

# The Big Bang in Business Intelligence

Dan Holle  
CTO, BI Solutions



# We have 45 minutes to



- Challenge conventional wisdom about BI & DW
- Look at operational, real-time examples of the changing face of BI
- Consider how technology needs to change to meet new needs

**So... 42 minutes left...**

**Let's challenge  
conventional wisdom  
about DW and BI.**



# DW & BI are both mature technologies.

- BI and Data Warehousing have been around for decades. We're fine-tuning, doing incremental improvements and cost reductions.

## No Way!

- DW appliances
- Best-of-breed pure-play BI tools, BI suites, BI appliances
- Data integration still evolving: ETL, ELT
- Metadata management, MDM, data quality
- BI and BPM/CPM integration
- SOA...
- Real-time BI, Operational BI, Pervasive BI
- Market consolidation

# BI “low fruit” have already been picked

- Areas where BI provides value have already been implemented by most companies.

## No Way!

- Real-time customer contacts are 5-10x more effective than unsolicited (outbound) marketing at generating sales
- But less than 15% of DW/BI shops are operationalized
- 90% of executives say front-line decisions are critical to profitability
- But 80% say most of the decisions that can be automated are not

# BI = Reporting

- Some BI shops crank out loads of reports... or maybe they have a few smart guys who discover stuff using SQL. That's BI.

## No Way!

**Maybe LAST CENTURY or so, BI meant reporting.  
No more.**

**The big benefits come when BI/DW is integrated  
into the core business... operational BI.**

**For example...**

# 21<sup>st</sup> Century BI: Real-World Examples



# Innovative Users of BI

- Last Century's BI
  - IT process is back-office, batch
  - Business deliverable is Reporting
  - Supporting existing business processes
- Let's look at some who are pushing the envelope
  - Integrating into the mainstream business
  - Going beyond Reporting
  - New data-driven business processes

# Con-Way Freight

- Competes with Fedex, UPS
- Lacking scale, they needed to do something different to compete
- Differentiation: Technology
  - SOA: 1999
  - CEP: 2003
- Owes its existence to real-time architecture
- Analytics deeply integrated into both strategic and tactical initiatives
- Growth to \$4B in revenue
- Recognized in Fortune's 2007 list of Most Admired Companies
  - #1 in Transport/Logistics



# National Bank

- Old way:
  - Acquisitions lead to conflicting customer & product data
  - Product sales based on organizational inertia, not logic
- New way:
  - Customer data brought together in coherent structure
  - Product offers optimized based on customer risk profile
- Result
  - 30% reduction in delinquencies

(Source: *Smart Enough Systems*, Taylor & Raden)

# Harrah's

- Gaming
  - Properties include not just Harrah's, but also Caesar's, Bally's, Rio, etc
- Poster child for analytics
  - CEO is a nerd
- Revenues exceed \$10B
- SAS, TIBCO
- Used analytics to move from 30% market share to 50%
  - Revenue impact: \$4B
- Deep analysis of customer behavior
  - Cross-sell, pain point
- Real Time
  - Birthdays and other events
  - Recognizing bad days and good days as they happen
  - Responding optimally



# Yahoo!

- The old way: UI experts argue about how to organize the web site
- The new way: Real-time experimentation and analytics MEASURE which site organization is better
- Example: Where to place the search box?
  - Ran an experiment with hundreds of thousands of tests (just a few hours)
  - Answer: the center!
  - Value to Yahoo! is an incremental \$20M a year!

# Disney Paris



- Innovator in Customer Analytics & Real Time
- 1995: Introduced BI (mostly reporting)
- 1998: Hotel capacity optimization
- 2004: Real time for shops, restaurants
- 2005: Real time for attractions
- Managing operations in real time
- Redeploy people based on demand, on 15 minute intervals
- Example: It rains at a property. People are moved based on changing customer distribution
- Adjustments based on both forecasts and actual

# Capital One

- A pioneer in marketing analytics
- 30,000 experiments a year
- Over a million sales a year through Customer Service
- When a customer calls to close an account,
  - They might be routed to an automated service that makes it easier. Or
  - They might be routed to a specialist who knows an offer likely to retain that customer

