

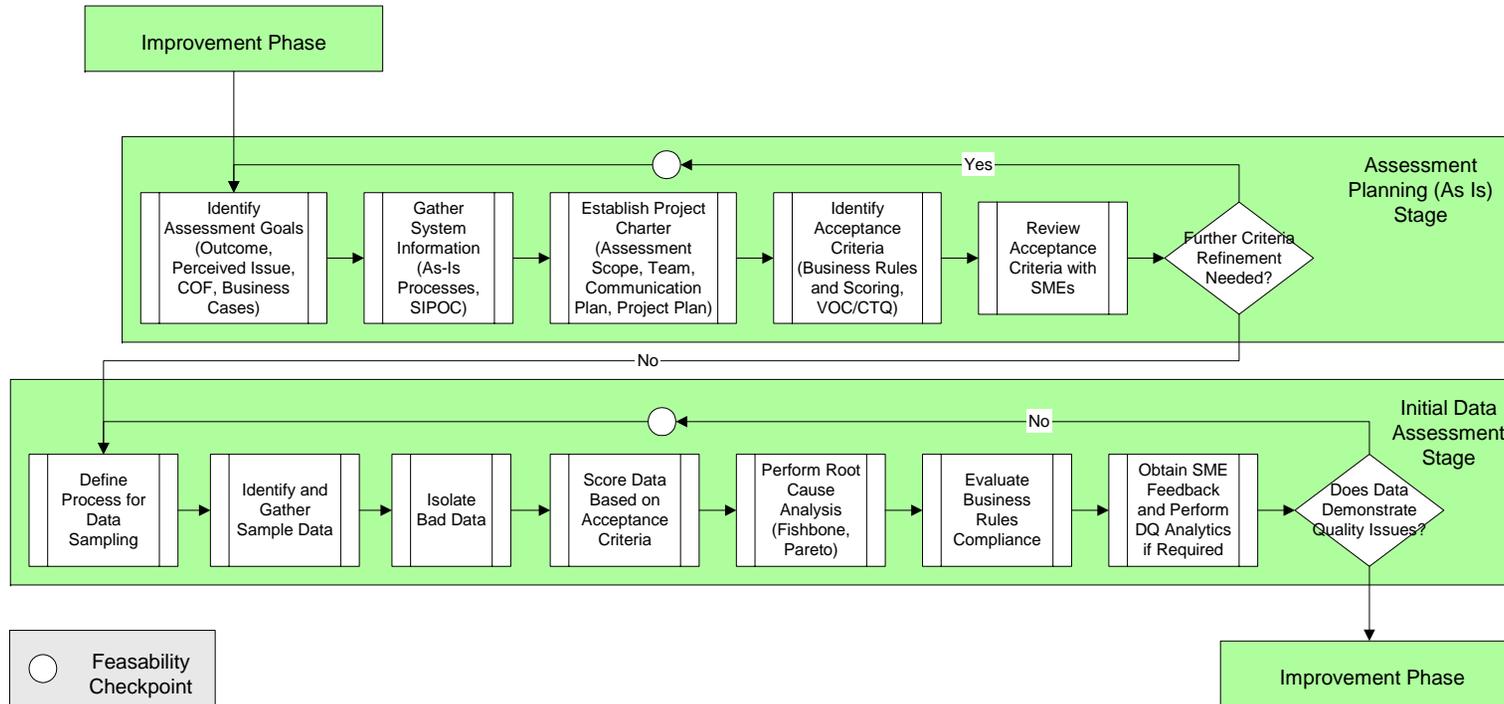


*“We Help
Put America
Through
School”*

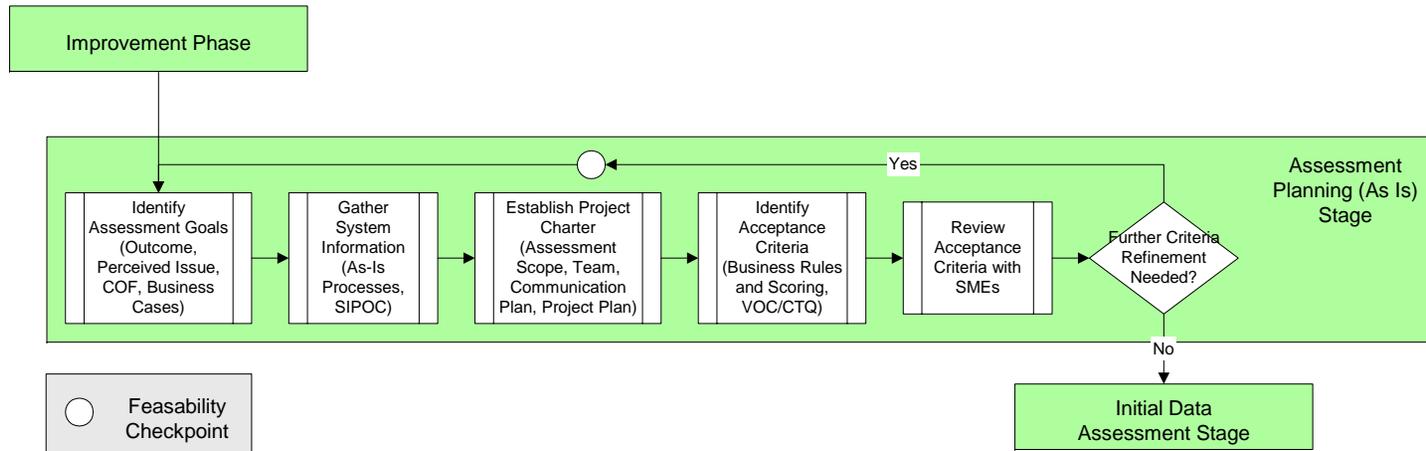
Data Strategy 2.0

Data Quality Implementation Methodology: Assessment Phase Business Templates

Assessment Phase



Assessment Phase – Assessment Planning Stage



- Identify Assessment Goals – Define the expected outcome, clarify the perceived issue, identify if a critical operation failure has occurred, identify related issues
- *Gather System Information – Develop As-Is System Flows and SIPOC diagrams
- *Establish Project Charter – Develop a project charter that outlines scope, project plan, communication plan, project team, and objectives
- Identify Acceptance Criteria – Align data standards with business rules and input from SMEs
- Review Acceptance Criteria with SMEs – Obtain proper SME signoff before assessing data

