


Session W05

Measuring Quality Audit Effectiveness



Eric Richter, Ph.D.
The Aerospace Corporation
El Segundo, California

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The Aerospace Corporation



- Established in 1960
- Operates a Federally Funded Research and Development Center
- Emphasizes support of space programs
- Has 23 offices nationwide
- Employs 3800



El Segundo, CA



Colorado Springs, CO



Learning Objectives

- Review the compelling need for measuring audit effectiveness
- Understand the limitations of several common audit effectiveness metrics
- Develop a process approach to evaluating audit effectiveness
- Construct an audit effectiveness metric



Contents

- The management dilemma
- Limitations of common metrics
- Modeling auditing as a process
- Six measures of a good audit
- Constructing an audit effectiveness metric
- Summary and review





The management dilemma

The management dilemma

- Audits can surface problems in advance of nonconformities
- Management may not know how to apply the auditing tool
- Quality may not know what management needs

NOTE: Examples in this presentation are used for instruction purposes and do not reflect the performance of any organization.



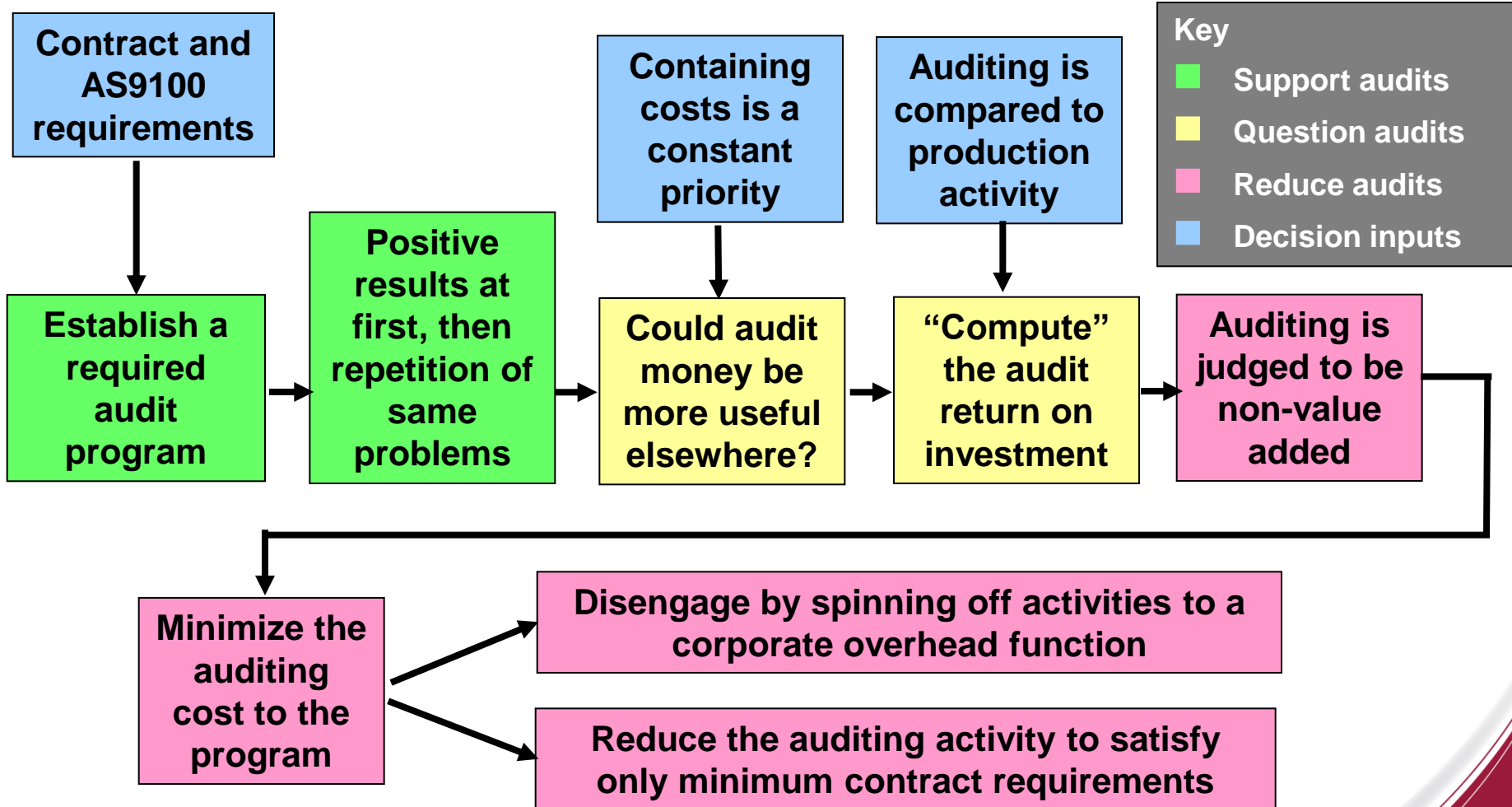
Management dilemma (cont.)



