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Overview:

This paper will describe:

A: The traditional budgeting process toward tracking labor costs within the Enterprise Data Warehouse (EDW) of Zions Bancorporation.

B. The method used to determine key performance indicators (KPI) in the EDW.

C. How the proposed new method of tracking KPI's would better link short-term behavior to long-term strategy.

Included will be the identification of data quality as the primary KPI's for the data warehouse toward realizing and supporting the corporation's strategic goals, as well as methods used to track both the cost and the return on investment of maintaining superior data quality.

Introduction:

Commercial banking is not a particularly complex business. But, as with most businesses, success and the creation of value lie in mastering challenges that are peculiar to its own industry. Toward meeting those challenges, the Zions' CEO has described a vision for the corporation that subsumes three primary objectives:

1- Manage financial risk 2- Grow the market share 3- Control operating expenses.

To support the CEO's vision, the primary strategic process of the EDW is to capture all transactional data and to provision it to users by means of reporting marts. Doing so effectively requires tracking the costs to capture, transform and provision data to report writers and managers, and measuring the value of the data product in terms of its ability to accurately present financial and regulatory information such that shareholder value increases and risk are mitigated. The figure below depicts the EDW Strategy Map,

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the major components of which include integrating the EDW's performance to the corporate strategy, creating a strategy awareness and committing the staff to it, then executing and monitoring the strategic initiatives.

Of course, merely moving data from one place to another has no merit unless that data is correct. Therefore, determining the value of data and information to the enterprise, tracking the lineage of data, measuring its accuracy, creating exception reports and weighing the percentage of errors against the costs to mitigate the mistakes should be a major part of the EDW budgeting process. However, until recently, the value of the data has not been measured. During late-2006, an effort was begun to mapping the value chain for the EDW, performed in four distinct phases:

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1- Documenting an historical perspective

The EDW was formed during 2002, and its initial budget was simply assigned by the corporate CFO, in consultation with the executive staff and IT department managers. There was no system for determining whether the data moving into and through the EDW was accurate, and therefore the value of the department was unknown. That informal process remained in place until 2007.

2- Create a budget

In late-2006, the EDW was tasked by the CFO to submit a formal budget and to tracking direct labor and departmental costs. The personnel and projects necessary were not yet identified.

3- Monitor project costs against estimated value

a. The key to the EDW's success in measuring ROI is by implementing a series of integrated projects with fixed costs that can be completed in no more than 120 days, and frequently in 30 days or less, and to use a formalized roadmap that tracks each project phase and its adherence to budget.

b. The roadmap includes a matrix used to determine the skills and personnel - dubbed "Strategic Job Families" - as well as time, necessary to complete each task. A typical Strategic Job Family will consist of:

i. Project Manager
ii. Database Architect
iii. Database Administrator
iv. Data Extract-Transform-Load Specialist
v. Business Analyst
vi. Business Intelligence/Metadata Developer

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vii. Report Writer
viii. Operations Specialist

c. Cross-geographical teams are formed from each of the affiliate banks, and the Project Manager is charged with aligning employee behavior with the corporate mission.

d. The total workday requirements, by Job Family, for 2007 are depicted in the following table:

Strategic Job Family Requirements - 2007

	DbAr	DbAd	ETL	BA	BI	RW	Ops
Jan	18.408	21.115	54.658	68.132	9.875	28.553	8.312
Feb	17.909	19.763	53.306	66.232	9.875	28.553	7.636
Mar	10.192	2.581	13.151	10.438	0.263	2.153	1.085
Apr	5.680	9.110	45.051	37.681	1.212	10.039	2.647
May	6.209	9.785	42.403	33.492	1.667	13.465	2.594
Jun	6.209	9.785	42.403	31.239	1.209	4.351	2.594
Jul	6.680	10.020	43.817	32.446	1.275	4.718	2.830
Aug	7.585	6.709	44.535	34.114	2.117	4.718	2.830
Sep	7.316	5.901	43.727	31.960	2.117	4.718	2.695
Oct	5.911	5.452	37.098	25.327	1.103	4.718	2.022
Nov	1.983	1.525	3.372	5.006	1.103	4.718	0.681
Dec	1.512	0.329	0.526	0.921	0.230	1.184	0.132
TOTALS	**95.593**	**102.074**	**424.046**	**376.987**	**32.047**	**111.890**	**36.058**

