BIXCHANGE

Data Warehousing: What's Next

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Data Warehouse: What's up?

Data Warehousing is Mature.

- Everyone already has one.
- Everyone knows how to build one.

The Data Warehouse is Dead.

- Is Data Warehousing a failure?
- No, not the concept; only the execution.
- The successes are spectacular.
- The concept is as sound as ever.

Data Warehousing: What's Next?

- ✓ **Integrate the "Data Warehouses"**
- ✓ **Expand Use of the Existing Resource**
- ✓ **Increase Architectural Flexibility**
- ✓ **Compress the Information Supply Chain**
- ✓ **Rev-up Availability - RTDW (plus lower the cost & complexity)**
- ✓ **Close the Loop (directed operational feedback)**
- ✓ **Advance your Analytic Power**

Integrate the “Data Warehouses”

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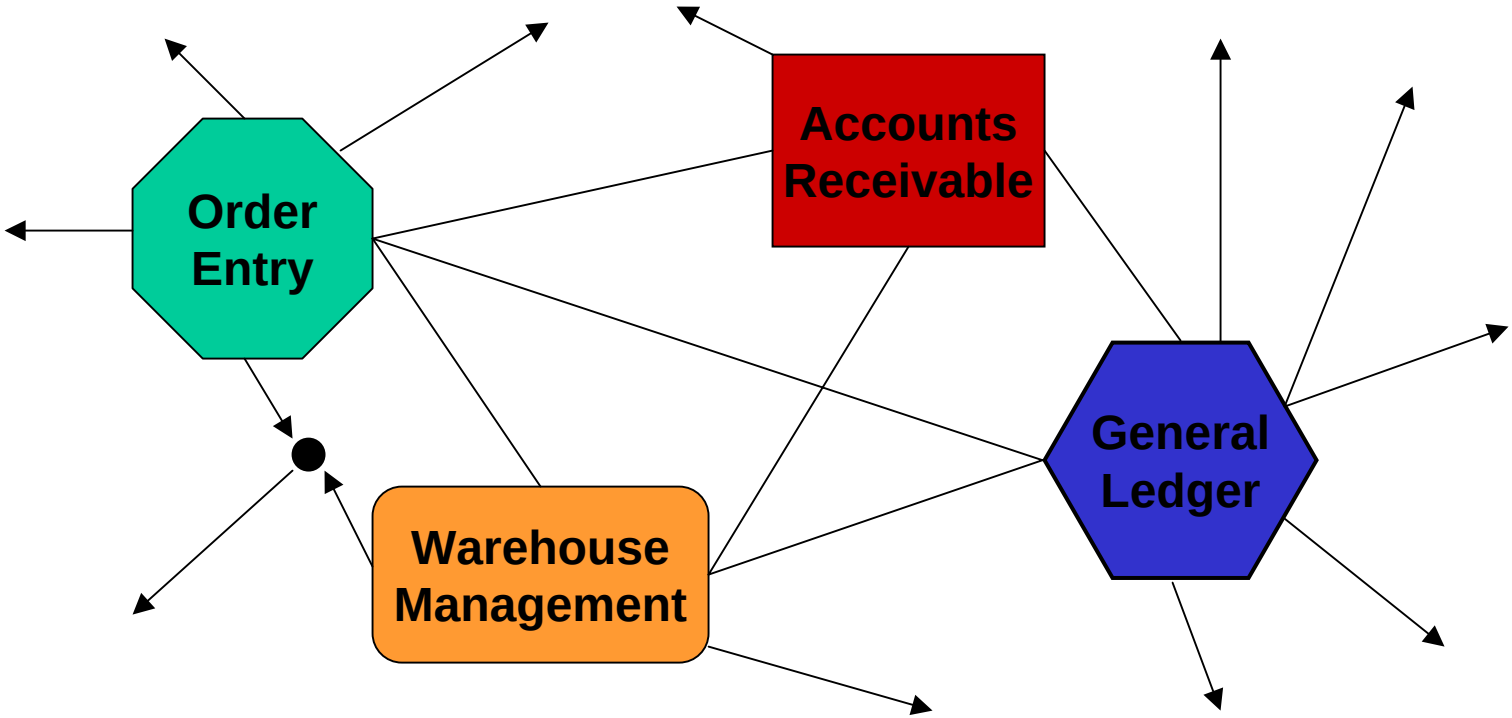
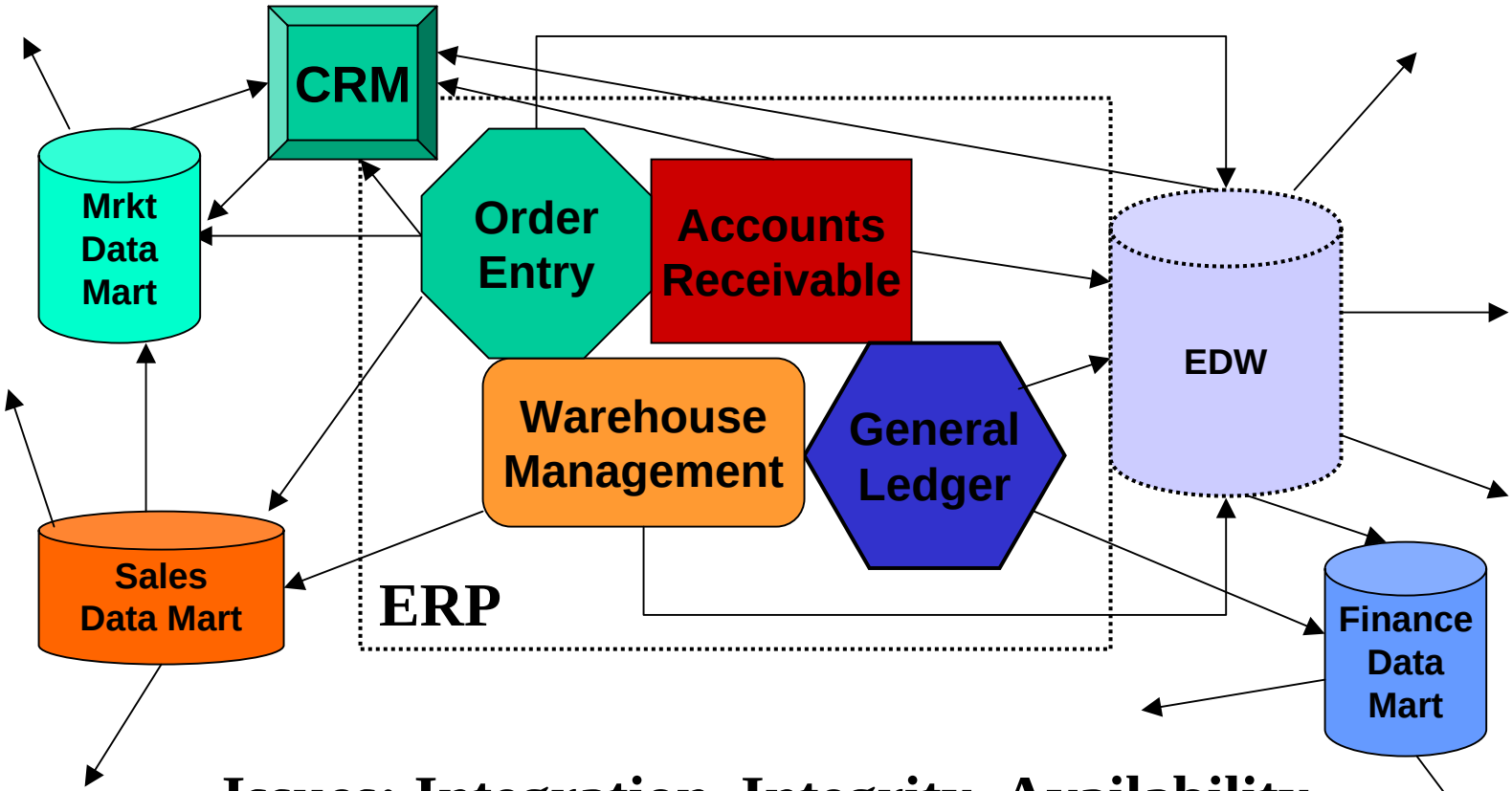
Islands of Information - 1991



Issues: Integration, Integrity, Availability

Islands of Information - 2001



Issues: Integration, Integrity, Availability

Integration & Integrity – 2001 Forward

Abandon Backend Integration (DB to DB, APP to APP)

Create "Enterprise Back Plane" [Ralph Kimball]

- Concentrate on common dimensions (reference data)
- Collect transaction stream data (event detail)

Integrate in the Middle

- Real – Message-based Transport, Mapping, and Transformation
- Virtual – Run-time translation into transient or persistent stores

