Making It Real - The Business Value of Data Quality at Sallie Mae

ABSTRACT

Sallie Mae is the largest provider of student loans in the United States. As part of their data quality program they are monitoring and reporting metrics in three areas: State of Data Quality, the Business Value of Data Quality and Data Quality Program Performance. This presentation focuses on the Business Value of Data Quality. Sallie Mae used various Business Impact techniques from the Ten Steps methodology that were discussed in the first presentation of this session. We will show how these metrics were developed, who was involved, and how they are being used to further data quality within Sallie Mae.

BIOGRAPHY

Michele Koch
Director, Enterprise Data Management
Sallie Mae

Michele Koch is the Director of Enterprise Data Management and the Data Governance Office at Sallie Mae, the leading "saving, planning, and paying for education" company in the US. Michele was responsible for the successful design and implementation of the enterprise Data Governance and Data Quality Programs at Sallie Mae. Their Data Governance Program won The Data Warehouse Institute's (TDWI) 2010 Best Practices Award for the Data Governance category. She is also responsible for the data modeling team who provides support to development teams and the business user community. Her 27 years of experience include applying structured analysis and design methods for process and data modeling, managing client/server and mainframe DBAs, and consulting at Fortune 500 companies. Michele received dual masters' degrees in MIS and Computer Systems Applications from The American University and a bachelor's degree from Cornell University.

Danette McGilvray
Granite Falls Consulting, Inc.
President and Principal
Phone: 510-501-8234
Email: danette@gfalls.com
Web: www.gfalls.com

Michele Koch
Sallie Mae
Director, Enterprise Data Mgmt
Phone: 703-984-5381
Email:
Michele.V.Koch@slma.com

The Business Value of Data Quality – Part 1
How to Assess the Business Value of Data Quality

MIT Information Quality Industry
Symposium (IQIS)

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Boston, MA

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Presentation Abstract

Awareness of any data quality issue immediately leads to questions such as "What impact does information quality have on the business?" and "Why does data quality matter?" Historically it has been difficult to answer these and demonstrate the value of information quality.

This presentation discusses various business impact techniques which are qualitative and quantitative methods for determining the effects of information quality on any organization. These approaches from The Ten Steps™ methodology can be used in many situations and are applied based on need, time, and resources available.

The second presentation of this session shows how a variety of the techniques were used to develop and present the "Business Value from Data Quality" at Sallie Mae, a Fortune 500 company and the United State's leading provider of saving, planning, and paying for education programs.

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www.gfalls.com
danette@gfalls.com

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Your Presenters

Michele Koch
Sallie Mae, Inc.
Director of Enterprise
Data Management

Danette McGilvray
Granite Falls Consulting, Inc.
President and Principal

Michele Koch is the Director of Enterprise Data Management and the Data Governance Office at Sallie Mae. Michele and her team were responsible for the successful design and implementation of the enterprise Data Governance and Data Quality Programs at Sallie Mae.

Michele's 27 years of experience in various data fields complements her dual masters' degrees in MIS and Computer Systems Applications from The American University and a bachelor's degree from Cornell University.

Danette McGilvray is President and Principal of Granite Falls Consulting, Inc., a firm that helps organizations increase their success by addressing the information quality and data governance aspects of their business efforts. See www.gfalls.com for more information.

She is the author of *Executing Data Quality Projects: Ten Steps to Quality Data and Trusted Information™* (Morgan Kaufmann, 2008). The Chinese language edition will be available sometime in 2011.

Sallie Mae partnered with Granite Falls to define and implement an enterprise Data Quality Program. This included on-going monitoring of data quality rules and quantifying their business value – the focus of this session.

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Session Topic: The Business Value of Data Quality
- Part 1: How to Assess the Business Value of Data Quality
  - Foundational Concepts
    - Ten Steps™ Process Used in the Case Study
- Part 2: Making it Real – The Business Value of Data Quality at Sallie Mae
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TODAY'S AGENDA

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Fact or Fiction?

Hooray for your project!

You have funding!

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I Need ….

- Money
- Support
- People
- Time
- Etc. etc. etc.

