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

MIT Information Quality Industry Symposium (IQIS)
July 13-15, 2011
Boston, MA

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.
Your Presenters

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

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
Granite Falls Consulting, Inc.
President and Principal

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.


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.
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
  • Practical application at Sallie Mae
  • Summary and Next Steps

Fact or Fiction?
Hooray for your project!
You have funding!
I Need ….

• Money
• Support
• People
• Time
• Etc. etc. etc.

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
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

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
How is Information Like Other Resources?

Information Has Value and Needs to Be Deliberately Managed

- Human Resources
- Financial Resources
- Information Resources

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
The Ten Steps™ Methodology

Framework for Information Quality and Other Key Concepts

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

Ten Steps Process

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

The Ten Steps™ Used Today

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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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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Preparing to Assess Business Impact

1. Define Business Need and Approach
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Focus of this presentation

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

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

Processes
• People/Organizations

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

Data that makes up the information

Data associated with the business needs

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
Step 4 – Assess Business Impact

1. Define Business Need and Approach
2. Analyze Information Environment
3. Assess Data Quality
4. Assess Business Impact
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Focus of this presentation

Business Impact Techniques

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

<table>
<thead>
<tr>
<th>Business Impact Techniques</th>
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<tbody>
<tr>
<td>1. Anecdotes</td>
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<td>2. Usage</td>
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<td>3. Five “Whys”</td>
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<td>4. Benefit vs. Cost Matrix</td>
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<td>5. Ranking and Prioritization</td>
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<td>6. Process Impact</td>
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<td>7. Cost of Low Quality Data</td>
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<tr>
<td>8. Cost-Benefit Analysis and ROI</td>
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</tbody>
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Continuum of Relative Time and Effort

Less Time/ Less Complex 1 2 3 More Time/ More Complex 4 5 6 7 8
Business Impact Techniques Brief Definitions

<table>
<thead>
<tr>
<th>No.</th>
<th>Technique</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anecdotes</td>
<td>Collect examples or stories of the impact of poor data quality.</td>
</tr>
<tr>
<td>2</td>
<td>Usage</td>
<td>Inventory the current and/or future uses of the data.</td>
</tr>
<tr>
<td>3</td>
<td>Five “Whys”</td>
<td>Ask “Why” five times to get to real business impact.</td>
</tr>
<tr>
<td>4</td>
<td>Benefit vs. Cost Matrix</td>
<td>Analyze and rate the relationship between benefits and costs of issues, recommendations, or improvements.</td>
</tr>
<tr>
<td>5</td>
<td>Ranking and Prioritization</td>
<td>Rank impact of missing and incorrect data to specific business processes.</td>
</tr>
<tr>
<td>6</td>
<td>Process Impact</td>
<td>Illustrate the effects of poor quality data to business processes.</td>
</tr>
<tr>
<td>7</td>
<td>Cost of Low Quality Data</td>
<td>Quantify the costs and revenue impact of poor quality data.</td>
</tr>
<tr>
<td>8</td>
<td>Cost-Benefit Analysis</td>
<td>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.</td>
</tr>
</tbody>
</table>

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
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.

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)
Steps 9 and 10 – Implement Controls and Communicate

1 Define Business Need and Approach
2 Analyze Information Environment
3 Assess Data Quality
4 Assess Business Impact
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7 Prevent Future Data Errors
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Focus of this presentation

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
### Metrics – Levels of Detail

<table>
<thead>
<tr>
<th>Level</th>
<th>Audience</th>
<th>What it provides</th>
</tr>
</thead>
</table>
| 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. |

### 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

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By Danette McGilvray, Granite Falls Consulting, Inc. See www.gfalls.com

Communication Plan

<table>
<thead>
<tr>
<th>Audience</th>
<th>Message and Desired Action</th>
<th>Trigger</th>
<th>Communication Vehicle</th>
<th>Development</th>
<th>Delivery</th>
<th>Other Action</th>
<th>Target Date</th>
<th>Complete Date</th>
</tr>
</thead>
</table>

- 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

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
Communication Differences

- How can understanding these differences help you communicate more effectively?

Manager and Executive: Broad and Less Deep

Individual Contributor: Focused and Deep

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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TODAY’S AGENDA - CONTINUED IN PART 2
Feel free to contact us if you have comments or questions

THANK YOU!

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