Beware Frontend Integration

Expand Usage

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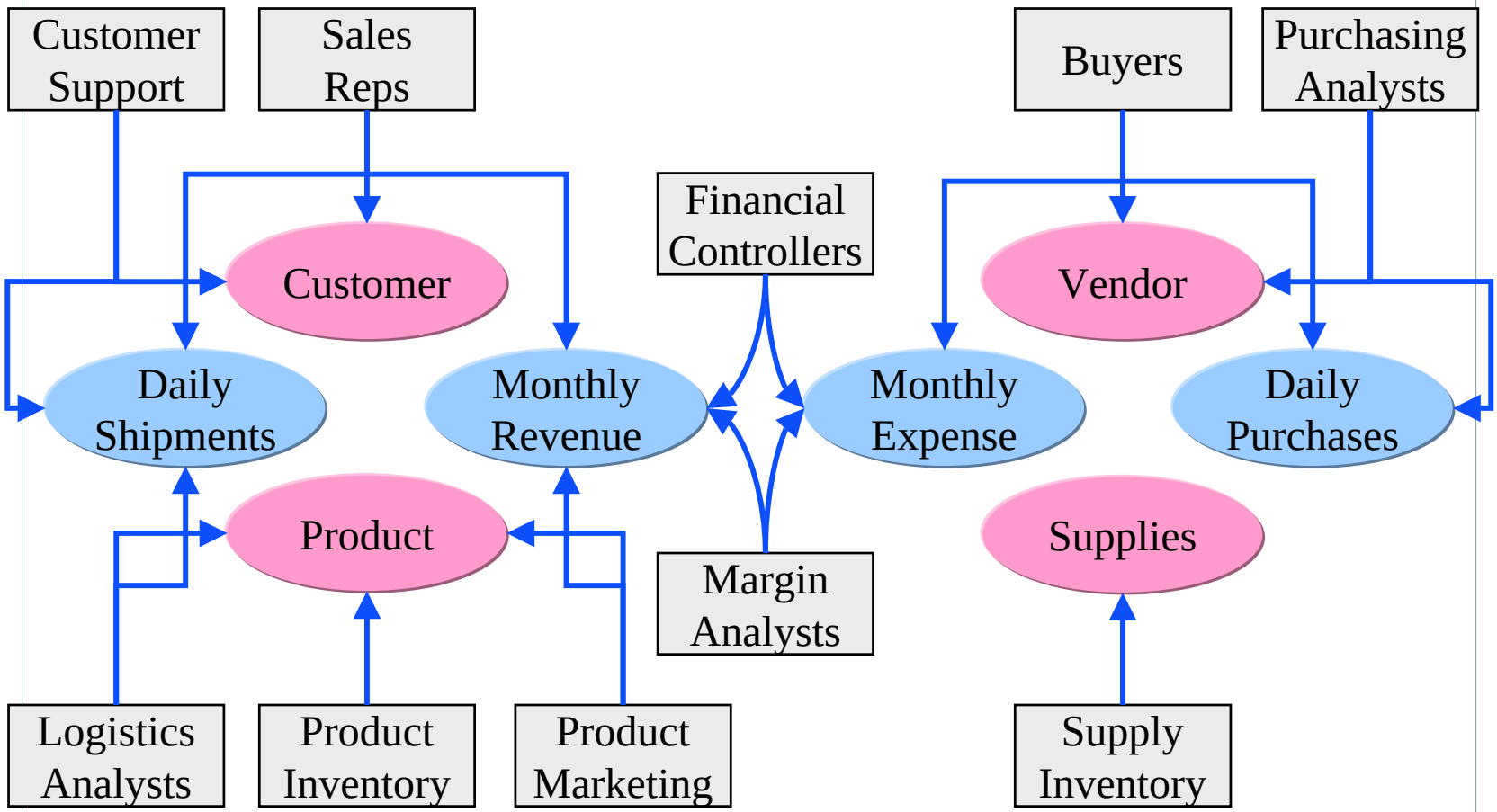
Expand the Use

Leverage Existing Investment



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Increase Architectural Flexibility

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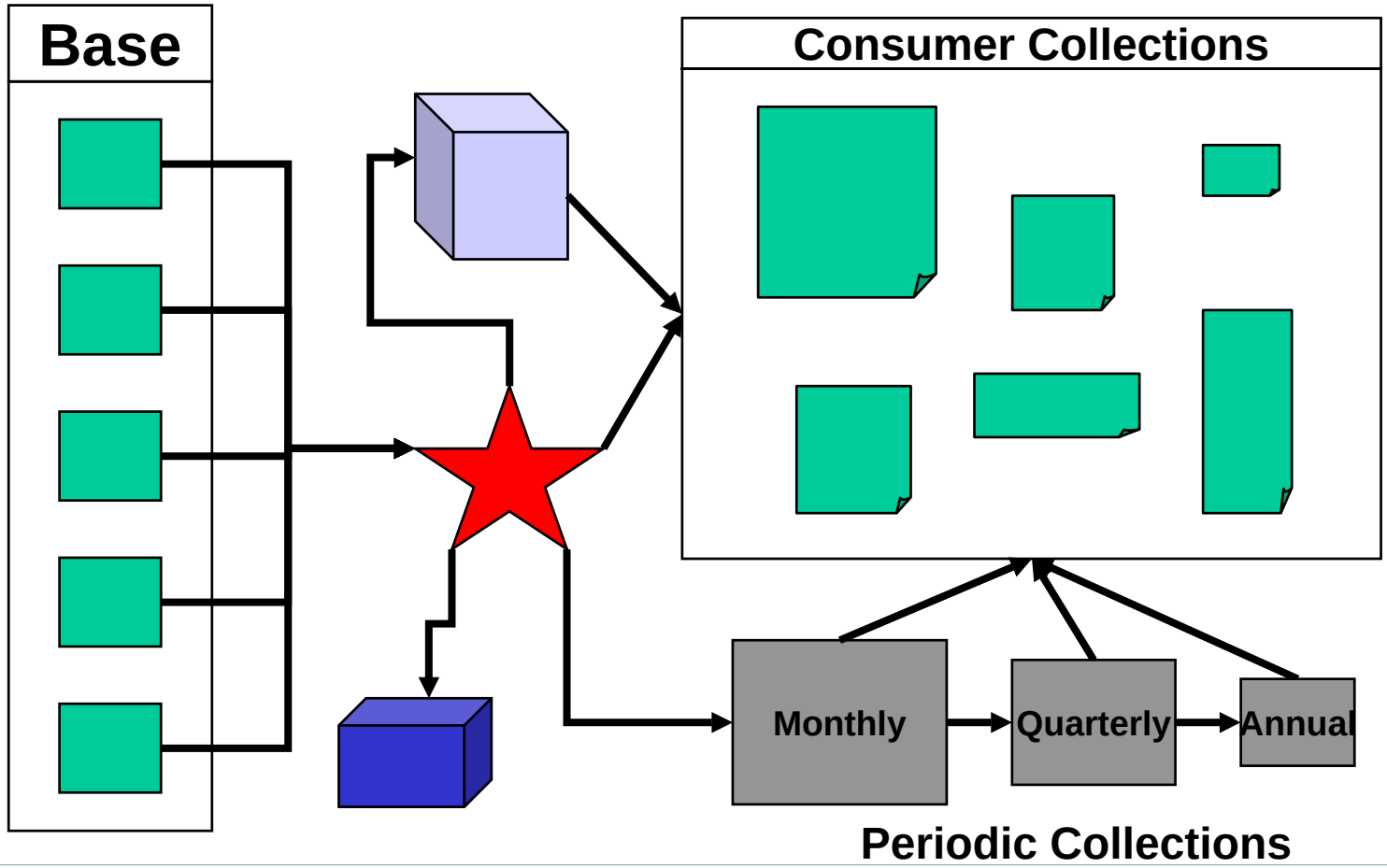
An Architecture for Flexibility



