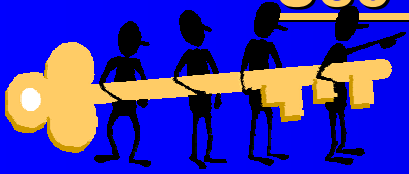


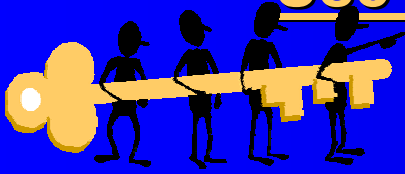
# Use of Inspections as a Risk Mitigation Tool

**Dr. Lawrence E. Day - CSQA, PMP**



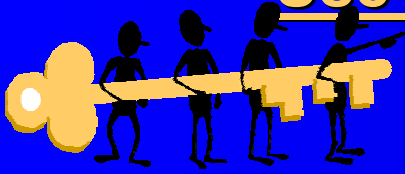
## Agenda

- ATE and Inspection Overview
- ATE S/W Application
- Inspection Lessons Learned
- Inspection Manufacturing Process
- Summary



## Inspection Overview

- Cross Functional management chartered technical teams
- Documented and followed a S/W development process.
- Peer reviews and S/W inspections.
- S/W configuration management and S/W review board.
- Test organization
- Project Tracking and Management Oversight.



## Inspection Overview (con't)

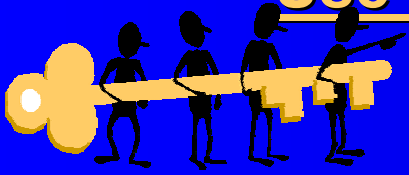
### Definitions

#### Error:

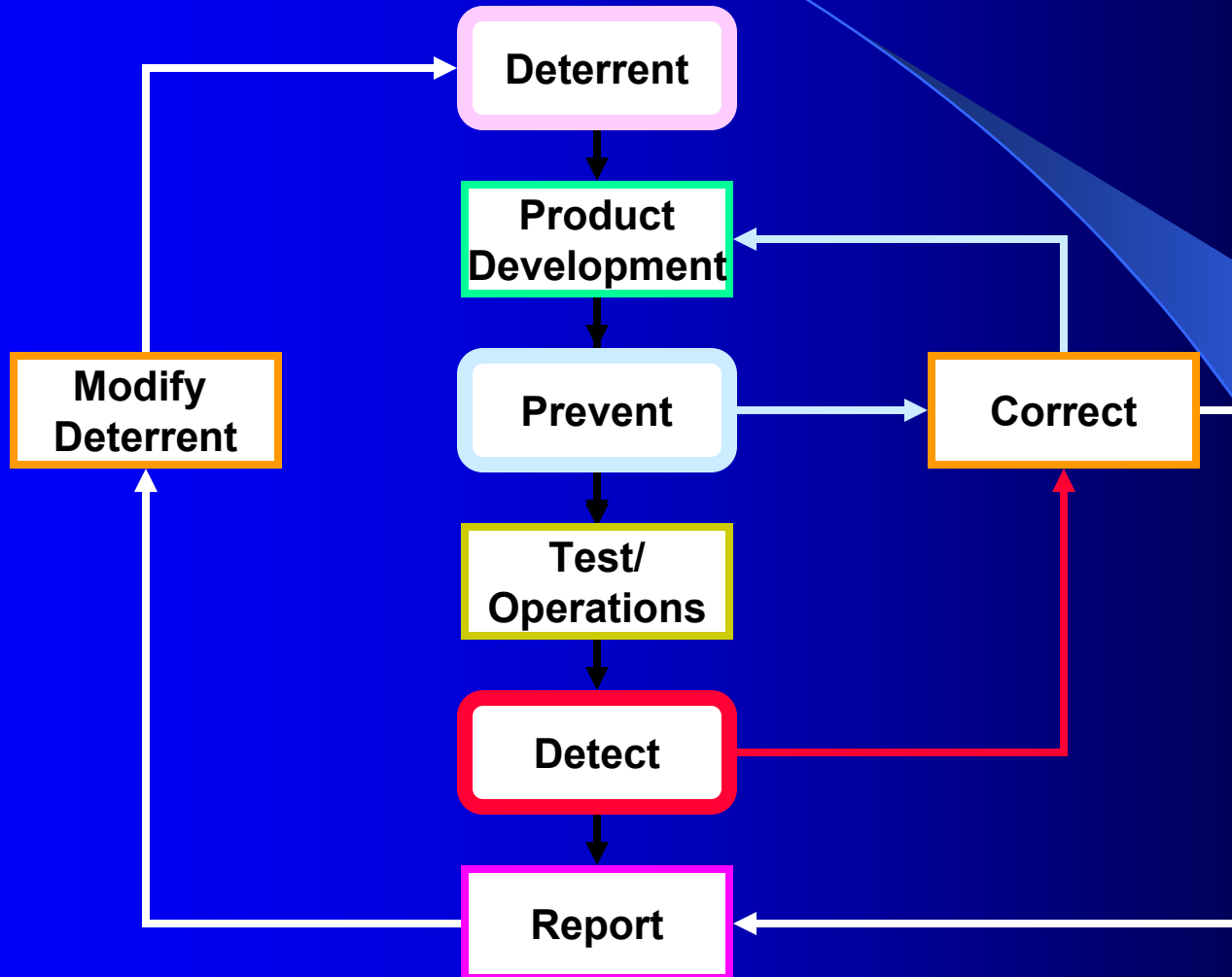
Product does not meet customer expectations.