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The Response

What impact does data quality have on the organization? Why does it matter? How does it impact me? My responsibilities?

You want what?!?!

- These are the right questions!
- But historically they have been difficult to answer
- We will discuss how to answer these questions by assessing business impact (value) of information and data quality

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Assumptions About This Audience

You already know that:

- Information and data quality are important
- We have the responsibility to give equal emphasis to the quality and management of the data and information as we do to the processes, people and organizations, technology, and other resources that support our businesses

You are interested in:

- How to show *others* that data quality is important
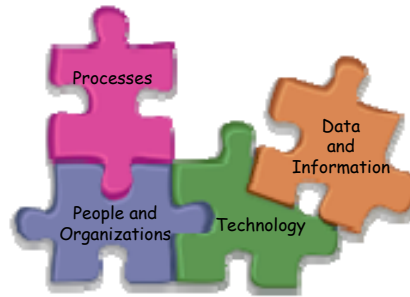
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Foundational Concepts are Necessary

He who loves practice without theory is like the sailor who boards ship without a rudder and compass and never knows where he may cast.

— Leonardo da Vinci

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How is Information Like Other Resources?

Information Has Value and Needs to Be Deliberately Managed

Human Resources

Financial Resources

Information Resources

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Where to Assess Business Impact

- All information has a life cycle – Plan, Obtain, Store and Share, Maintain, Apply, Dispose (POSMAD)
- Focus on activities in the **Apply** phase of the information life cycle POSMAD and look at how the information is **used**
- There is also business impact when **costs** are created due to poor quality data
- Impact to the Apply stage usually shows the greatest value from data quality
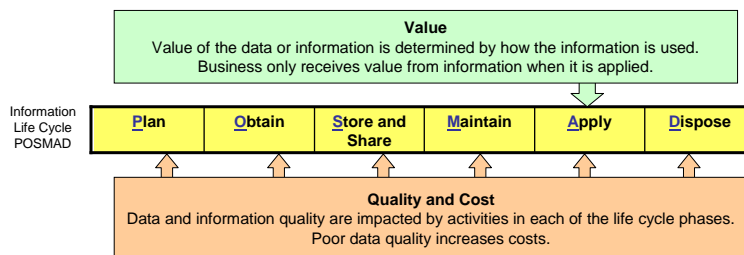
Value
Value of the data or information is determined by how the information is used.
Business only receives value from information when it is applied.

Information Life Cycle POSMAD

Plan	Obtain	Store and Share	Maintain	Apply	Dispose

Quality and Cost
Data and information quality are impacted by activities in each of the life cycle phases.
Poor data quality increases costs.

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The Ten Steps™ Methodology

Framework for Information Quality and Other Key Concepts

Ten Steps Process

► Provides the foundation for understanding information and data quality
► Necessary fundamentals to apply the Ten Steps process to your specific situation

► Concrete instructions for implementing, improving, and creating data quality
► Process for implementing framework and key concepts
► Contains examples, templates, techniques, and advice

