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

- 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.

Diligence

Triage

Threat Level
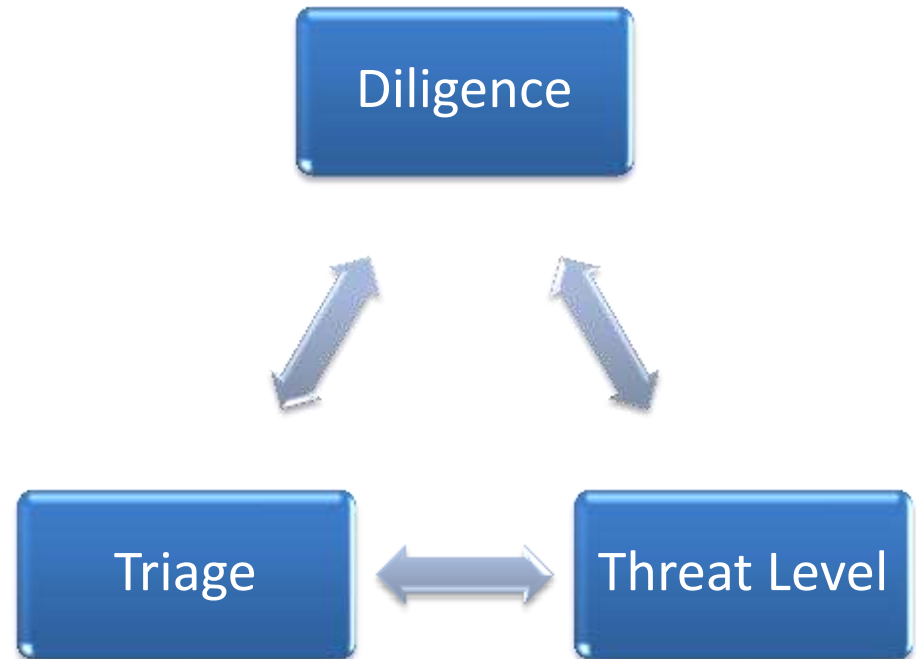
The Ideal Project Timeline

Define → Develop → Test → Implement

- 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.
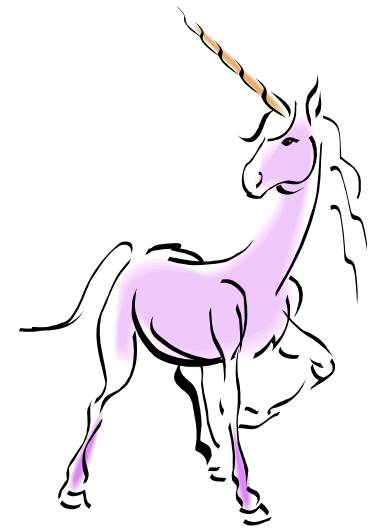
The High Cost of Change

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

Other Cost Factors[3]