Source: *Super Crunching*, Ian Ayres, p. 47

**Capital**One®

# BI challenge: right-time/operational use of extracted knowledge

## Retail

- Real-time inventory forecasting/monitoring by item by store
- Personalized offers at checkout



## Telecom

- CDR analysis
  - To predict and reduce churn and fraud, and improve revenue management and network utilization

## E-retail

- Clickstream analysis to
  - Predict preferences based on previous activity
  - Deliver 1-to-1 marketing
  - Automated problem resolution
  - Multichannel marketing



The  
business  
intelligence  
domain

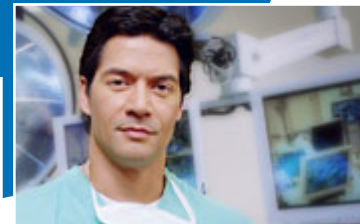


## Financial

- Branch automation
- Fraud
- Compliance

## Government

- National security
- Interstate crime records available to police in real time



## Healthcare

- EMRs
- Clinical repository
- Online claims processing
- Pay for performance

## Manufacturing

- Real-time trend analysis
  - Scrap, defective components, production rate, supply chain visibility—RFID
- Vendor performance

# Hewlett-Packard!

- Printer division, Vancouver
- Manufacturing facility, generating \$280M a year in revenue
- MIT PhD student studied the operation, using analytical modeling
- Modified the flows and buffer capacities in the plant
- Doubled the capacity with minimal change to WIP inventory
- \$280M incremental revenue per year!
- *Thought: Given that BPM systems capture the task flows of an entire Enterprise, can we optimize the whole Enterprise the same way?*



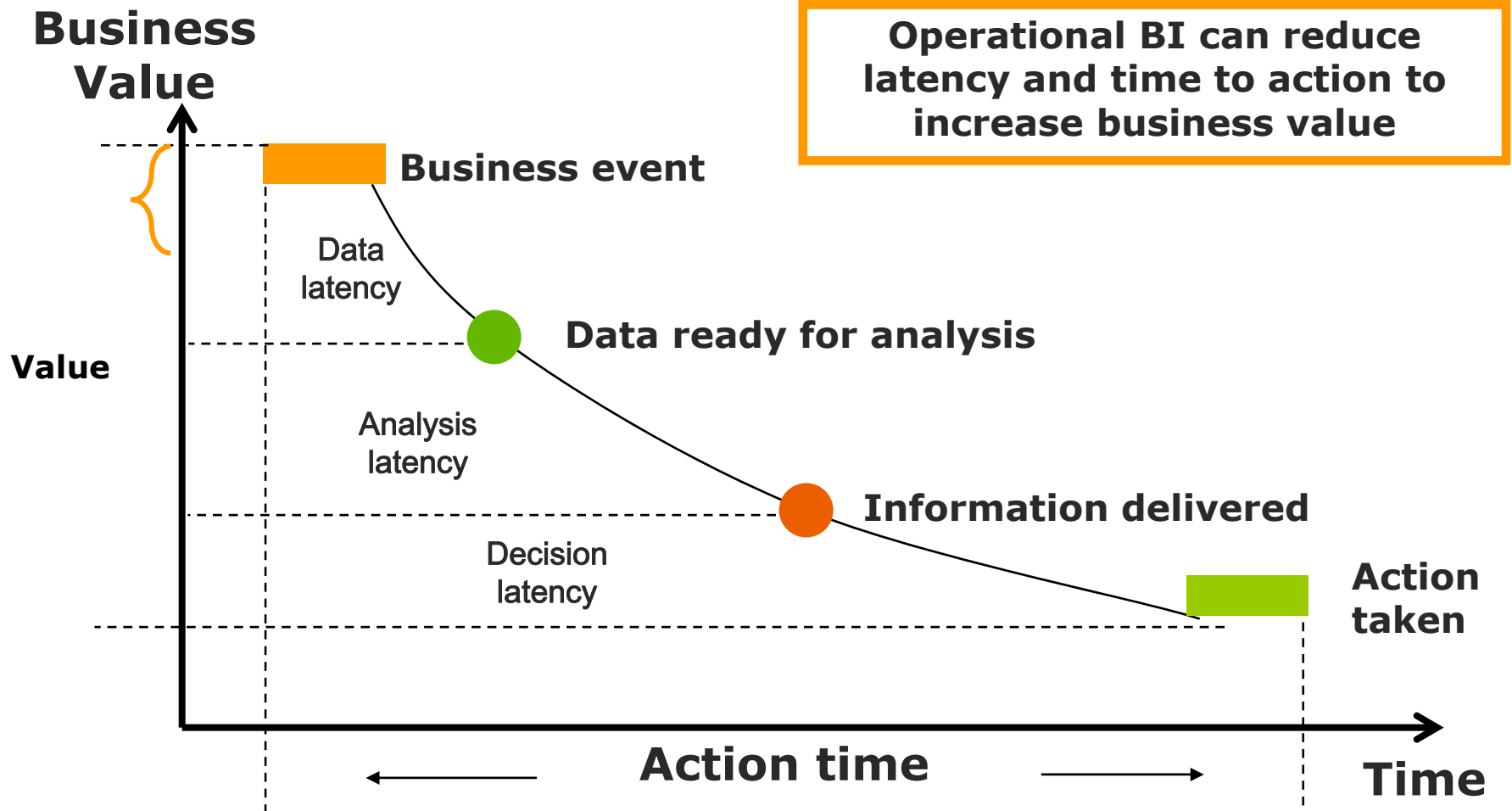
# What have we learned?

