IBM Performance 2011

Positioning your Business Analytics
investment to ensure success:

IBM Business Analytics and
Data Warehousing on System z

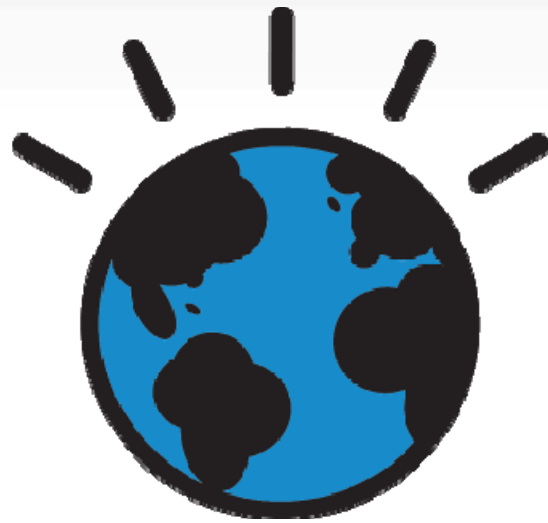Speaker:
Date:

Generate
More Revenue

Reduce Risk

Predict Future Outcomes
with Greater Confidence

Lower Costs

IBM Performance 2011

Analytics correlates to performance

3x

Organizations that lead in analytics outperform those who are just beginning to adopt analytics

5.4x

Top Performers are more likely to use an analytic approach over intuition*

*within business processes

IBM Performance 2011

Market dynamics are shifting

- **Business Analytics is now <u>mission critical</u>**
  - *Need to support broader users*
  - *Users are more intense with increasing data access demands*
  - *Requirements for high scalability, availability & performance*

- **Asked to do more with less (IT & Business)**
  - *Better access to relevant information*
  - *Need economies of scale*
  - *Consolidation with reduced complexity*

- **Corporate regulatory compliance**
  - *Driving intense scrutiny of data security policies*

- **Environmental concerns still top of mind**

By 2014, externalizing BI will increasingly become an expected aspect of most companies' relationships with customers and partners.

Externally focused BI programs will frequently go beyond information dissemination by facilitating a collaborative decision-making process that breaks through the firewall to involve stakeholders from organizations in a broad ecosystem.
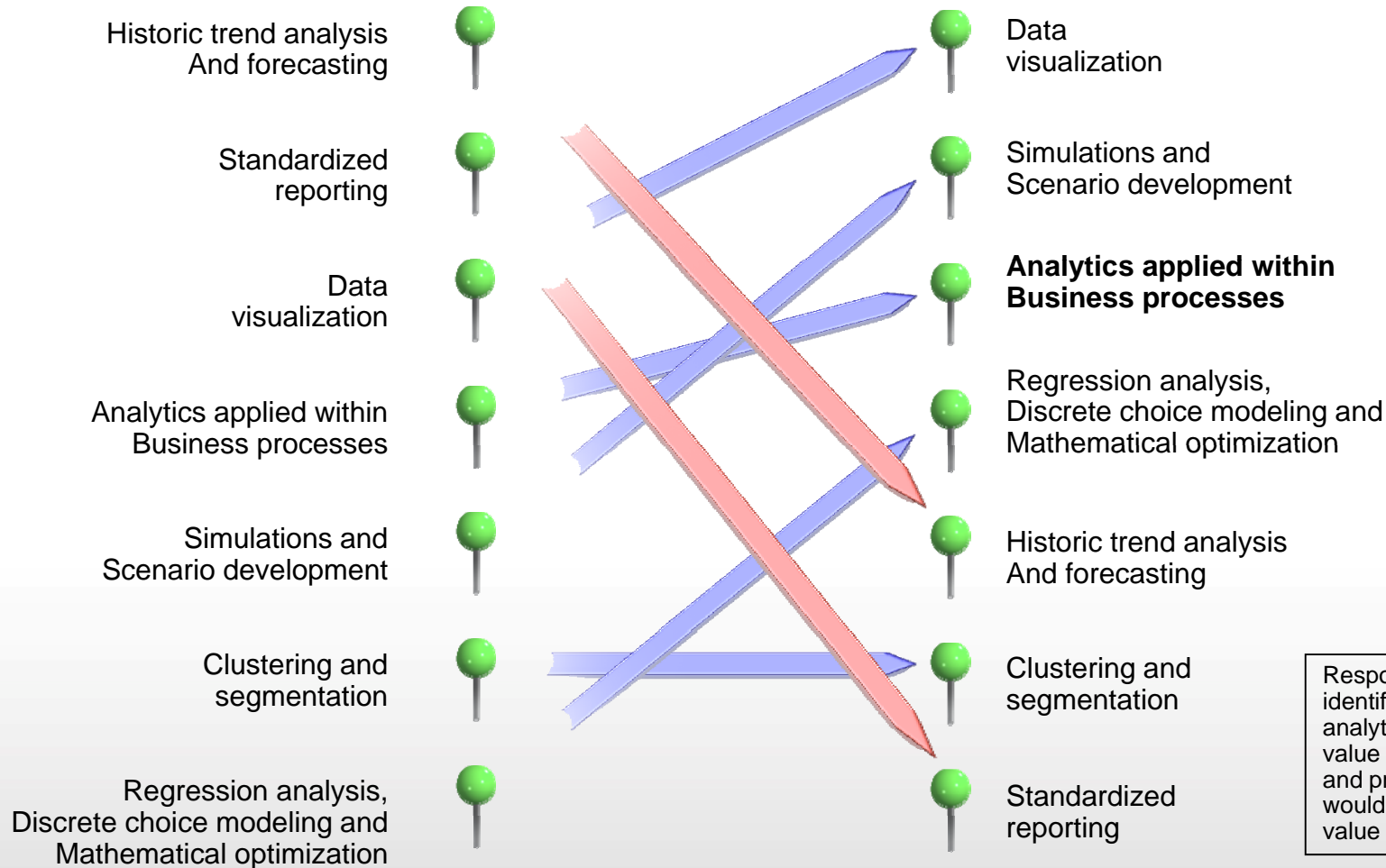
Source : Gartner, Prepare for Customer-Facing Business Intelligence, Kurt Schlegel ,October 2010