Compress the Information Supply Chain

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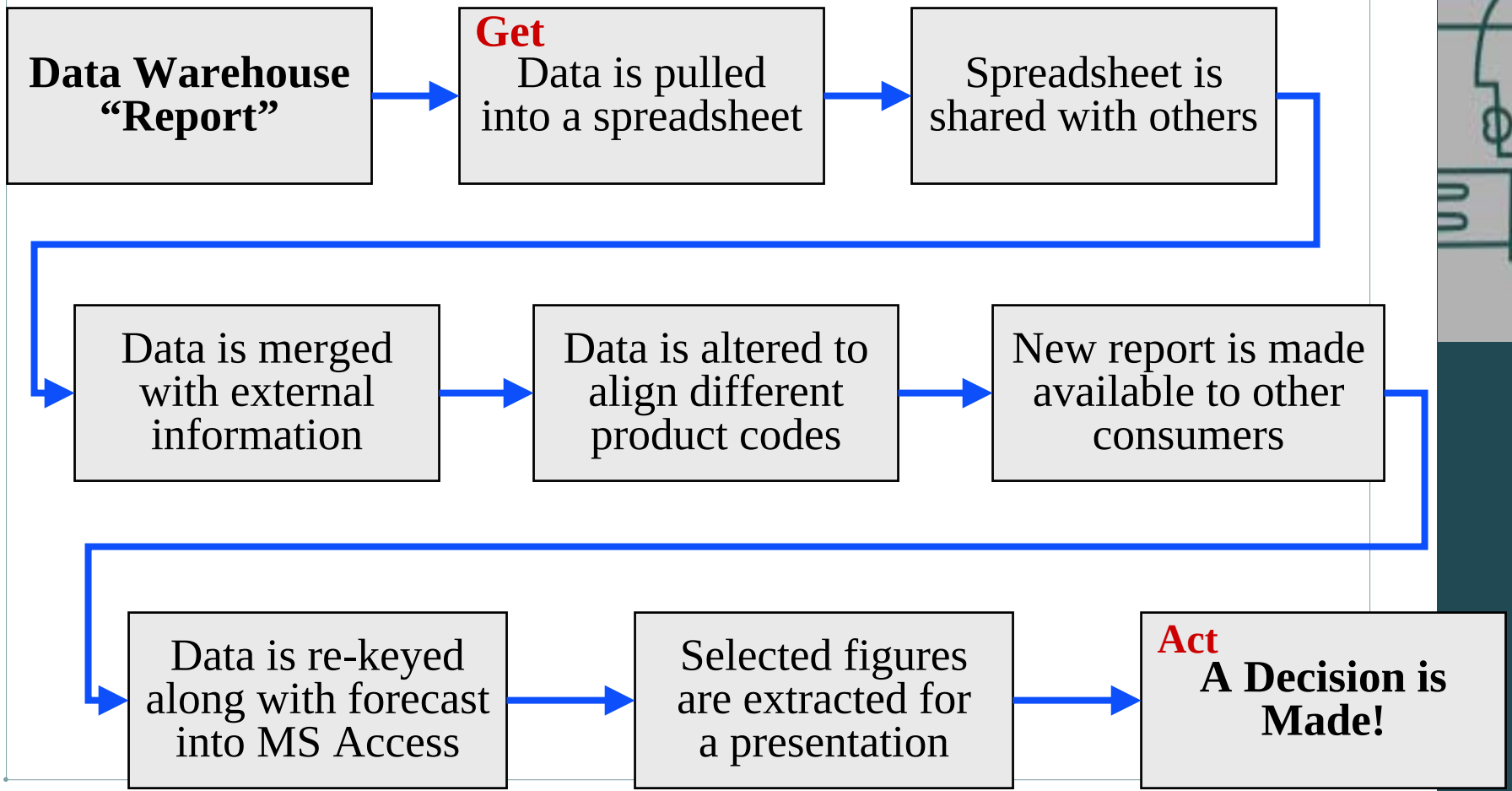
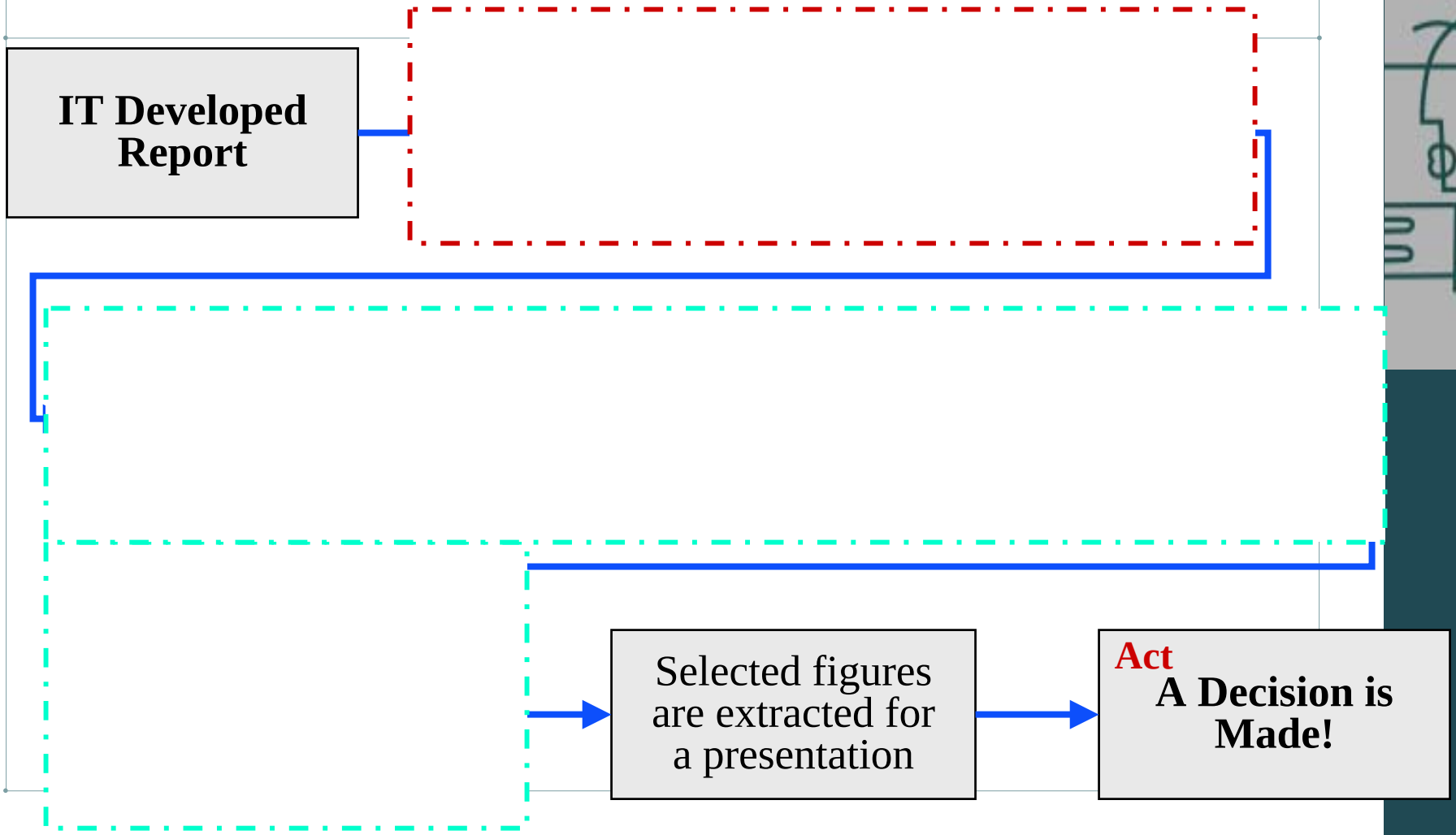
The Information Supply Chain

Steps Between "Get" and "Act"



Compressing the Info Supply Chain



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Rev-up Availability

Real-Time Data Warehouse

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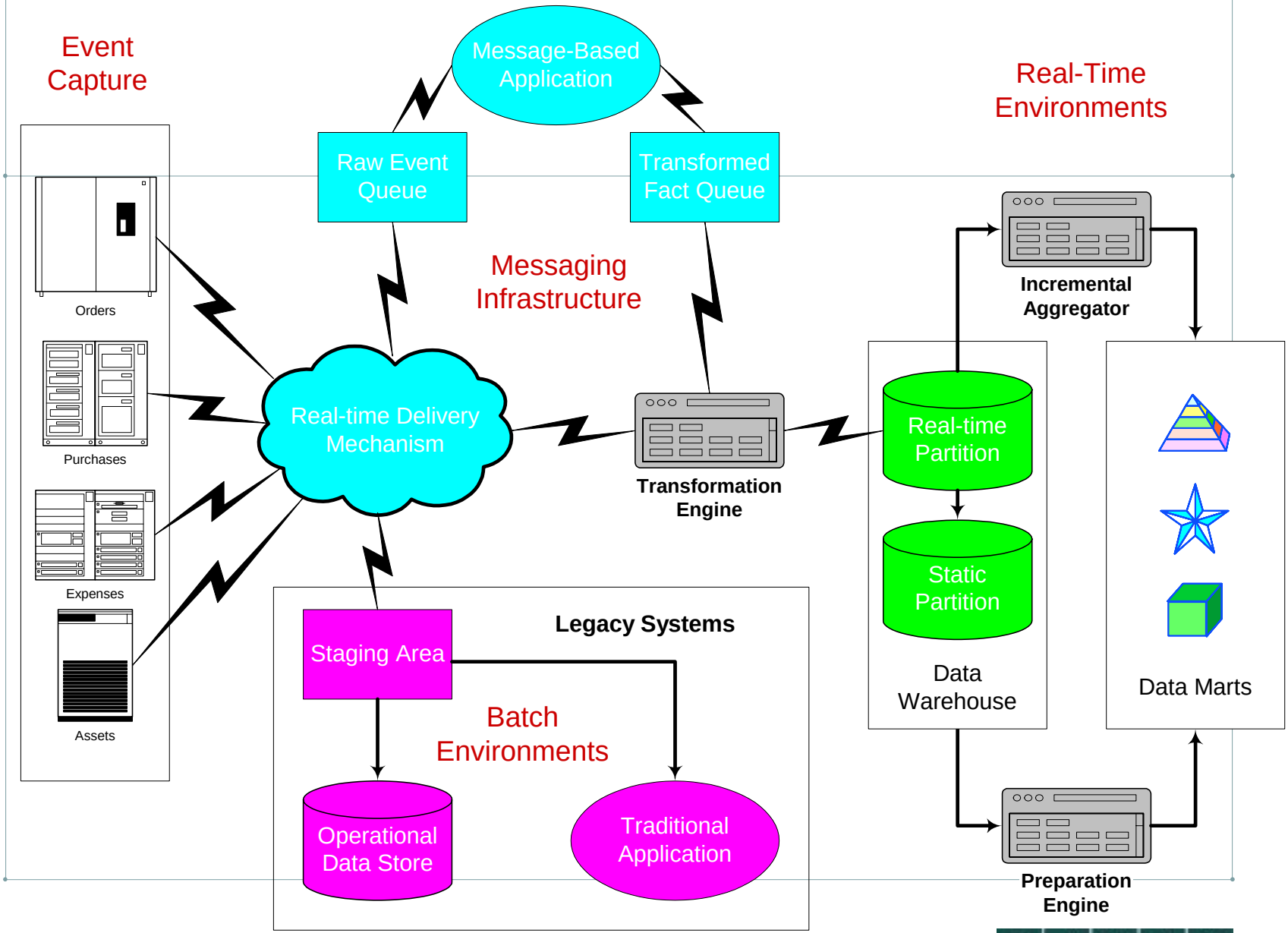
Components of a RTDW Environment

- Real-Time Capture
- Real-Time Delivery
- Message-Ready Targets
- Transformation Engine
- Real-Time DW Partitioned Data Store
- Incremental Aggregator
- Preparation Engine



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Why Real-Time?

