



# On Lock Down: Requirements Change Management

Presentation for the Information Management Forum

Thursday, July 28, 2011

2:00 pm - 3:00 pm EDT

<http://theimf.com/index.php?id=41&eventID=683>

# Ground Rules

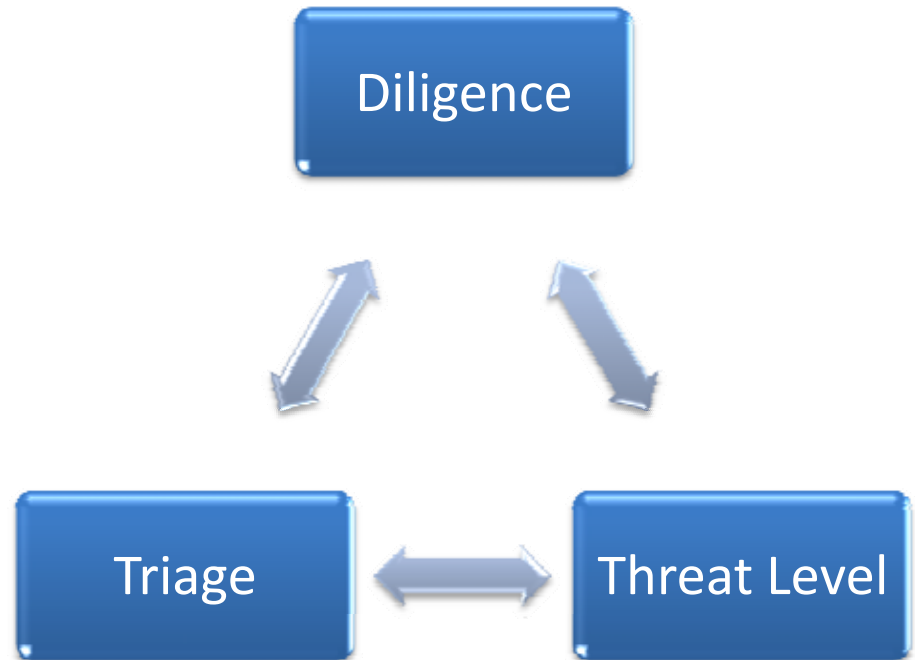
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- This session is for you, so please participate.
  - Interrupt me for clarification using WebEx Chat.
  - Save specific questions/discussion till the end.
  
- The content in this presentation and discussion are the responsibility of Hans Eckman, and does not express the views and opinions SunTrust Banks, Inc.
  
- No animals were harmed during the creation of this presentation. Please support your local rescue groups. (like *Leftover Pets* - <http://www.leftoverpets.org>)

# Conclusions

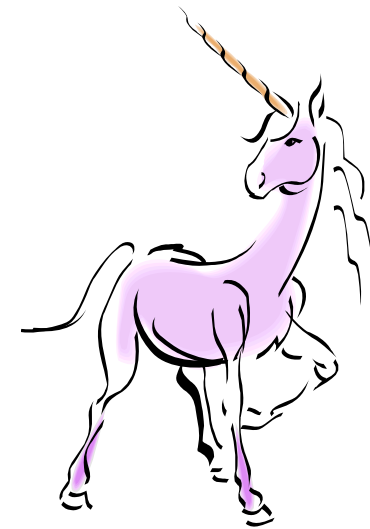
- Principles of release management and change control can be applied to requirements management.
- Level of control must match risk and timing.
- Consistency and diligence are required for success.



# The Ideal Project Timeline



- All stakeholders agree, and know exactly what they need from the beginning.
- Developers translate the requirements perfectly into a viable solution.
- No defects or missed requirements in solution.
- No change in business need or prioritization during the project.



# The High Cost of Change



Error Cost Factor	Requirements, Design	Coding, Unit Test	Integration Test	Acceptance Test	Post-product Release
Tassey <sup>1</sup>	1x	5x	10x	15x	30x
Boehm <sup>2,3</sup>	1x	3x	7x	50x	100x
When Errors are introduced <sup>1</sup>	3.5%	10.5%	35%	6%	15%

## Other Cost Factors<sup>3</sup>

- *“One insight shows the cost-escalation factor for small, noncritical software systems to be more like 5:1 than 100:1.”*
- *“Current software projects spend about 40 to 50 percent of their effort on avoidable rework.”*
- *“Two major sources of avoidable rework involve hastily specified requirements and nominal-case design and development...”*