- *"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

Define → Develop → Test → Implement

Ambiguities, Clarifications, Invalid Requirements

Missed Requirements

Scope and Prioritization Changes

Constraints: Design, Resource, Time, Budget
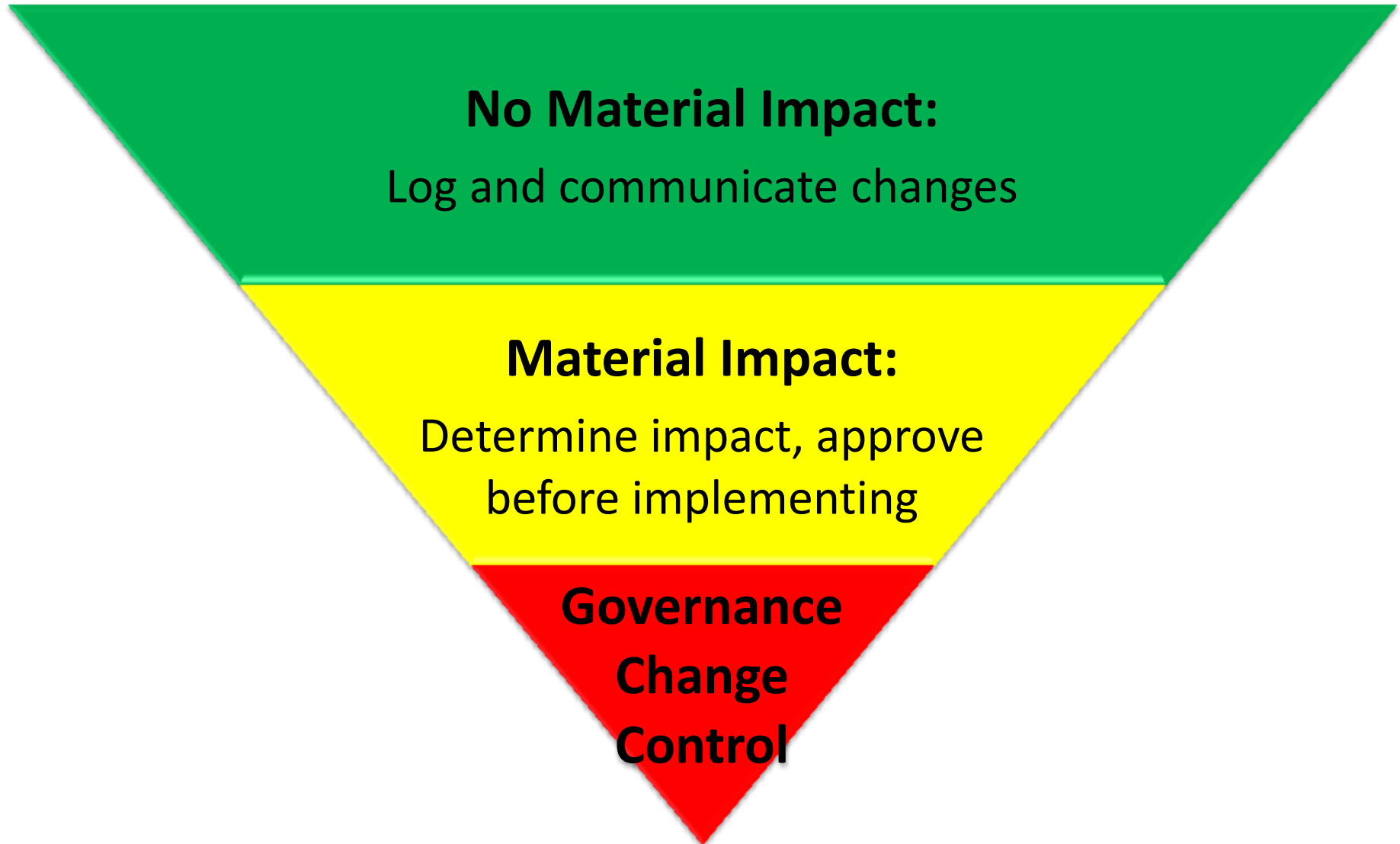
Missed implementation

