2011 CTA Conference

Performance Measures and Data Analysis Technologies Workshop

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Agenda

- Data Analysis Technologies
- The Changing Role of the Data Warehouse
- Multiple Data Silos
- Performance Benchmarking
- Data Analysis Projects

Agenda - Continued

- Municipal Performance Benchmark Demo
- Municipal Performance Analysis Demo
- Kipp Schools of Harlem – Performance Analysis Demo
- Public Safety Department Demo

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Data Analysis Technologies - Definition

- Software that allows for the consolidation and presentation of operational data from a wide variety of sources in visually easy to understand way

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Data Analysis Technologies - Past

- Home Grown Solution
- Software Solutions from:
  - MS Analysis & Reporting Services
  - Cogno's
  - Business Objects
  - Hyperion
  - Microstrategies
- ETL Software
- Database Software for Data Warehouse

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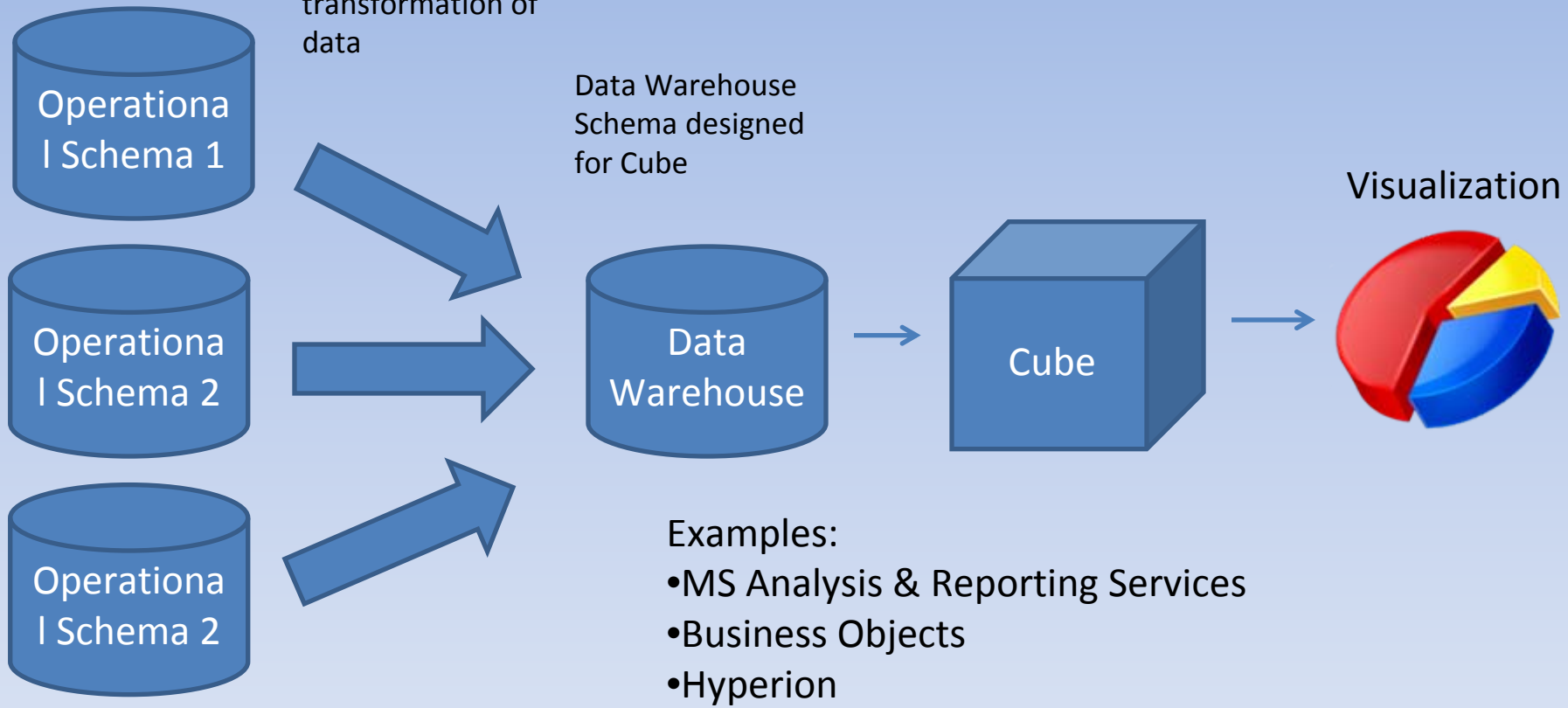
The Changing Role of Data Warehouse