- Business value is changing the BI/DW focus
  - Yesterday: Fine-tuning existing business process by doing reporting across the Enterprise
  - Tomorrow: Using evidence-based management to change the business process in real time
- Plugging into the mainstream business
- Benefits often north of \$100M

# Re-Defining Data Warehousing and Business Intelligence



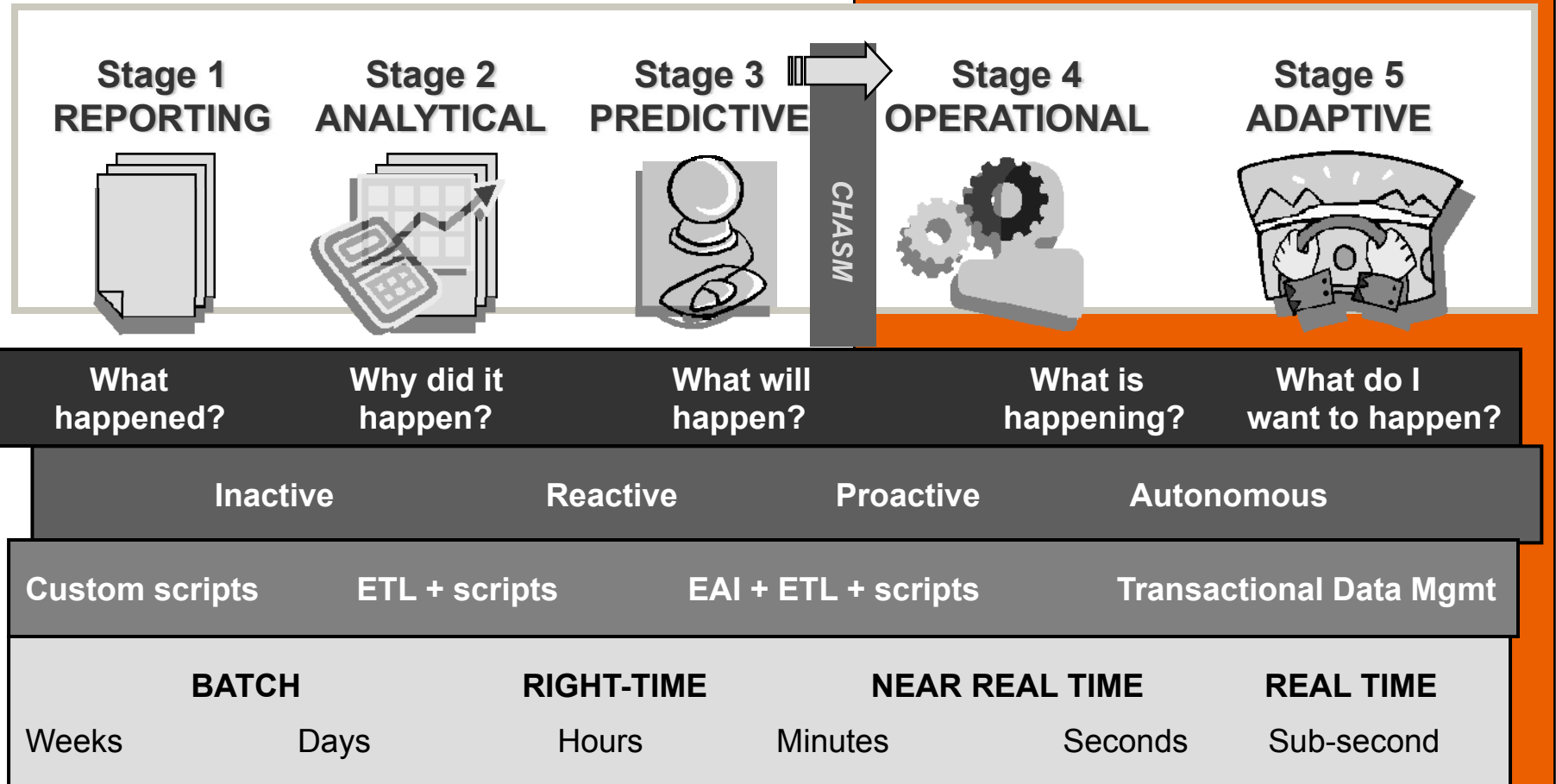
# The time-value of data for decisioning



