

# Analytics in Action: Techniques, Trends, and Tools

May 22, 2025



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# The \$6,00 Toilet Seat

### What Happened:

 In the 1980s, the U.S. Department of Defense was publicly mocked after reports claimed it had purchased toilet seats for \$640-\$6,000 each. The story became a punchline for government waste and inefficiency.

### What ACTUALLY Happened:

 The "toilet seat" in question was *actually* a custom-fabricated plastic shroud designed to fit a specific military aircraft lavatory. The high cost reflected oneoff tooling and design, not mass-produced household fixtures. But procurement data labeled it as simply a "toilet seat"—without any explanation or context.

### **Data Storytelling Failures:**

- Reports showed bare line items with no narrative or background
- R&D and fabrication costs were not clarified
- The lack of context allowed the public (and media) to create their own story: "The Pentagon spent \$6,000 on a toilet seat!"

United Press International. (1986, February 12). Reagan gives bottom line on defense expense. UPI Archives. https://www.upi.com/Archives/1986/02/12/Reagan-gives-bottom-line-on-defense-expense/6770508568400/

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#### DEPARTMENT OF DEFENSE BUDGET

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Category	Budget
Personnel	\$164 billion
Operations	\$197 billion
Procurement	\$168 billion

Toilet Seats \$600 each





### Data Overview

### Definition

### • The foundational information to be presented

Pillar	What the Storyteller Needs to Ask	Quick Tips
Completeness	Does the dataset cover the full time- range and variables needed for the story?	Perform a step back and ask, "who or what may not be represented in this data?"
Relevance	Does every field connect to the decision at hand?	Verify to source systems and document assumptions & data lineage.
Reliability & Accuracy	Are the numbers right and repeatable? How were they captured?	Prioritize decision-critical metrics to avoid
Precision	Is the level of detail appropriate (aggregated vs. transaction-level)?	Use the <i>lowest</i> level that still protects privacy and clarifies patterns.



## Common Completeness Pitfalls in Financial Analysis

Time Periods	• Issues: Trend lines become meaningless and ratios are skewed
Omitted Business Segments, Departments, or Regions	• Issues: Segment profitability is inaccurate and risk concentrations could be missed
Off-Balance Sheet or "Shadow" Transactions (Operating Leases, SPEs, Guarantees)	Issues: Leverage and liquidity analyses could understate risks
Missing Non-Financial Context	Issues: Users can't connect operational drivers to numbers
Inconsistent Units or References	• Issues: Risks errors in calculation and loss of context for users







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# Accuracy & Reliability

## Reliability of Data Considerations

#### Source

Where did the information come from? External or Internal? Use of IT? External sources are more reliable due to reduced bias (e.g., third-party confirmations, bank statements, industry reports).

#### Comparability

How is the data **comparable** to the entity's operations? Industry averages may not be comparable for a niche manufacturer and might require adjustments

#### **Nature and Relevance**

Does data reflect **actual results, expected results,** or aspirational **targets**? A company's budget may be a goal rather than a realistic projection.

### Validity

How have we validated the **completeness** and **accuracy** of the data? The auditor may **test controls** over preparation or reference **other substantive procedures** to **increase confidence** in analytical procedures.

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### PRACTICAL PRELIMINARY EXAMPLE

How Would This Impact Your Inquiries of Management and Risk Assessment?

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### Case Study – Solvency Sliced



### • Background:

- Solvency Sliced was launched in early 2011 by three accountants who bonded over late-night pizza during month-end close. They built the brand around hyper-reliable delivery and a data-driven "Pizza Club" loyalty program, a combination that kept sales growing even through the COVID-19 lockdowns. As dining rooms reopened, management pivoted to a dual-format model—carry-out/delivery hubs downtown and full dine-in restaurants in high-traffic suburbs—financed primarily with SBA-backed term notes and a modest revolving line of credit.
- You are the Controller for Solvency Sliced and have an upcoming meeting with Tom Atosauce, the CEO, and Ann Chovy, the CFO, to discuss Q2 Results.

Metric	What It Measures	Q2 20X1	Q2 20X2	Δ		CRUSTED AND TRUSTE
Total revenue	Dollar sales across all stores and channels	\$20.8M	\$21.1M	+1.6%		
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Case Study – Challenge (What Happened?) What should be our opening focus for the Q2 review?									
Pick the one metric (or paired set) you would lead with for your Q2 Update and justify why.									
Metric	What It Measures	Q2 20X1	Q2 20X2	Δ	Take-away				
Total revenue	Dollar sales across all stores and channels	\$20.8M	\$21.1M	+1.6%	Top line limited growth				
Total orders	Number of transactions company-wide	1.20M	1.18M	-1.7%	Foot traffic decreasing				
Average ticket	Average revenue per order	\$17.60	\$18.90	+7.4%	Price/upsell increase				
Delivery mix	% of orders fulfilled via delivery	35%	41%	+6.0%	Higher exposure to 10% delivery fees				
Customer-sat score	Avg. post-purchase rating (1–5)	4.6	4.0	06	Sentiment softening				
"Our top line gree	w 1.6 percent, but	the engine behin	d it shifted from fo	oot-traffic to de	livery vans."				
"Think of Q2 as a	warning light: rev	enue flat-lines ne	ext quarter if we d	on't reignite in-	-store traffic."	Ale			

## Case Study – Observation (Why Did This Happen?)

"Our top line ticked upward,, but the increase came from DoorDash wheels, not dine-in meals..."

What should be our opening focus for the Q2 review?

What might be driving the shift from dine-in to delivery, and what data would you collect and review to confirm?

Hypothesized Driver	Explanation		Data Needed to Verify
Consumer Habit Stickiness	Post-pandemic prior dine-in guests stayed home due to convenience	•	Multi-year delivery vs. in-store orders Identify third-Party or internal promotions or discount volume
Customer Experience Friction In-Store	The quality of experience has declined at one or more of our locations	•	Disaggregate customer satisfaction scores between in-store and delivery Refunds/complaint ratio by store
Competitive Clash	Several new casual dining competitors opened within a three-mile radius	•	Locational sales data since the opening date of the new competitors Identify competitor promotional scraping and determine how that factors into in pricing comparisons

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