Real-Time Data Warehousing
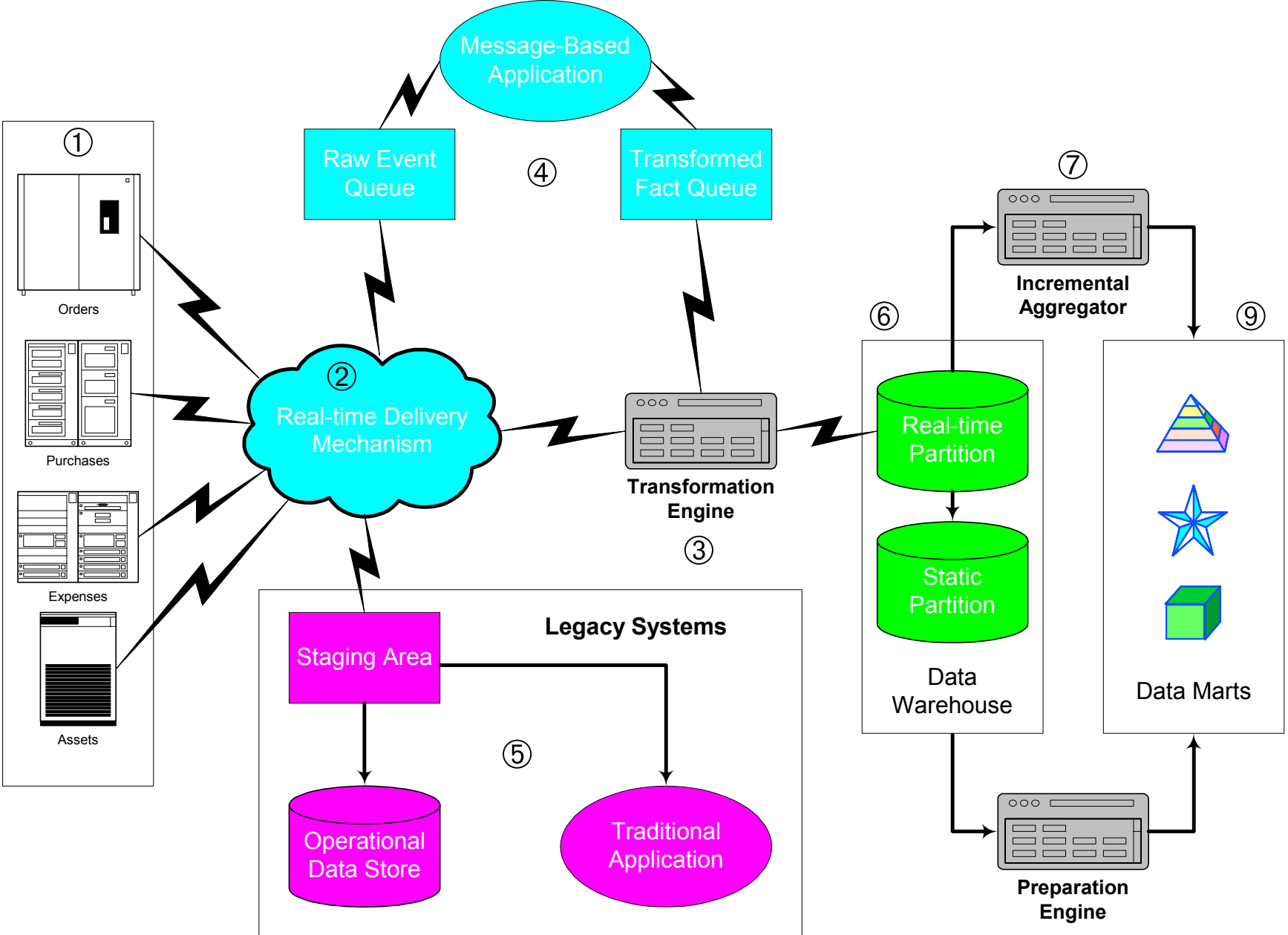
Michael Haisten