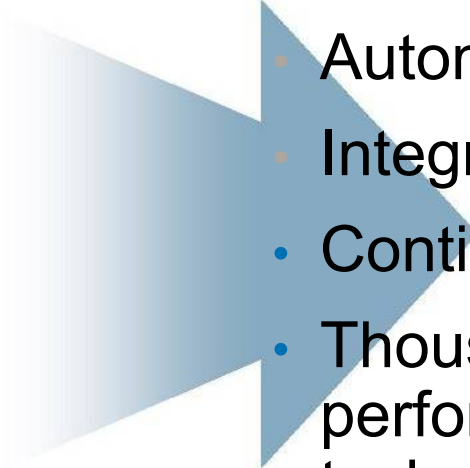
Source: Richard D. Hackathorn, Bolder Technology, Inc.

# Data warehouse evolution model

*Strategic + tactical, post-predictive*



# Changing Face of Data Warehousing

- 
- Strategic
  - Reporting
  - Stand-alone
  - Batch updates
  - Few users doing strategic analysis
  - Fast response is nice
  - Availability is important
- Operational
  - Automating action
  - Integrated with the business
  - Continuous online updates
  - Thousands of users performing many types of tasks
  - Stringent real time SLA's
  - Mission critical availability

“Through 2010, mixed workload performance will remain the single most important performance issue in data warehousing. ...the transactional DBMSs may be able to erode the performance edge formerly attributed to specialized data warehouse DBMS solutions.”

*“Magic Quadrant for Data Warehouse Database Management Systems, 2007,” Gartner, 10 October 2007, Donald Feinberg, Mark Beyer)*

# Observation:

**Unless the Data Warehouse platform is a solid performer in real-time transactions,**

**ANOTHER platform will be needed for operational delivery of analytics to the mainstream business.**

**... higher cost, more complexity, and most importantly, less agility.**

# Mission-critical requires system availability

**“Data warehouses built for an analytics-only workload will be severely challenged by the rigors of a new workload that includes connected, mission-critical applications. The warehouse must be highly available and disaster recoverable.**

**”By 2010, > 90% of Global 2000 companies plan to incorporate analytics into multiple operational applications that access the DW.**

**“But fewer than 15% of DWs are designed to provide HA, failover, DR and remaining components of mission-critical systems”**

*Operational Analytics and the Emerging Data Warehouse,”*  
Gartner, 14 May 2007, Mark Beyer

# Observation:

**Unless the Data Warehouse platform is capable of meeting operational availability requirements...**

**ANOTHER platform will be needed for operational delivery of analytics to the mainstream business.**

**... higher cost, more complexity, and most importantly, less agility.**

# Grumbling in paradise – sound bites

Last century's BI / DW paradigm... batch, complex query... is showing its age:

- “Our EDW is really just a big back-office data mart.”
- “Creating insights is one thing; delivering them to the operational business is another.”
- “Pervasive BI isn't just delivering more reports to more people.”