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The Ten Steps™ Used Today

Focus of this presentation

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After Concepts Comes Action

I have been impressed with
the urgency of doing.
Knowledge is not enough; we
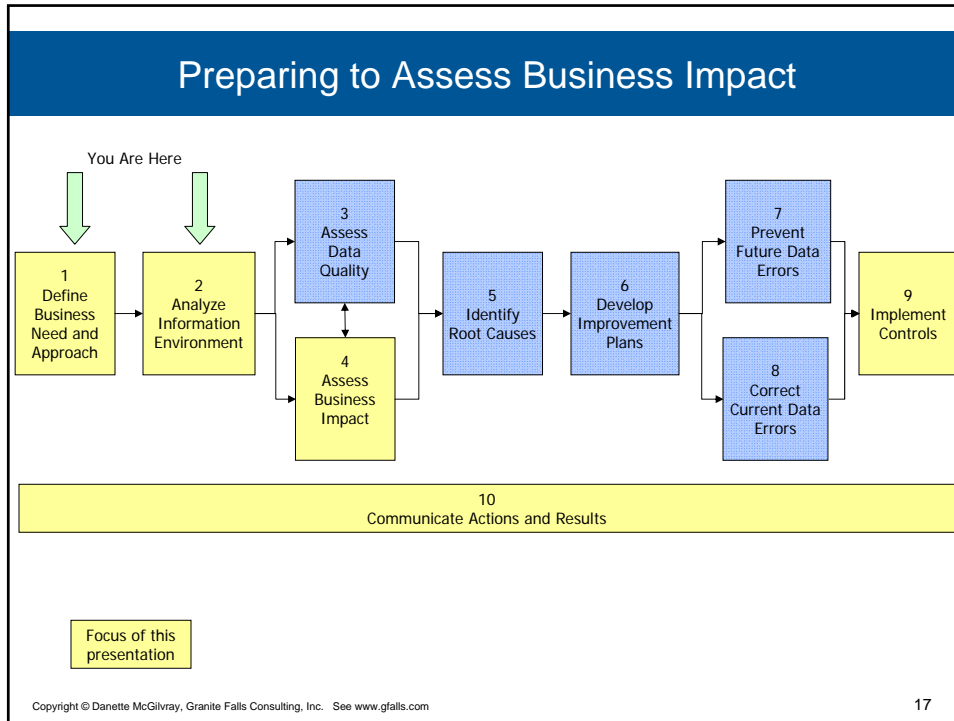must apply. Being willing is not
enough; we must do.

— Leonardo da Vinci

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TODAY'S AGENDA

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Preparing to Assess Business Impact

You Are Here

1 Define Business Need and Approach	2 Analyze Information Environment	3 Assess Data Quality

4
Assess Business Impact

5
Identify Root Causes

6
Develop Improvement Plans

7
Prevent Future Data Errors

8
Correct Current Data Errors

9
Implement Controls

10
Communicate Actions and Results

Focus of this presentation

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Preparing to Assess Business Impact

- State what you are trying to accomplish overall with your data quality initiative and why
- Describe what is within scope of your business impact assessment. (Start at a high level and move to more detail as needed.)
  - Data and information
  - Processes
  - People and organizations
  - Technology
- Connect business needs to data (see technique on following slide)
- Have enough background to be able to describe your situation and needs
- This will guide your decisions and actions throughout assessing the business value

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Danette's Connect-the-Dots Technique
Business-to-Data and Data-to-Business

Data associated with the business needs

Business Needs:
- Goals
- Strategies
- Issues
- Opportunities
- Why

- Processes
- People/ Organizations
- Technology

associated with business needs

Information that supports processes, people/ organizations, or is used in the technology