Daman Consulting
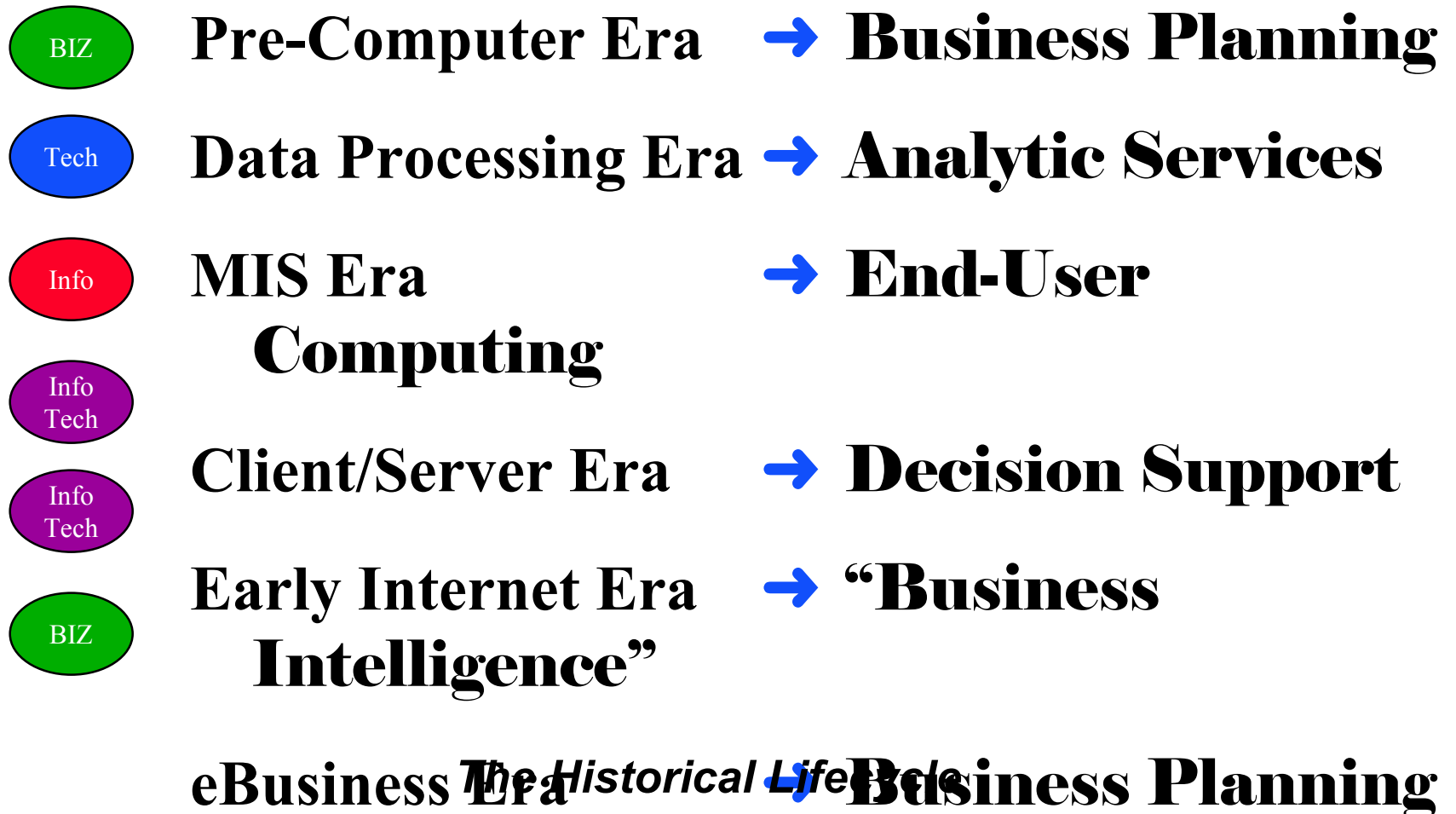
Agenda

➢ Real-Time DW Overview

➢ A History of Business Intelligence