What matters is changing
Results of New Intelligence Enterprise Survey of nearly 3,000 executives

Historic trend analysis And forecasting	Data visualization
Standardized reporting	Simulations and Scenario development
Data visualization	**Analytics applied within Business processes**
Analytics applied within Business processes	Regression analysis, Discrete choice modeling and Mathematical optimization
Simulations and Scenario development	Historic trend analysis And forecasting
Clustering and segmentation	Clustering and segmentation
Regression analysis, Discrete choice modeling and Mathematical optimization	Standardized reporting

Respondents were asked to identify the top three analytic techniques creating value for the organization and predict which three would be creating the most value in 24 months.

Source: MIT Sloan Management Review,10 Data Points: Information and Analytics at Work, N Kruschwitz and R Shockley, Fall 2010
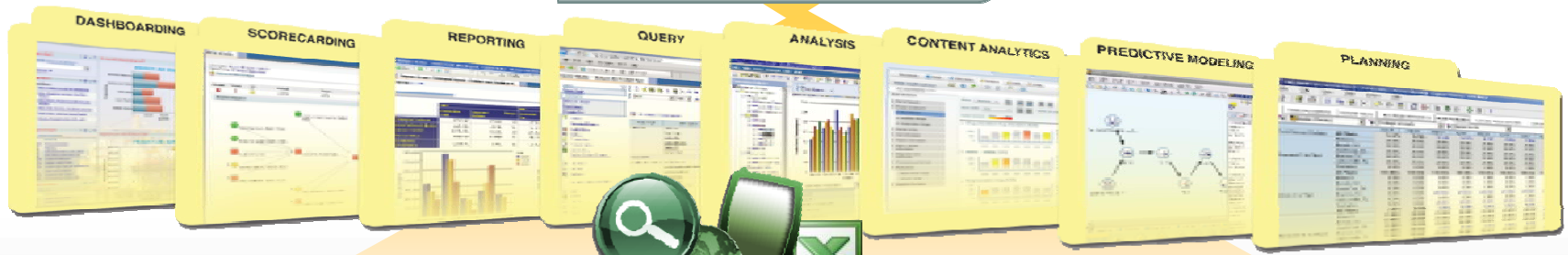
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All departments, all users, in all roles across the organization need access to business insights

Executives | Business Managers | Line of Business Manager | Business Users | Business Analyst | Financial Analyst

How are we doing?

Why?

What should we do next?

