

On Lock Down: Requirements Change Management

PROJECT WORLD*BUSINESS ANALYST WORLD, TORONTO, ONTARIO

MAY 25 - 28, 2015

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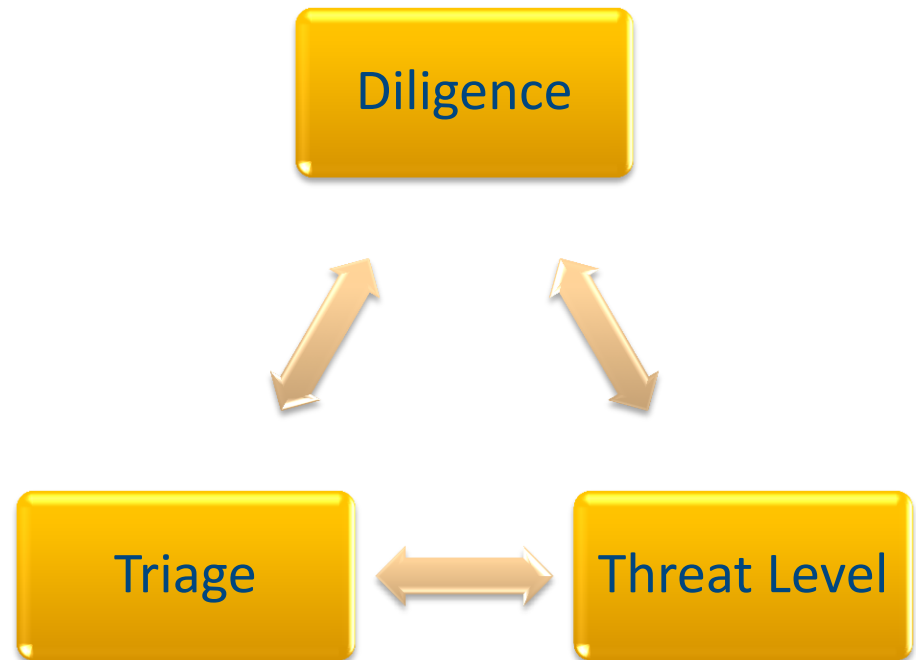


Ground Rules

- This session is for you, so please participate.
- 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.

Conclusions

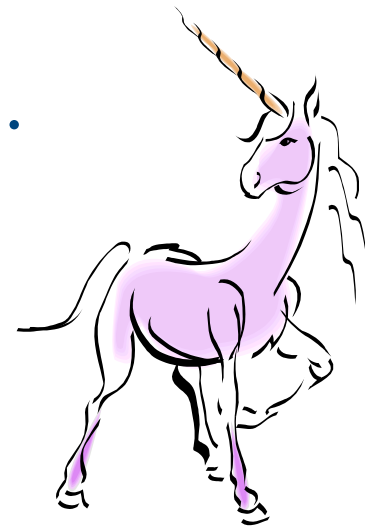
- Principles of release management and change control can be applied to requirements management.
- Level of control must match risk and timing.
- Consistency and diligence are required for success.



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 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 Factors³

- “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 - The Only Constant is Change



Ambiguities, Clarifications, Invalid Requirements

Missed Requirements

Scope and Prioritization Changes

Constraints: Design, Resource, Time, Budget

Missed implementation

Change in business need

Threat Levels

No Material Impact:

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

Material Impact:

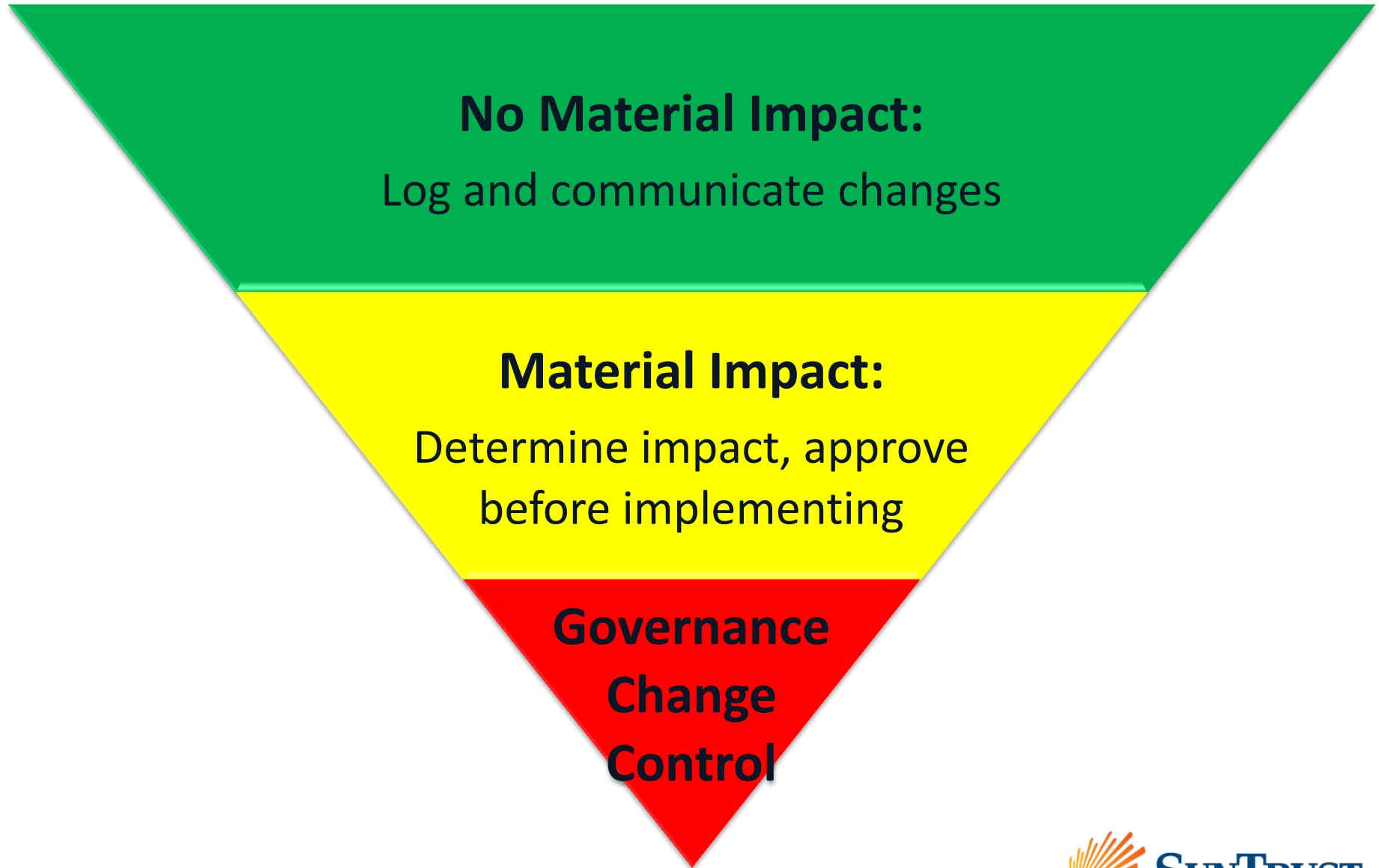
Missed Requirements, New Requirements, Constraints, External Impacts, Etc.