* = Associated business template(s)

Assessment Phase Business Templates – SIPOC

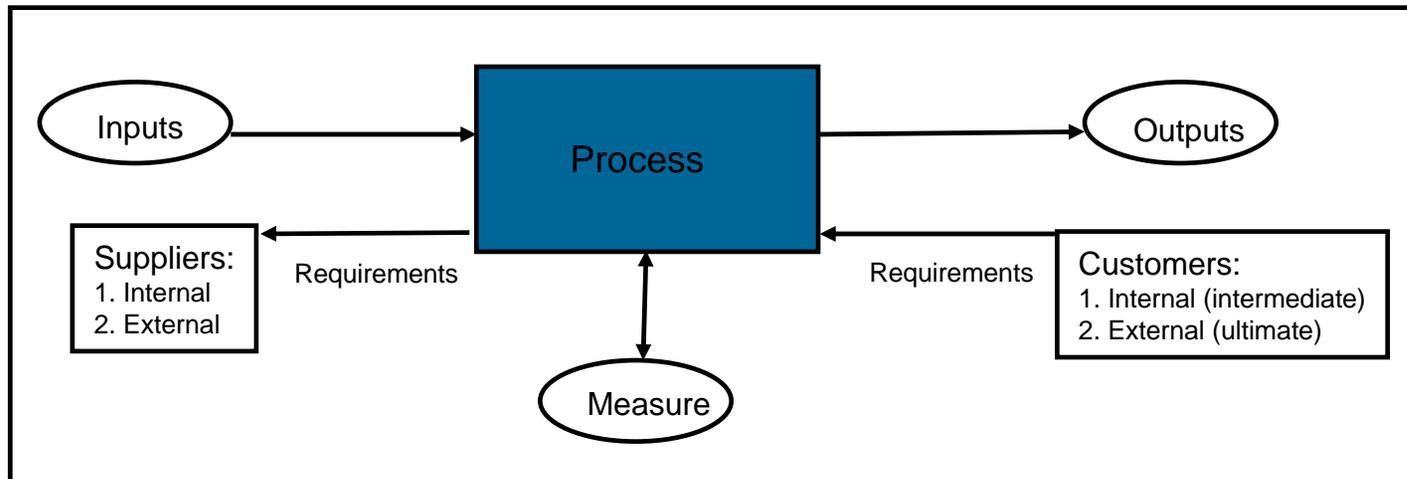


Objective:

To get a clear understanding of the Suppliers, Intputs (KPIVs), Process, Outputs (KPOVs) and Customers for the project under investigation.

How to use this tool:

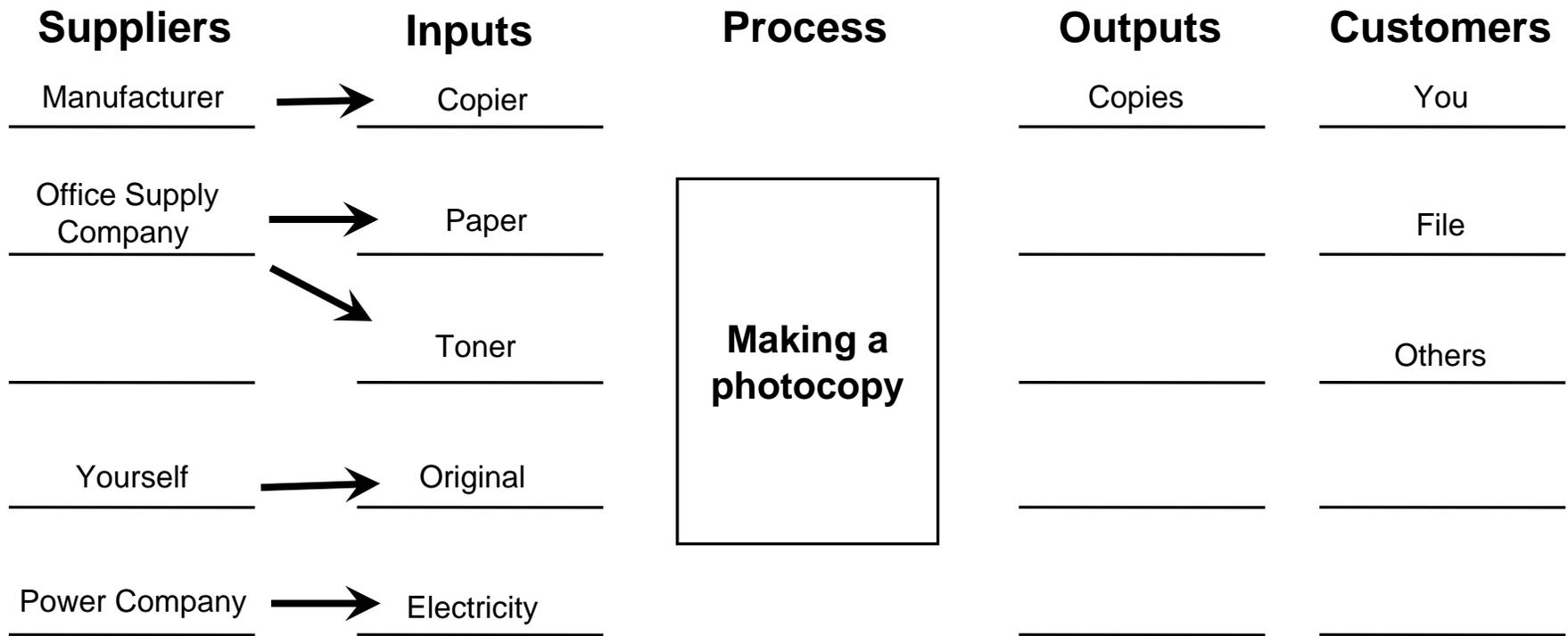
- Identify the inputs to the process. Include all information and resources.
- List the suppliers for all of the inputs.
- Identify the outputs of the process. These are the deliverables of the process to the customer(s).
- List the customers of the outputs. Customers can be internal or external.



