# A + B = C ...Deriving Metrics

- Case study by Sallie Mae

- Financial Services Company specialising in education

- 23 million customers, over $234 billion in loans, 38 billion in college savings plans

- Problem:
  - Had data governance in place
  - Initial data governance project had seen revenue increases, but needed to maintain momentum
  - Needed to determine business value and metrics

Sallie Mae Corporate Drivers
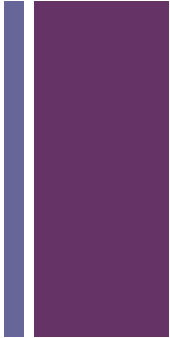
Increase Revenue

⬆ Facilitate Private Credit products speed to market

⬆ Increase volume available for the PUT process and trusts

⬆ Improve servicing performance for Dept of Ed contracts = increased SLM volume percentage awarded

Manage Cost and Complexity

⬇ Eliminate data reconciliation efforts and workarounds

⬇ Reduce operational servicing costs

⬆ Implement enterprise architecture improvements (e.g. SOA, person matching)

Reduce Risk and Support Corporate Compliance

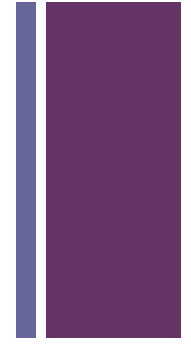⬆ Improved risk management and corp. compliance through DQ and standardization

⬇ Reduce audit findings due to inaccurate or inconsistent data

⬆ Improve identification and documentation of identity fraud

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Business Impact Techniques Used

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.

DG Reporting Categories

- Data Standardization 33%
- Metadata Support 5%
- MDM 14%
- Project Support 11%
- Data Quality 37%
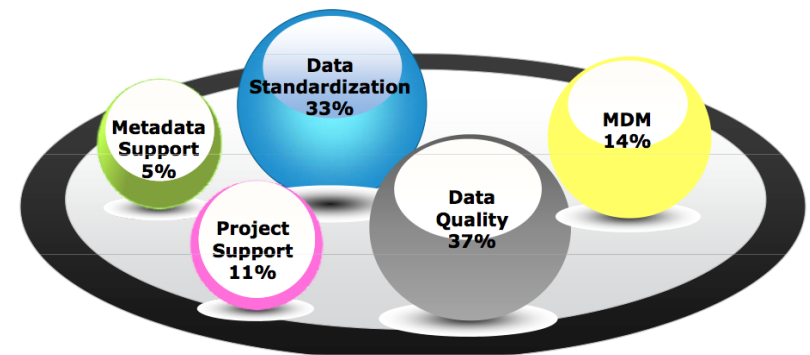
Categories for DG Program metrics

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Using Technique 1 – Anecdotes

1. Collected examples using Ten Steps™ Anecdote template

Title:	
Data:	People:
Process:	Technology:
Scenario:	

2. Compiled and summarized examples

- **Increase Revenue**
  - Facilitate Private Credit products speed to market
  - Improve servicing performance for Department of Education resulting in an increase of our volume percentage awarded under the contract
  - Increase volume available for the PUT process and Trusts
- **Manage Cost and Complexity**
  - Eliminate data reconciliation efforts and manual workarounds
  - Reduce operational servicing costs caused by inconsistent or invalid data
  - Set the stage for Service Oriented Architecture (SOA)
  - Implement enterprise architectural improvements (e.g. person matching)
- **Reduce Risk and Support Corporate Compliance Initiatives**
  - Address the enterprise data elements, resulting in improved quality and assurance, risk management, and corporate compliance
  - Improve company-wide communications regarding data (increase consistency)
  - Improve identification and documentation of identity fraud
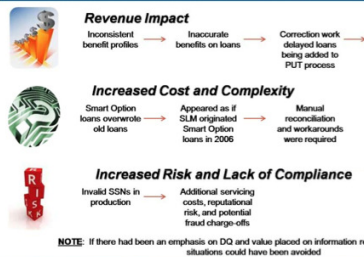
Further summarized for management presentation

Using Technique 3 – Five "Whys" for Business Impact

From asking the questions …

- Issue: We have inconsistent benefit profiles
- Why does that matter?
  - It means there will be inaccurate benefits on the loans
- Why does that matter?
  - This means SLM has to spend time correcting the loans
- What does that affect?
  - It means that loans were delayed from going through the PUT process
- What difference does that make?
  - This decreased our revenue by increasing our funding costs