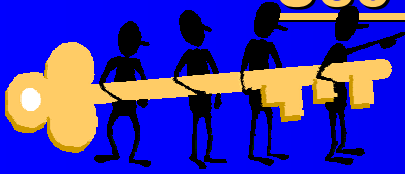
#### Defect:

An error that crosses a group boundary to the down stream customer.

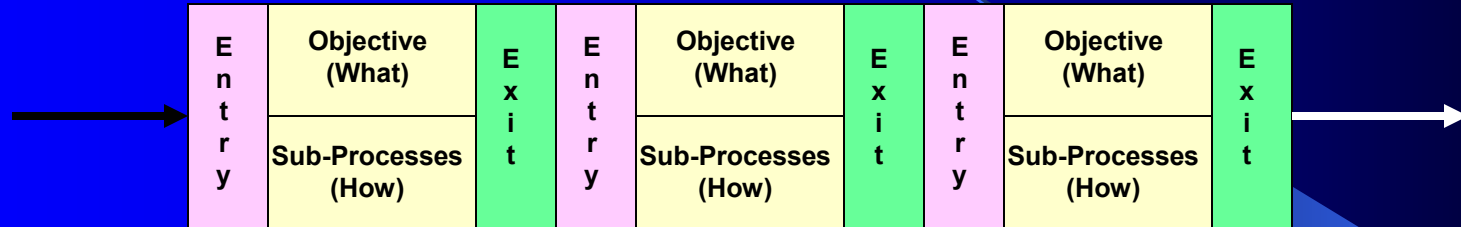


## Defect Prevention Hierarchy

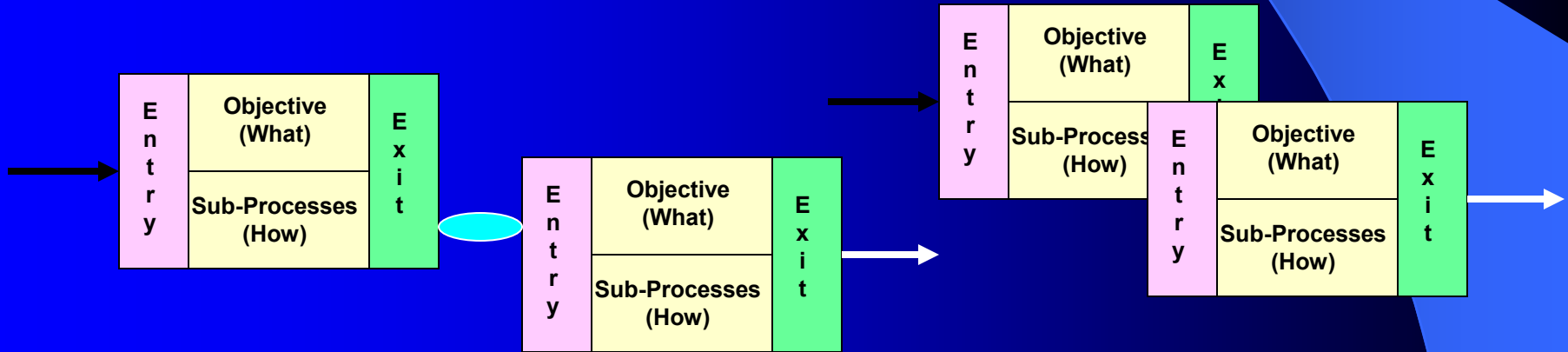




## Work Process Management

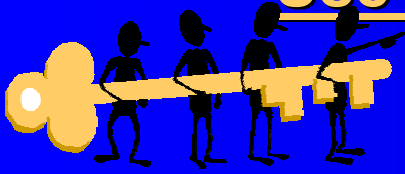


Desired End-State  
(Aligned Objectives and Matching Entry/Exit Criteria)