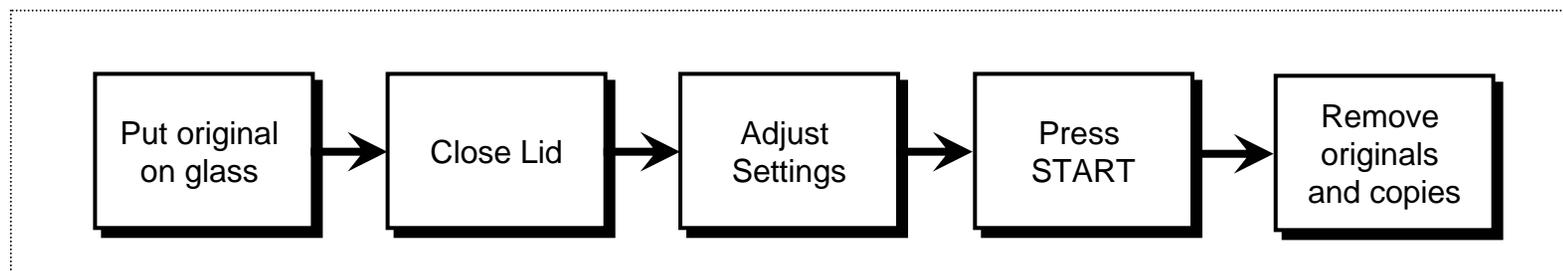
Next Steps:

- Create process maps for the overall process
- Collect Voice of the Customer (VOC) and Critical to Quality (CTQ) information.

Assessment Phase Business Templates – SIPOC Simple Example



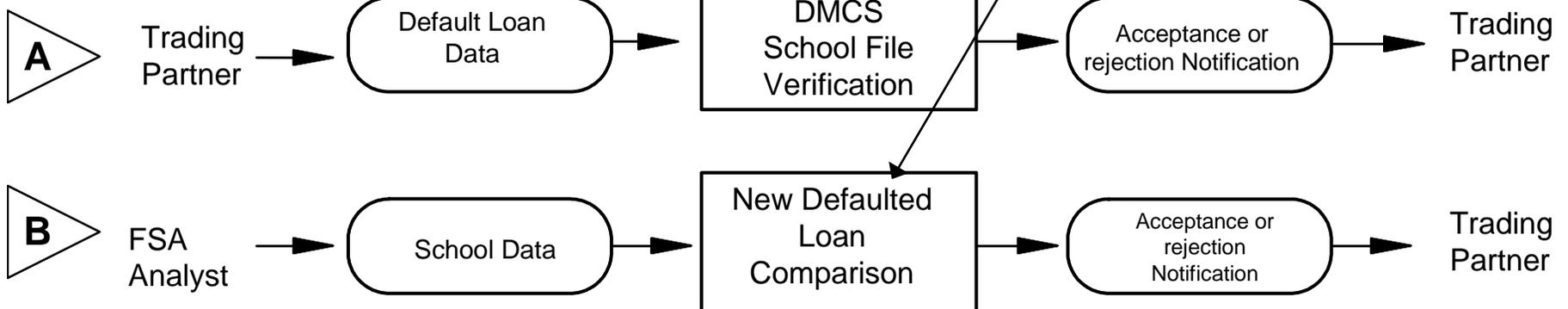
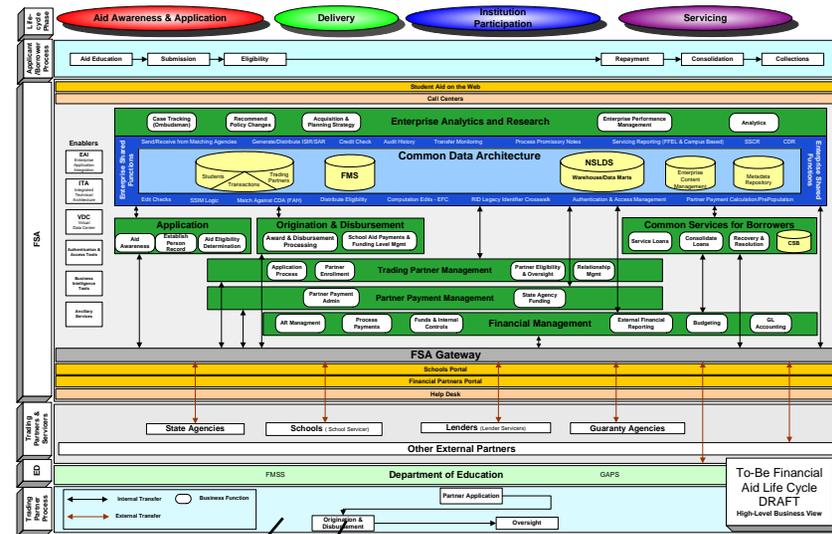
Process Steps



Assessment Phase Business Templates – SIPOC FSA Example



Example: Mad Dog Issue 25 states that school data in Default Management Collection System (DMCS) is static.



Assessment Phase Business Templates – Project Charter



Objective:

To ensure a clear, concise understanding of the project scope and objective (Each issue can spawn one or many projects).

How to use this tool:

- Identify and discuss the charter elements with the team:
 - Problem Statement
 - Project Objective
 - Project Significance (Potential Business Impact)
 - Milestones
 - Project Scope
 - Team Roles & Responsibilities
- Determine if anyone else has already solved a similar problem. Check the issue database.
- Draft a Project Charter for review and signoff by team, team lead, and Steering Committee.