DASHBOARDING | SCORECARDING | REPORTING | QUERY | ANALYSIS | CONTENT ANALYTICS | PREDICTIVE MODELING | PLANNING

Real-time or historical; operational or strategic

Guided or self-service access and exploration…

Foresight using statistical, and predictive analytics…

Common Business Model

Message sources

Relational sources

Application sources

OLAP sources

Modern and Legacy sources

8

Today, many business users are not getting to the information they need, when they need it

60%+ of CEOs need to do a better job capturing and understanding information rapidly in order to make swift business decisions

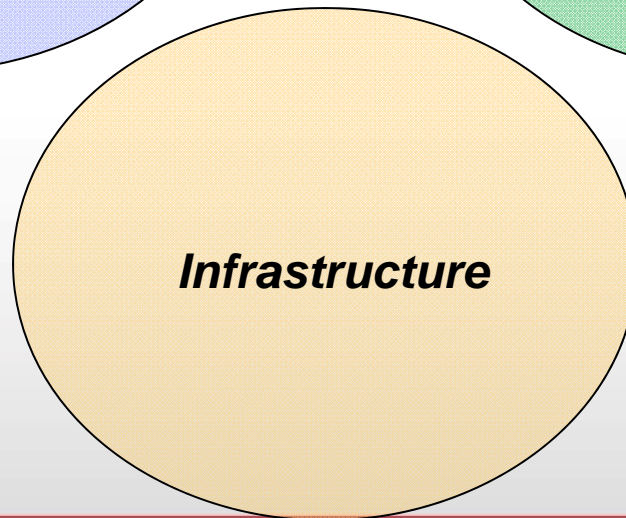**47%** of users don't have confidence in their information
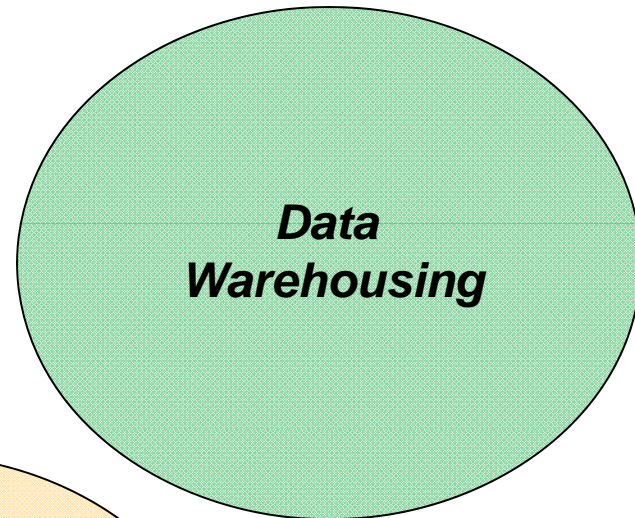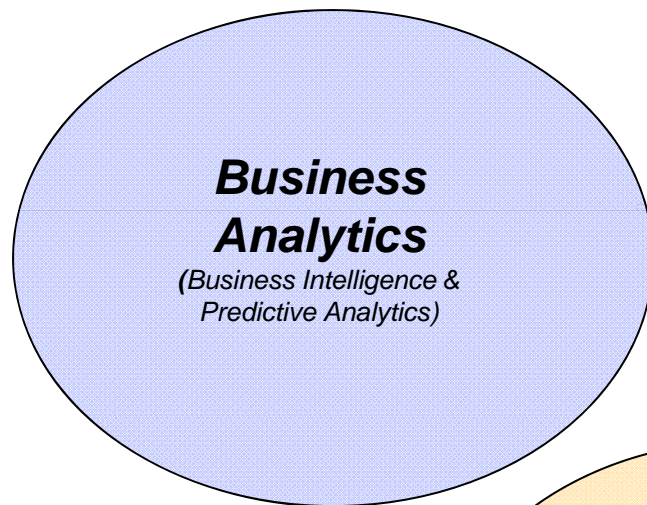
59% of users say that they miss information that might be of value to their jobs because they can not find it