**Somehow, somewhere, it seems we got lost.**

**Data Warehousing stands  
separate from the core,  
operational business.**

**How did that happen?**

# “The Innovator’s Dilemma”

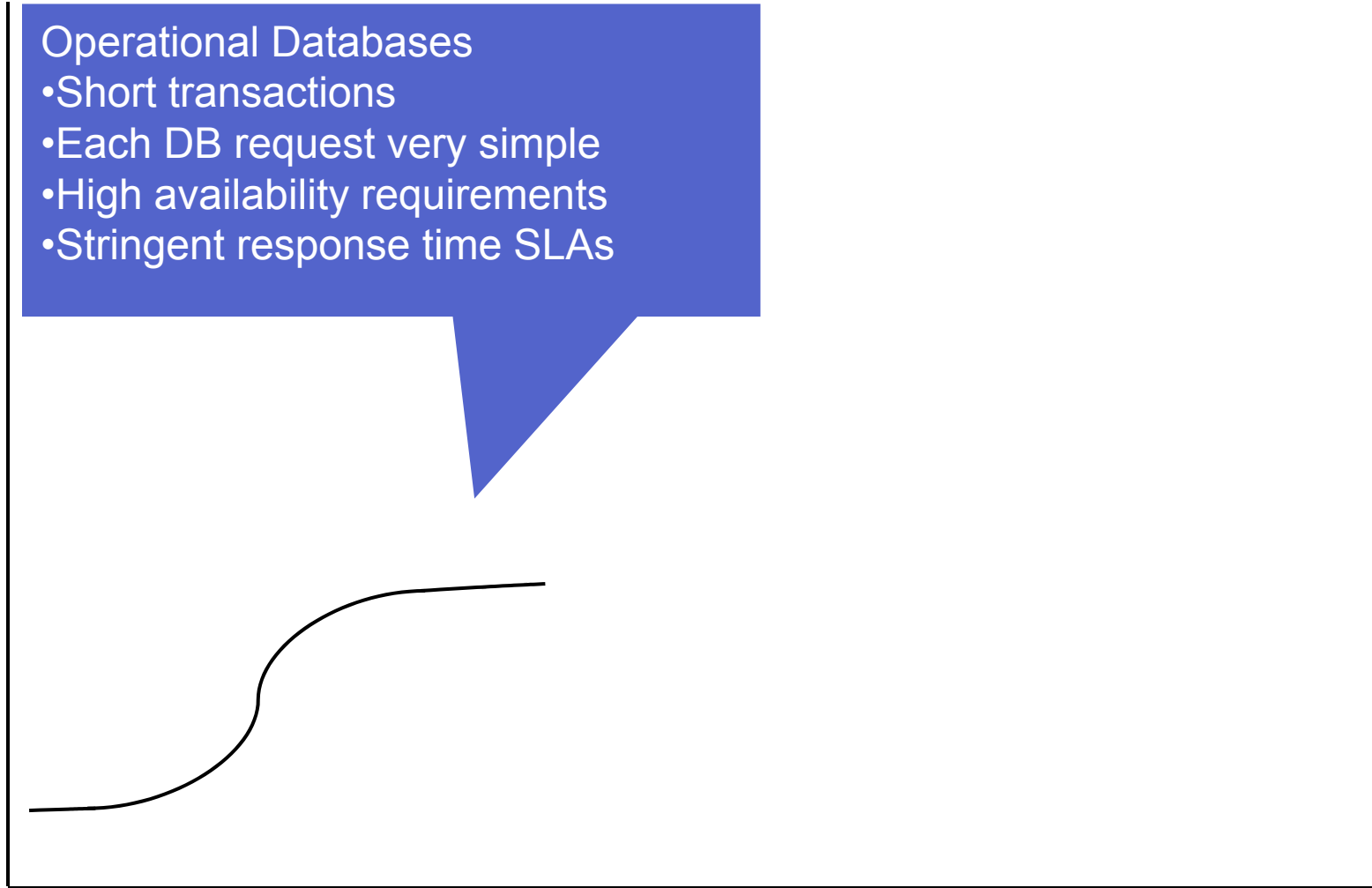
- A book by Clayton Christensen
- His observation: Many companies get trapped into incremental improvements of a successful product: “Continuous Innovation”
- This ultimately reaches a plateau (based on some success metric)
- This creates a circumstance where a new entrant can introduce “Disruptive Innovation” by following a different, more relevant success metric