➢ The Evolution of eBI

➢ Closed Loop Analysis
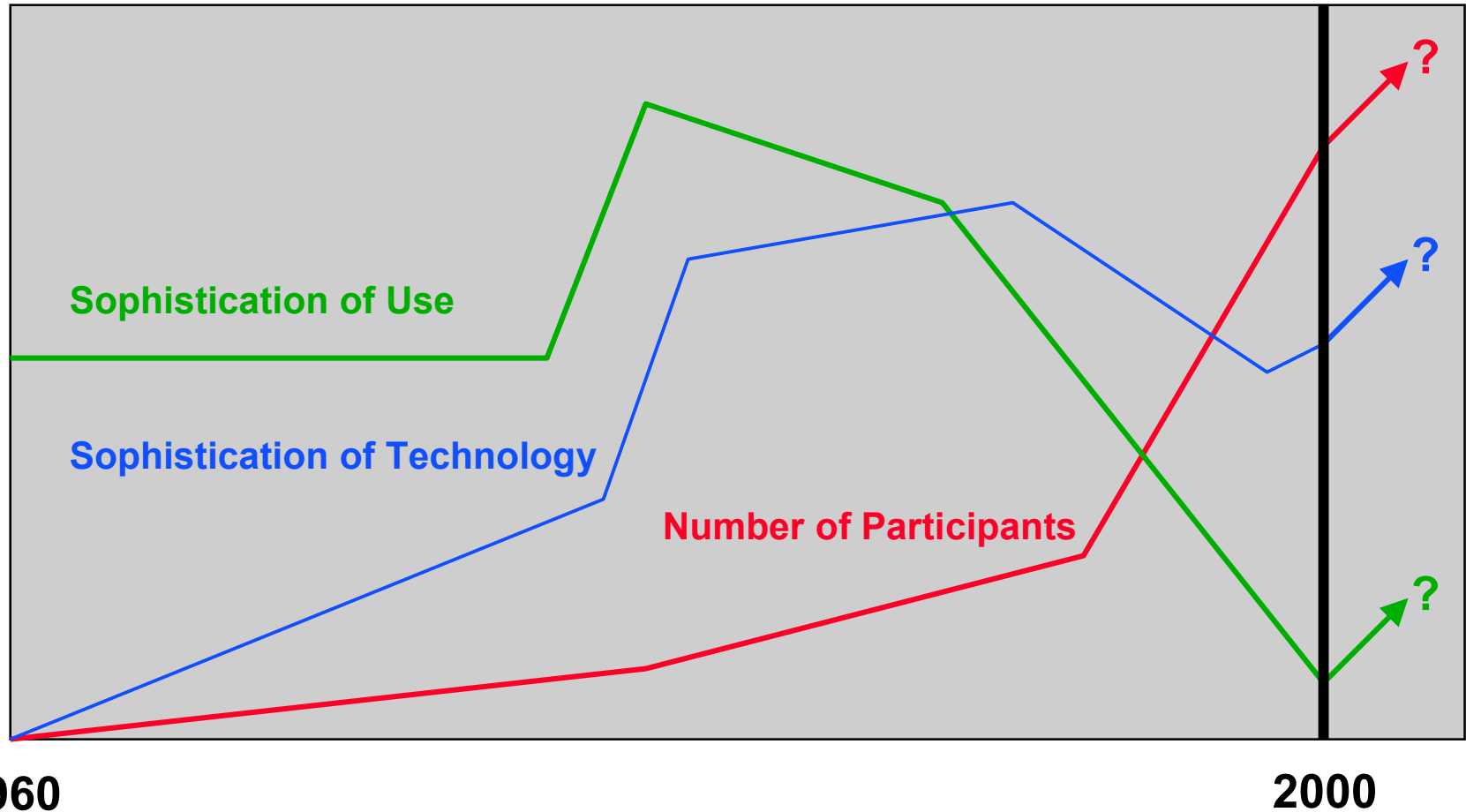
➢ Real-Time DW in Detail