- Time Compression
- Infinite Snapshots
- Transitory States
- Quick Reconfiguration
- Perfect Capture

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

The Essence of RTDW

- ✓ Continuous capture of information
- ✓ Infinite snapshots with any time frame
- ✓ Reconfiguration on the fly
- ✓ Support for Active Closed Loop Systems
- ✓ Significant reduction in cost
- ✓ Monumental increase in value

More On
Real-Time Data Warehousing

Data Management Review Website

Online Column by Michael Haisten

www.dmreview.com/master.cfm?NavID=152&AuthorID=608

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Close the Loop

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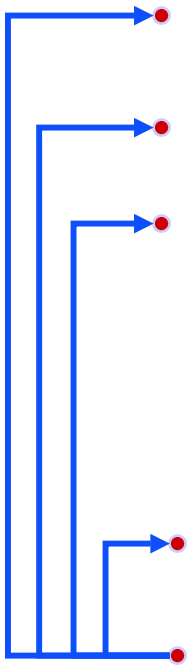
BI Process for Closed Loop Analysis



Set the premise.

Conduct data investigation.

Design the case.

Create an evaluation framework.

Establish the monitoring mechanism.

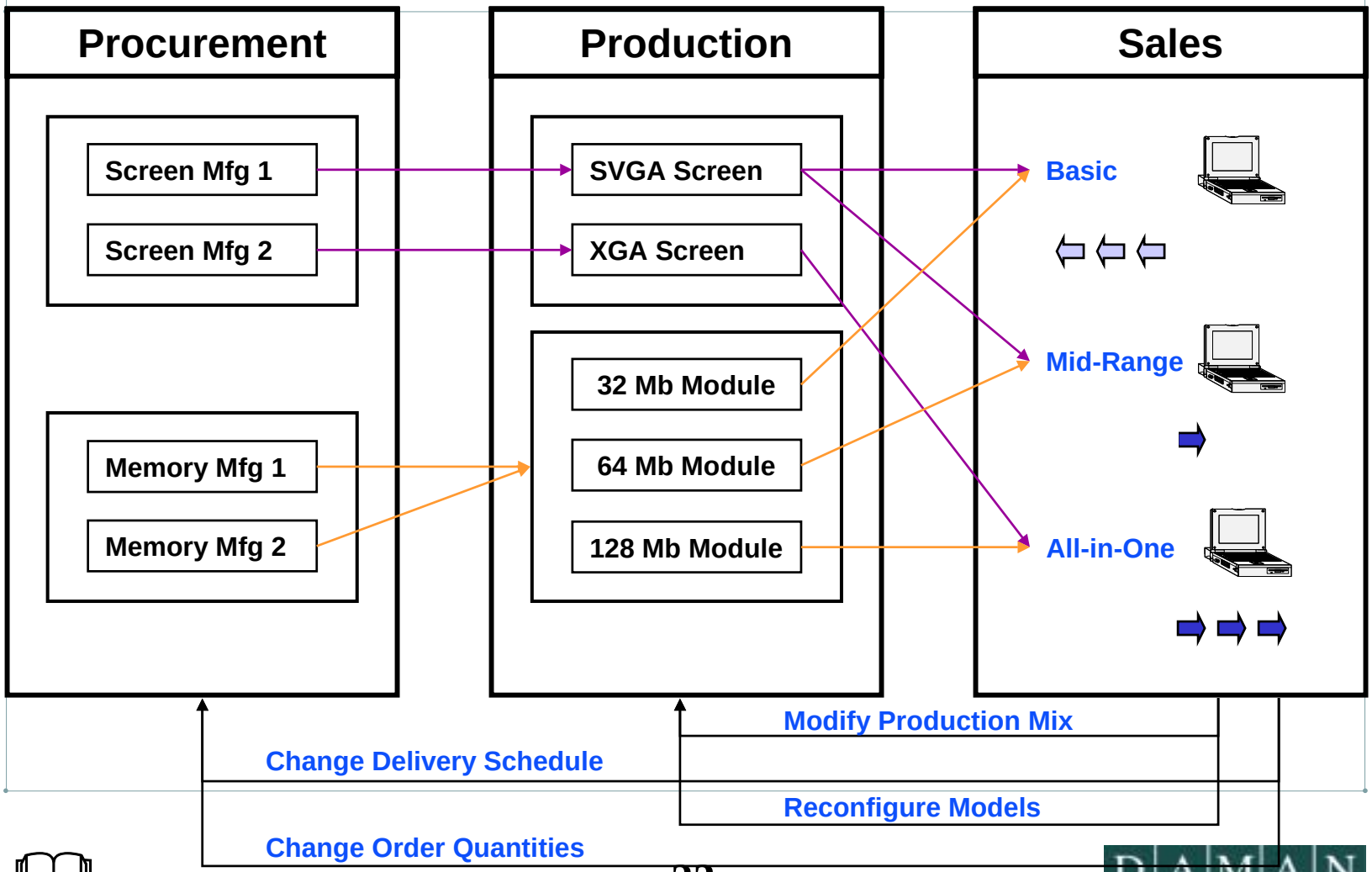
Execute → Monitor → Evaluate

Recycle

In eBusiness, closed-loop analysis is the business.

Closed Loop Operational Example

(Build-to-Order Laptop Manufacturer)



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Advance your Analytic Power

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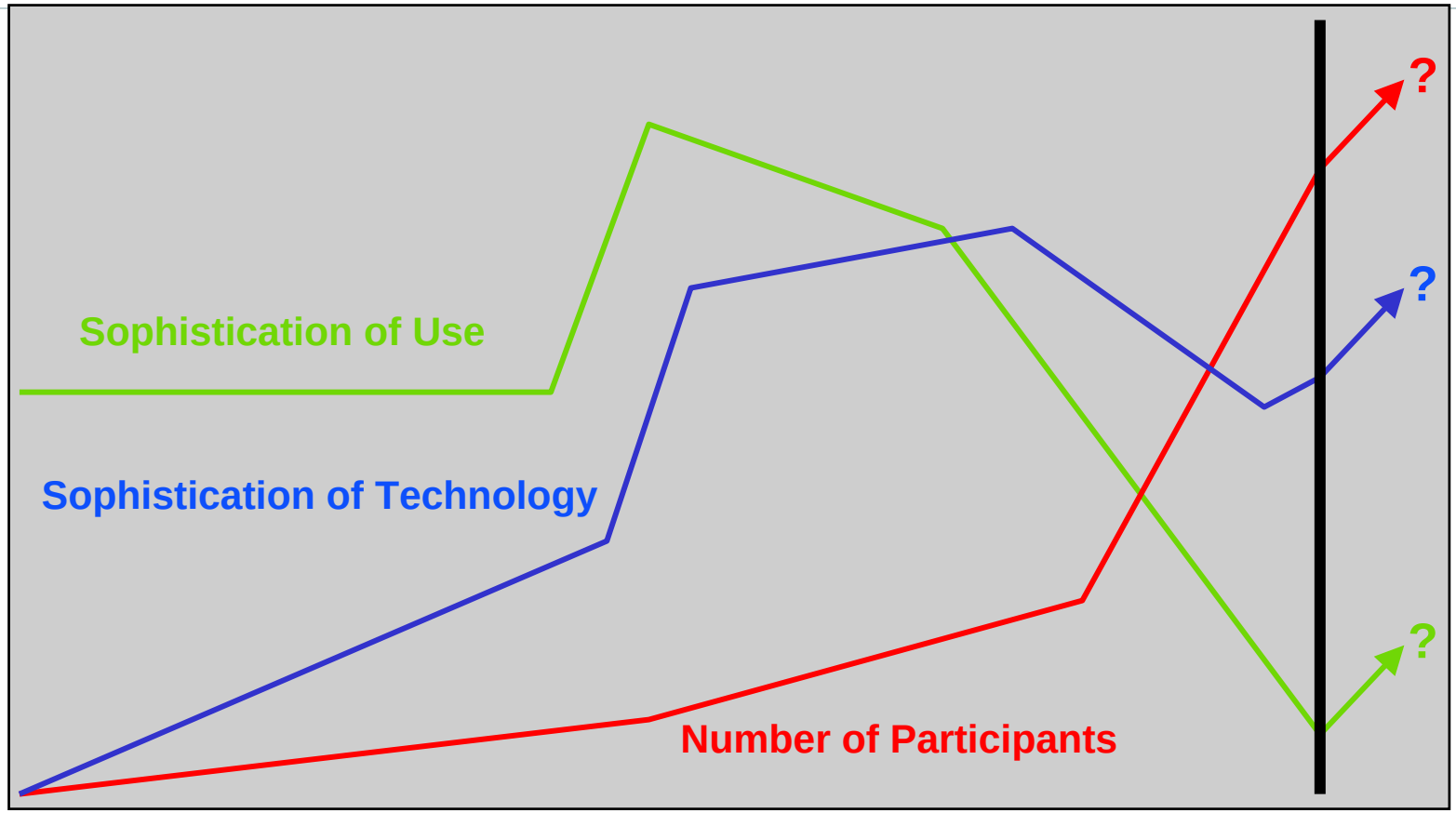
Business Intelligence Trends



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Sophistication of Technology

Packaged Applications

Multi-Dimensional Systems **1970's**
Tabular 4GL/Databases
Query Languages & SGML