# Facing Reality – Only Change is Constant



Ambiguities, Clarifications, Invalid Requirements

Missed Requirements

Scope and Prioritization Changes

Constraints: Design, Resource, Time, Budget

Missed implementation

Change in business need

## **No Material Impact:**

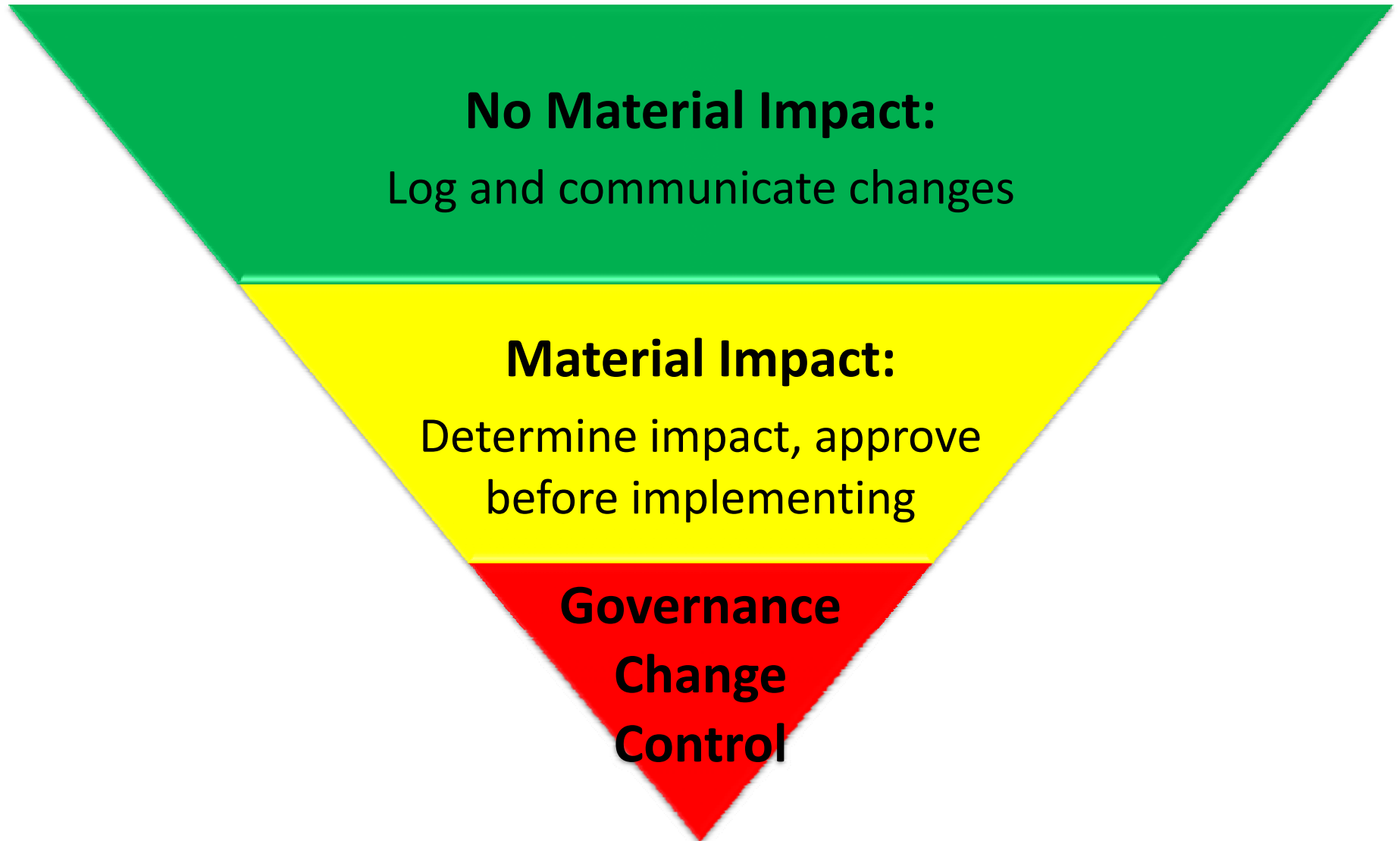
Typos, Wording Ambiguities, Clarifications, Structure, Formatting, Decomposition, Supporting Requirements, Details, Etc.