Underlap

Overlap

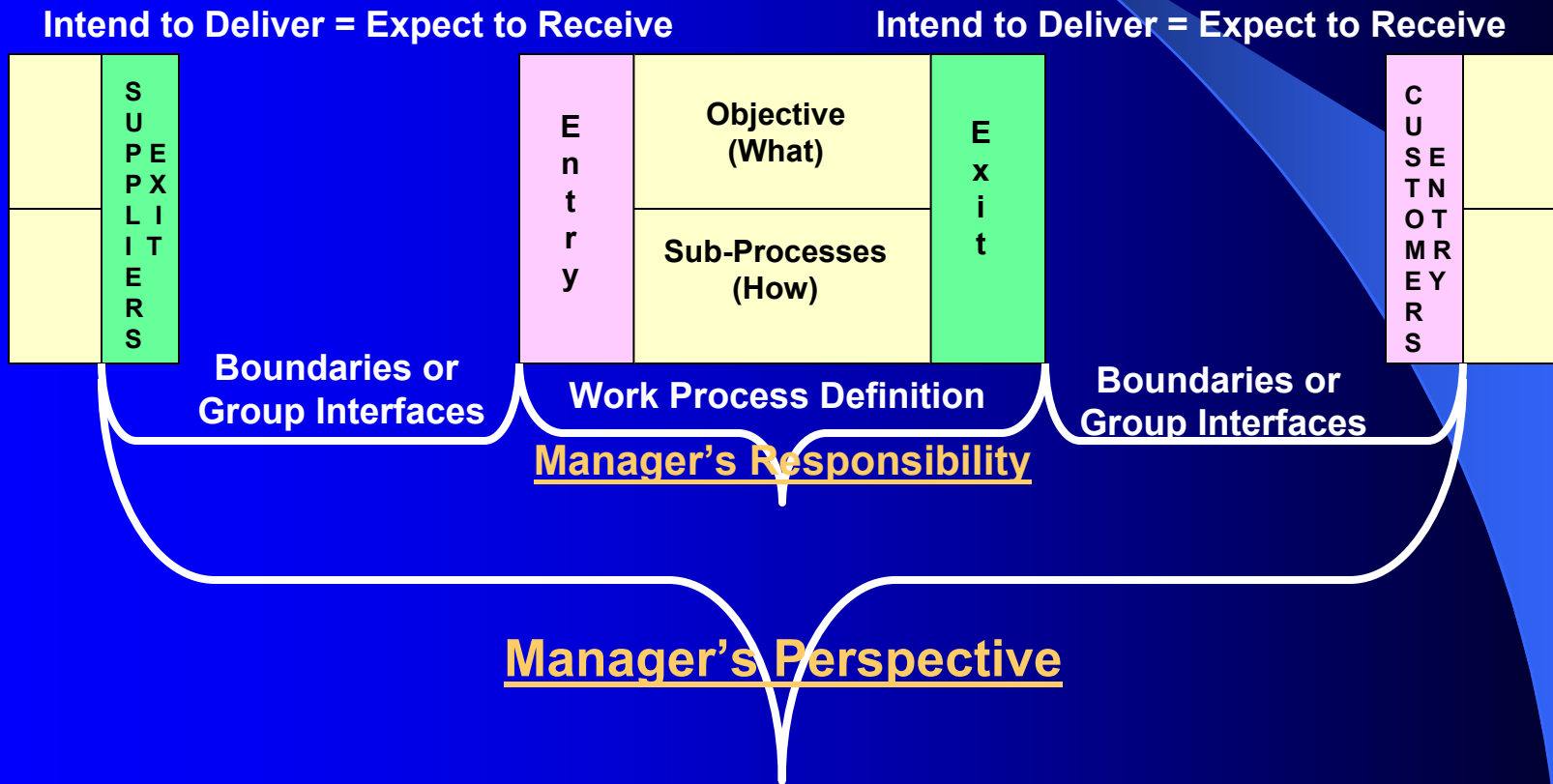


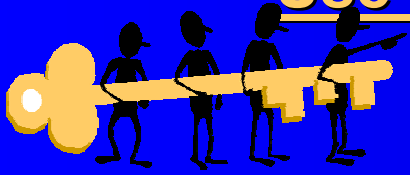
# Use of Inspections as a Risk Mitigation Tool