- Historically required for a successful Data Analysis project
  - Most visualization technologies were cube based.
  - Cubes required pre-organized data base to re-arrange the various data silos into a data model that could be easy digested by the cube.
  - Data validation was done as a separate step by the data warehouse

The Changing Role of Data Warehouse

The Legacy Model

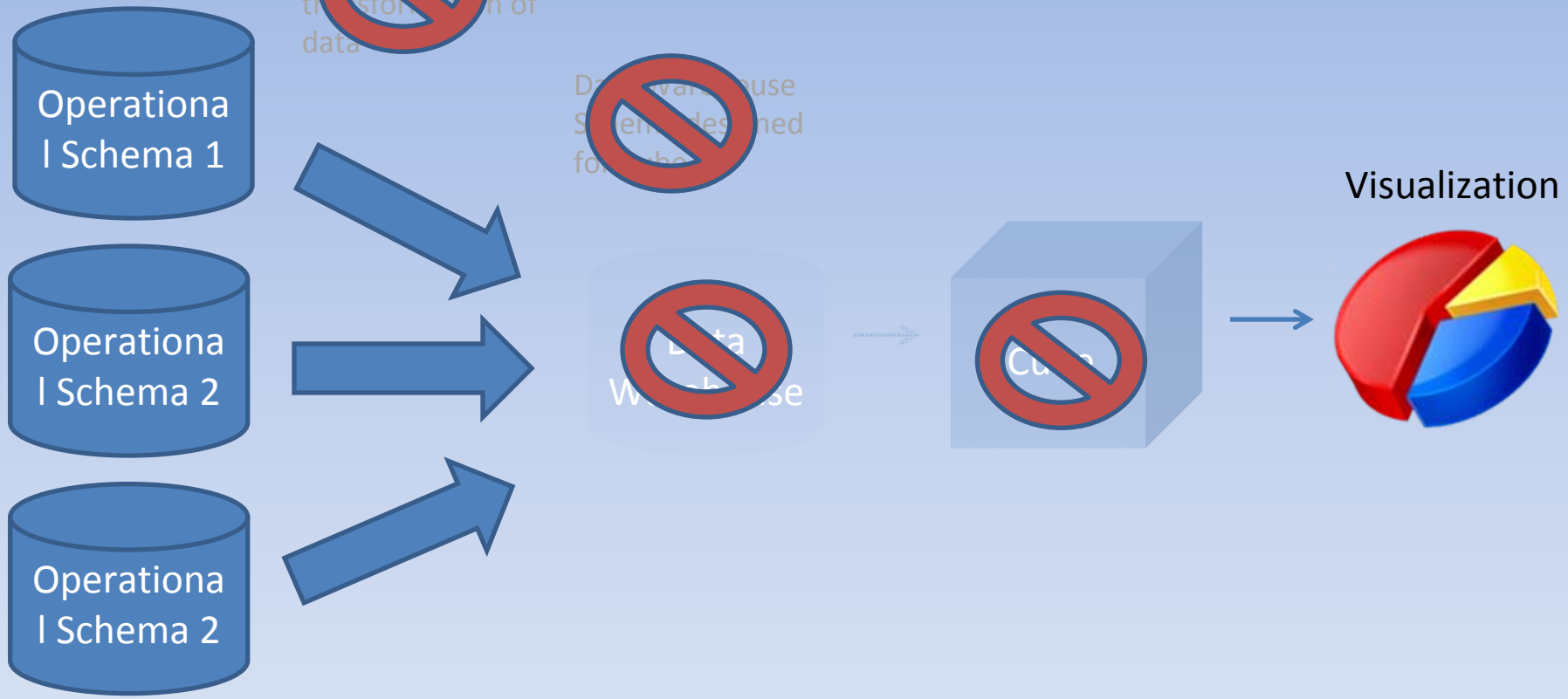


Examples:

- MS Analysis & Reporting Services
- Business Objects
- Hyperion
- Cognos
- Microstrategies

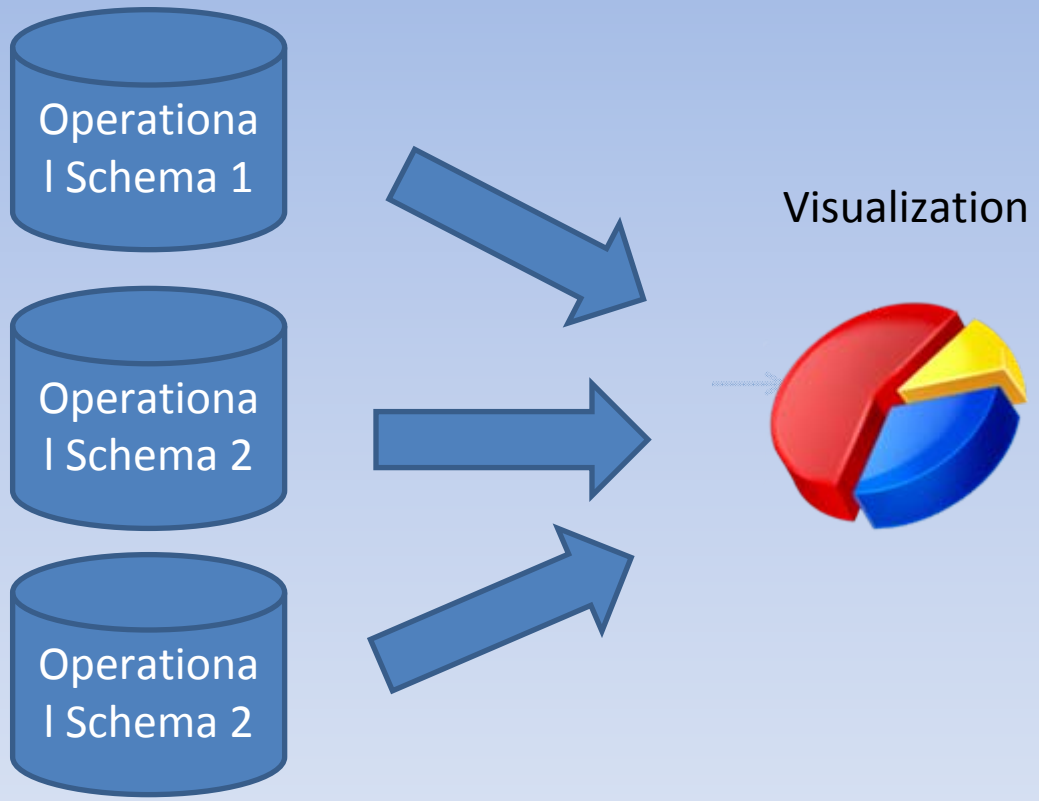
The Changing Role of Data Warehouse

A New Model



The Changing Role of Data Warehouse

A New Vastly Simpler Model



Made possible by new technology that removes cubes and data warehouse

New Technologies – In Memory Analytics

- Removal of Data Warehouse
- Removal of external ETL tools
- Ability to pull data from multiple data silos
- In Memory provides speed and simplicity
- Software Examples:
  - Applix
  - Spot Fire
  - SAP In-Memory
  - MS PowerPivot
  - Qlikview
  - ParAccel

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Multiple Data Silos

- Success depends on the ability to easily and quickly incorporate new data silos as the need arises.
  - Inmate Management
  - Staff Deployment
  - Budget Utilization
  - Security Events
  - Overtime Utilization