## **Material Impact:**

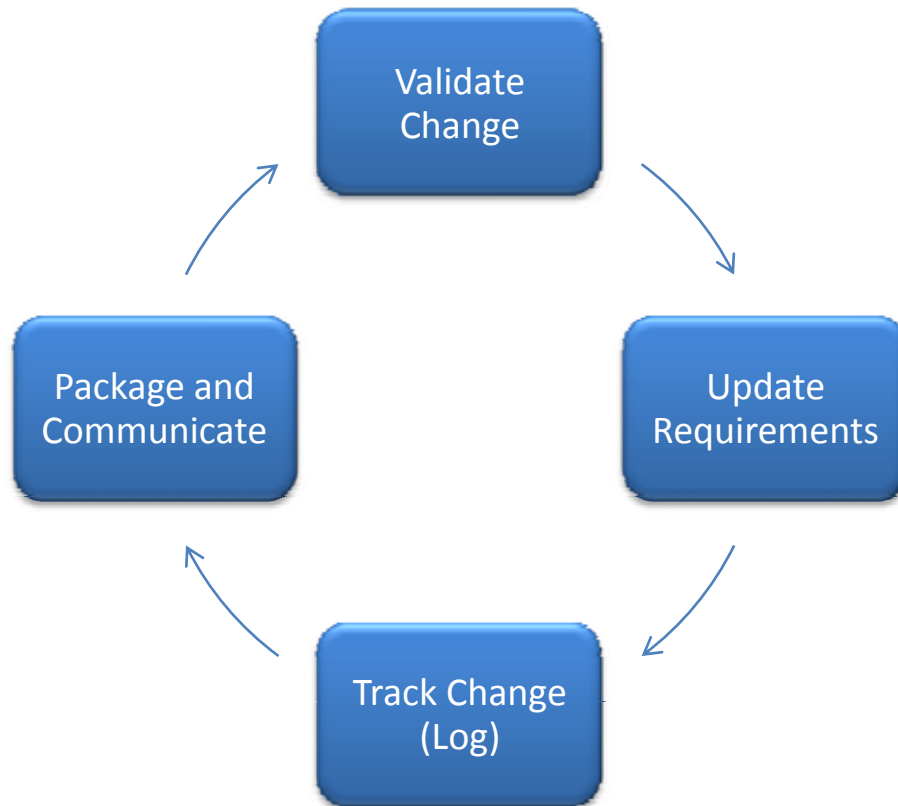
Missed Requirements, New Requirements, Constraints, External Impacts, Etc.

**Governance  
Impact**

# Triage Levels



# No Material Impact - Update Process



- Begins after first formal communication of requirements
- Needs to update system of record for requirements
- Log all changes with effective date
- Update Process is the foundation for Change Approvals