- Miscommunication between Management and Quality may weaken the audit program



Management decisions



Signs of change

- Management shows little interest in audit reports
- Audit status is put at the end of management briefings
- Requests for targeted audits disappear



Concerns

- Quality just reports problems
 - ❖ Pareto analysis doesn't address risk
 - ❖ Reports that do not translate findings into a dollar cost
 - ❖ No predictive aspects to reports
 - ❖ Outside auditors find obvious issues



The decision was made

- Size of audit teams are reduced
- Auditors are assigned non-auditing tasks
- Production schedule trumps audits

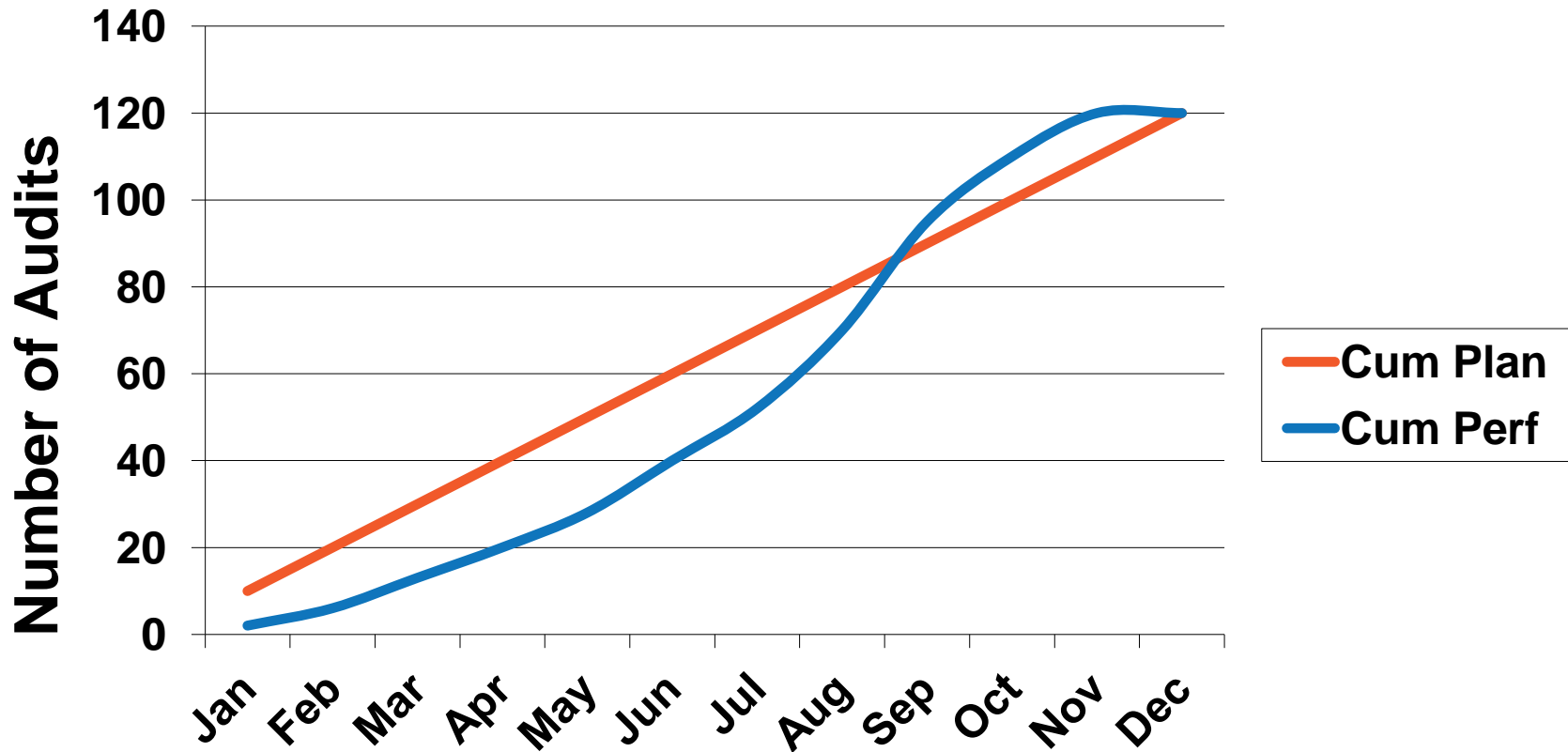
Auditors must constantly innovate to keep management's attention.