… to presenting results

Applying Business Value Techniques
2 – Usage, 5 - Ranking and Prioritization, 7 - Cost of Low-Quality Data

- The DQ Pilot team worked with the DG Council to:
  - Prioritize the top data elements to be monitored
    - Some could not be monitored because the data was not available
    - Result was a list of 10 data elements/metrics to be monitored
  - Complete an initial survey to understand which Lines of Business (LOBs) were impacted by data issues

- The initial 10 metrics became 22 business rules (BRs) to be monitored for data quality and to assess business value (BV)

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## Quantifiable Business Value

Business Rule	Lines of Business (LOBs)/Ranking							Overall Ranking	Initial DQ Monitoring Results				Status Criteria Ranges		
	LOB 1	LOB 2	LOB 3	LOB 4	LOB 5	LOB 6	LOB 7		Successful Records (%)	Total Records (#)	Successful Records (#)	Failed Records (#)	Green "Results met target"	Amber "Results failed target or unfavor-able trend"	Red "Unaccept-able results"
Enrollment Period Begin Date Check (BR6)	HIGH			MED/HIGH	LOW	LOW	HIGH	HIGH					100-95%	94-85%	84% OR LESS
Etc.															

Dashboard – Reporting the Metrics
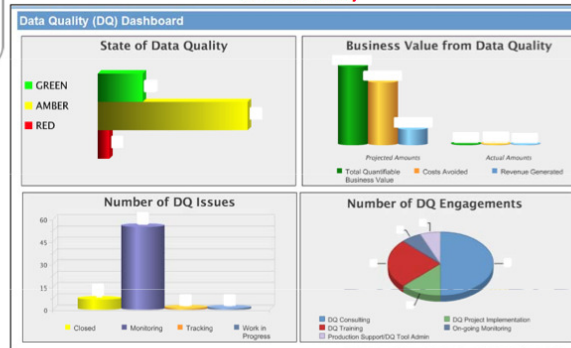
From concept …
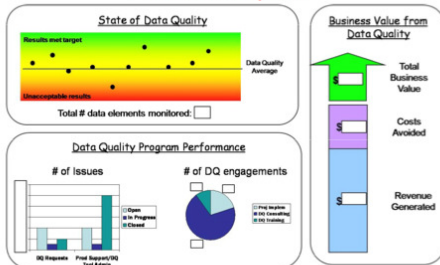
… to reality
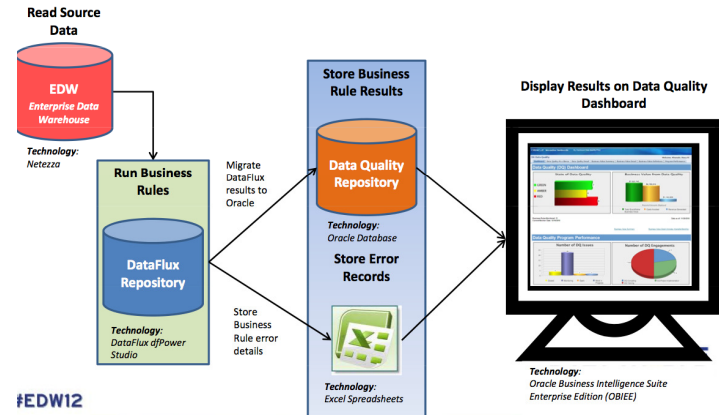
Each section has the ability to drilldown and to select information based on business rules or line of business

#EDW12

Which Tools are Used in the Monitoring Process?

Read Source Data

EDW
Enterprise Data Warehouse
Technology: Netezza

Run Business Rules
DataFlux Repository
Technology: DataFlux dfPower Studio

Migrate DataFlux results to Oracle

Store Business Rule Results
Data Quality Repository
Technology: Oracle Database

Store Error Records
Technology: Excel Spreadsheets

Store Business Rule error details

Display Results on Data Quality Dashboard
Technology: Oracle Business Intelligence Suite Enterprise Edition (OBIEE)

#EDW12

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Process for Monitoring the State of Data Quality Metrics

Monitoring Results

- **Green:** Results met target → **End:** No immediate action needed
- **Amber:** Results failed target or unfavorable trend
- **Red:** Unacceptable results

SLM Business — Maintain and apply information for business decisions and transactions → **Data Quality Services (DQS)** — Run on-going monitoring → **DG Council and designated business teams** — Review and act on monitoring results

Resolution Path
- Research and determine if action needed
- Identify and fix root causes
- Correct data errors
- Update monitoring process
- Verify and communicate results

#EDW12

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Weekly Dashboard Results Email

Subject: Weekly Data Quality Services Dashboard Results

Data Governance Council Members,

The Data Quality Services (DQS) Dashboard has been successfully loaded this week.