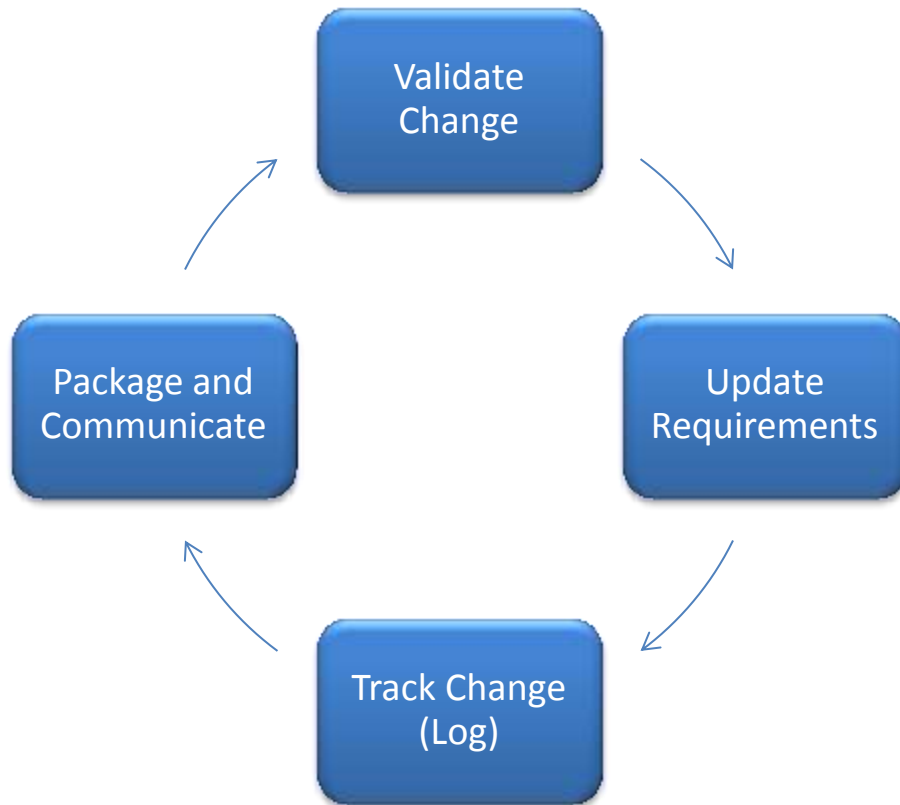Change in business need

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:

Log and communicate changes

Material Impact:

Determine impact, approve before implementing

Governance Change Control

No Material Impact - Update Process

Validate Change

Update Requirements

Track Change (Log)
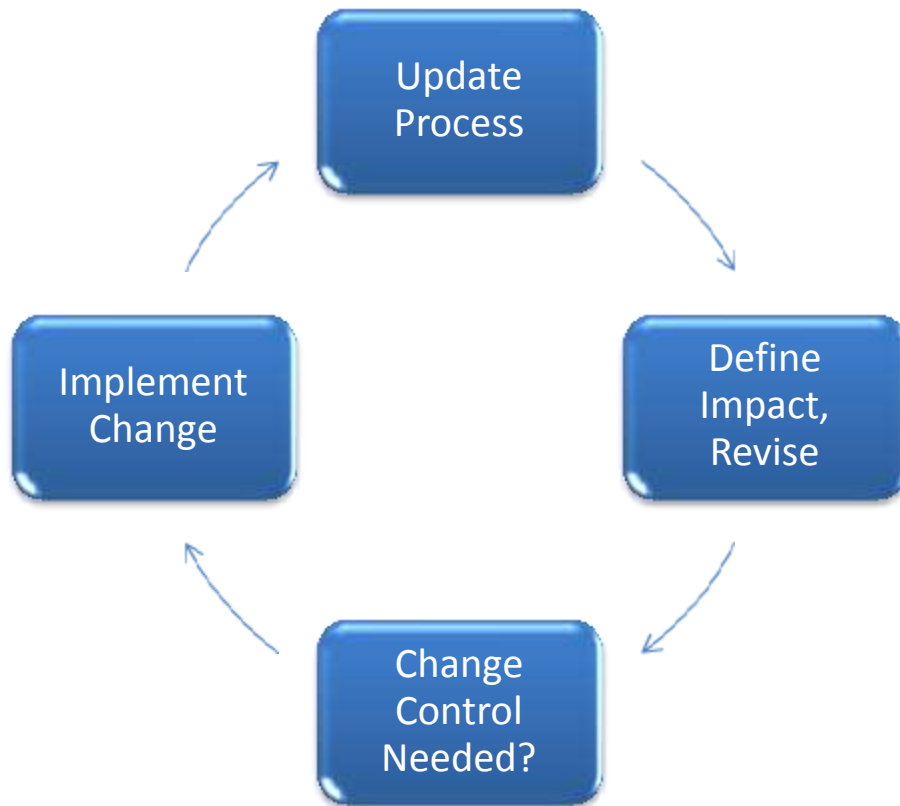
Package and Communicate

- 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

- Changes are logged by document version

- State changes source: defect, change control, etc.