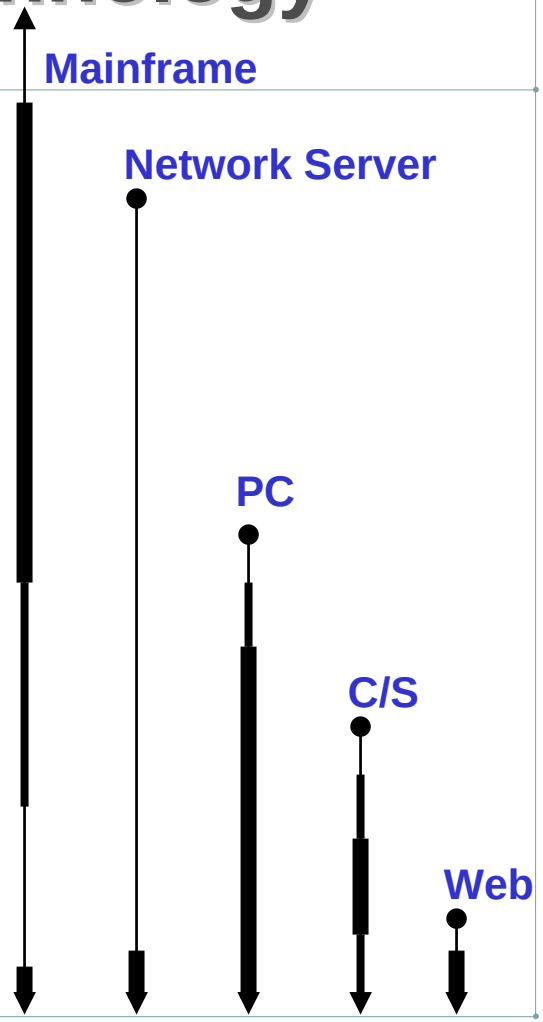
Application Suites

Networked Solutions **1980's**
Relational Databases
Spreadsheets
Graphical Query Tools

Enterprise Resource Planning

Client/Server Applications **1990's**
Component Solutions (OOD)
Web Applications REINVENTION

Enterprise Resource Planning 2



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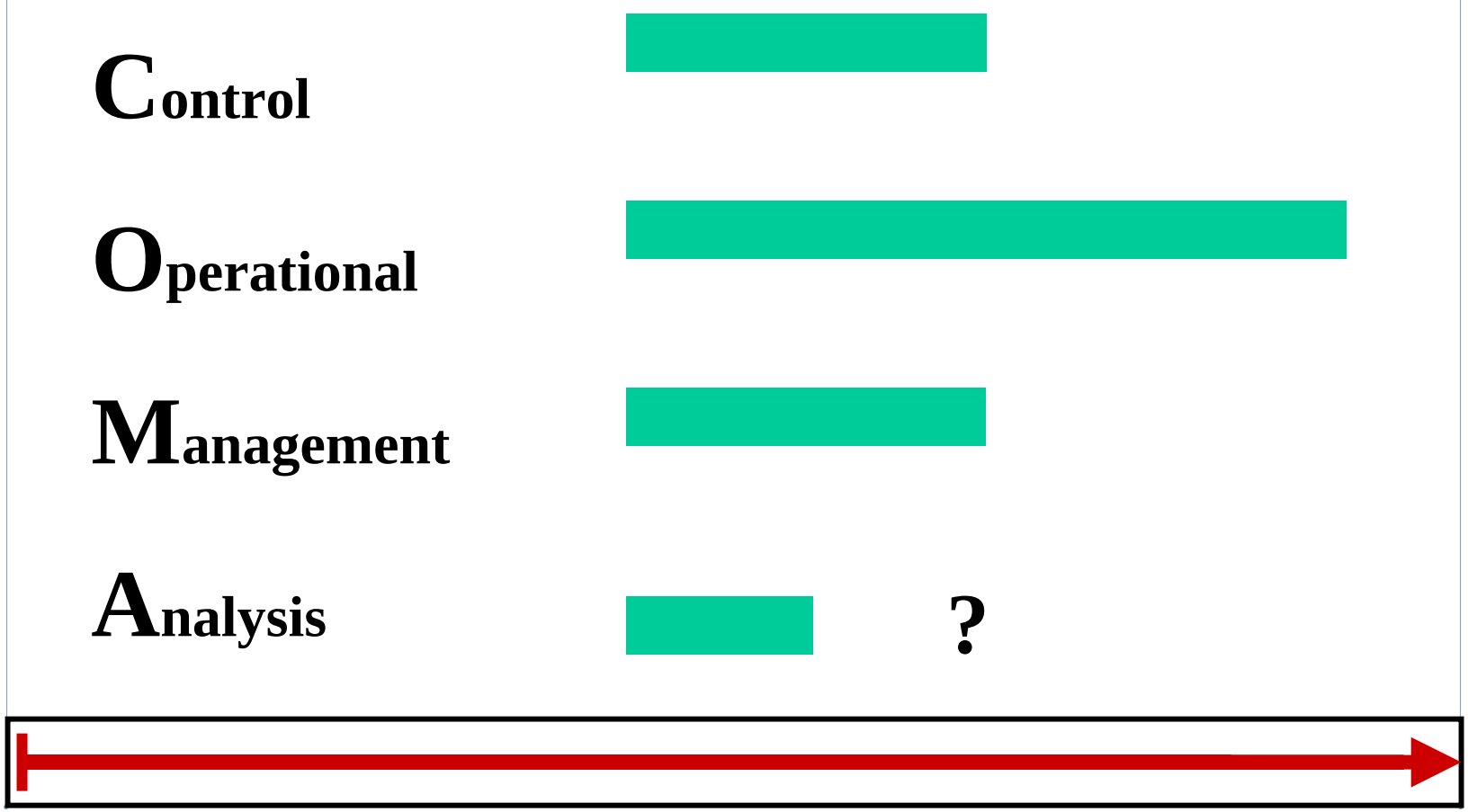
COMA: Model of Impact

Control	**What is? (current state e.g. inventory level)**
Operational	**What happened? (e.g. period activity)**
Management	**How well are things going vis-à-vis goals?**
Analysis	**Seek Causes. Measure Impacts. Set Goals. See Trends. Id Markets. Change Direction.**

Sophistication of Use



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Power Analytics Are:

- Structurally Diverse
- Functionally Integrated
- Broadly Scalable
- Dimensionally Sophisticated
- Visually Compelling

Structurally Diverse

- Flat Files
- Relational Tables – Normalized
- Relational Tables – De-normalized
- Relational Tables – Star Schema
- R-OLAP Structures
- H-OLAP Support
- M-OLAP Cubes

Functionally Integrated

Capabilities

Query

Reporting

Graphs & Charts

Animation

KPI Examination

Trending & Projection

Scenario Analysis

Pattern Identification

Features

Rich Embedded Functions

Macro Capability

Procedural & Declarative

Functional Extension

DBMS Integration

Presentation Diversity

Broadly Scalable

- Platforms
- Volume
- Dimensions
- Members
- Cubes

Dimensionally Sophisticated

Advanced OLAP Techniques:

- Distinguishing between dimensions & attributes
- Identifying dense vs. sparse dimensions *
- Selecting combinations of dense & sparse for performance *
- Determining the appropriate number of levels in a hierarchy
- Sharing leaf-node members to create alternate hierarchies
- Classifying flat dimensions with many members
- Using member aliases (logical & physical name)
- Building in write-to members as variables for flexible calculations
- Determining calculation pass order
- Determining calculation solve order