Limitations of common metrics

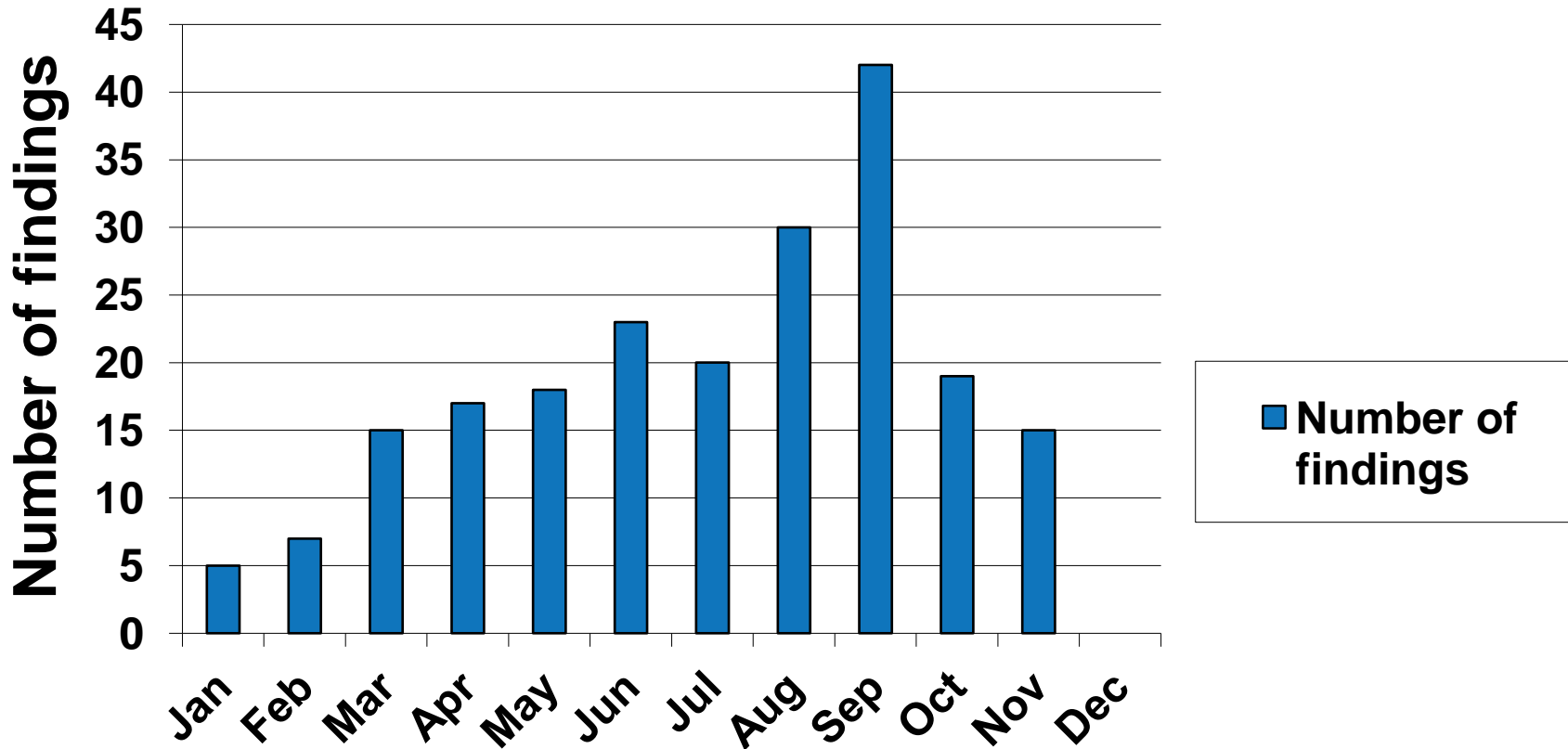
Performance to plan



NOTE: Chart is notional and does not reflect the performance of any particular company.