- Indentify owner, effective date and requirement ID

- Show before and after

Changes Requiring Approval

```
        ┌──────────────┐
        │    Update    │
        │   Process    │
        └──────────────┘
   ┌──────────┐      ┌──────────┐
   │ Implement │      │  Define  │
   │  Change   │      │  Impact, │
   └──────────┘      │  Revise  │
                     └──────────┘
        ┌──────────────┐
        │    Change    │
        │   Control    │
        │   Needed?    │
        └──────────────┘
```

- 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

Governance Change Controls

SunTrust — Live Solid. Bank Solid.

Additional step in Approval Process

Follow standard change control form and process

Use for

- Changes after artifact signoff
- Significant project impacts (scope, functionality, cost, schedule, etc.)
- Regrouping scope into releases or implementations
- Approval of all changes for final document version

CHANGE CONTROL FORM

SunTrust

CHECK SPELLING

Project Information

Program/Project Name:		Project Number:	
Project Manager:		Current Project Level:	
Technology Workstream:		Commodity:	
Workstream Owner:		Commodity Executive:	
Project Business Owner:		Commodity Owner:	
Current Governance Phase:		Contract Spend:	
Change Control Number:		Date Form Completed:	
Project Repository Path:			

Change Request Information

Change Type:	☑ Scope/Requirement ☐ Schedule ☐ Cost ☐ Other: ☐ Resource ☐ Architecture/Technology ☐ Notification Only (e.g., eGovernance)
Description of change:	
Justification/Reason for the change:	
Implications of not making the change:	
Risk Impact of the change:	
Impact to Business Case:	

Scope/Requirement Change Details

Scope/Requirement Impact:	
Deliverables Impacted:	
External Implications:	

Schedule Change Details - for Current Governance Phase

Schedule Impact:			
Release Change (Technology Projects Only)	Current Release	New Release	

Governance Phase/Activity Name	Baseline		Forecast	
	Start	End	Start	End

ADD Row   DELETE Row

Cost Change Details - for Current Governance Phase

| Cost Impact:			
Change in Project Level	Current Level:	Forecast Level	
Cost Category	Funding Source/Year	Baseline Cost	Forecast Cost	Cost Variance
				0.00
				0.00

Instructions | Change Control Form

13

Best Practices

- 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

Baseline

Release Changes
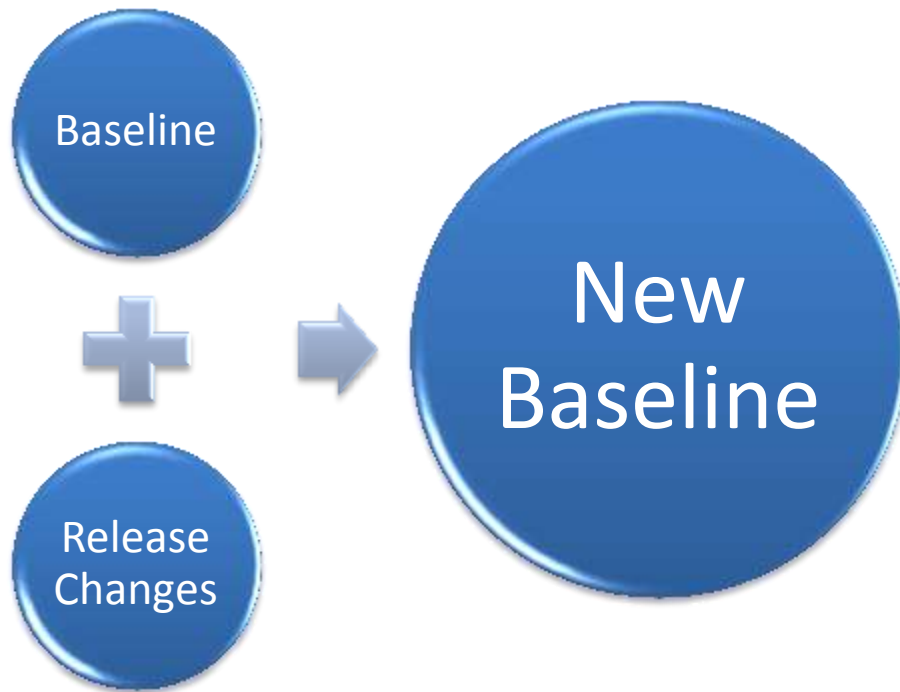
New Baseline

- 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.