Governance Impact

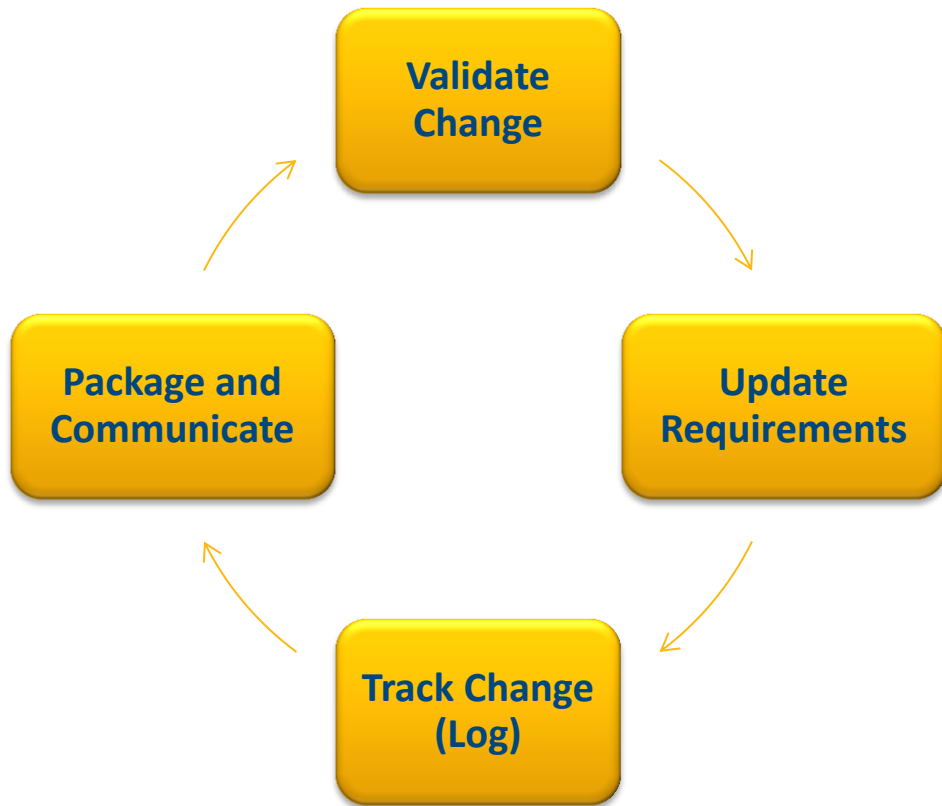


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Triage Levels



No Material Impact - Update Process



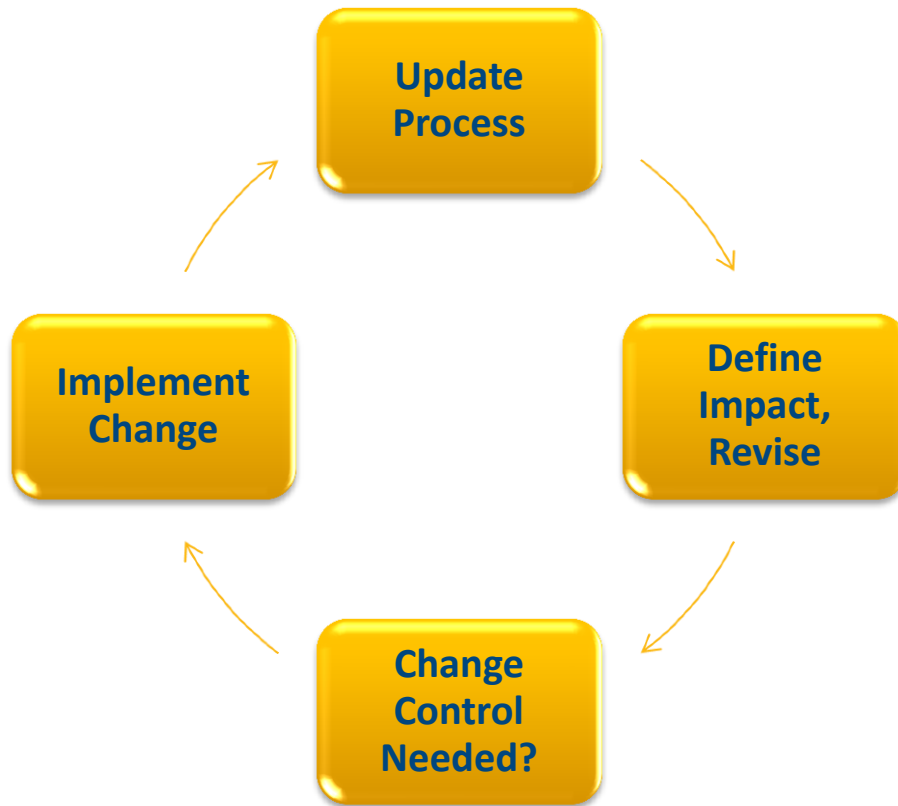
- Begin after first formal communication of requirements
- Need to update system of record for requirements
- Log all changes with effective date
- Update Process is the foundation for Change Approvals

Documenting Changes

1.08	Eckman	<p>Correction to field value found during testing.</p> <p>UPDATE: 5.139.09.02 ID 5.139.09.02 - FIELD VALUE [REDACTED]</p> <p>TO: 5.139.09.02 ID 5.139.09.02 - FIELD VALUE [REDACTED]</p> <p>UPDATE: 5.142.09.02 ID 5.142.09.02 - FIELD VALUE [REDACTED]</p> <p>TO: 5.142.09.02 ID 5.142.09.02 - FIELD VALUE [REDACTED]</p>	11-24-2008
1.08	Eckman	<p>Defect ID: 27246</p> <p>UPDATED: 5.06.04.01 ID 5.06.04.01 - FIELD VALUE [REDACTED]</p> <p>5.06.08.01 ID 5.06.08.01 - FIELD VALUE [REDACTED]</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

The screenshot displays a Microsoft Excel spreadsheet titled "PVIC_PREIS0048_Change_Control_Log.xls" in Compatibility Mode. The spreadsheet is organized into columns for tracking change control items. The visible data includes:

Change Control	Date Identified	Change	Reason	Status	Hours	Contact	Targeted Release	Reviewed	Approved	Dev. Target	Dev. Complet	Verified
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
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_84	02/25/2009		Production Support 2447	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

The spreadsheet also features a detailed description in the Reason column for row 108, which includes instructions for handling new services and listing Portal objects. The interface shows the Microsoft Excel ribbon with various tabs like Home, Insert, and Formulas, and a task pane on the right for Styles.