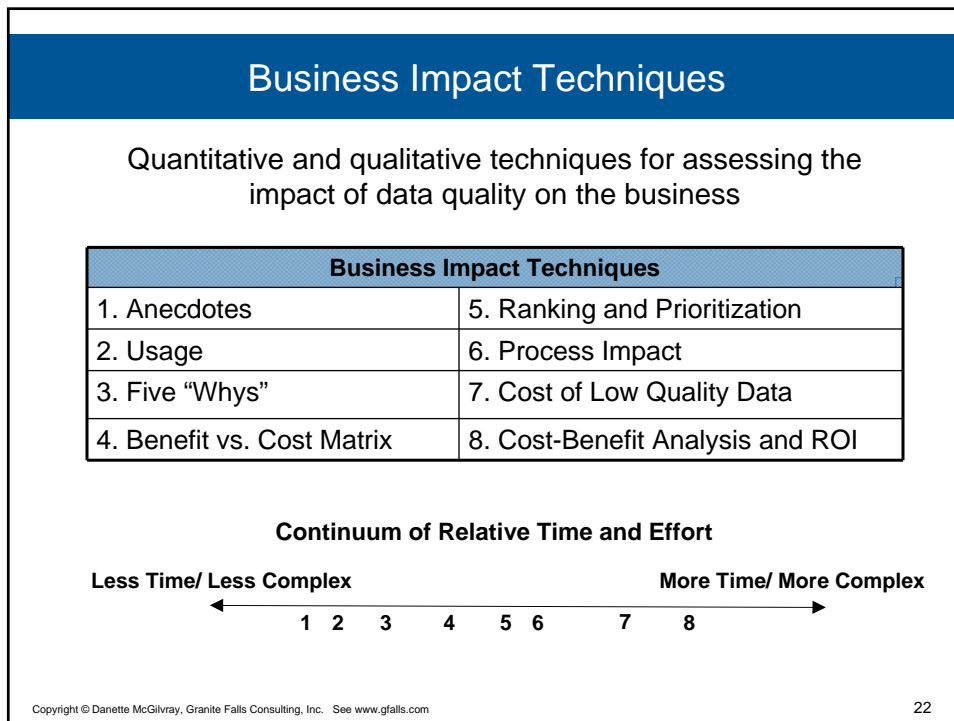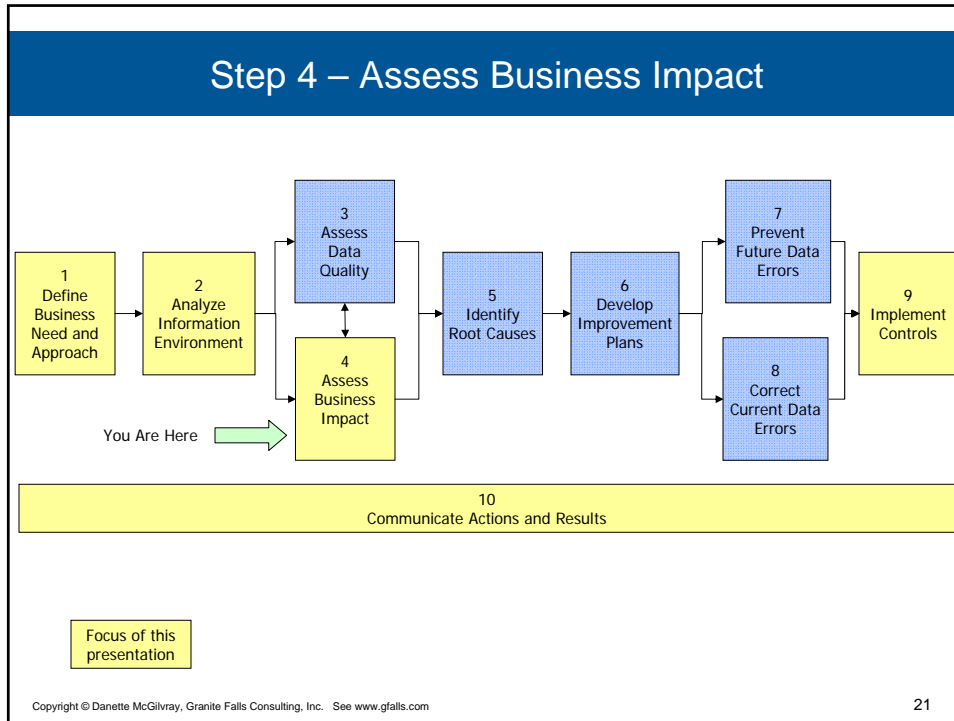**Data that makes up the information**

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Best Practice

- Do not skip these steps!
  - Step 1 - Define Business Need and Approach
  - Step 2 - Analyze Information Environment
- This presentation is focused on Step 4 – Assess Business Value, but this assessment cannot be done well without first doing Steps 1 and 2.

"Just enough planning to optimize results. Not a drop more! … But not a drop less either."