➢ A Real-Time Example

Real-Time Data Warehousing

A History of Business Intelligence

BIZ — **Pre-Computer Era** → **Business Planning**

Tech — **Data Processing Era** → **Analytic Services**

Info — **MIS Era** → **End-User Computing**

Info Tech — **Client/Server Era** → **Decision Support**

Info Tech

BIZ — **Early Internet Era** → **"Business Intelligence"**

eBusiness Era *The Historical Life* → **Business Planning**

Business Intelligence Trends

Sophistication of Use

Sophistication of Technology

Number of Participants

1960

2000

Sophistication of Use

Control

Operational

Management

Analysis

Timeline

Sophistication of Technology

1970's

Multi-Dimensional Systems
Tabular 4GL/Databases
Query Languages & SGML

1980's

Networked Solutions
Relational Databases
Spreadsheets
Graphical Query Tools

1990's

Client/Server Applications
Component Solutions (OOD)
Web Applications

REINVENTION

Mainframe

Network Server

PC

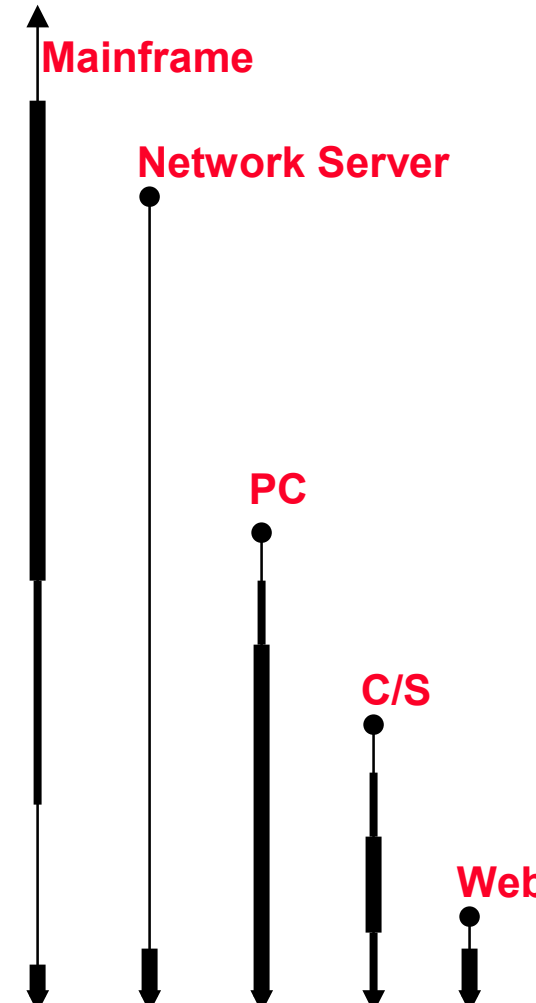**C/S**

Web

Putting the e in eBI

Economics   *Finding the road to profitability.*

.Com return to fundamentals.
Click and Mortar allocations.
Managing the diverse streams.

Exploration   *Uncovering opportunities.*

Tracking the customer lifecycle.
Seeking meaningful patterns.
Creating new businesses.

Exploitation   *Building a closed-loop process.*

Exploiting the time factor aggressively.