Diligence

Triage

Threat Level

Appendix: Cost of Changes and Defects
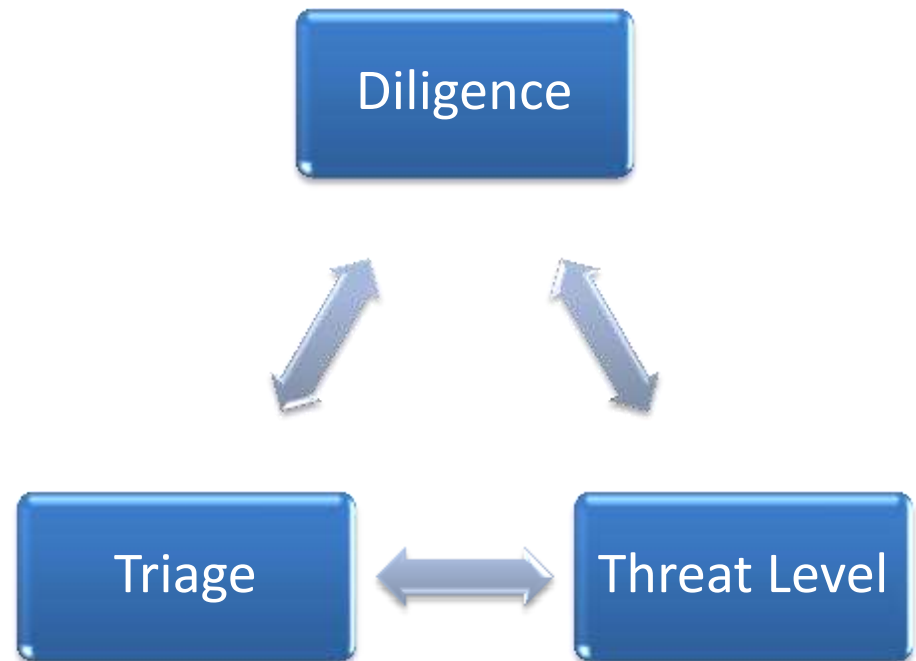
1. *The Economic Impacts of Inadequate Infrastructure for Software Testing*
   - http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.122.3316&rep=rep1&type=pdf
   - Gregory Tassey, Ph.D., National Institute of Standards and Technology
   - Prepared by RTI: Health, Social, and Economics Research, RTI Project Number 7007.011

2. *Requirements-Based Testing: Encourage Collaboration Through Traceability*
   - http://www.softwaremag.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
   - 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

Hans Eckman

    Hans.Eckman@SunTrust.com

    VP, Enterprise Business Analyst

    Enterprise Architecture Innovations, Enterprise Information Services

    SunTrust Banks, Inc.

    285 Peachtree Center Avenue

    Mailcode: GA-MT-2140, Office: 21-21330

    Atlanta, GA 30303, United States

Presentation and templates available at:

    http://theimf.com

    http://hanseckman.com/support

Professional Background:

    http://hanseckman.com

    http://www.linkedin.com/in/hanseckman

About SunTrust Banks, Inc.

SunTrust Banks, Inc., with total assets of $170.8 billion as of March 31, 2011, is one of the nation's largest and strongest financial holding companies.

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.

The company operates 1,665 retail branches and 2,924 ATMs in Alabama, Arkansas, Florida, Georgia, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, and the District of Columbia. In addition, SunTrust provides customers with a full range of technology-based banking channels, including Internet, PC, and Automated Telephone Banking.

Visit http://www.suntrust.com

SunTrust and Live Solid. Bank Solid. are federally registered service marks of SunTrust Banks, Inc. SunTrust Bank Equal Housing Lender - Member FDIC