# In the beginning: Operational

## Operational Databases

- Short transactions
- Each DB request very simple
- High availability requirements
- Stringent response time SLAs

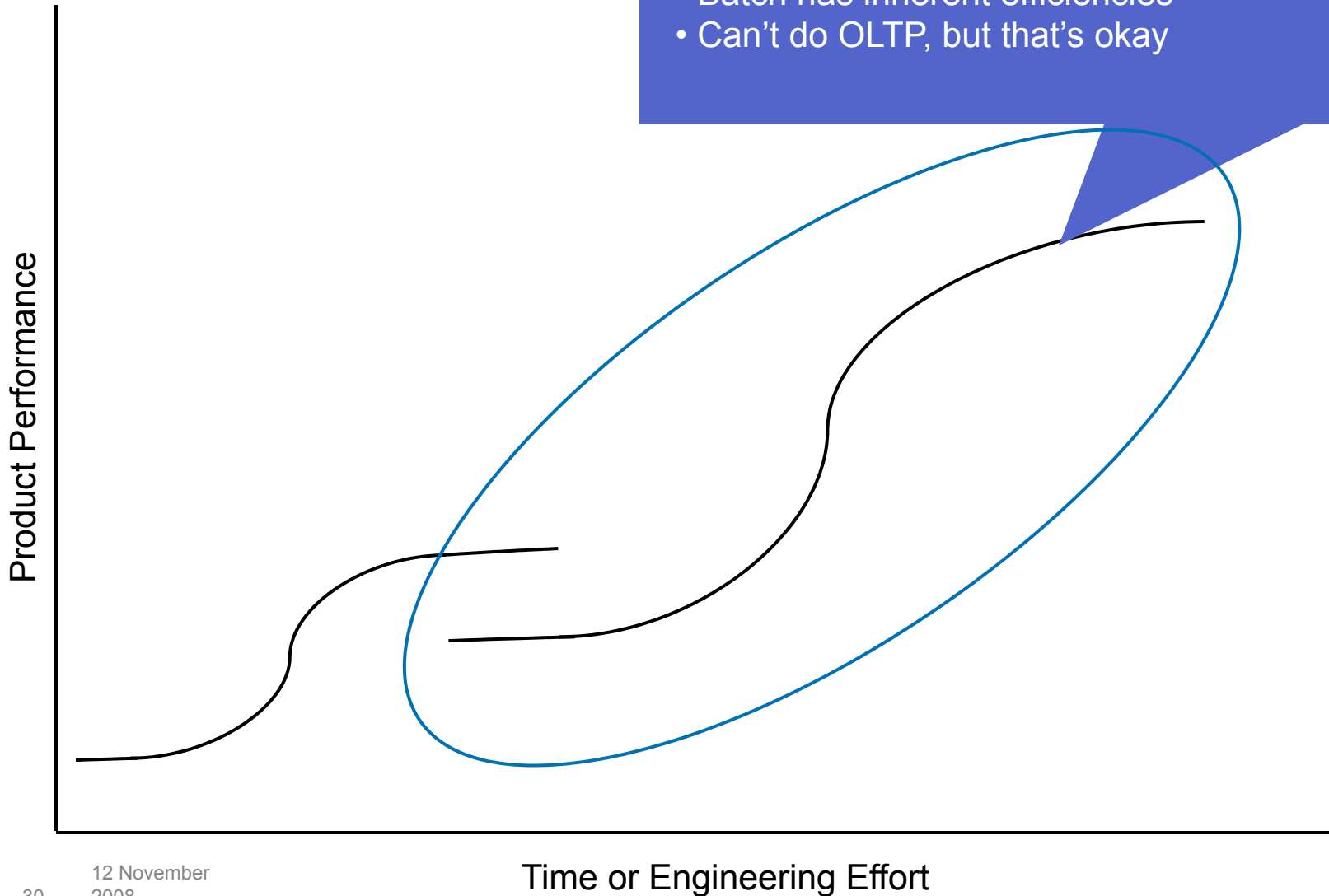
Product Performance