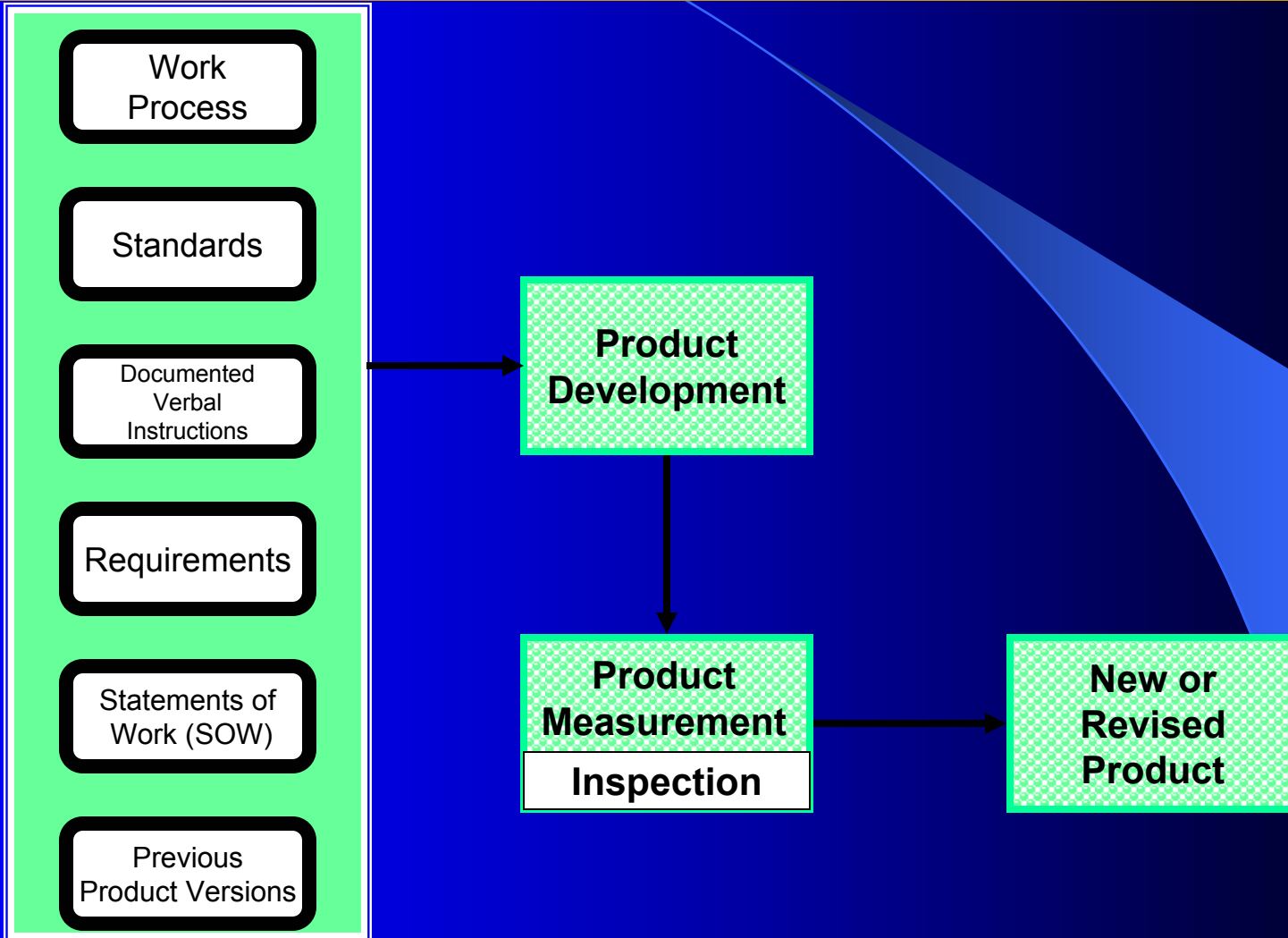
## Work Process Management

### Manager's Frame of Reference Developing and Negotiating Entry/Exit Criteria

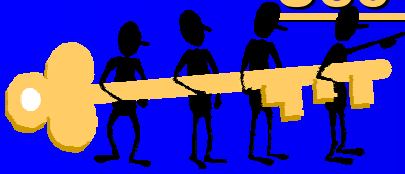




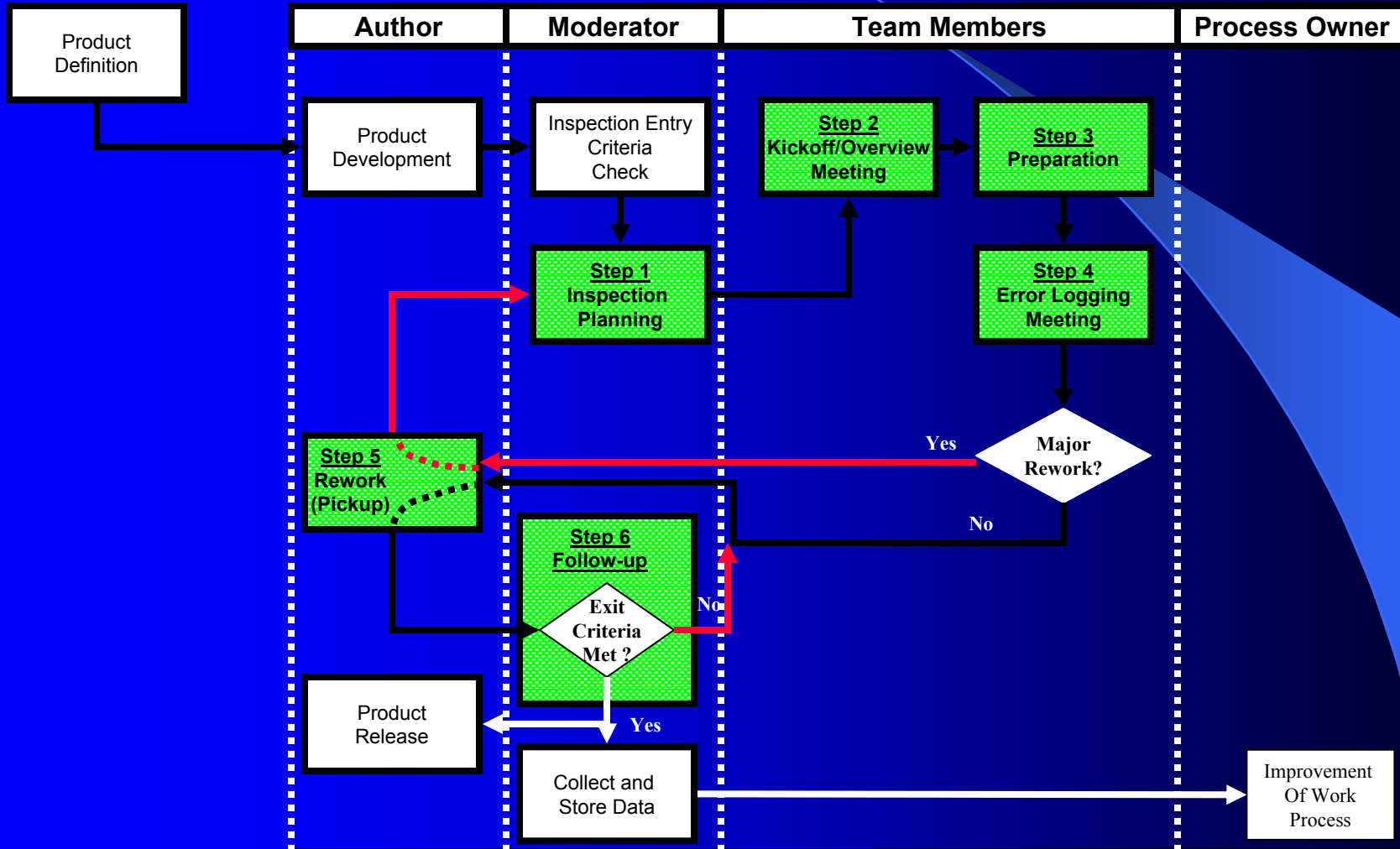
## Process Level Diagram

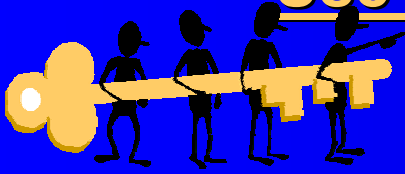


# Use of Inspections as a Risk Mitigation Tool



## Inspection Review Process Flow



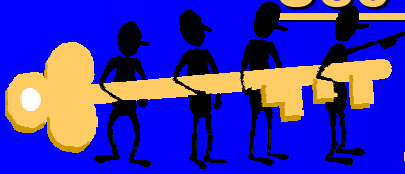