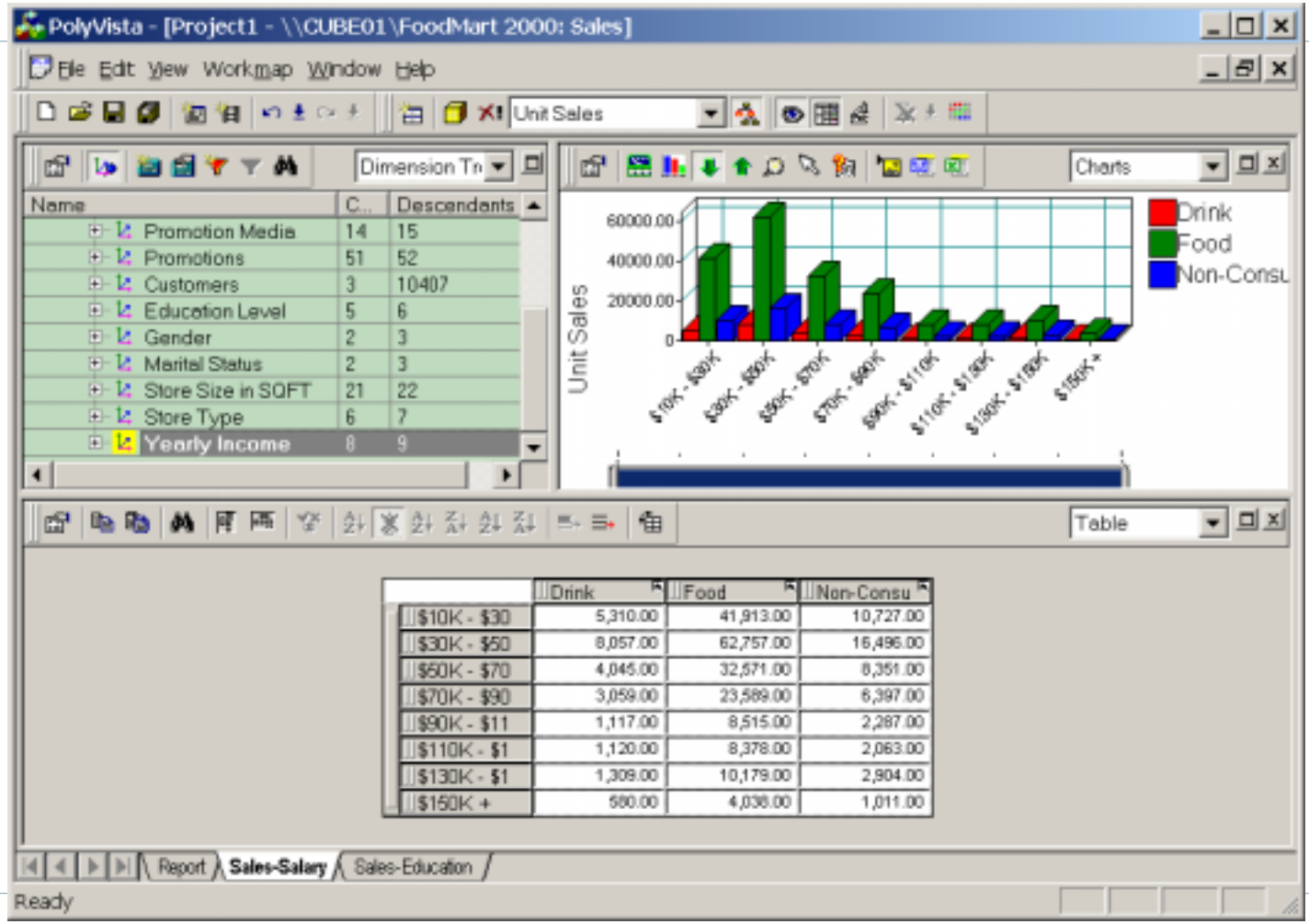
Advanced Analytic Features

- ✓ **Monolithic scale of MOLAP cube**
- ✓ **Systematic partitioning to expedite cube processing**
- ✓ **Complex and conditional cross-dimensional calculations**
- ✓ **Rich attribute analysis without propagating new dimensions**
- ✓ **Near real-time analysis**

Visually Compelling

- Graphical Display
- Graphical Augmentation
- High Synthesis
- Intuitive Navigation
- Combined Presentations

Reports, Charts, & Graphs



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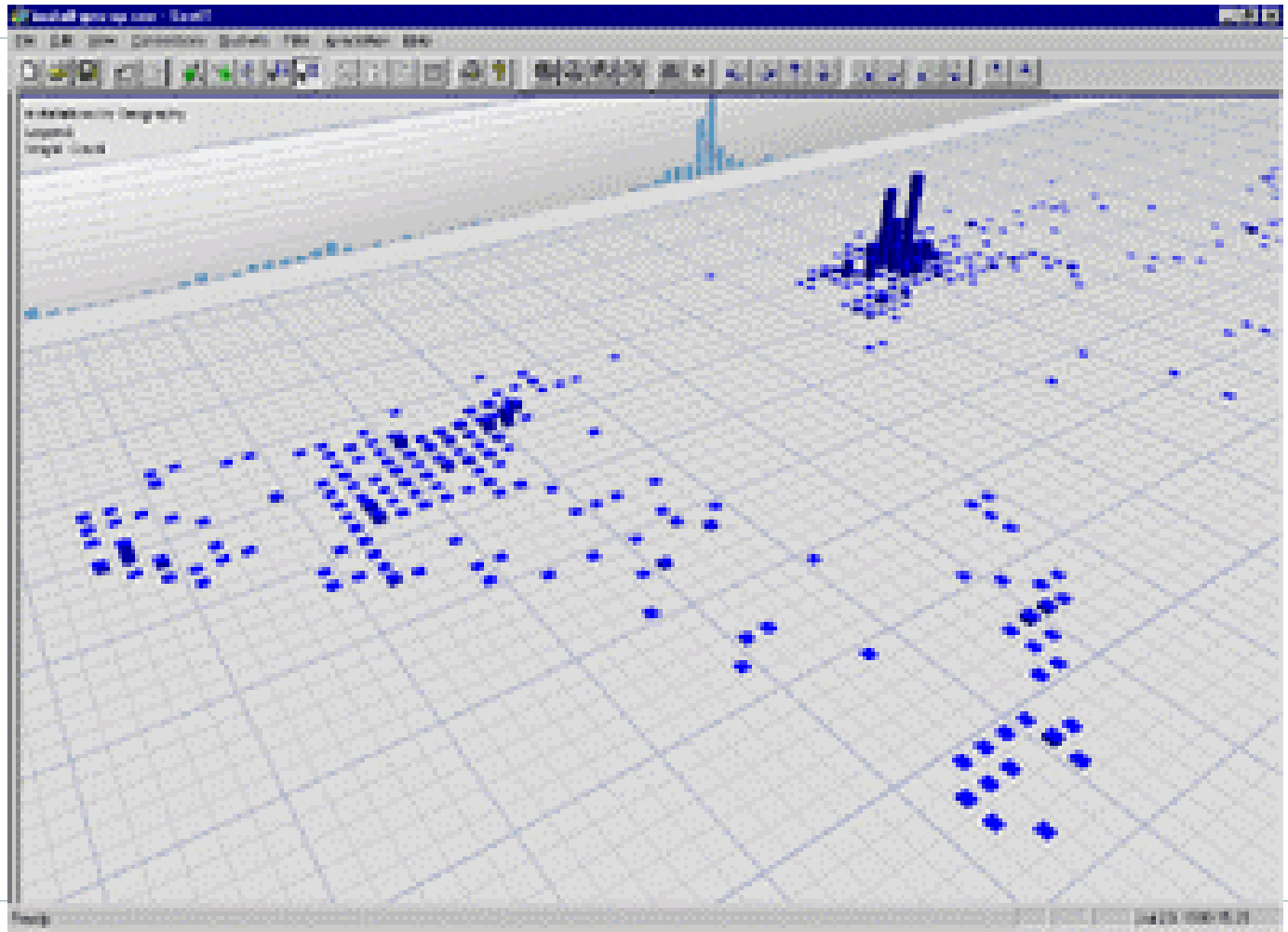
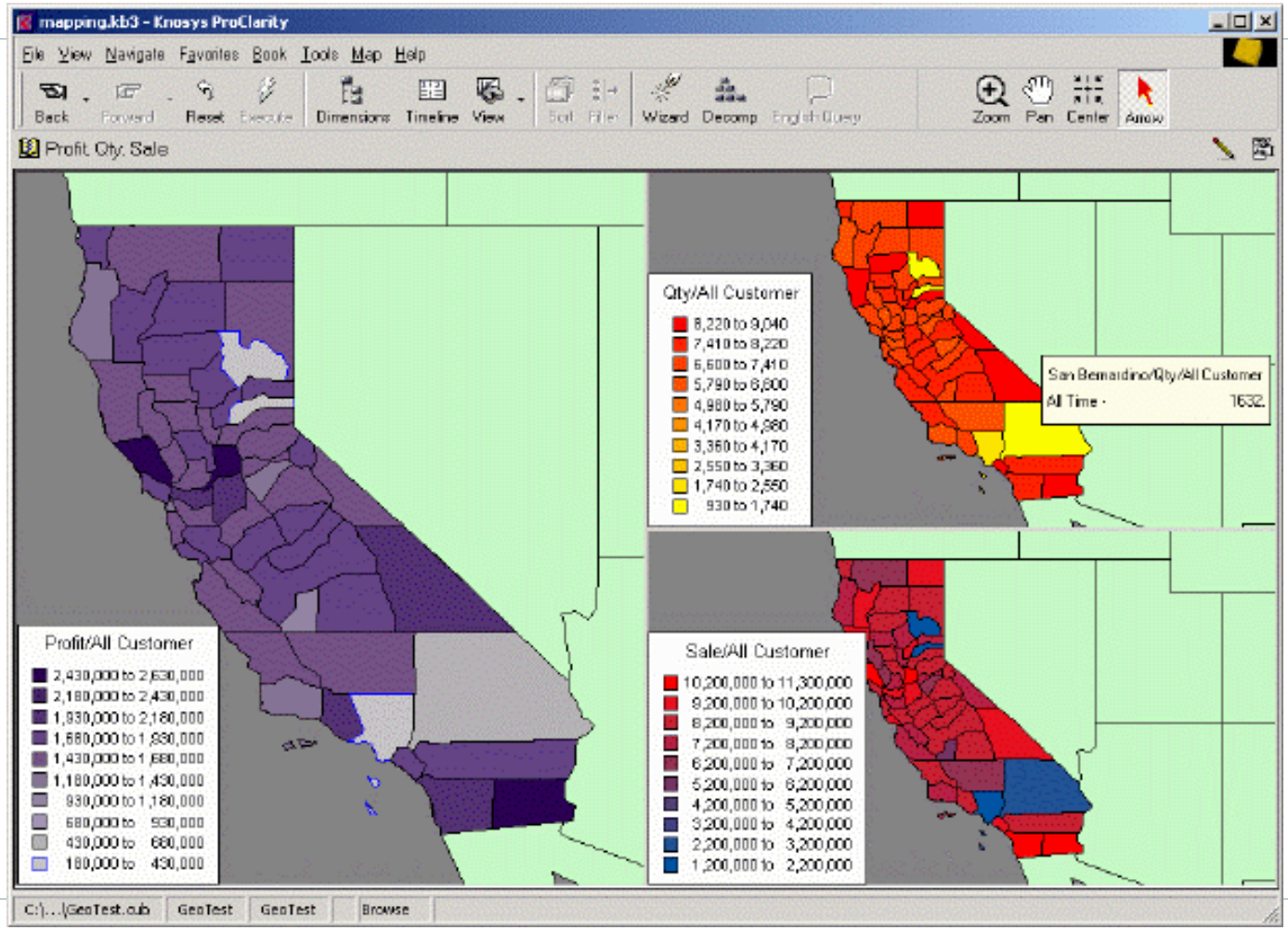
3D Visualization