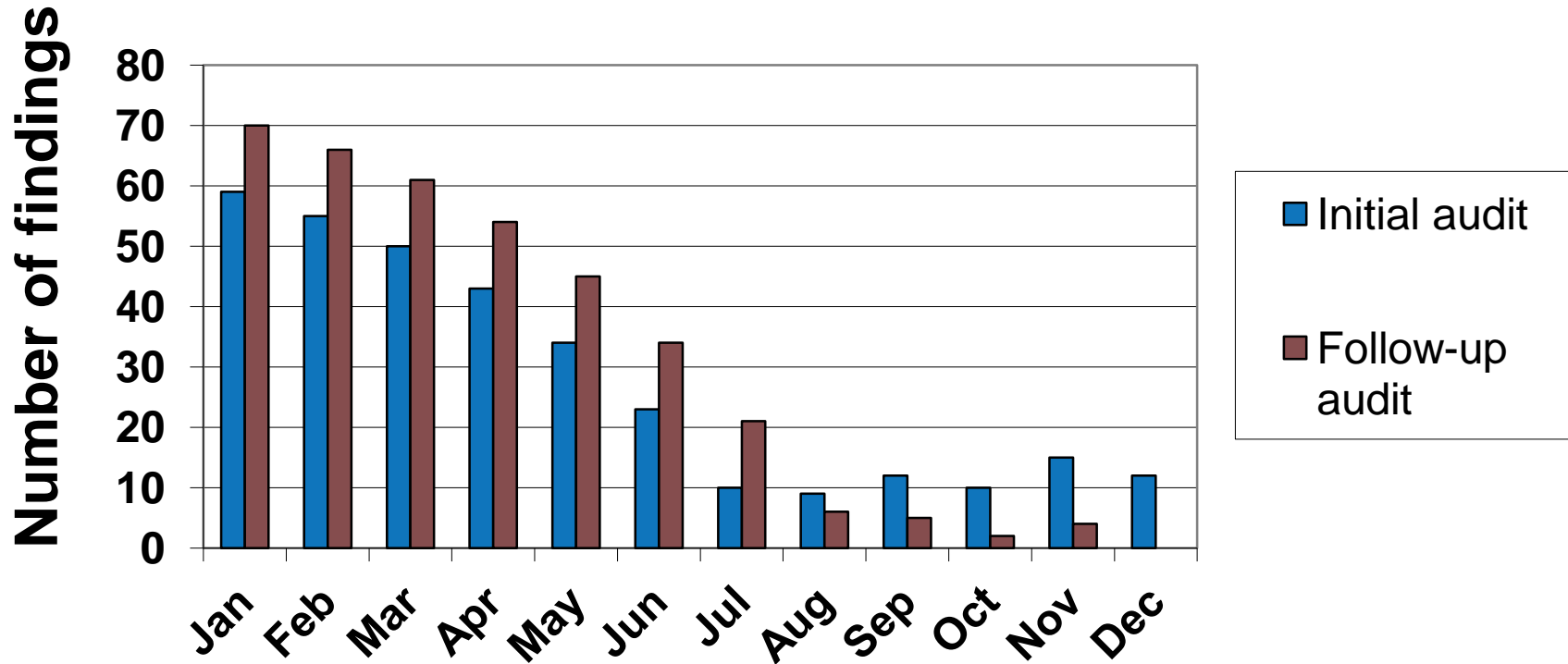
Number of findings



NOTE: Chart is notional and does not reflect the performance of any particular company.