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.

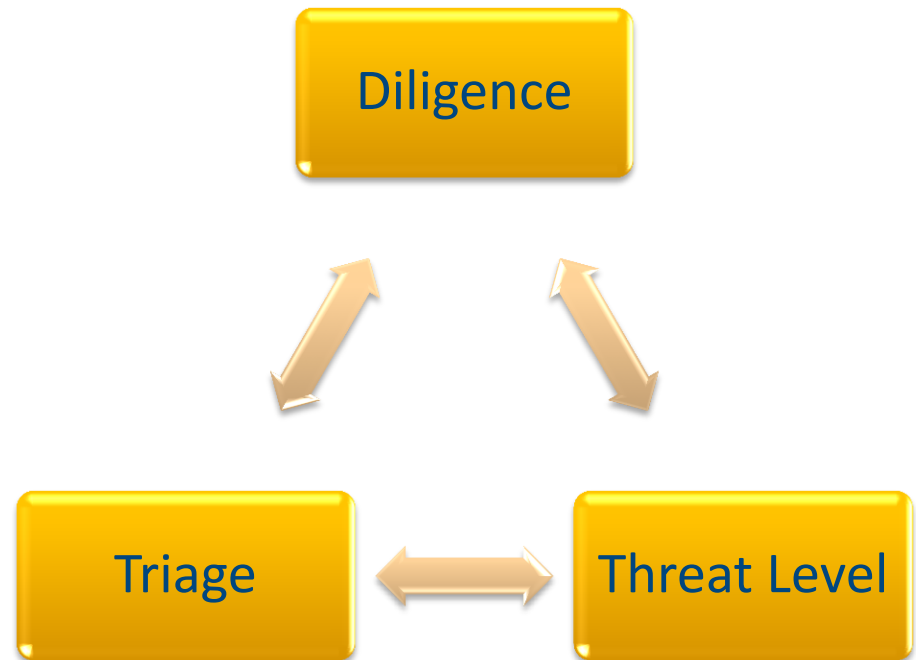
Applying to Baseline Documentation



- 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

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.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 - Modernized*

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

About SunTrust Banks, Inc.

Our Purpose

We are committed to *Lighting the Way to Financial Well-Being* for our clients. We help clients achieve greater confidence and control over their finances. We strive to understand our clients' specific circumstances and provide the personalized advice and services that meet their unique banking, borrowing and investing needs.

[View our Corporate Fact Sheet.](#)

SunTrust delivers a full suite of financial products and services to a broad range of consumer, business, and institutional clients. Our businesses are organized around three client segments:

Consumer Banking and Private Wealth Management

Consumer Banking provides deposit, credit and other financial services to retail clients through an extensive network of traditional and in-store branches and ATMs, as well as technology-based banking channels, including online, mobile, and state-of-the-art customer service centers. The company has approximately 1,500 branches and 2,250 ATMs located primarily in Florida, Georgia, Maryland, North Carolina, South Carolina, Tennessee, Virginia and the District of Columbia. Private Wealth Management offers a full array of banking, brokerage, professional investment management and trust services to wealthy individuals and institutional clients.

Wholesale Banking

Wholesale Banking delivers a comprehensive suite of financial products and services including mergers and acquisitions advisory, capital raising, cash management and merchant card services to businesses, corporations, institutions, not-for-profit organizations and government entities.

The primary Wholesale Banking businesses are: Corporate & Investment Banking, Commercial & Business Banking, Treasury & Payment Solutions and Commercial Real Estate.

Mortgage Banking

Mortgage Banking offers home financing solutions to help clients purchase or refinance a home. Professional loan consultants are located throughout SunTrust's retail banking footprint and can also be accessed nationally through a network of correspondent lenders, a call center, and our Web site.

Community Involvement

There are few factors more essential to lighting the way to financial well-being than the economic vitality and quality of life in the communities we serve.

Community involvement is fundamental at SunTrust, supporting our purpose through activities spanning volunteerism, philanthropy and resource contributions even above and beyond those outlined in the Community Reinvestment Act (CRA).

Learn more about our community involvement efforts at suntrust.com.



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