-- Kimberly Wiefling, in *Scrappy Project Management™:
The 12 Predictable and Avoidable Pitfalls Every Project Faces*

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Step 4 – Assess Business Impact

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Business Impact Techniques

Quantitative and qualitative techniques for assessing the impact of data quality on the business

Business Impact Techniques	
1. Anecdotes	5. Ranking and Prioritization
2. Usage	6. Process Impact
3. Five "Whys"	7. Cost of Low Quality Data
4. Benefit vs. Cost Matrix	8. Cost-Benefit Analysis and ROI

Continuum of Relative Time and Effort

Less Time/ Less Complex   **More Time/ More Complex**

1   2   3   4   5   6   7   8

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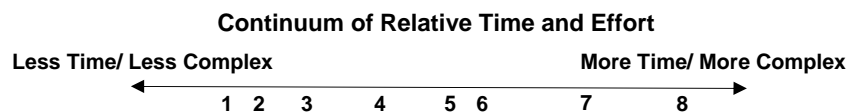## Business Impact Techniques Brief Definitions

1	Anecdotes	Collect examples or stories of the impact of poor data quality.
2	Usage	Inventory the current and/or future uses of the data.
3	Five "Whys"	Ask "Why" five times to get to real business impact.
4	Benefit vs. Cost Matrix	Analyze and rate the relationship between benefits and costs of issues, recommendations, or improvements.
5	Ranking and Prioritization	Rank impact of missing and incorrect data to specific business processes.
6	Process Impact	Illustrate the effects of poor quality data to business processes.
7	Cost of Low Quality Data	Quantify the costs and revenue impact of poor quality data.
8	Cost-Benefit Analysis	Compare potential benefits of investing in data quality with anticipated costs through an in-depth evaluation. Includes Return on Investment (ROI) – profit from an investment as a percentage of the amount invested.

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Choosing Which Techniques to Use

- Use the techniques that best fit your situation, time, and resources available
  - Many of the techniques work together or can be used alone
- The continuum shows relative effort – not relative results:
  - You can understand business impact even without completing a full cost/benefit analysis
  - Less complicated does not necessarily mean less useful results
  - More complex does not necessarily mean more useful results
  - The best results come from using the techniques most appropriate to your situation

Continuum of Relative Time and Effort

Less Time/ Less Complex   **More Time/ More Complex**

←——————————————————————————————→

1 2   3   4   5 6   7   8

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Using Business Impact Results

Use results from assessing business impact to:
- Establish the business case for information quality
- Gain support for investing in information quality
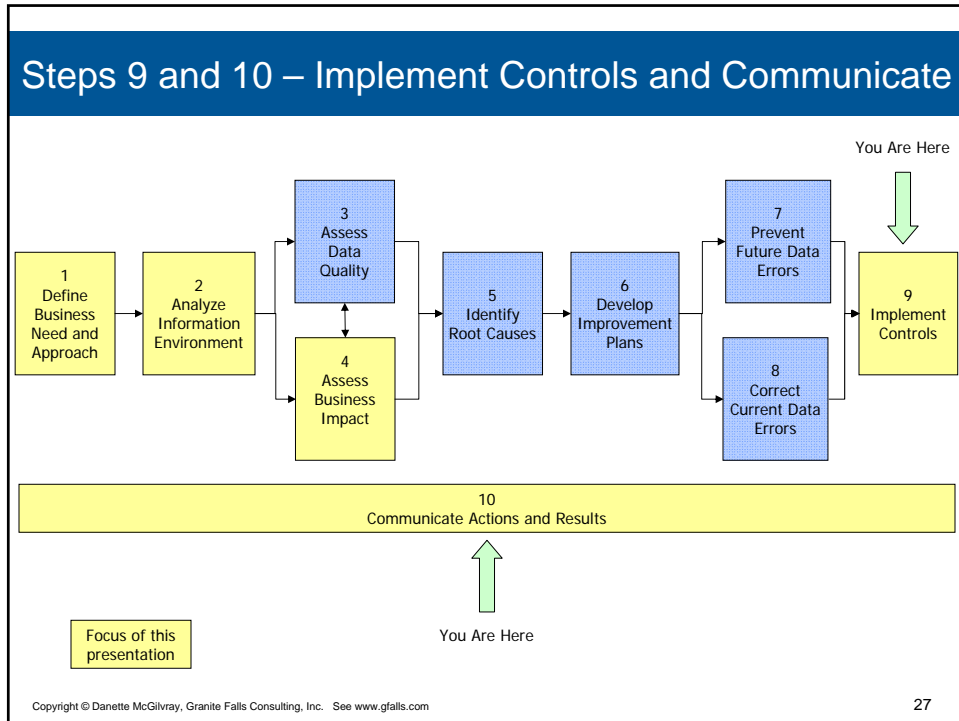- Determine the optimal level of investment

At any time, you may need to assess business impact to gain or sustain support.