## Elements to Ensure Success

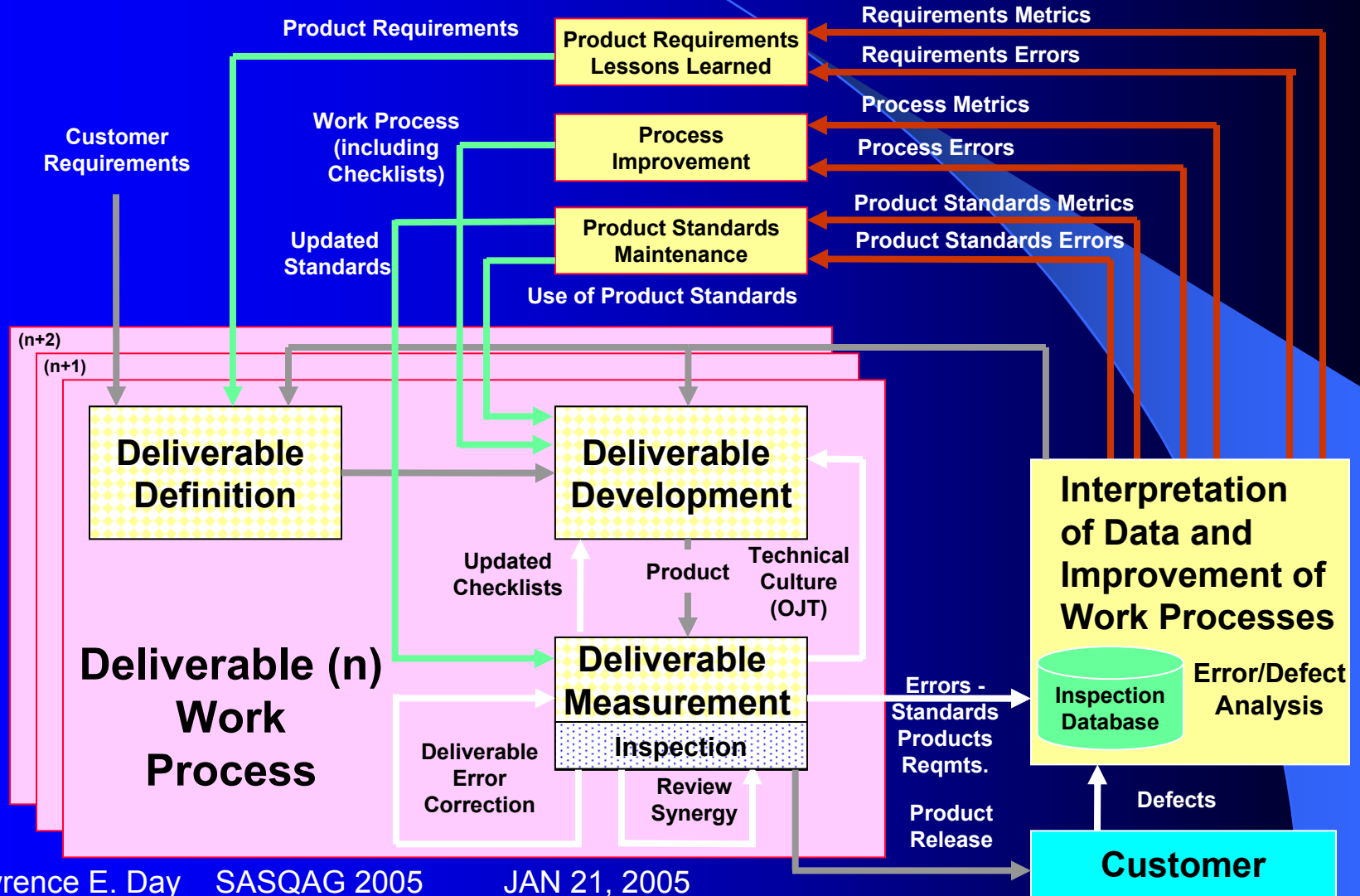


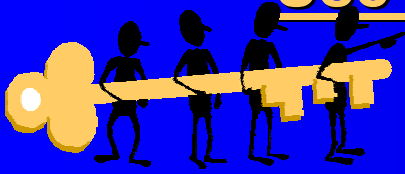
- Management Commitment and Resources
- Moderators Trained
- Work Processes Documented
- Entry/Exit Criteria Documented
- Baseline Standards Identified and Documented
- Cross-Functional checklists
- Work Groups Trained
- Analyze Results and Provide Product and Process Improvement Status/Feedback