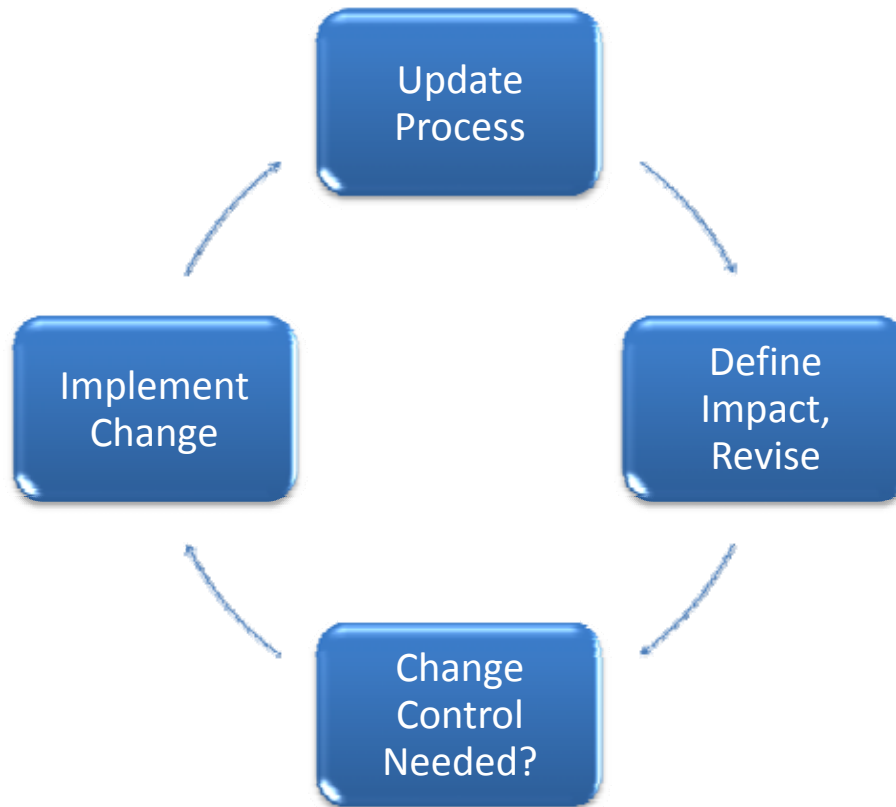
# Documenting Changes



1.08	Eckman	<p>Correction to field value found during testing.</p> <p><b>UPDATE:</b> 5.139.09.02 ID 5.139.09.02 - [blurred text]</p> <p>TO: 5.139.09.02 ID 5.139.09.02 - [blurred text]</p> <p><b>UPDATE:</b> 5.142.09.02 ID 5.142.09.02 - [blurred text]</p> <p>TO: 5.142.09.02 ID 5.142.09.02 - [blurred text]</p>	11-24-2008
1.08	Eckman	<p><b>DefectID: 27246</b></p> <p><b>UPDATED:</b> 5.06.04.01 ID 5.06.04.01 - [blurred text]</p> <p>5.06.08.01 ID 5.06.08.01 - [blurred text]</p>	12-01-2008

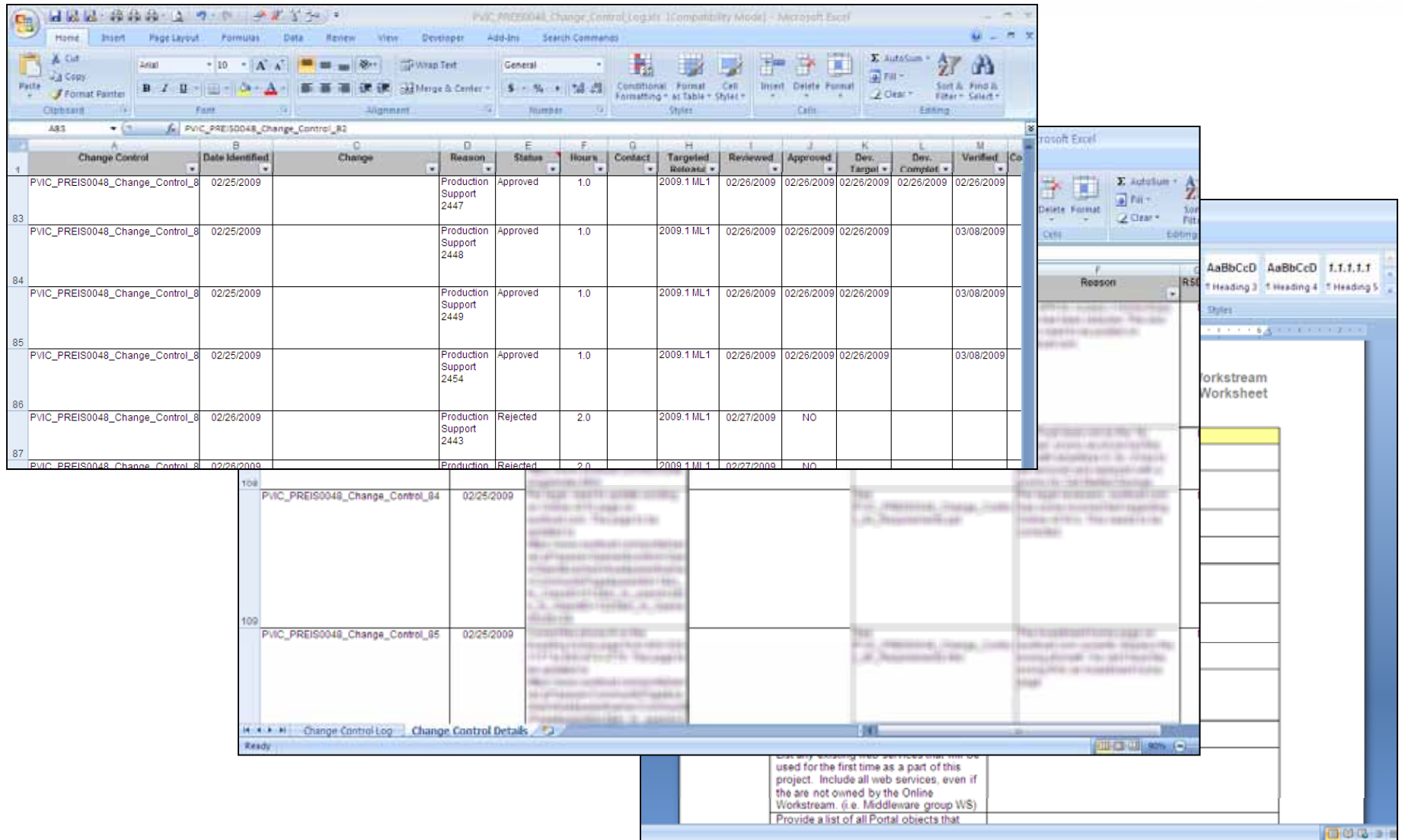
- Changes are logged by document version
- State changes source: defect, change control, etc.
- Identify owner, effective date and requirement ID
- Show before and after