Geographic Spatial Mapping



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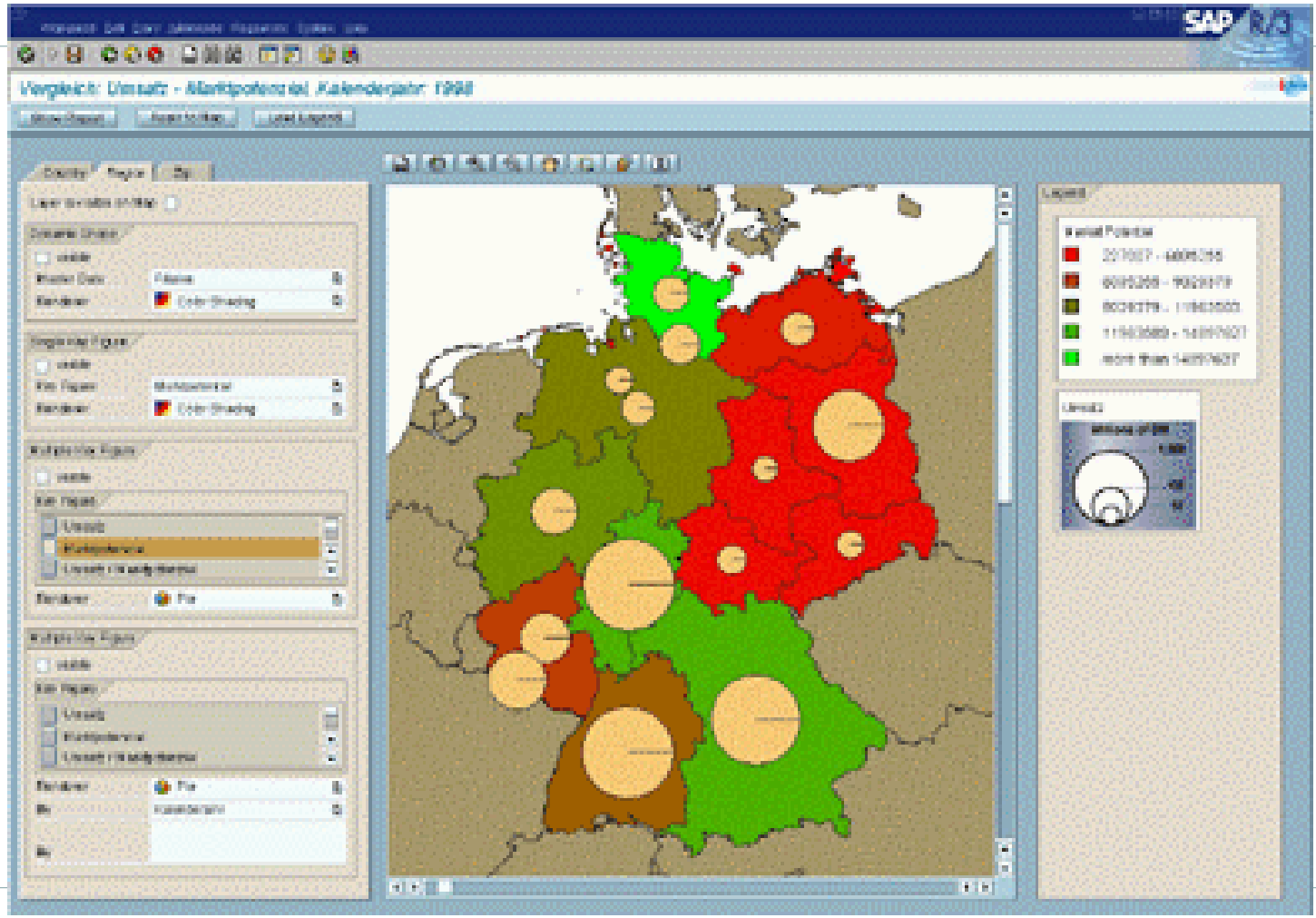
Geographic Data Presentation



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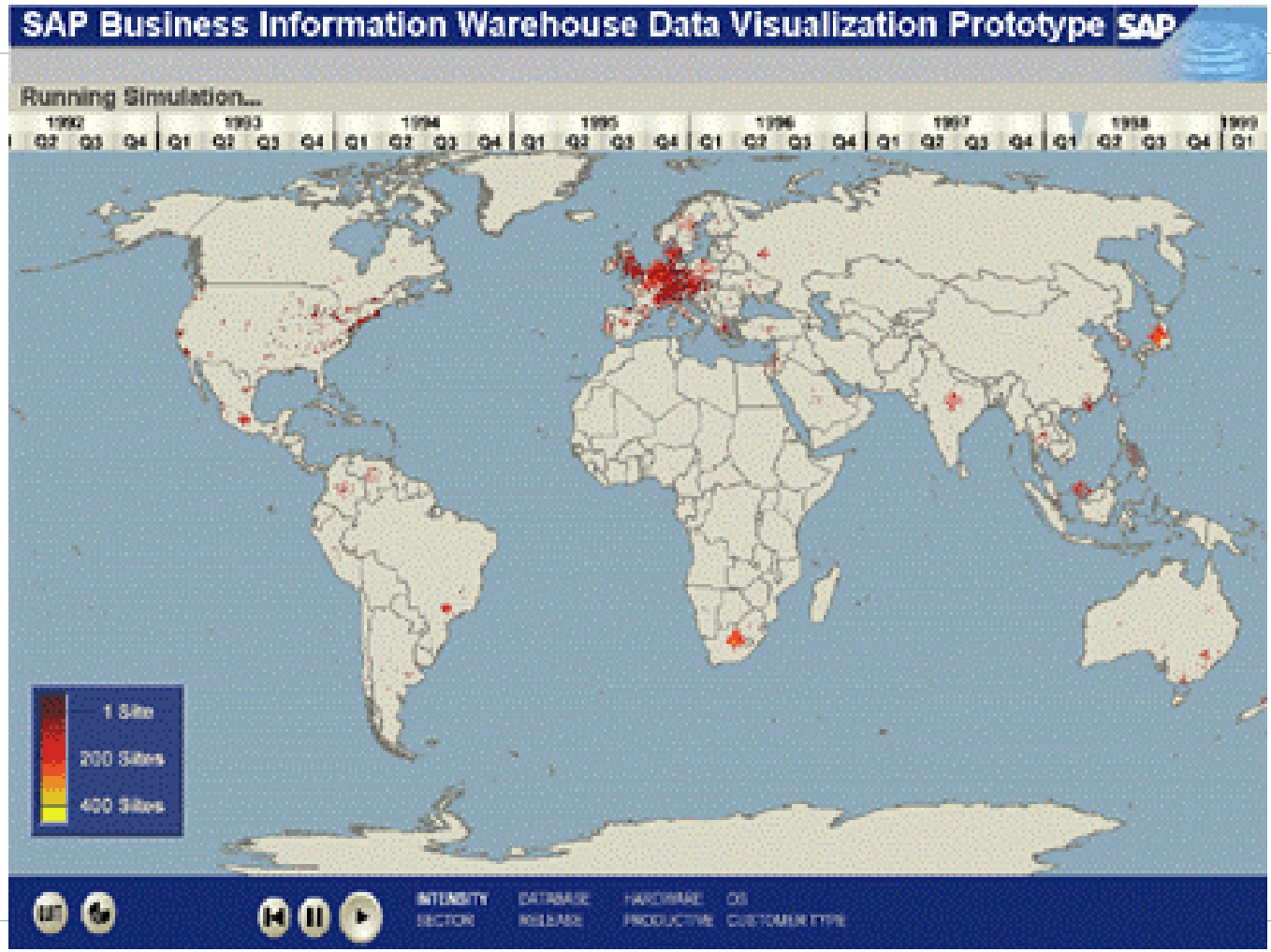
Animation over Time



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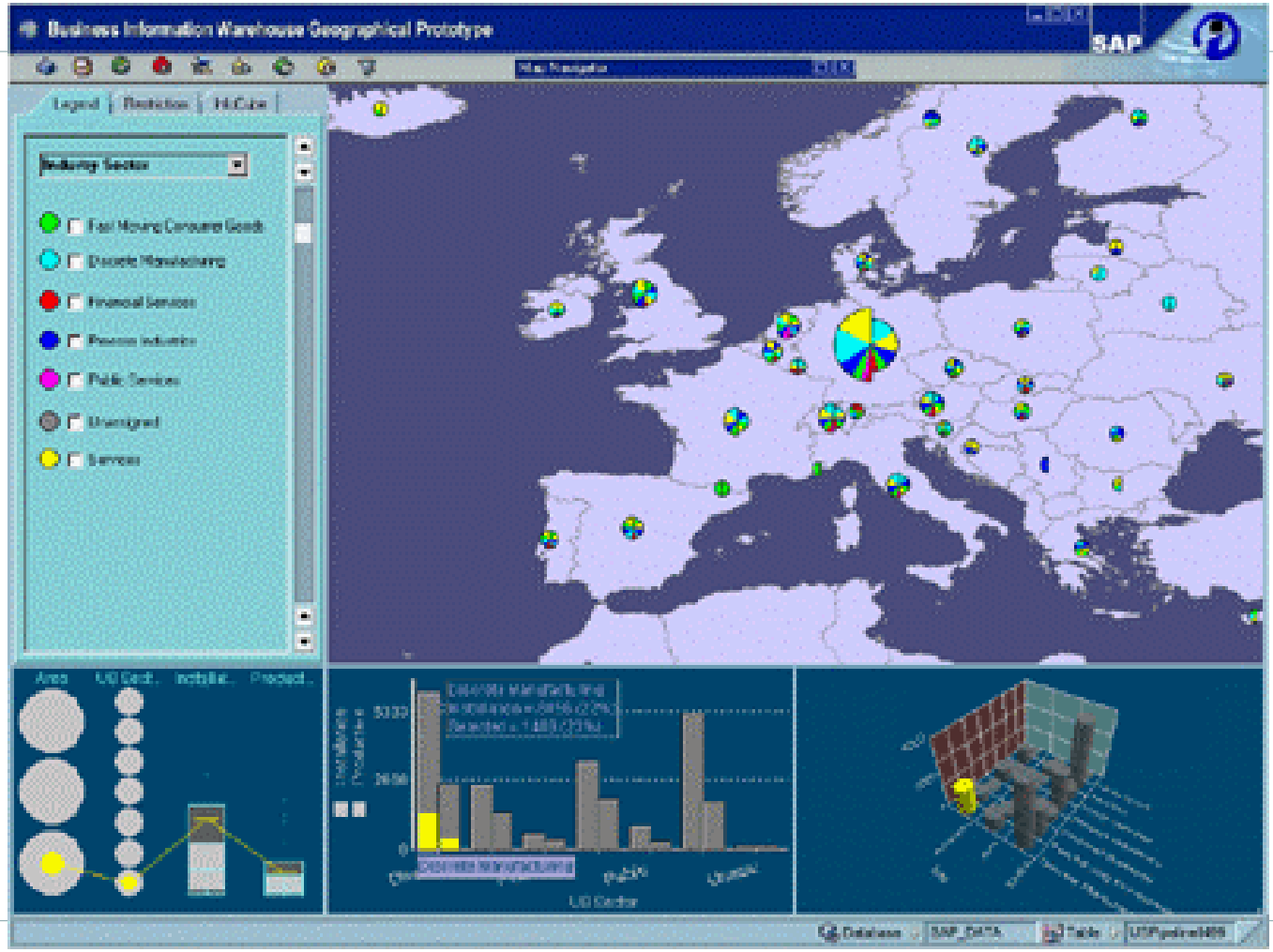
Combined Visualization