4- Creating a system to monitor progress

a. The relative worth of projects is accomplished through shareholder value added analytics, designed to provide approximately $30MM in benefits during the succeeding five years.

b. Toward measuring the value of projects in accomplishing strategic objectives, the progress of performance, timeliness, costs and value-added are constantly tracked and reported by Project Managers.

c. The figure below demonstrates a typical reporting metric - budget - an important criterion in determining whether a project has met its strategic objectives.

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Project Performance Metrics - Budget

S #	Metric	Abbrev.	Description	Formula/Value
1	Budget at Completion	BAC	Baseline project cost	
2	Actual Cost	AC	Total costs incurred in completing work during a given period	
3	Earned Value	EV	Physical work completed during a given period	
4	Planned Value	PV	Physical work scheduled for completion during a given period	
5	Cost Variance	CV	Cost overrun during a given period	EV-AC
6	Cost Performance Index	CPI	Cost efficiency ratio	EV/AC
7	Schedule Variance	SV	Schedule slipped during a given period	EV-PV
8	Schedule Performance Index	SPI	Schedule efficiency ratio	EV/PV
9	Estimate to Completion	ETC	Expected additional cost needed	EAC-AC
10	Estimate at Completion	EAC	Expected total cost	BAC/CPI
11	Variance at Completion	VAC	Estimated cost overrun at end of project	BAC-EAC
12	Status	n/a	Average of CPI and SPI	(CPI+SPI)/2

Establishing the Value of Information

Data quality is subjective, and relies on how data flaws are related to negative business impacts. Objective data quality metrics may not necessarily be tied to business's performance, and some interesting questions were raised in the EDW's formulation of a data quality ROI methodology, such as:

- How do we distinguish high impact from low impact data integrity issues?
- How do we isolate the source of the introduction of data flaws to fix the process instead of merely correcting the data?
- How do we correlate business value with source data integrity?

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- What is the best way to employ data integration best practices to address these questions?

We recognized that there is a fundamental distinction between data quality expectations and business expectations. Data quality expectations are expressed as rules measuring aspects of the validity of data values:

• What data is missing or unusable?

• Which data values are in conflict?

• Which records are duplicated?

• What linkages are missing?

Alternatively, business expectations are expressed as rules measuring performance, productivity, efficiency of processes, asking questions like:

• How has throughput decreased due to errors?

• What percentage of time is spent in scrap and rework?

• What is the loss in value of transactions that failed due to missing data?

• How quickly can we respond to business opportunities?

To determine the true value added by data quality programs, conformance to business expectations (and the corresponding business value) should be measured in relation to its component data quality rules. We do this by identifying how the business impacts of poor data quality can be measured as well as how they relate to their root causes, then assess the costs to eliminate the root causes. Characterizing both our business impacts as well as our data quality problems provides a framework for developing our business case.