# Use of Inspections as a Risk Mitigation Tool



## Inspection Paths and Benefits

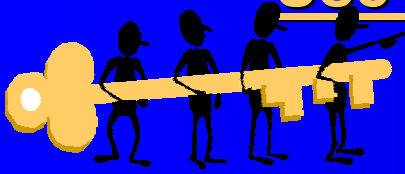




Inspections can help to Manage S/W  
Process Evolution and Improvement:

- Traditional View of Inspections as just an “Inspection” Process.
- Alternate view of Inspections as a Manufacturing Process.
- Conclusions – From a Manufacturing View

# Use of Inspections as a Risk Mitigation Tool

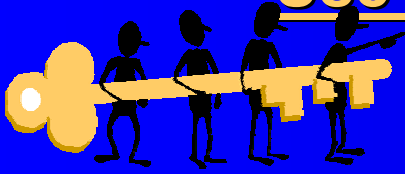


## Inspections as a Manufacturing Process (con't)



- Traditional Quality View:  
Inspections are a Quality Inspection and Product Improvement Technique.
- Manufacturing/Quality Assurance View:
  - Inspections are a Manufacturing Process. Their purpose is to manufacture Error Free S/W. Each Inspection review is one production “run” of the manufacturing process.
  - W. Edwards Deming’s Process Management & Control Methods can be applied to analyze and manage the Inspection Process.

