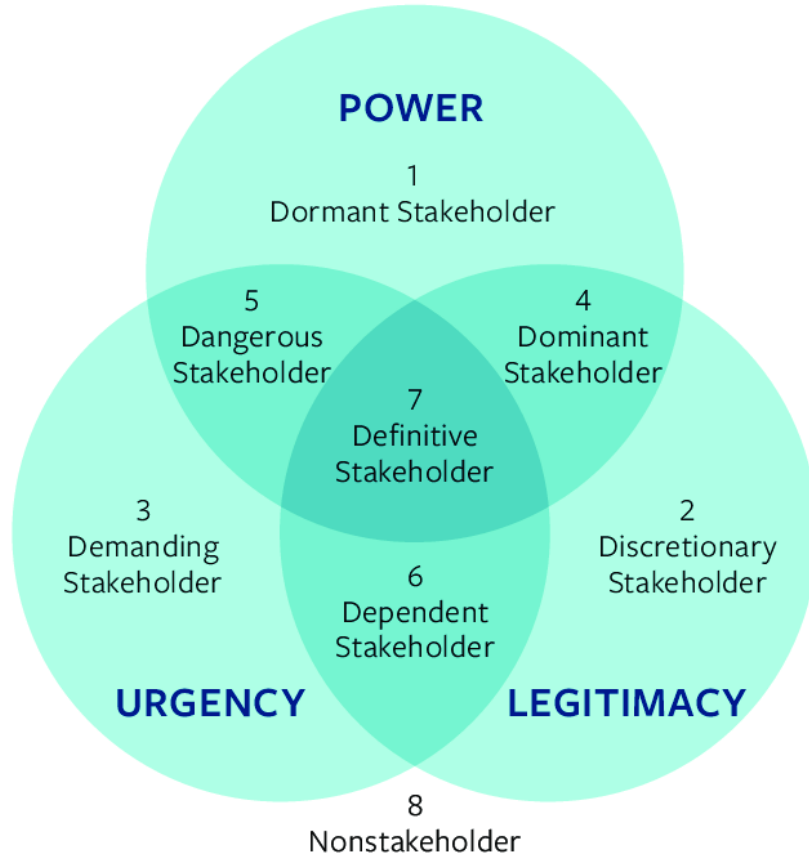- May not wait for detailed analysis

Engineering wants interesting work
- Want to show problem solving skills
- Want to apply existing knowledge

Program management wants results
- Avoid/minimize risk (all forms)
- Keep contract margins (e.g. budget)

Stakeholder Influence

POWER

1
Dormant Stakeholder

5
Dangerous Stakeholder

4
Dominant Stakeholder

7
Definitive Stakeholder

3
Demanding Stakeholder

6
Dependent Stakeholder

2
Discretionary Stakeholder

URGENCY   LEGITIMACY

8
Nonstakeholder

Ronald K. Mitchell et. al., "Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts," The Academy of Management Review, Vol. 22, No. 4 (Oct., 1997), pp. 853-886

In a large group, who gets the most attention?

- Power – the ability to influence a project

- Legitimacy
  - Legal/Contractual
  - Moral (e.g. safety, environmental impacts)
  - At-risk status ("skin in the game")