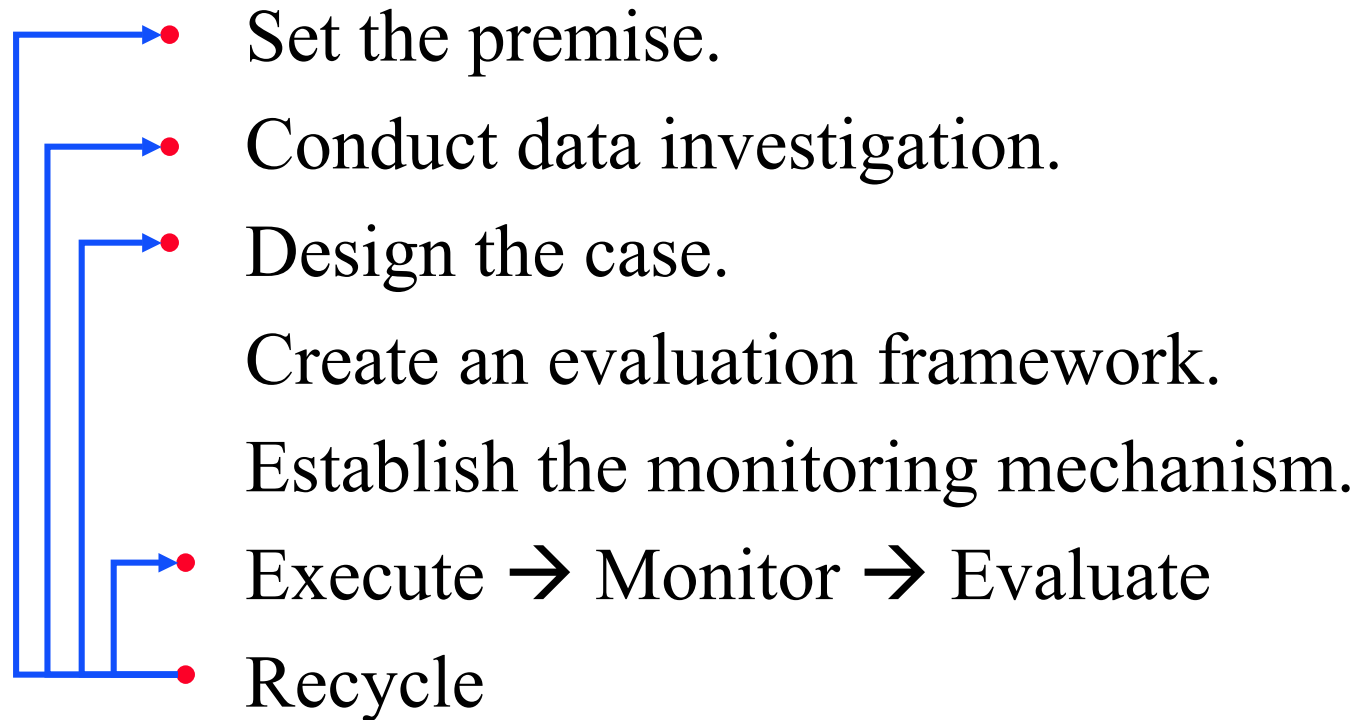| **Establish the Program**	1. Develop the Rationale 2. Target the Opportunities 3. Define the Architecture 4. Create the DW Program
Prepare the Project	5. Plot the Project Tasks 6. Establish the Infrastructure 7. Procure the Tool Kit 8. Assemble the Team
Initiate the Database	9. Investigate Consumer Needs 10. Triage the Source Elements 11. Model States and Dimensions 12. Design the Database 13. Acquire Source Data 14. Populate the Database
Explore the Data	15. Iterate Base Table Design 16. Explore Consumer Usage Interactively 17. Tune Collection Design 18. Plan Cycles and Production Migration
Implement the Deliverables	19. Prepare for Release 20. Train the Consumers 21. Initiate Support Processes 22. Migrate to Production
Expand the Environment	23. Manage the DW Inventory 24. Synchronize with Evolving Business Needs 25. Evangelize Endlessly 26. Do it Again!

BI Process Lifecycle – TQM Analogy

Plan   Set goals and execution tactics.

Do   Implement the tactics.

Check   Evaluate the results.

Act   Continue as is *or*
Stop all activity and reconsider *or*
Modify the tactics or the goal and
Do it again tomorrow.

BI Process Lifecycle – Closed Loop Analysis

- Set the premise.

- Conduct data investigation.

- Design the case.

  Create an evaluation framework.