# Use of Inspections as a Risk Mitigation Tool

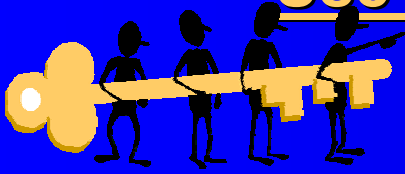


## Inspections as a Manufacturing Process (con't)

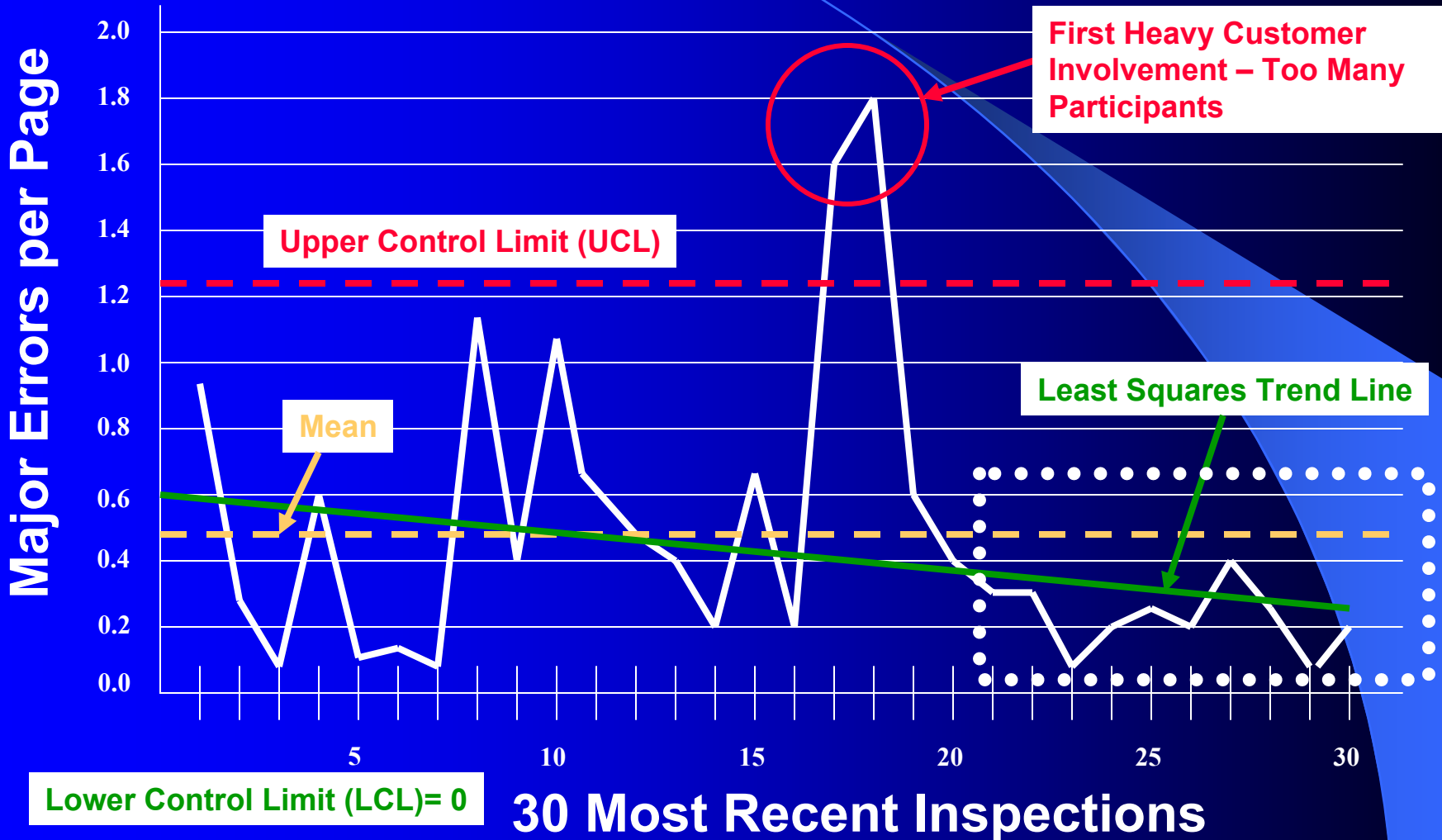


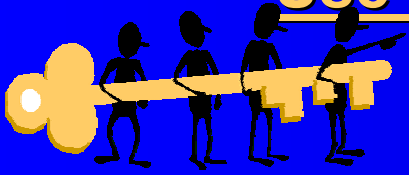
- Consequences of the Manufacturing View
  - Process Control Charts complete with Control Limits can be maintained as the inspections are “running”.
  - Analysis of Variance (ANOVA) methods can be applied to the data variance shown in the charts to explain sources of process variance:
    - Intrinsic (due to the process itself)
    - Extrinsic (due to the process operators)