- Urgency
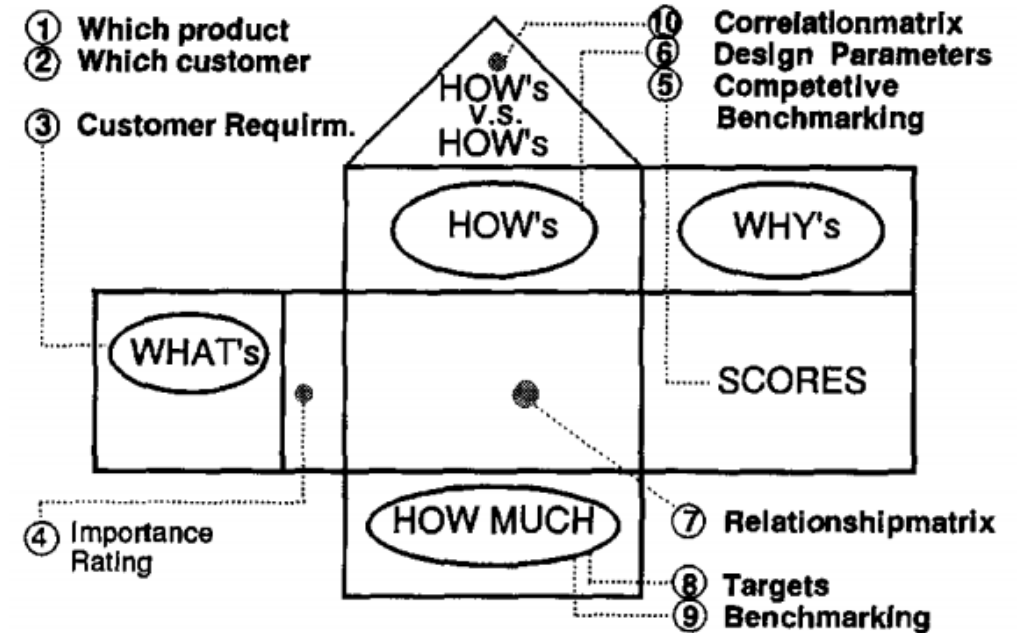 - Level of interest
  - Relationship of time to needs

Many stakeholders want to be a key stakeholder!

Prioritizing Stakeholder Needs

With a large set of needs, what's important?

- Stakeholder influence

- Common needs of multiple stakeholders

- Ability to meet needs

Use systematic approaches to analyze complex needs

C.P.M. Govers, "What and how about quality function deployment (QFD) ,"
Int. J. Production Economics 46-47 (1996) pp. 575-585

*Our understanding of stakeholders and their needs are limited by **communication and knowledge***

Two Views of Agile

➢ **SPEED of Value Delivery**

"Agile approaches to project management aim for early, measurable ROI through defined, iterative delivery of product increments. They feature continuous involvement of the customer throughout the product development cycle. Although agile has its roots in software and IT, agile adoption is growing and expanding in a wide range of industries." – Project Management Institute

➢ **RESPONSIVENESS to Feedback**

"Agility is the ability to respond effectively to surprises - good or bad." – International Council of Systems Engineering

The Feedback Goal

Less of this

Generate Documents ⟳ Manual Review (PowerPoint) → Generate Drawings ⟳ Manual Review (PowerPoint) → Build Product ⟳ Late Test & Integration → ⚠️