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Best Practices

- You don't always have to do an in-depth analysis to get good results
- You may take only one aspect of the examples or one event and still get actionable information
- Extend results of qualitative business impact techniques with additional research to gather and calculate numbers (for example, quantify the process impact)

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Steps 9 and 10 – Implement Controls and Communicate

You Are Here

| 1 Define Business Need and Approach | 2 Analyze Information Environment | 3 Assess Data Quality | 5 Identify Root Causes | 6 Develop Improvement Plans | 7 Prevent Future Data Errors | 9 Implement Controls |

4 Assess Business Impact

8 Correct Current Data Errors

10 Communicate Actions and Results

You Are Here

Focus of this presentation

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Metrics

- Metrics are useful for
  - Replacing opinions with facts
  - Determining where to focus resources and efforts
  - Identifying sources of problems
  - Confirming the effectiveness of solutions
  - Encouraging behavior that support business objectives through information quality
- When planning your metrics be clear about
  - Your goals for using them
  - Actions that will/should result from what the metrics tell you
  - Their impact on the business and individuals' behavior

Dashboard

Drilldown

Detail

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Metrics – Levels of Detail

Level	Audience	What it provides
Summary or dashboard level	Management is the primary audience, so integrate your data quality metrics into other business dashboards for best results. Resources for designing an effective dashboard for your information metrics: •*Information Dashboard Design* by Stephen Few (O'Reilly) •*Performance Dashboards* by Wayne W. Eckerson (Wiley).	Easy visual glance at and interpretation of metrics such as targets, actual data quality, and status. Status indicates the condition of the metric in easy-to-understand terms and should drive action. For example: •Green = results meet or exceed target •Yellow = results fail target or unfavorable trend •Red = results well outside of tolerance limits or drastic unfavorable change
Drilldown	Managers interested in next level of detail. Other individual contributors such as data or business stewards who want a summarized view of the detail.	A mid-level view that provides additional information about the dashboard metrics such as trends and history. This is useful to show more about the dashboard numbers—but not in excruciating detail.
Detailed reports	Project or functional teams which use them to monitor and fix data. Detailed reports are not normally viewed by management, but should be available if questions arise.	Detailed measurements and actual records from which the metrics are summarized. Actual records with exceptions to the data quality test so teams can correct the data. Input for root cause and continuous improvement.

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Full-circle Communications

- Communications take a "full-circle" approach by ensuring *relevant* communications and interaction with *appropriate* audiences
- Consider:
  - Upward to management to your direct reporting chain and their peers
  - Downward to those in the direct reporting chain and their peers
  - Out to colleagues
  - Within the internal data organization
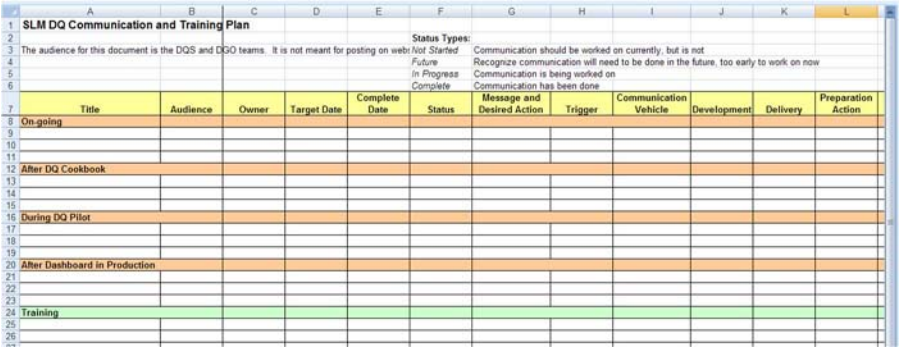