Performance Benchmarking

- Comparing Data in Corrections has been discussed for 20 years with limited success
  - Agency do not want to share data until their data looks good
  - Fear of negative consequences from sharing
  - Difficult to agree on comparison metrics
  - Cost associated with building and sharing
  - Difficult to agree on common technologies

Performance Benchmarking

- If sharing were to occur benefits are significant
  - Targeted underperforming areas can be address more quickly
  - Endless debate over the level of performance stops
  - Best Practices of successful approaches can streamline performance gains and short circuit numerous less effective approaches to fixing the problem

Performance Benchmarking

- A new approach limits downside to sharing and provide significant upside
  - Data is shared through neutral 3rd party
  - No agency sees another's data at anytime
  - Data only shared as collective aggregates
  - Data sharing is optional

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Data Analysis Projects

- Three Models
  - Large Technology Project - buying or building technology – Buy or Build your own custom system
  - Human Technology Project – Using people instead of technology
  - Cloud Model – Using a pre-built solutions

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Data Analysis Projects

- Large Technology Projects – Many People, Many Months
  - Significant upfront design of data warehouse, Analysis Cube, and Visualizations
  - Build centralized data warehouse to pull together various operational data silos
  - Build data cube to allow for fast reporting and analysis
  - Build ETL (extraction, transformation, load) processes to move data from operational systems to data warehouse and from data warehouse to cubes
  - Build Visualizations
  - High Upfront Costs $3M+.
  - Ongoing cost $500,000 plus 2-3 staff = Annual cost of $750,000
  - 5 Year Total Cost of $6,750,000+
  - Several State Correctional Agencies have attempted this approach

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Data Analysis Projects

- Human Technology Project – Replace technology with a small team of people
  - Technology – Excel, Access or other free simple to use software
  - Dedicate 2-3 people to manually collecting and analyzing data.
  - No upfront cost
  - Annual cost $250,000
  - 5 Year Cost of $1,250,000
  - Easier to hide redeployed head count than get approval for large project.
  - Baltimore Maryland's – Performance Team uses this approach and has 8 business analysts on staff at a cost of $600,000 per year – 5 year cost of $3,000,000

Data Analysis Projects

- Cloud Technology Model
  - Low cost
  - No upfront cost
  - Fast to implement
  - Prebuilt Analysis with best practices
  - Ability to compare results to benchmark
  - Typically $25,000-$50,000 a year
  - 5 Year cost $125,000-$250,000

Intelligov Data Analysis Demos

- Municipal Performance Benchmark Dashboard
- Municipal Performance Analysis Dashboard
- KIPP Schools of Harlem Student/Teacher Performance Analysis Dashboard
- Police Performance Analysis Dashboard

Intelligov Cloud Model

- Utilizes the latest Data Analysis Technologies
- Integrates GIS (Mapping) to provide spatial analysis
- Low cost
- Best Practice Model
- Performance Benchmarking
- General Data Analysis
- $25,000-$50,000 per year annual cost

Municipal Performance Benchmark Demo

- Compare your performance to the benchmark
- Where are you out performing others
- Where are you under performing others
- No sharing of details
- Safe to compare

Municipal Performance Analysis Demo

- 9 Data Silos
  - City Task Workload
  - Housing Inspections
  - Financial
  - Payroll
  - Time and Attendance
  - Fire
  - Phone Switch
  - Web Site
  - Email
- Both Custom and Prebuilt Analysis
- 100’s of Reports

Kipp Schools of Harlem Demo

- Data Silos so far
  - Operational Data – Schools, Teachers, Students, Courses
  - Student Test Data
  - Student Character Assessment Data
  - Teacher Assessment Data
- Adding Time and Attendance (both teacher and student) and payroll
- Ability to follow student and teacher performance across years and schools

Police Performance Analysis Demo

- Data Silos
  - RMS (Records Management System)
  - CAD/911
  - Citations