Identifying Impacts of Poor Information Quality

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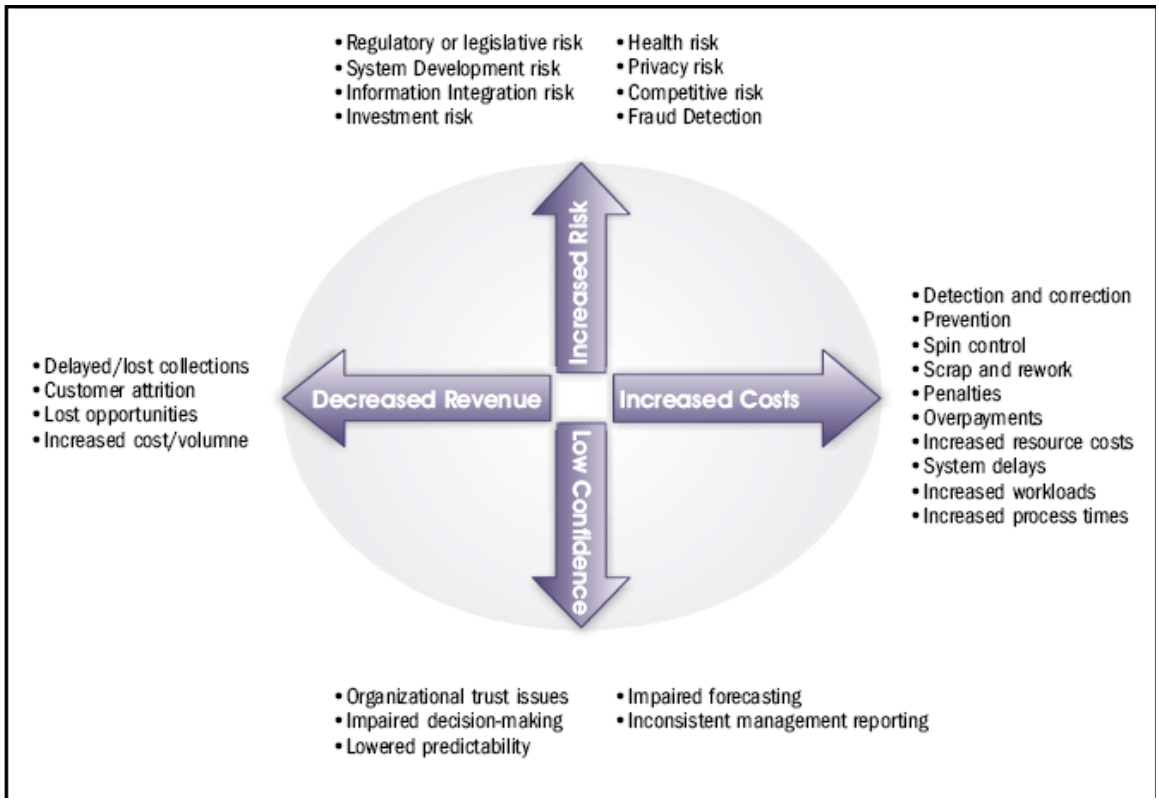
Fundamentally, the return on the investment for ensuring data quality is based on the real pains incurred by data flaws in the course of running the bank. The flaws result in increased risks to regulatory reporting (e.g., Sarbanes-Oxley & OCC), increased costs (to remediate errors), decreased revenues, and lowering of customer confidence in our institution. These impacts are summarized in the figure below:



Our goal in the EDW is to maximize the value of the information based on impacts associated with each dimension, and our primary KPI's are those measure which help us to determine when and where poor information quality affects one or more of these variables.

Projecting Return on Investing in Data Quality

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Deploying the project roadmap and implementing the data quality tracking system will eliminate some number of yearly incurred impacts, and therefore, the return on investment can be calculated as the difference between the sum of those yearly incurred impacts and the yearly resource and staffing requirements. In turn, we can use these results to prioritize our investment and program growth.

By reviewing the data exception reports which contain quality statistics for each bank and cost center, management can select and plan the project investments that grow the data quality program in the most strategic way.

Conclusion:

As demonstrated in this paper, by setting data quality as the foremost KPI, then tracking ROI based on the level of quality, the Enterprise Data Warehouse at Zions Bank is able to develop a Project Roadmap toward converting corporate strategy into actions that will strengthen the value chain of the corporation, thereby providing business information that improves management's ability to make decisions toward enhancing shareholder value.

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Reference:

Kaplan, Robert S. and Norton, David P. (2004). *Strategy Maps - Converting Intangible Assets into Tangible Outcomes*. Boston, Mass: Harvard Business School Publishing