Charter Elements	Information/Agreements
Problem Statement	
Project Objective	
Project Significance	
Key Milestones	
Project Scope	
Team: Roles & Responsibilities	

Next Steps:

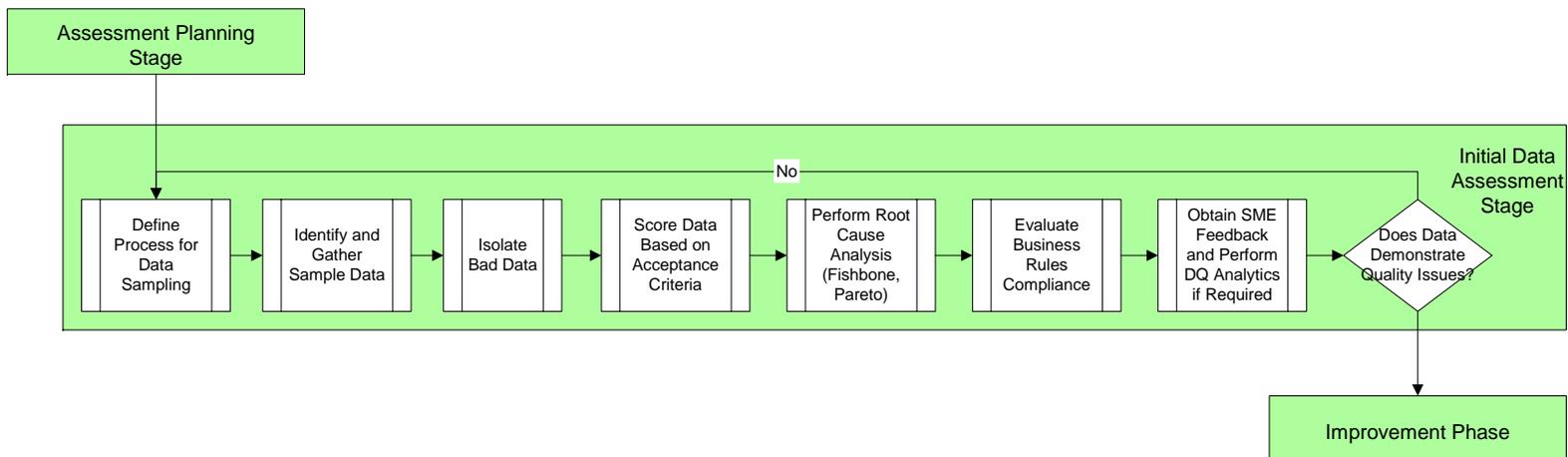
- Plan project timing.
- Review charter and key milestones to ensure focus on key expectations.

Assessment Phase Business Templates – Project Charter Example



Charter Elements	Information/Agreements
Problem Statement	13000 anomalous first and last names with numbers in them e.g. N1ELSON (l or L=1 and O=0) exist in system databases. This error can prevent record matches
Project Objective	Identify and correct all sources of anomalous data within NSLDS
Project Significance	The ability to match records between systems will be improved
Key Milestones	Root Causes Identified Solution selected Solution implemented Data cleanup completed
Project Scope	Identification and resolution of sources of anomalous data within NSLDS Cleanup of existing anomalous data within NSLDS
Team: Roles & Responsibilities	From Roles & Responsibilities presentation: Project Manager - FSA System SME - Contractor Application Architect - Solution Development and Testing Reps -

Assessment Phase – Initial Data Assessment Stage



- Define Process for Data Sampling* – Develop the Data Collection Plan
- Identify and Gather Sample Data - Create sample sets of data to highlight the known data inconsistencies
- Isolate Bad Data – Among sampled data, identify data perceived to be “bad data”
- Score Data* – Use Data Quality Scoring to refine data sample to identify the worst dataset sampled by scoring against acceptance criteria
- Perform Root Cause Analysis* – Using identified dataset and As-Is State, analyze data and business processes to identify the perceived root cause
- Evaluate Business Rule Compliance – Evaluate data against any documented business rules for additional integrity evaluation
- Obtain SME Feedback – Review assessment process and results with SMEs to verify comprehensiveness of assessment

* = Associated business template(s)

Assessment Phase Business Templates – Data Collection Plan



Objective:

To establish the method in which data will be collected.

How to use this tool:

- Create a data collection plan template:
 - Determine the different performance measures that need to be investigated.
 - Identify the source of data to be collected.
 - What is the sample size? Do we need to collect more data? Do we only need a subset of what we have?
 - Is there is any additional data that should be collected?

Performance Measure	Operational Definition	Data Source and Location	Sample Size	Who Will Collect the Data	When Will Data be Collected	How Will Data Be Collected	Other Data that Should be Collected at the Same Time

Next Steps:

- Complete data collection & analysis

Assessment Phase Business Templates – Data Collection Plan Examples



Simple Example:

Cycle time for loan origination processing

Performance Measure	Operational Definition	Data Source and Location	Sample Size	Who Will Collect the Data	When Will Data be Collected	How Will Data Be Collected	Other Data that Should be Collected at the Same Time
Cycle time	Fax date/time, decision fax date/time	Loan Representative fax center	289	Team member	During the first week of the next month	Randomly selected from the past month	Type of loan Amount of loan Dealer Time of day Day of week

FSA Example:

There are issues regarding school identifier mismatches regarding reporting from COD to FMSS / GAPS that result in manual data entry into those systems - resulting in audit trail and integrity issues

Performance Measure	Operational Definition	Data Source and Location	Sample Size	Who Will Collect the Data	When Will Data be Collected	How Will Data Be Collected	Other Data that Should be Collected at the Same Time
Accuracy	School Identifier	Schools COD FMSS GAPS	500 Records	System Rep	At the end of next financial cycle	Random data sampling	School address School contact

Assessment Phase Business Templates – Data Quality Scoring Table



Objective:

Identify offending data set(s) in order to facilitate and confirm root cause analysis

How to use this tool:

- Metrics established during Assessment Planning Stage.
- Sample data according to the Data Collection Plan.
- Data is rated against each metric and weighted.
- Acceptance threshold is set.
- Overall score is calculated and compared to threshold.
- Bad data is identified or data is re-sampled

Data Sample Set	Criteria with Weights				Score	Is Data Quality Acceptable?
	Criterion 1	Criterion 2	Criterion 3	Criterion 4		
	Weight 1	Weight 2	Weight 3	Weight 4		
A						
B						
C						

Next Steps:

- Sample additional data if necessary
- Reset acceptance threshold if necessary
- Perform Root Cause Analysis