  Establish the monitoring mechanism.
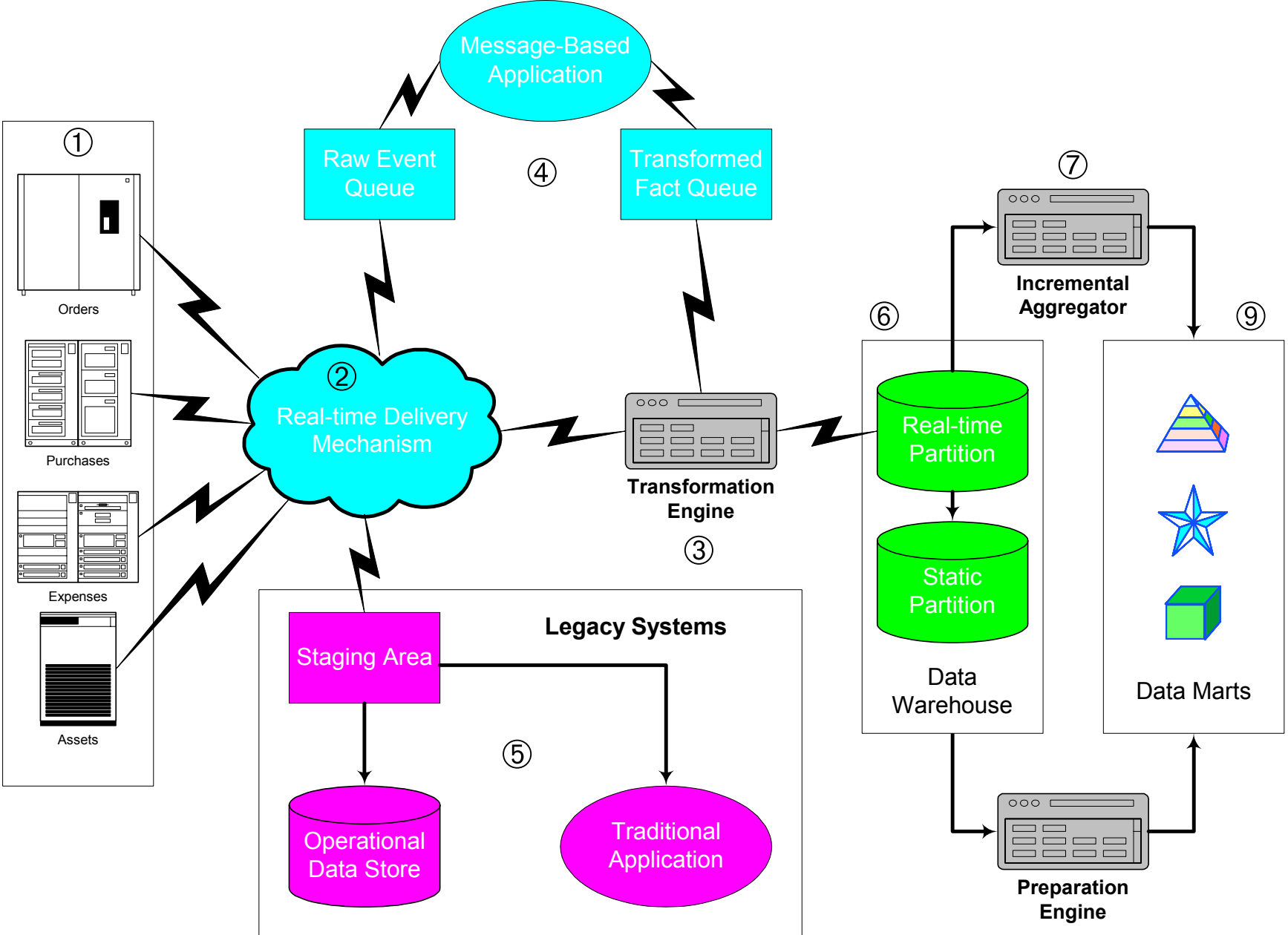
- Execute → Monitor → Evaluate

- Recycle

In eBusiness, closed-loop analysis is the business.

Why Real-Time?

- Perfect Capture

- Quick Reconfiguration

- Time Compression

- Transitory States

- Infinite Snapshots

Real-Time DW provides so much more than Real-Time Data!