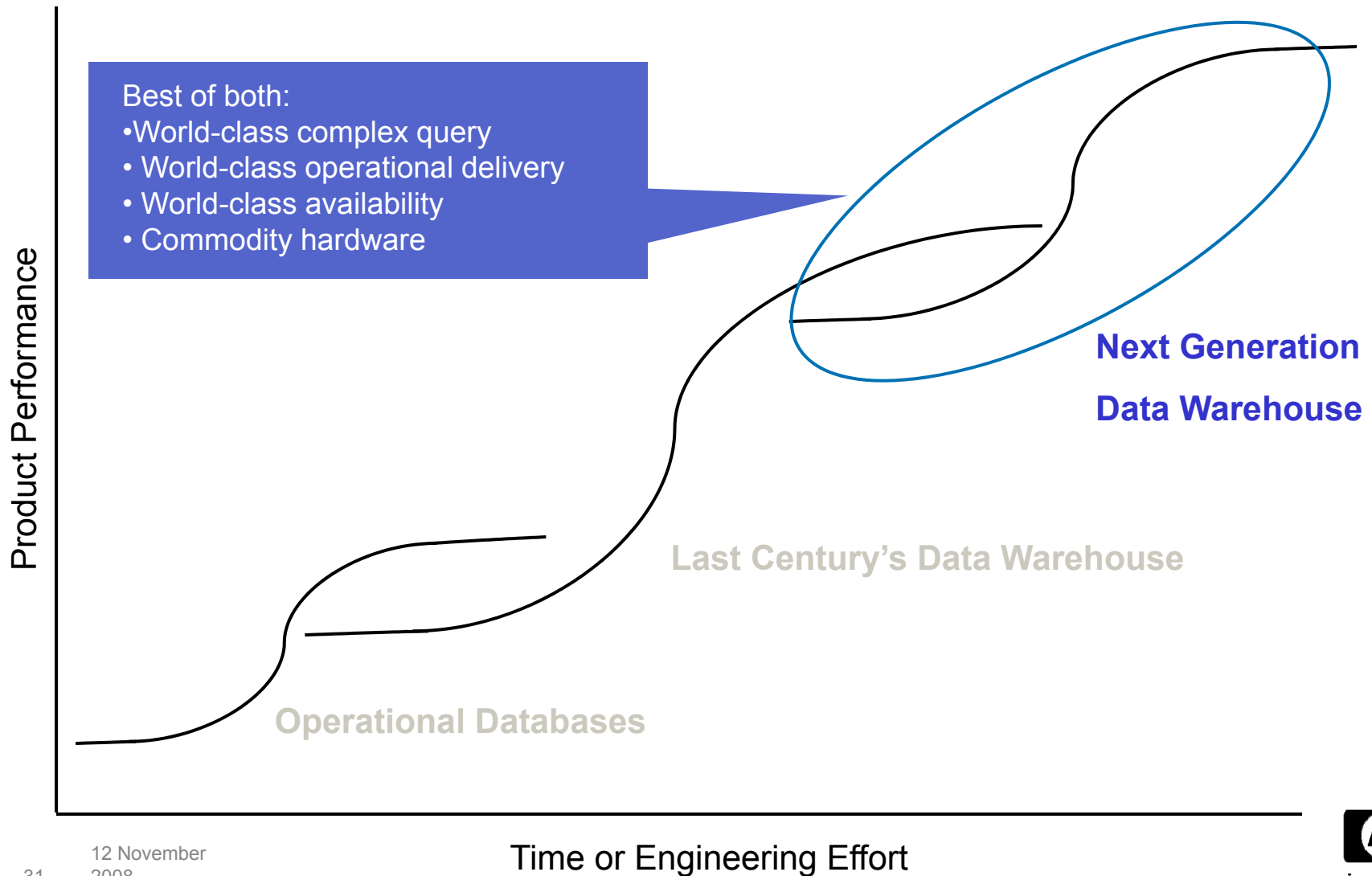
# After that: BI

Changed the metrics

- Big data, not big transaction volumes
- Complex operations OLTP could not handle
- Batch has inherent efficiencies
- Can't do OLTP, but that's okay