More of this

Analyze Models ⟳ Effective Feedback ⟷ Evaluate Prototypes ⟳ Effective Feedback ⟷ Integrate Proxies ⟳ Early Test & Integration →
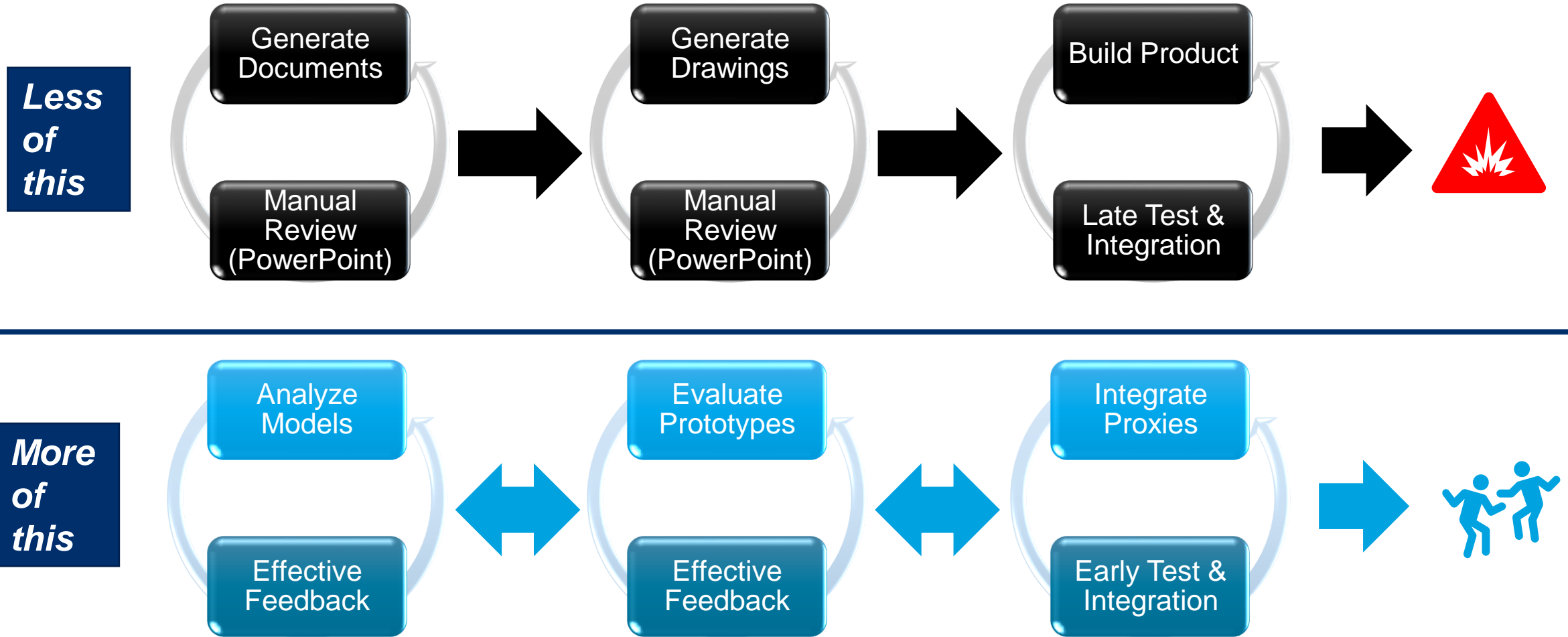
Stakeholder Collaboration in Agile

- Understand all the stakeholders

- Address contract requirements or other obstacles that may unnecessarily impede Agility

- Communicate the value of Agility-related investments

- Keep information current, relevant and easily accessed

- Have internal "proxies" for unavailable stakeholders

- Demonstrate working capabilities to stakeholders

Demonstrating to Stakeholders

- Adapt approach to your stakeholder preferences

- Have customer personnel participate in daily integration and verification testing

- Include demonstrated capability in decision making

  - Testing a system-level integrated prototype by critical design review can reduce schedule growth by 30%

- Highlight demonstration events in summary schedules

  - Can use tempo-based events for predictability

- Invest in test infrastructure that makes key system properties visible, preferably in real-time

- Use technology to present to remote stakeholders

GoPro cameras allowed Navy engineers in multiple states to see and control a C-130 demonstration in Texas

Considerations for Different Stakeholders

"Want Familiarity"	"Just Want Our Stuff"	"Want Agility"
Perform – Build Confidence	Perform – Build Confidence	Perform – Demonstrate Competence
"Sell" Key Demonstrations	"Sell" Key Demonstrations	Demonstrate Frequently
Look for Interest in Training, Suggest Joint Training	Look for Interest in Training	Suggest Participation in Their Training
Beware "Overselling" Agile	Look for Emerging Supporters (and Adversaries)	Beware The Agile "Experts"
Ensure "Traditional" Management Data (e.g. EVMS, Risk) Available	Ensure "Traditional" Management Data Available as Needed	Ensure "New" Management Data (e.g. APM) Accessible
Use "Traditional" Communications (formal meetings, CDRLs)… but look for informal engagements	Use "Traditional" Communications (formal meetings, CDRLs)… but look for informal engagements	Be More Intimate, Transparent (e.g. integration testing)

Find ways to move stakeholders to the right →