Assessment Phase Business Templates – Data Quality Scoring Table Example



Data Sample Set	Criteria with Weights				Score	Is Data Quality Acceptable?
	Percent of Blank Name Fields	Percent of Duplicate Entries	Percent of Blank Address Fields	Percent of Data with Incorrect Format		
		0.3	0.2	0.2	0.3	
A	0.6	1	0.4	0.6	2	Y
B	0.9	1.6	0.6	2.1	4.3	Y
C	1.8	2.4	1.2	2.7	6.3	N

(Percentage out of total data points exhibiting defect) x (Weight)=(6%) x (0.3)

Overall Data Quality Score must be below 5 to be acceptable



Assessment Phase Business Templates – Fishbone (Cause & Effect Diagram)

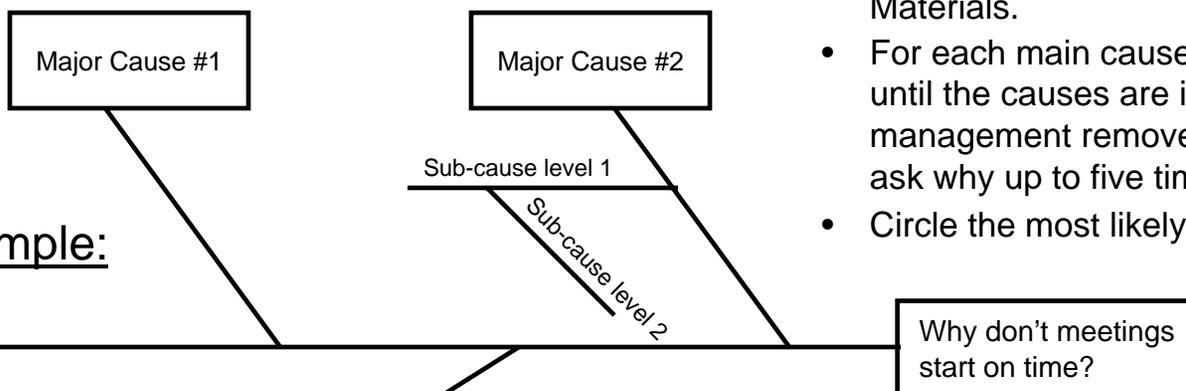
Objective:

To explore potential causes of process problems.

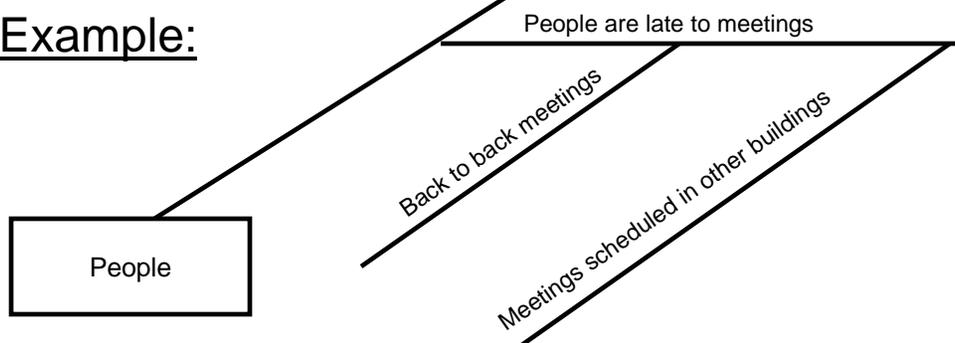
How to use this tool:

- Write a problem statement in the box at the right of the fishbone (this is the “head” of the “fish”).
- Determine the different categories of major causes and create a spoke for each one. Typically, each “bone” will cover the “4 M’s” – Manpower, Methods, Machinery, & Materials.
- For each main cause, ask why? Continue to ask “why” until the causes are influenced by more than one level of management removed from the group. Rule of thumb: ask why up to five times.
- Circle the most likely potential root causes.

Sample:



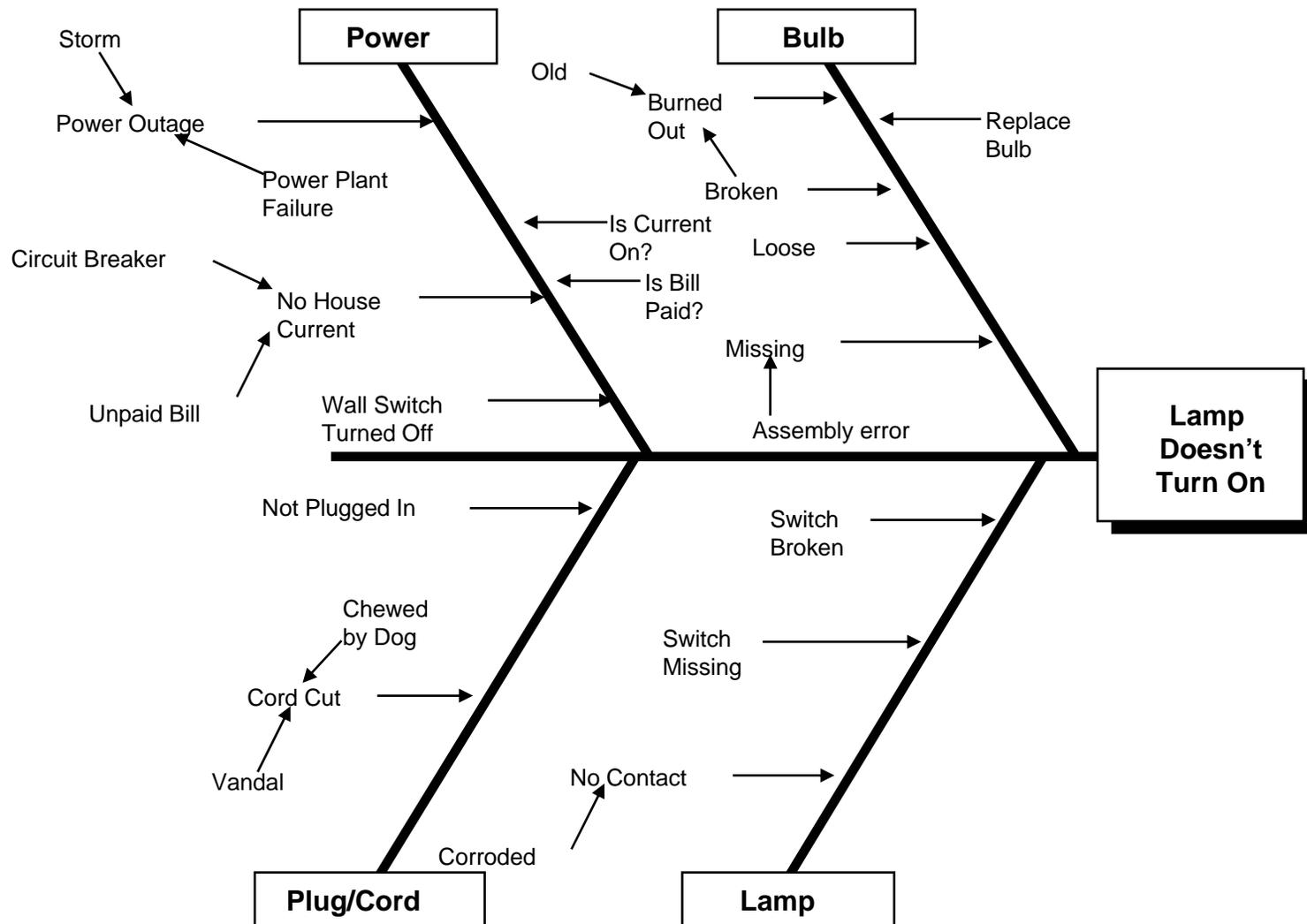
Example:



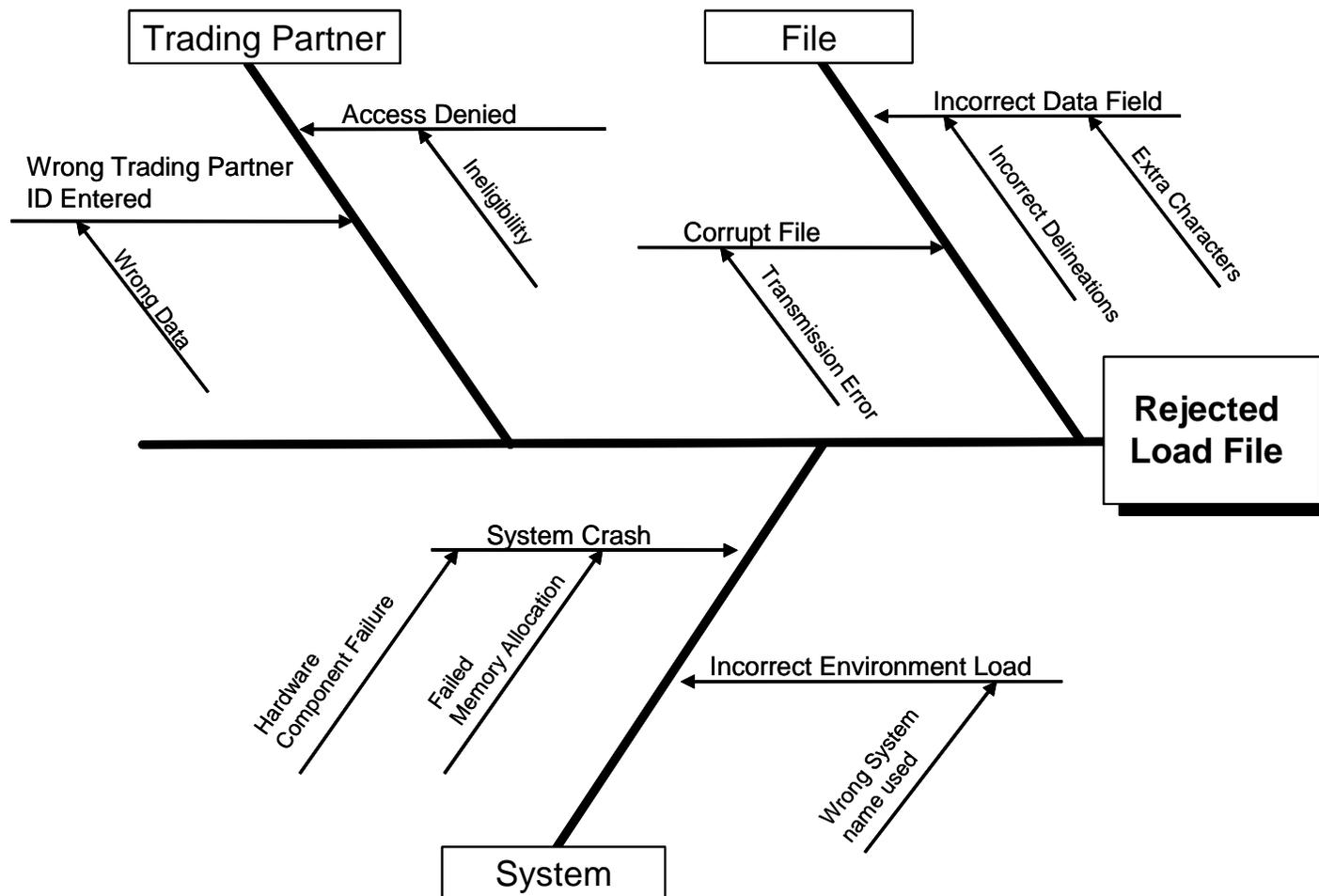
Next Steps:

- Review with all team members and people who have insight to and contribute to the process. Ensure all root causes are captured.
- Verify root causes using check sheets, pareto charts or scatter diagrams.
- Determine which root causes are actionable and create an action plan (solution).