# Changes Requiring Approval



- Occurs when:
  - After document approval
  - Change to functionality
  - Impacts other deliverables
  - Impacts cost or schedule
- Leverages Update Process
- Define impact and cost if change is implemented
- Complete Governance  
Change Control if needed
- Stakeholders must approve

# Tracking Approvals



Change Control	Date Identified	Change	Reason	Status	Hours	Contact	Targeted Release	Reviewed	Approved	Dev. Target	Dev. Complet	Verified	Co
PVIC_PREIS0048_Change_Control_83	02/25/2009		Production Support 2447	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009	02/26/2009	02/26/2009	
PVIC_PREIS0048_Change_Control_84	02/25/2009		Production Support 2448	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009		03/08/2009	
PVIC_PREIS0048_Change_Control_85	02/25/2009		Production Support 2449	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009		03/08/2009	
PVIC_PREIS0048_Change_Control_86	02/25/2009		Production Support 2454	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009		03/08/2009	
PVIC_PREIS0048_Change_Control_87	02/26/2009		Production Support 2443	Rejected	2.0		2009.1 ML1	02/27/2009	NO				
PVIC_PREIS0048_Change_Control_88	02/26/2009		Production Support 2443	Rejected	2.0		2009.1 ML1	02/27/2009	NO				

Change Control	Date Identified	Change	Reason	Status	Hours	Contact	Targeted Release	Reviewed	Approved	Dev. Target	Dev. Complet	Verified	Co
PVIC_PREIS0048_Change_Control_84	02/25/2009		Production Support 2447	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009	02/26/2009	02/26/2009	
PVIC_PREIS0048_Change_Control_85	02/25/2009		Production Support 2448	Approved	1.0		2009.1 ML1	02/26/2009	02/26/2009	02/26/2009		03/08/2009	



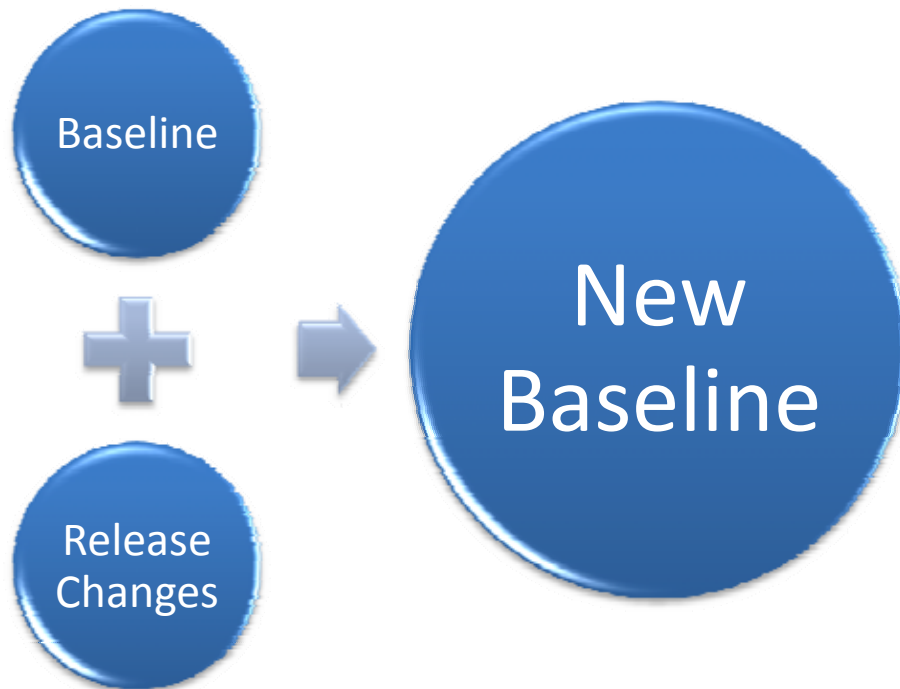
# Best Practices

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- Communicate change process and templates as part of your requirements approach. No Surprises!
- Maintain consistent control and communication.
- Impact assessment is key to risk management.
- Leverage tools when available
  - Requirements management system
  - Defect/Change log
  - Track changes (Microsoft Word)
- Cross-reference every change
  - Source
  - Reason
  - Date
  - Supporting documentation: defect, change request, impact analysis, change control, etc.