Real-Time Data Warehousing

Components of a RTDW Environment

- Real-Time Capture

- Real-Time Delivery

- Transformation Engine

- Message-Ready Targets

- Real-Time DW Partitioned Data Store

- Incremental Aggregator

- Preparation Engine

Real-Time Capture

- Transaction Mirroring

- Template-Enabled Event Capture
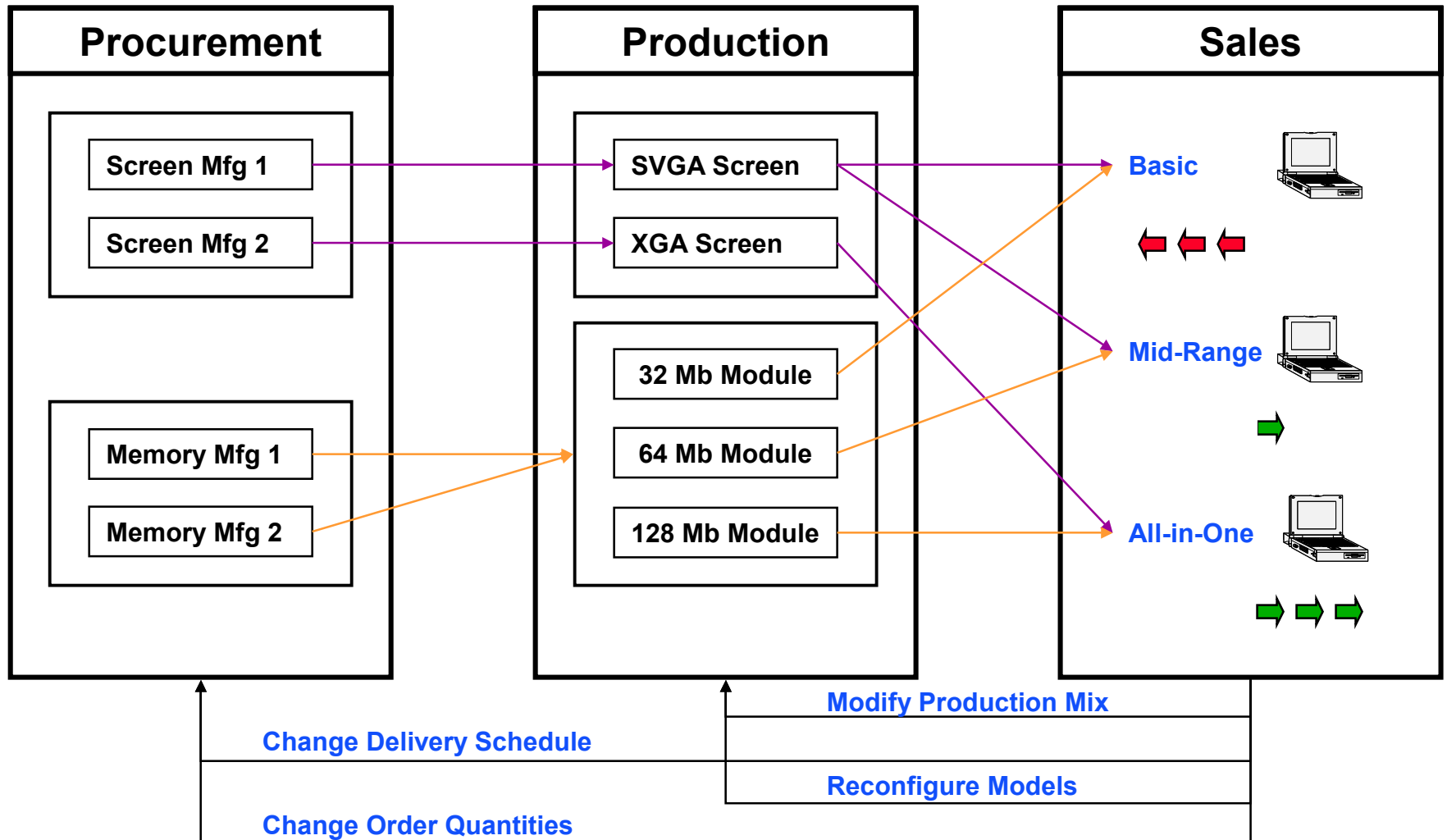
- DBMS Triggers

- Custom Event Traps

Eliminate the E and L in ETL.

Real-Time Data Warehousing

An Example

Build-to-Order Laptop Manufacturer

Procurement	Production	Sales

Procurement

- Screen Mfg 1
- Screen Mfg 2
- Memory Mfg 1
- Memory Mfg 2

Production

- SVGA Screen
- XGA Screen
- 32 Mb Module
- 64 Mb Module
- 128 Mb Module

Sales

- Basic
- Mid-Range
- All-in-One

Change Delivery Schedule

Change Order Quantities

Modify Production Mix

Reconfigure Models

Q&A

Putting Intelligence back into Business Intelligence.

Michael B. Haisten

VP Business Intelligence

1250 Capital of Texas Highway South

Building One, Suite 340

Austin, Texas 78746

mhaisten@damanconsulting.com