Audit the auditor



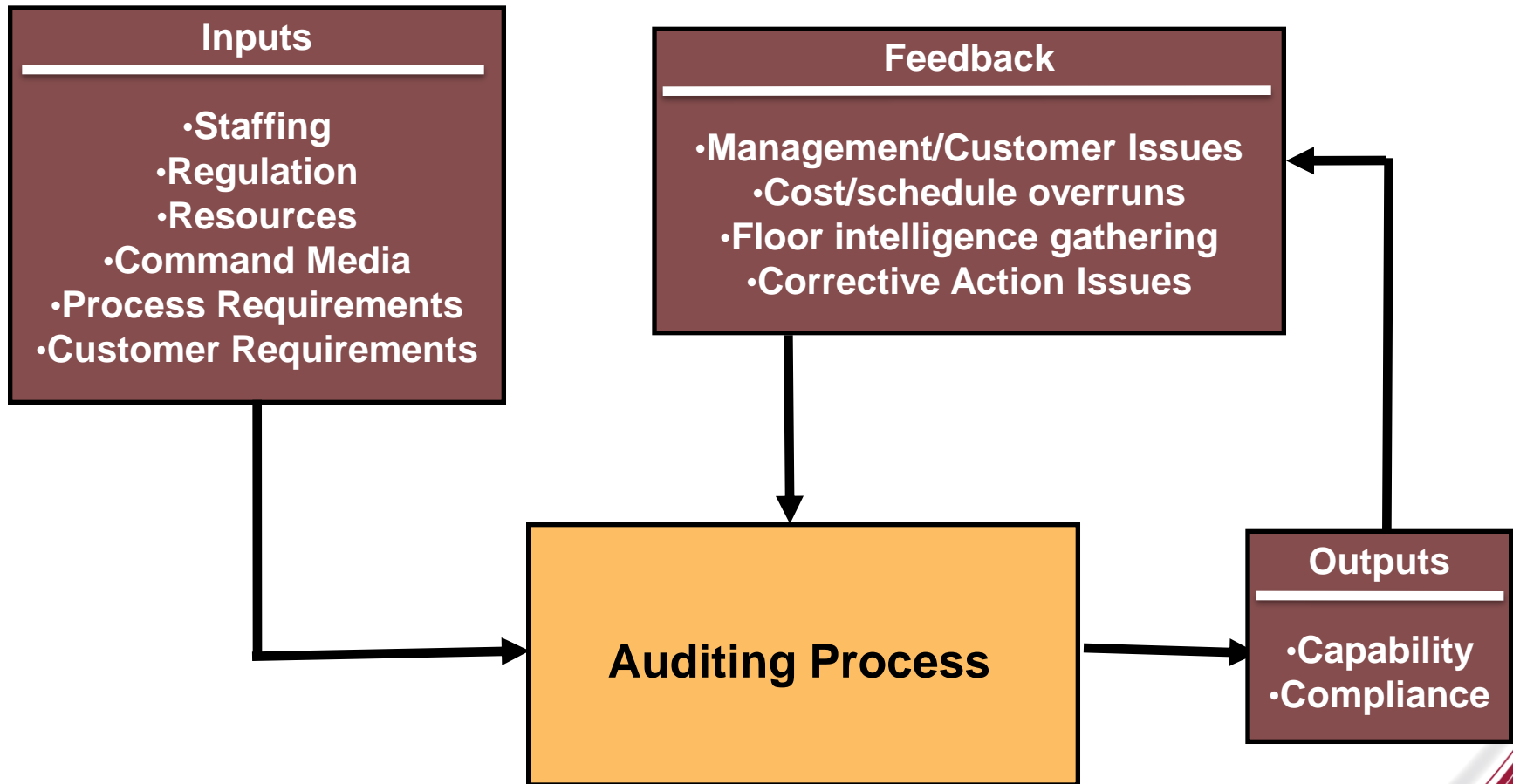
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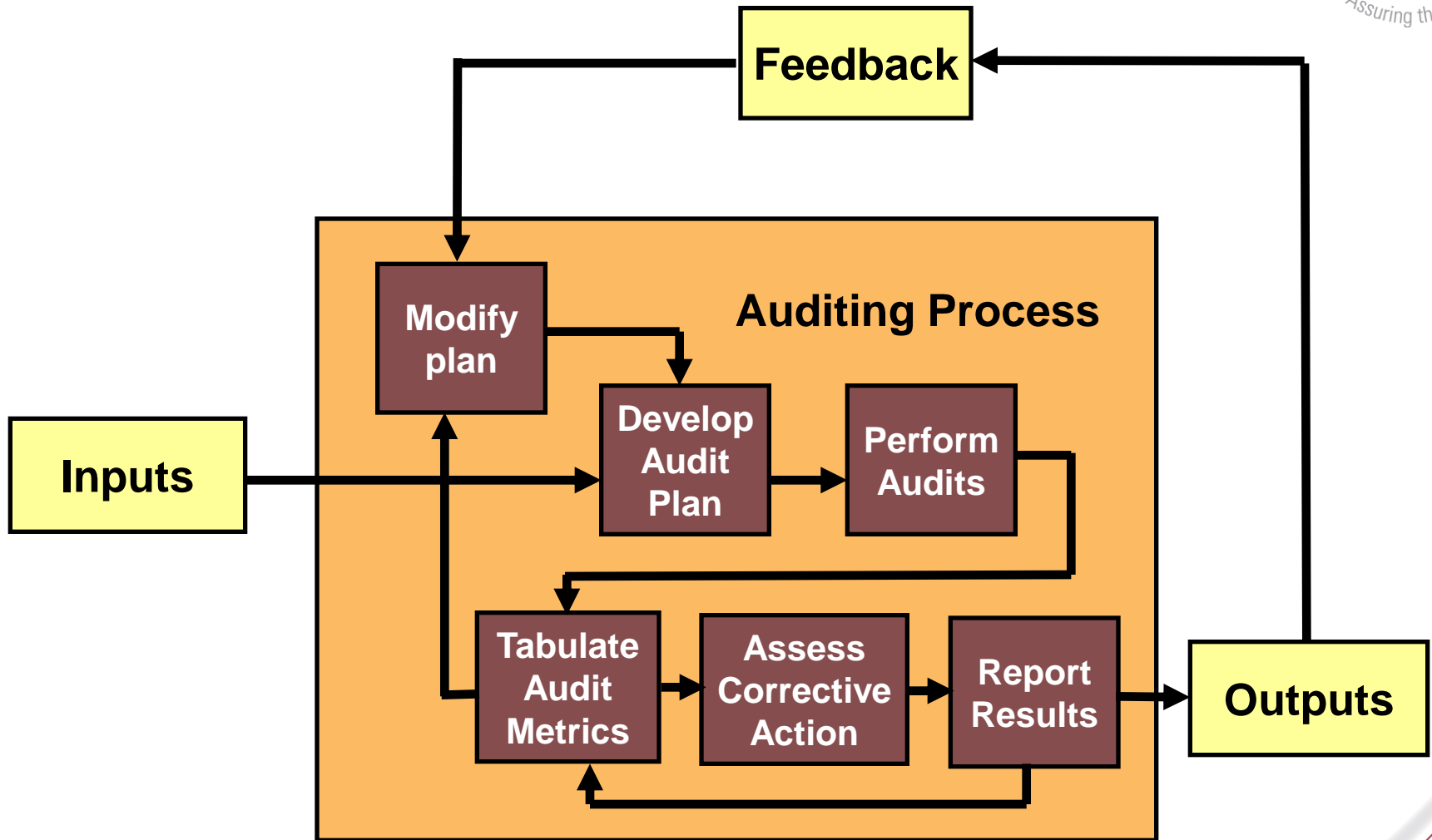