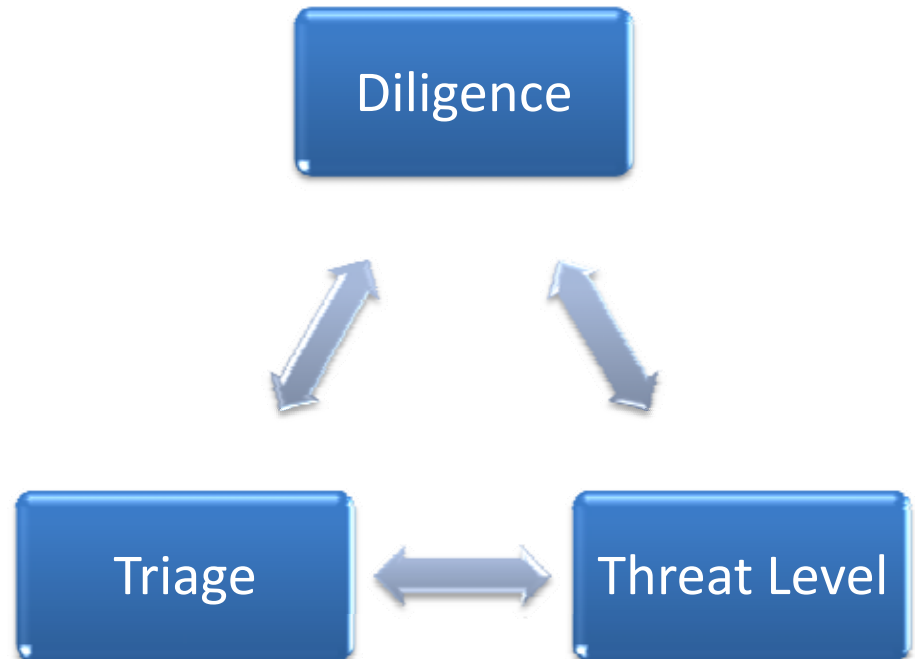
# Applying to Baseline Documentation



- Starting from baseline documentation dramatically reduces cost and risk
- Treat all scope as changes to baseline requirements
- Sum of changes is the release scope
- Sum of changes and original baseline becomes the new baseline
- May take additional time and effort to maintain accurate baseline

# Conclusions

- Principles of release management and change controls can be applied to requirements management.
- Level of control must match the risk and timing.
- Consistency and diligence are required for success.



# Appendix: Cost of Changes and Defects

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## **1. *The Economic Impacts of Inadequate Infrastructure for Software Testing***

- <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.122.3316&rep=rep1&type=pdf>
- Gregory Tassej, Ph.D., National Institute of Standards and Technology
- Prepared by RTI: Health, Social, and Economics Research, RTI Project Number 7007.011

## **2. *Requirements-Based Testing: Encourage Collaboration Through Traceability***

- <http://www.softwagemag.com/linkservid/0E91E962-AEE3-2E9A-B2B475D66F29CC30/showMeta/0/>
- MKS, 2009

## **3. *Software Defect Reduction Top 10 List***

- <http://www.cs.umd.edu/projects/SoftEng/ESEG/papers/82.78.pdf>
- Barry Boehm and Victor R. Basili, January 2001

## **4. *An Introduction to Agile Software Development***

- [http://www.danube.com/docs/Intro\\_to\\_Agile.pdf](http://www.danube.com/docs/Intro_to_Agile.pdf)
- Victor Szalvay, Danube Technologies, Inc., November 2004

## **5. *Cost of Change - Modernised***

- <http://www.aptprocess.com/whitepapers/CostOfChangeModernised.pdf>
- Paul Oldfield, Mentors, 2003, Appropriate Process Group

# Contact Information

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# About SunTrust Banks, Inc.

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Through its banking subsidiaries, the company provides deposit, credit, trust, and investment services to a broad range of retail, business, and institutional clients. Other subsidiaries provide mortgage banking, brokerage, investment management, equipment leasing, and capital market services. Atlanta-based SunTrust enjoys leading market positions in some of the highest growth markets in the United States and also serves clients in selected markets nationally.

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