# Use of Inspections as a Risk Mitigation Tool

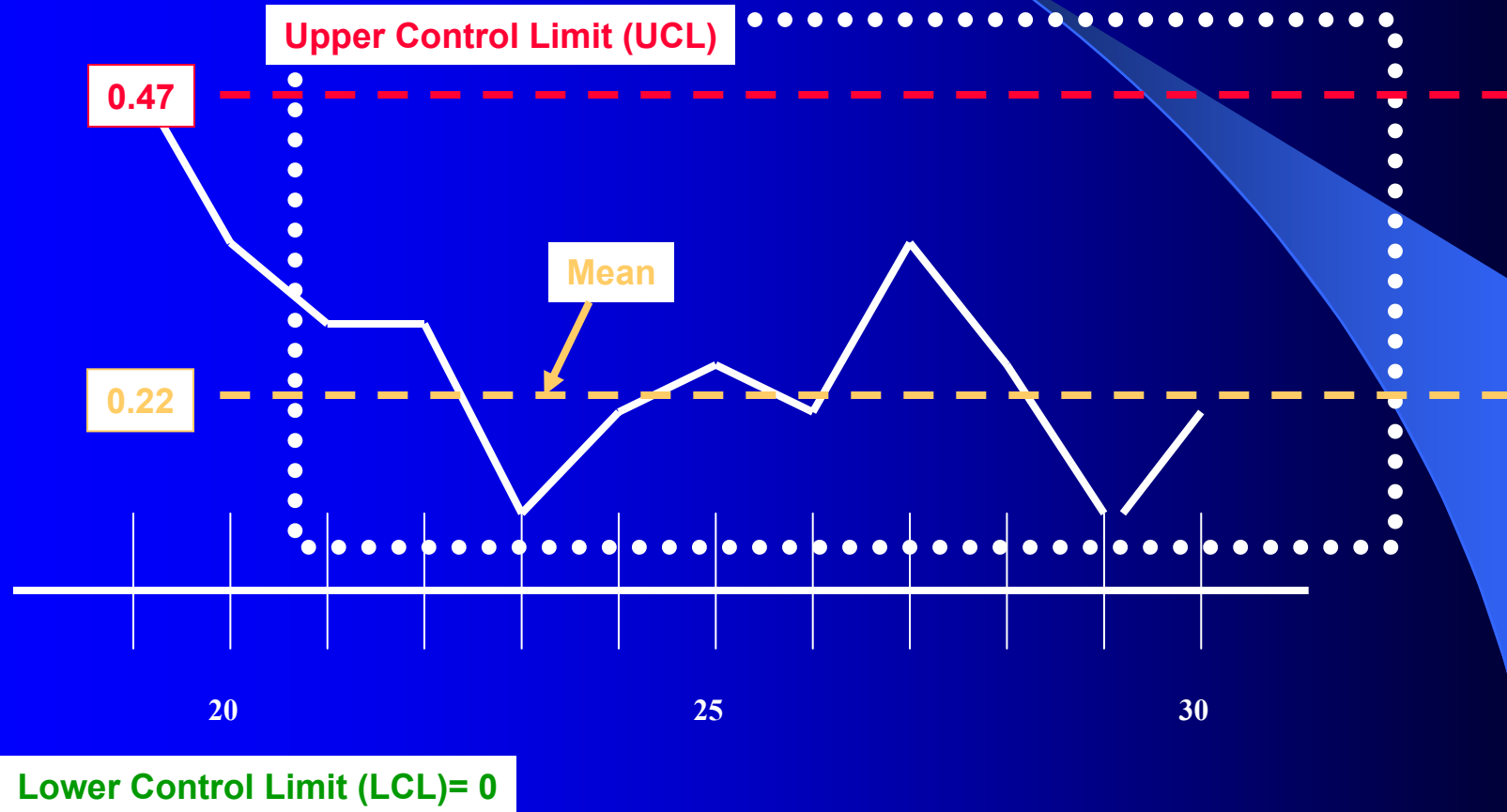


## Inspection Data

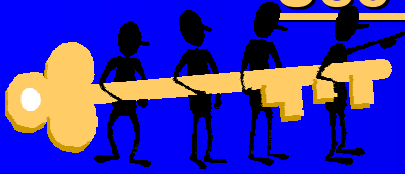




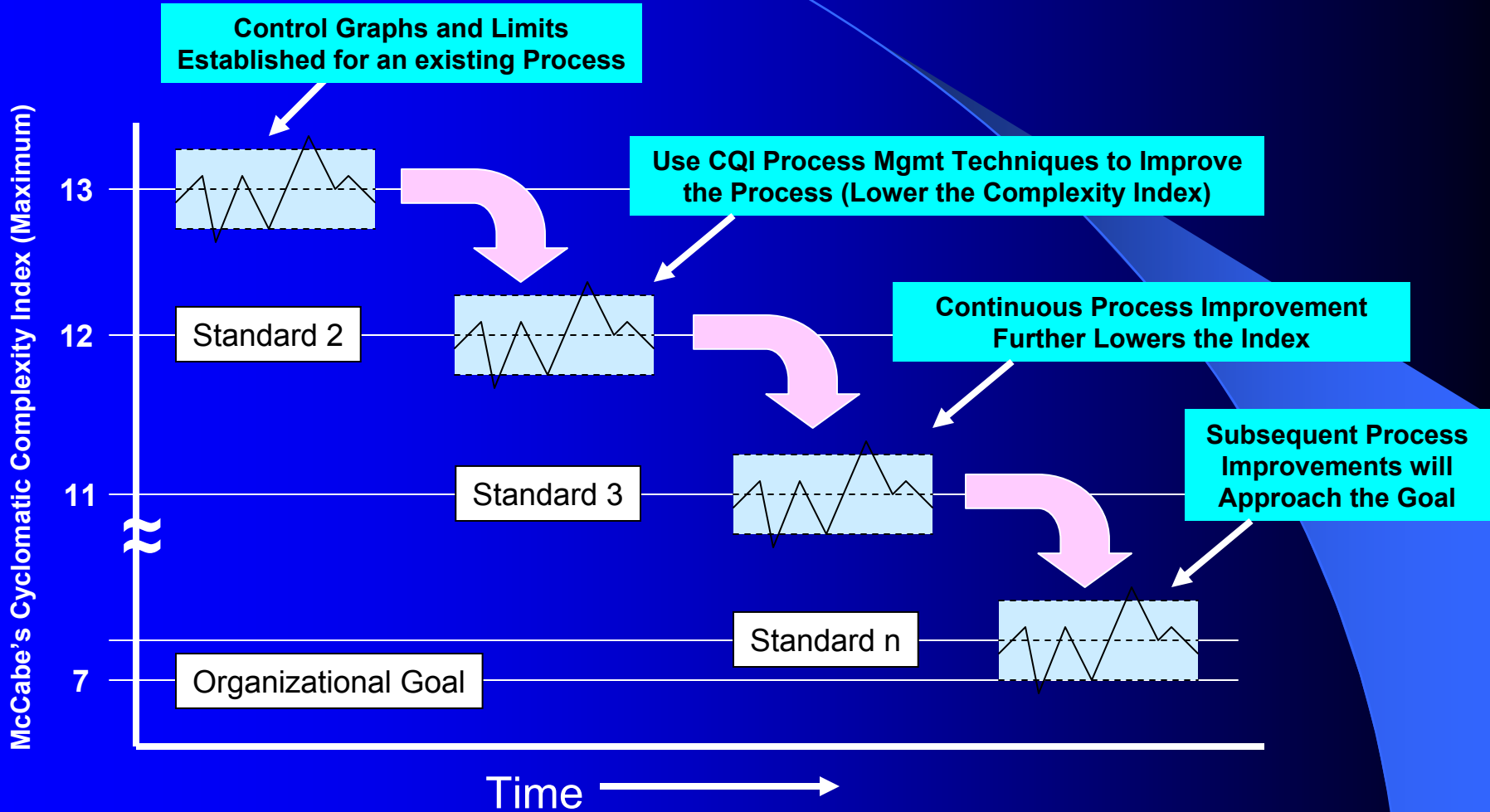
## Inspection Data

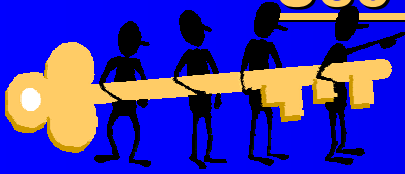


# Use of Inspections as a Risk Mitigation Tool



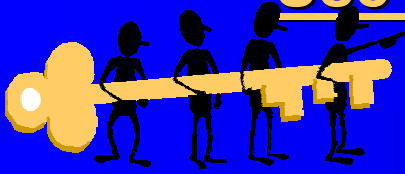
## Stepwise CQI Will Improve a Process





Variance is due to intrinsic (process caused) factors:

- To improve things (decrease the number of errors/page), modify the process.
- Using the full Inspection process can result in traditional one-time waterfall series of events transforming into a controlled manufacturing process subject to modern statistical quality controls.
- The manufacturing view assists the organization in migrating up the SEI CMM Levels past Level 3 where Inspections are introduced.



## Summary

“The major benefit of Inspections is their ability to cause a group of development process-naïve people to rapidly converge on a common development process.”

ATE Manager