Assessment Phase Business Templates – Fishbone (Cause & Effect Diagram) Simple Example



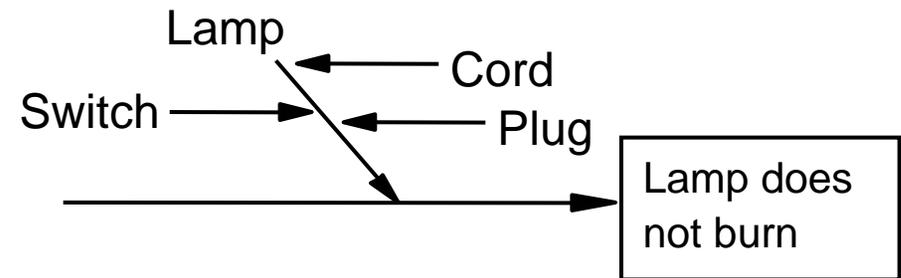
Assessment Phase Business Templates – Fishbone (Cause & Effect Diagram) FSA Example



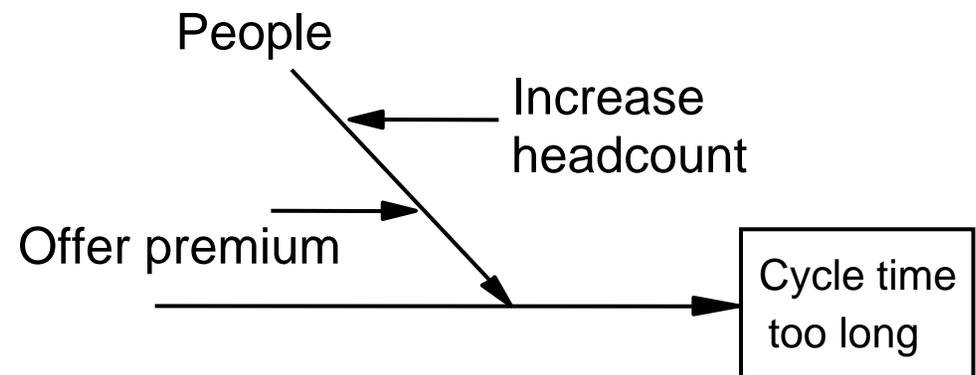
Avoid Common Mistakes



– Do not use this tool as an alternative form of outlining



– Do not use the tool to list potential solutions



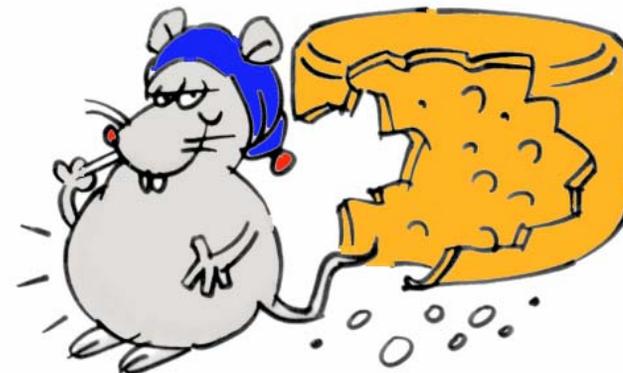
Assessment Phase Business Templates – The Pareto Principle



The Pareto principle is often described by the “80/20 rule.” In many situations, roughly 80% of the problems are caused by only 20% of the contributors.



The Pareto Principle implies that we can frequently solve a problem by identifying and attacking its “vital few” sources.



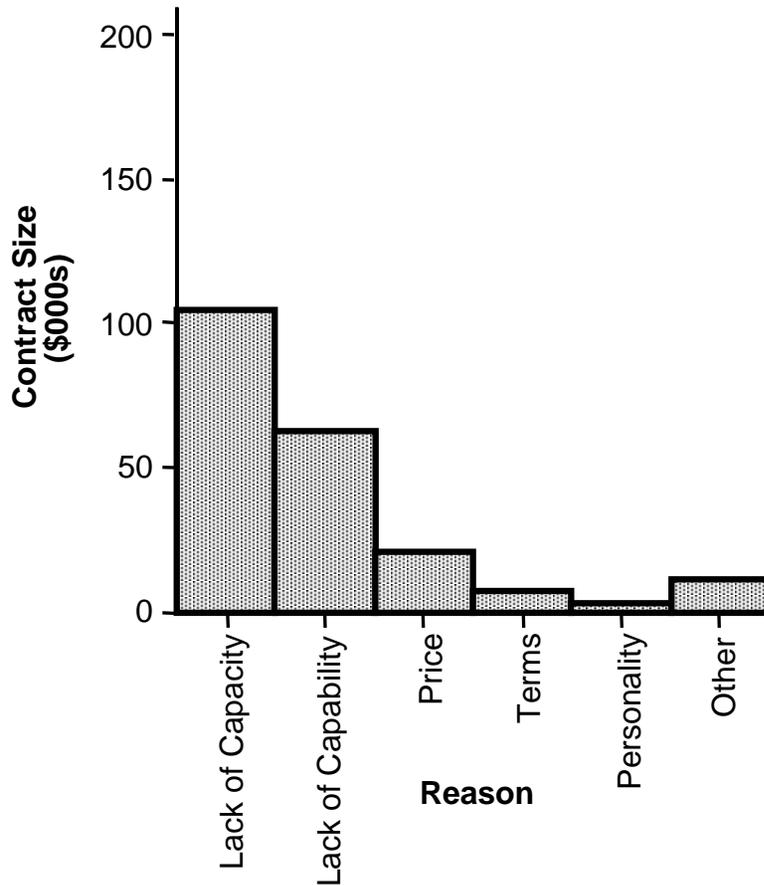
Assessment Phase Business Templates – The Pareto Chart



Objective:

To identify the most frequently occurring reasons or sources of error within a selected process.