Modeling auditing as a process

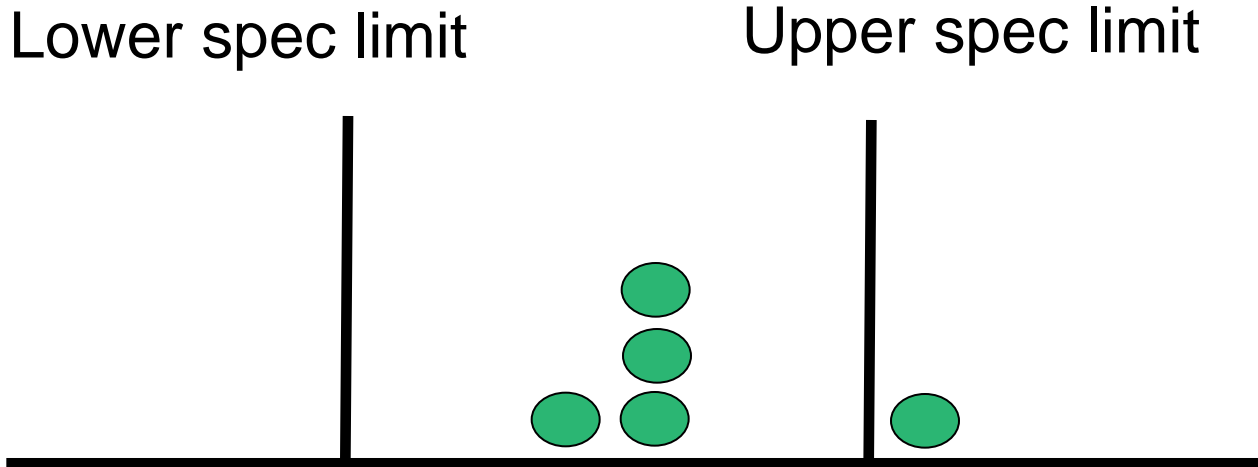
Process inputs and outputs



The auditing process



Compliance vs. capability





Six measures of a good audit

Sponsor satisfaction

1. Meets customer and sponsor needs and requirements
 - ❖ Do executives, customers, managers derive value from the audits?
 - ❖ Do reports provide actionable direction?