You are receiving this email because one or more data quality business rules have failed to meet the required status criteria ranges.

Details about these business rule failures can be found at the DQS Dashboard. If there are records that you identify that can be updated and corrected, please let us know because we need to track the actual number of records that are being cleaned up. Let us know if DGO or DQS can assist with your root cause research, we can also create Service Desk tickets to the appropriate team for cleanup.

Below is a table of the business rule notifications:

Contact Name	Business Rule Number	Business Rule Name	DQS Execution Date	Rows Processed	Rows Failed	Current Week Success Percent	Previous Week Success Percent	Notification Status Range Threshold	Current Execution Status Range
A						99.97%	99.97%	A	A
A						99.98%	99.98%	A	A
A						99.99%	99.99%	A	A

+ Other example of DQ Dashboards

Enterprise-wide Data Quality
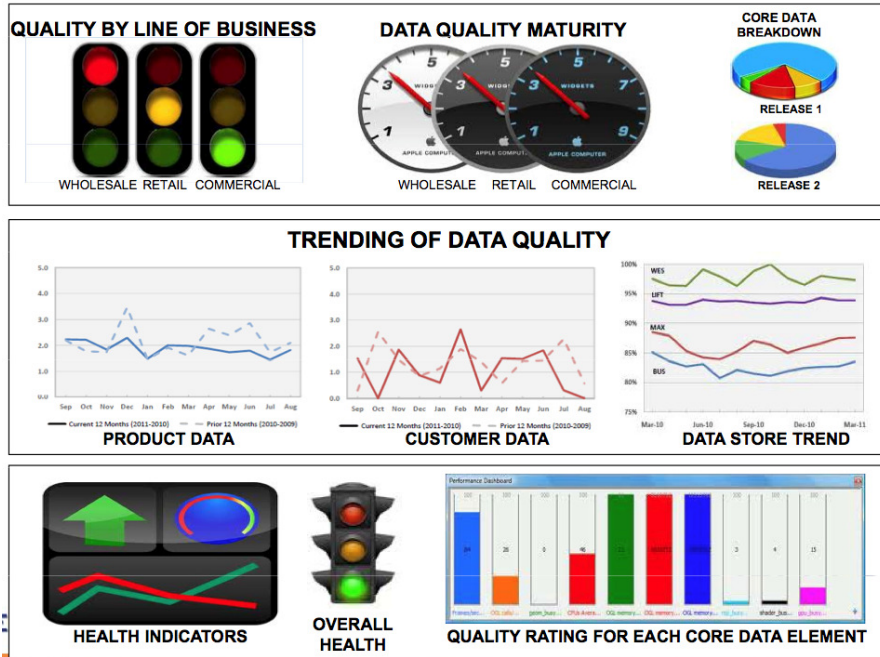

Fannie Mae

Business Benefits Achieved

- **Transparency** - All teams have instant access to summary and detailed views of data quality – no more paging through hard copy reports
- **Business Intelligence** – Data quality patterns and anomalies in graphical format
- **Automated alerts** - Color coded outliers and automated alerts
- **Better Controls** - Complete transparency into data quality rules – facilitates version control and audits
- **Rule Re-use** - Re-use and rule sharing – huge cost saving and eliminates redundancy
- **Compliance** - Mechanism to enforce service level agreements related to data quality
- **Accountability** - Exceptions tracked via aging reports and data patterns. Can tie departmental quality goals and enforce accountability

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Themes
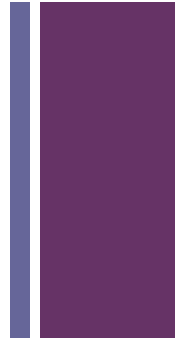
- Big Data

- Governance and Framework Development

- Measurement and Value

- A roadmap approach to Data Lifecycle Management