# Next Generation: Operational BI



# The Next Generation

- What we wish to achieve
  - Enterprise-wide deployment of analytics, facilitating better real-time decisions in the mainstream business
  - “Analytical Nervous System” for the Enterprise
- What we need from the Data Warehouse...
  - High Availability
  - High-volume operational delivery
  - Scalability (users, data, and complex queries)
  - Affordability

# HP Neoview for Operational BI

**An integrated hardware and software platform for data warehousing – launched April, 2007**

- Powerful enough for the most complex and demanding EDW projects
- Strong technology around high availability and real-time operational access





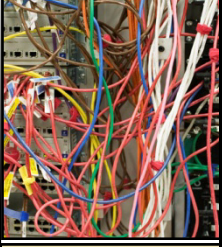

Enterprise class

Appliance-like  
simplicity

Affordable

Services

# Neoview addresses next-generation BI

	<b>Availability</b>	<ul style="list-style-type: none"><li>• Industry's leading 24x7x365 platform</li><li>• MPP architecture tailored for BI &amp; HA</li><li>• No DBA maintenance downtimes</li></ul>
	<b>Operational Delivery</b>	<ul style="list-style-type: none"><li>• Leveraging world-beating OLTP legacy</li><li>• High performance and concurrency</li><li>• Optimized for mixed workloads</li></ul>
	<b>Scalability</b>	<ul style="list-style-type: none"><li>• Leveraging decades of parallel technology</li><li>• Reflects new realities of fast, cheap hardware</li><li>• New focus on users, data, and complex query</li></ul>
	<b>Affordability</b>	<ul style="list-style-type: none"><li>• Commodity, industry standard HW</li><li>• Simplified operations and DB administration</li><li>• Reduces datamart proliferation</li></ul>

# Neoview is new. HP's Presence in BI is not.

- >200,000 BI infrastructure sales per year; servers, storage, services
- 24 year partnership with SAS, with 20,000 joint customers
- 3,500+ HP employees working on BI products and services
- Funding in the 100s of millions of dollars
- HP Labs research into advanced BI



# Announcement at PBLIS: SAS & HP Customer Intelligence Excellence Center

- *Mission:* The CIEC is a joint effort between SAS and HP to showcase SAS CI solutions with Neoview for customers and prospects. Goals:
  - differentiate HP/SAS solutions with Neoview
  - emphasize real-time capabilities and “operational customer intelligence” to leapfrog the competition
  - be able to demonstrate solutions
  - decrease “time to solution”
- SAS Customer Intelligence:
  - Includes functions such as marketing operations and analytics, customer loyalty, campaign management, and real-time event detection

CIEC was announced at PBLIS in Las Vegas, NV Oct. 29, 2008



# SAS & HP: Next Generation BI

- The old way for Customer Management
  - Back-office models
  - Back-office list pulls for outbound promotion
- The new way
  - Back office models, coexisting with
  - Data integration in real time across all customer touchpoints
  - Real-time decisioning at point of customer contact
- Benefits
  - Greater customer intimacy
  - 5-10x marketing effectiveness

# Conclusions

**“Companies have come to realize that the biggest benefits of BI and analytics come from enterprise wide deployment.”**

“Seizing the BI Opportunity”, May 2006  
Business Week Research Services

**The highest-value place  
For Enterprise Business Intelligence is...**

**...in the mainstream, operational  
Business itself!**

“The HP partnership is part of a continued effort to drive innovation into every facet of Wal-Mart’s business and IT operations.”

Nancy Stewart,  
Wal-Mart chief technology officer

“At Wal-Mart, we never underestimate the importance of investing in innovative solutions that will improve our ability to understand and anticipate our customers’ needs. Our experience with HP Neoview has proven that we made the right decision to partner with HP for our next-generation business intelligence needs.”

Jim Scantlin,  
Wal-Mart director, enterprise information management



Time's Up!

NO QUESTIONS!!!