**Lost Contract Bids
January – December**



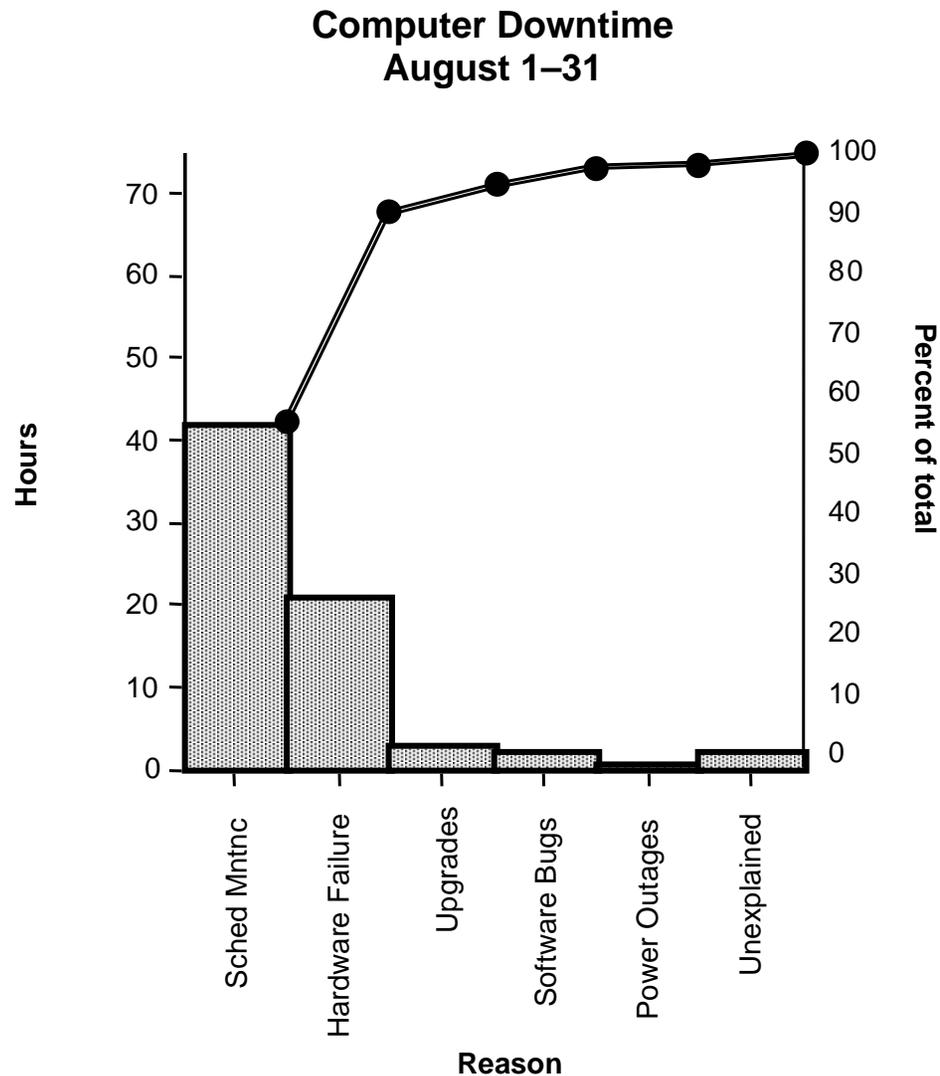
How to use this tool:

- Identify root causes and corresponding data from fishbone analysis
- Identify the correct metric to measure impact (y-axis)
- Identify the occurrence of each root cause and the corresponding impact

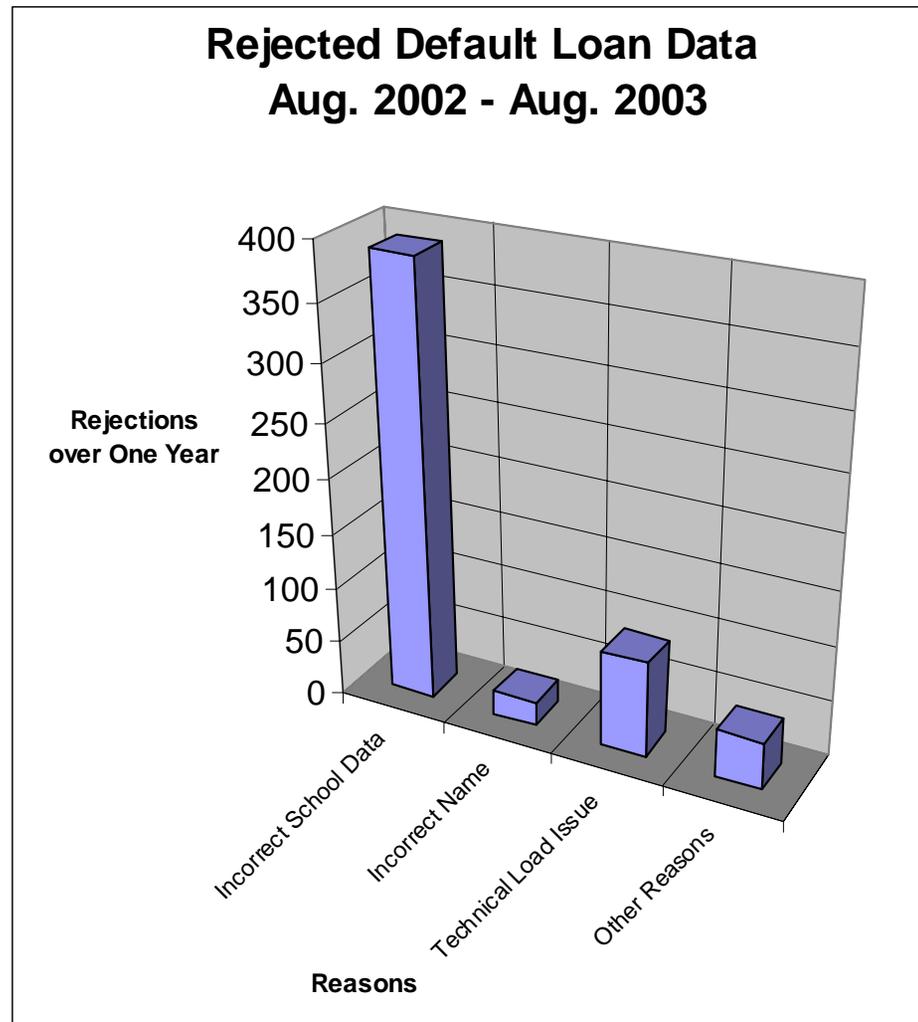
Next Steps:

- Verify dominant root cause with SMEs
- Develop solutions to resolve root cause problems

Assessment Phase Business Templates – Example of Pareto Charts Simple Example



Assessment Phase Business Templates – The Pareto Chart FSA Example



Questions?