Full-circle Communications

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Communication Plan

Audience	Message and Desired Action	Trigger	Communication Vehicle	Development	Delivery	Other Action	Target Date	Complete Date

- Build your plan early in your project or initiative
- Start with what you know. For example, start by listing:
  - Communication vehicles in your organization OR
  - All your audiences OR
  - Specific messages and desired action
- Modify the template to meet your needs
- Use, update, and refer to your plan to remind you to communicate
- Capture results, feedback and action items from your communications – and follow-up

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Sallie Mae Communication Plan

- Used the template as a starting point
- Created separate sections for the Data Quality Program:
  - On-going
  - After DQ Cookbook (the plan for their formal DQ program)
  - During DQ Pilot
  - After Dashboard in Production
  - Training

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Communication Differences

- How can understanding these differences help you communicate more effectively?
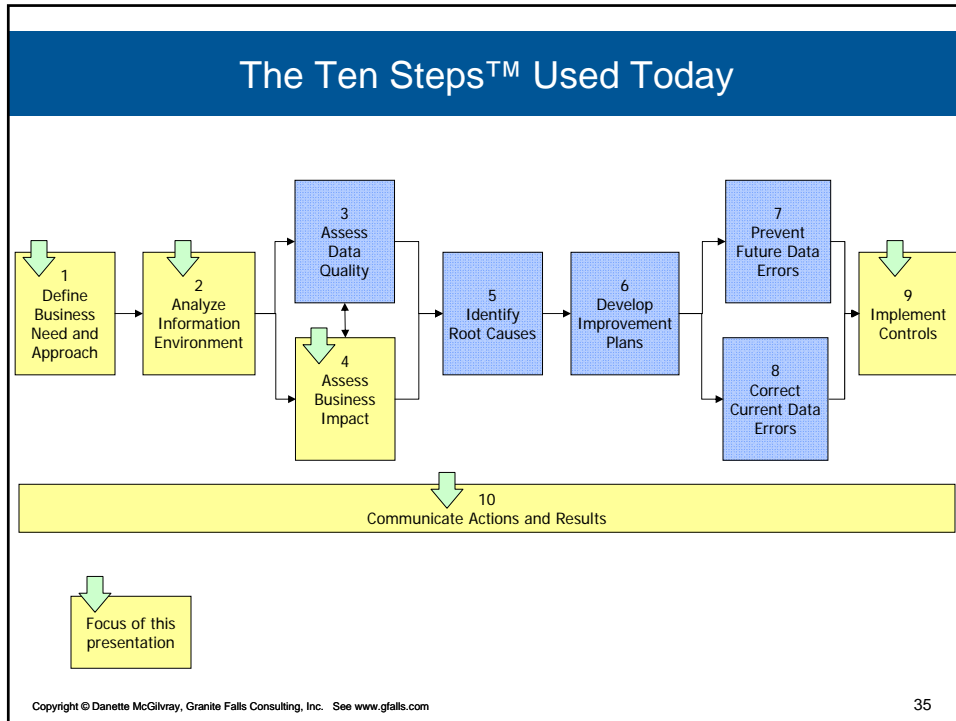
**Manager and Executive:
Broad and Less Deep**

**Individual
Contributor:**

**Focused and
Deep**

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Best Practice

- Key decision - choose the right level of detail for each step chosen and your various communications. What is the right level of detail?
  - It depends … on where you are, where you want to go, your concerns, your audience. Sometimes you need:

World View

Country Map

State/Area Map

Street Detail

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The Ten Steps™ Used Today

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TODAY'S AGENDA - CONTINUED IN PART 2

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Feel free to contact us if you have comments or questions

THANK YOU!

Danette McGilvray
President and Principal
Granite Falls Consulting, Inc.
Fremont, California USA

Email: danette@gfalls.com
Phone: 510-501-8234
Fax: 510-505-9898
Web: www.gfalls.com

Michele Koch
Director, Enterprise Data Mgmt
Sallie Mae
Reston, Virginia USA

Email: Michele.V.Koch@slma.com
Phone: 703-984-5381