Risk

2. Measures organizational risk

- ❖ Do reports discuss risk to the organization?
- ❖ Do reports warn of future problems before product is affected?



Organizational improvement



3. Fosters an environment of feedback and continuous improvement
 - ❖ Do audits contribute to the organization's improvement?
 - ❖ Do audits assist the organization in reaching its business goals?



Auditor qualification

4. Auditors are qualified

- ❖ Are requirements for auditors established and adequate?
- ❖ Are auditors skills continually being updated?



Updating auditor skills

- ❖ Auditing techniques
- ❖ Knowledge: quality systems and technical processes audited
- ❖ Basic statistics and use of quality tools
- ❖ Presentation of material
- ❖ Communication using management language (cost, schedule)



Documented process

5. Process is documented

- ❖ Is there an audit plan which describes the goals, approach and schedule for the coming year?
- ❖ Are relevant directive documents up-to-date and aligned?



Auditing improvement

6. Continual improvement of audit process

- ❖ Do audits provide greater insight into the organization?
- ❖ Is the auditing effort becoming more efficient?
- ❖ Does the auditing effort stimulate preventive action?



Constructing an audit effectiveness metric

Weighting

- Six measures of audit effectiveness (audit elements) are defined
- Each audit element is given a weight
 - ❖ Weight may be tailored based on organization's needs



Audit element scoring

- A three-tiered score is given to each audit element
 - ❖ High score – improvement focus
 - ❖ Medium score – meets requirements
 - ❖ Low score – unpredictable or has minimal control



Calculating the metric

- Multiply the weight times the element score
- Sum the products



Audit element weights

Audit Element	Weight
Meet customer and sponsor needs	25
Surface risk issues	20
Encourage feedback and continuous improvement	15
Auditors are qualified	15
Audit process is documented	15
Continually improve audit process	10



Tiered scoring examples

Audit Element	Points Rating
Meet customer and sponsor needs	(9) presentations produce interest, requests and dialog (5) presentations made regularly (1) little feedback from customer or sponsor
Surface risk issues	(9) quantifiable discussion of risk in reports and briefings (5) vague or subjective discussion of risk in reports and briefings (1) little mention of risk in reports and briefings



Calculation example

- Meet customer and sponsor needs (1 point)
- Surface risk issues (1 point)
- Encourage feedback and continuous improvement (5 points)
- Auditors are qualified (5 points)
- Audit process is documented (9 points)
- Continually improve audit process (5 points)



Calculation example (cont.)

- Multiply weight by the respective rating and sum
 - ❖ $25 \times 1 + 20 \times 1 + 15 \times 5 + 15 \times 5 + 15 \times 9 + 10 \times 5 = 380$
 - ❖ Maximum score is 900, minimum score is 100
- Total score may be trended



Overall stoplight rating

- Suggested ranges for an overall scorecard rating
 - 680 to 900 Green
 - 320 to 679 Yellow
 - 100 to 319 Red
- Scorecard bands may be tailored based on organization needs





Summary and review

Compelling need

- Absence of a good audit effectiveness metric has consequences
 - ❖ Management may not understand the value and capabilities of a good auditing program
 - ❖ Quality may not be able to improve the program



Limitations of common metrics



- Performance to plan
- Number of findings
- Audit the auditor



Auditing process

- Auditing process has its inputs, outputs and feedback
- Defining the process identifies more clearly those items that need to be measured



Six audit measures

- Sponsor needs
- Risk
- Organization improvement
- Qualified auditors
- Document process
- Continually improve audit process



Developing the metric

- Assign a weight to each audit measure
- Develop a 3 level measure on each element
- Multiply the weight by the respective audit measure
- Sum the products and trend



Take away



Quality audit effectiveness is measured by performing a process audit of the audit process



Questions?