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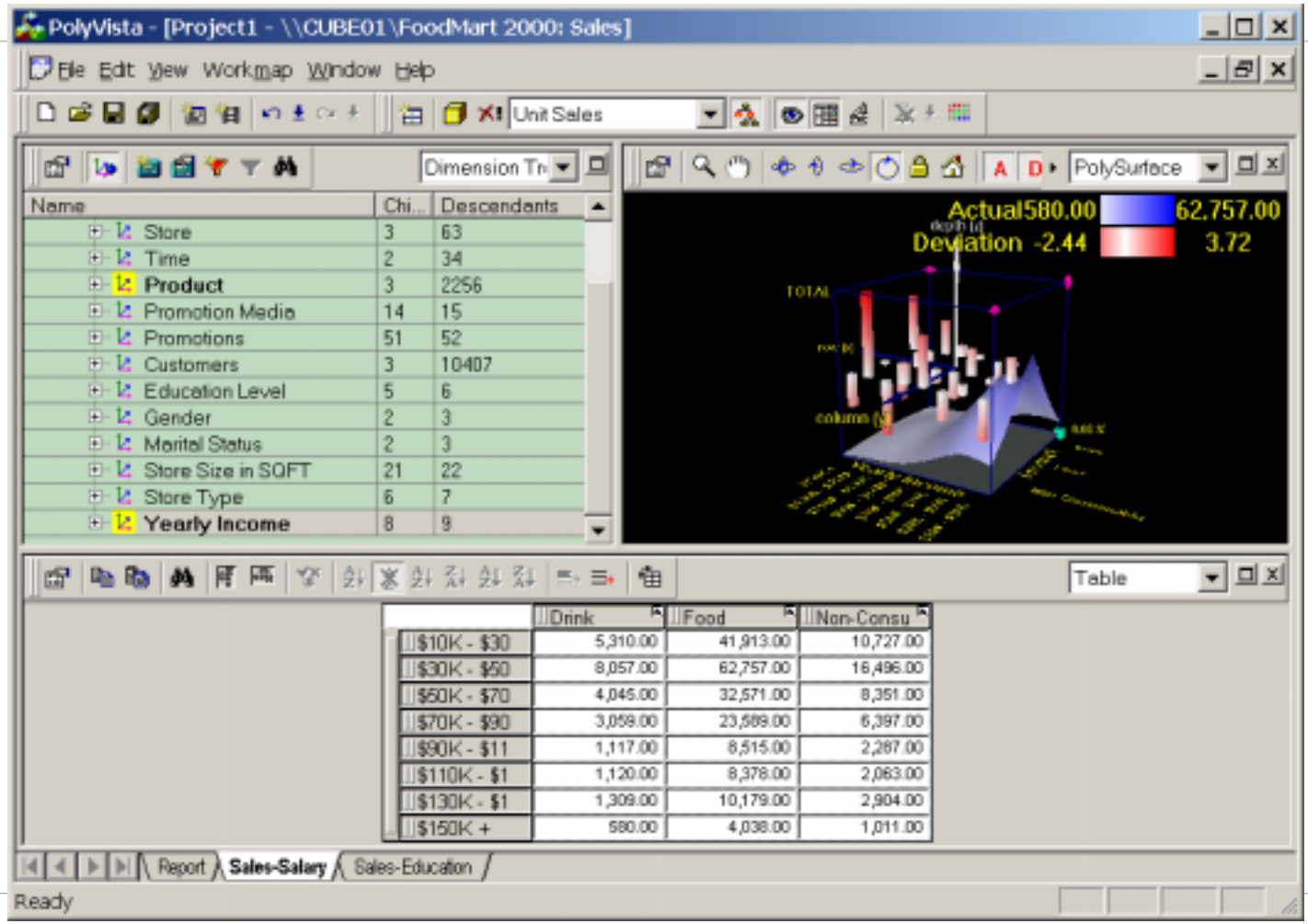

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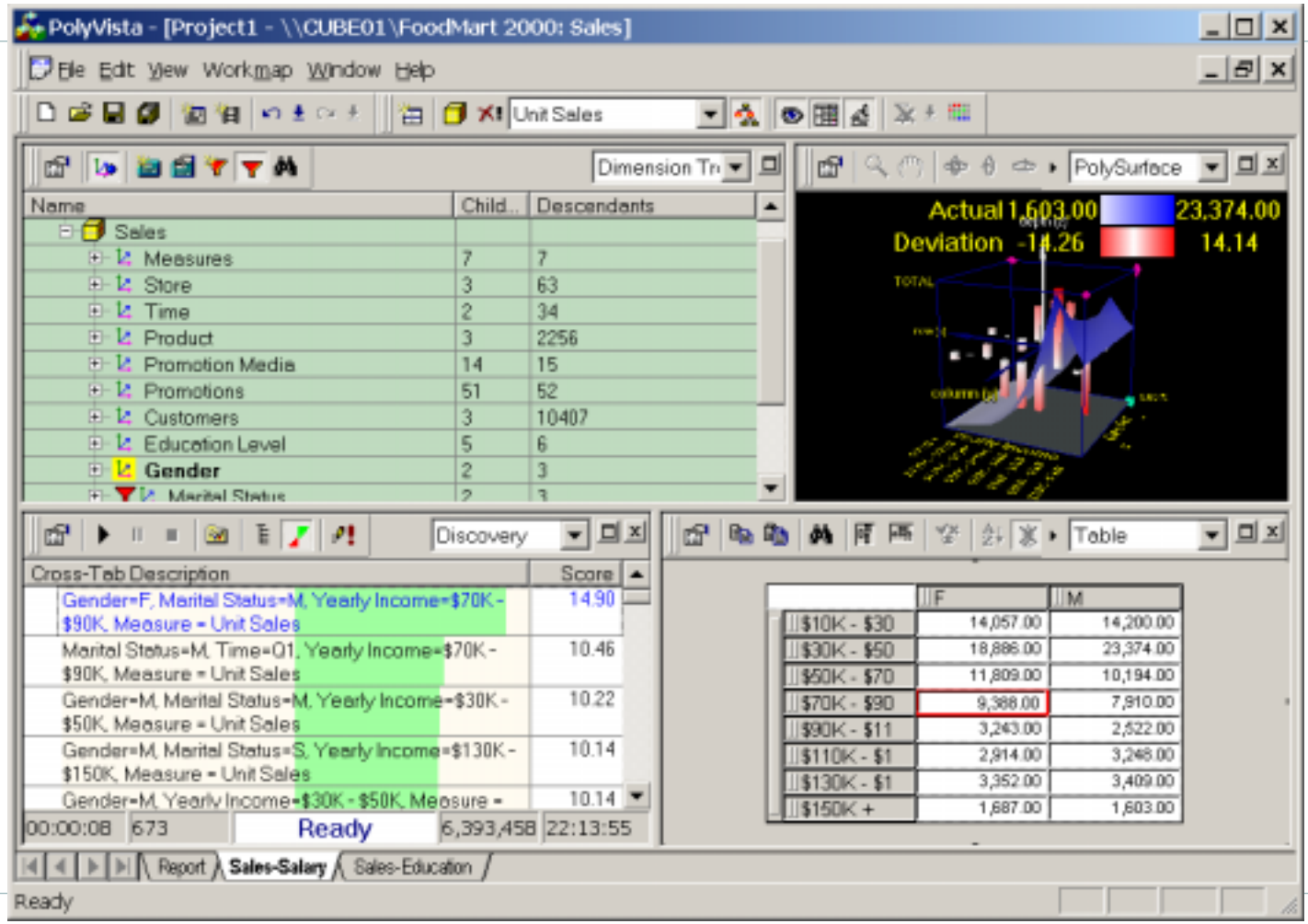
Data Mining



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Q & A

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