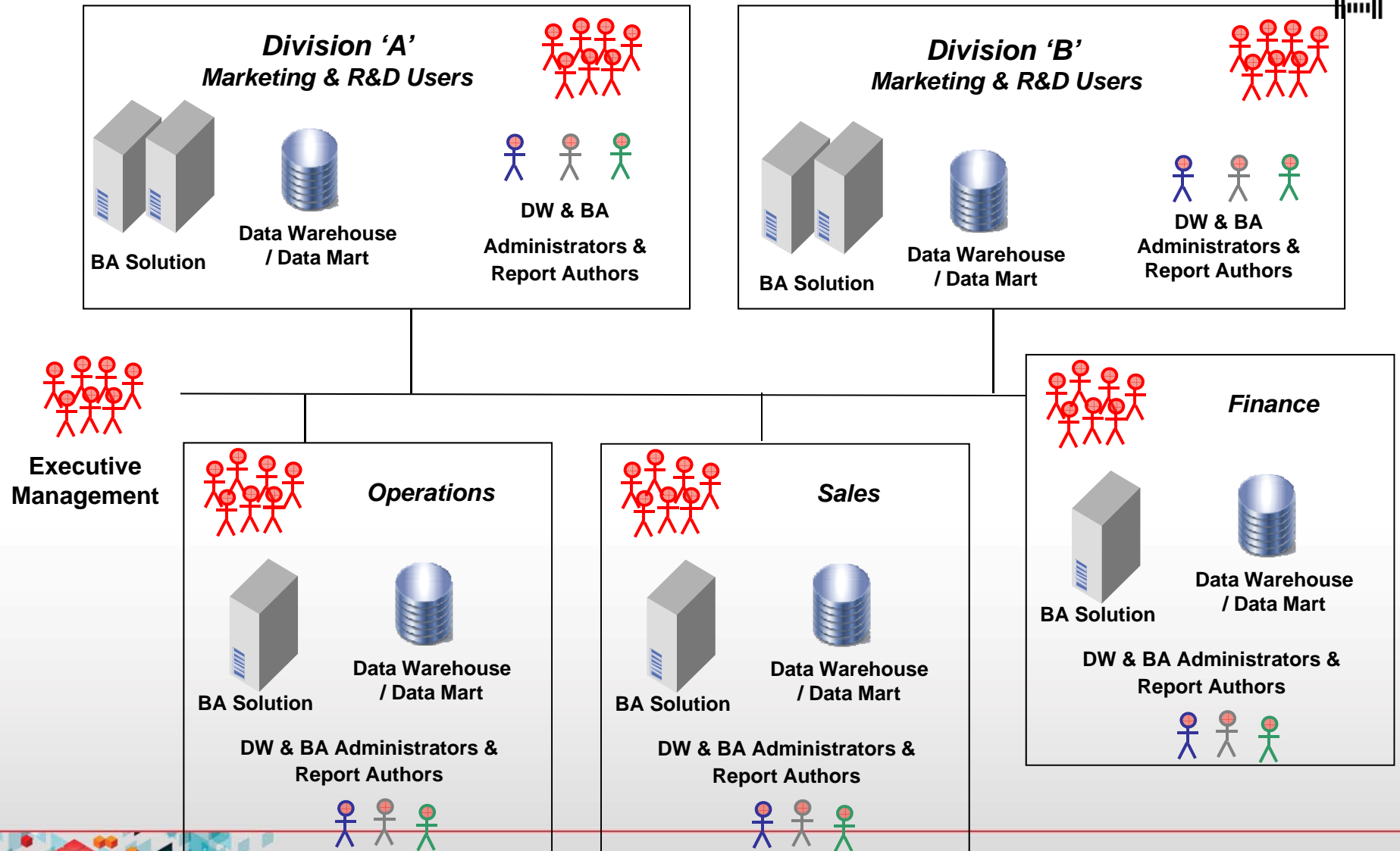**27%** of managers time is spend searching for information

50% of the information they obtain has no value to them

IBM Performance 2011

Key components for Business Analytics success are being implemented and managed in isolation

Business Analytics
(Business Intelligence & Predictive Analytics)

Data Warehousing

Infrastructure

Today's traditional infrastructure: A siloed approach

Division 'A'
Marketing & R&D Users

BA Solution

Data Warehouse / Data Mart

DW & BA Administrators & Report Authors

Division 'B'
Marketing & R&D Users

BA Solution

Data Warehouse / Data Mart

DW & BA Administrators & Report Authors

Executive Management

Operations

BA Solution

Data Warehouse / Data Mart

DW & BA Administrators & Report Authors

Sales

BA Solution

Data Warehouse / Data Mart

DW & BA Administrators & Report Authors

Finance

BA Solution

Data Warehouse / Data Mart

DW & BA Administrators & Report Authors

Business Analytics not keeping pace with changing business requirements

- Supporting multiple BA tools

- Disparate tools lack functionality users need access to more data

- Users need access to diverse types of data (transactional & historical)

- Infrastructure costs are a barrier to entry

- BA taking too long to deploy, access, and grow

- Information quality/security is in question

Only 8.2% of the employees of a typical organization regularly use BI applications

Source: The BI Survey 8, Gartner, 03/09

IBM Performance 2011

Data warehouses have become isolated

- Information to drive the business is known but not available to the decision makers

- Information in the DW is limited to a small number of people in the organization

- Little to no interactivity with other systems

- Not built with the same criteria as the operational systems

- Difficult to manage and maintain multiple servers and copies of the data

- Minimal control over who is accessing the data

*"**Nearly 70%** of data warehouses experience performance-constrained issues of various types."*
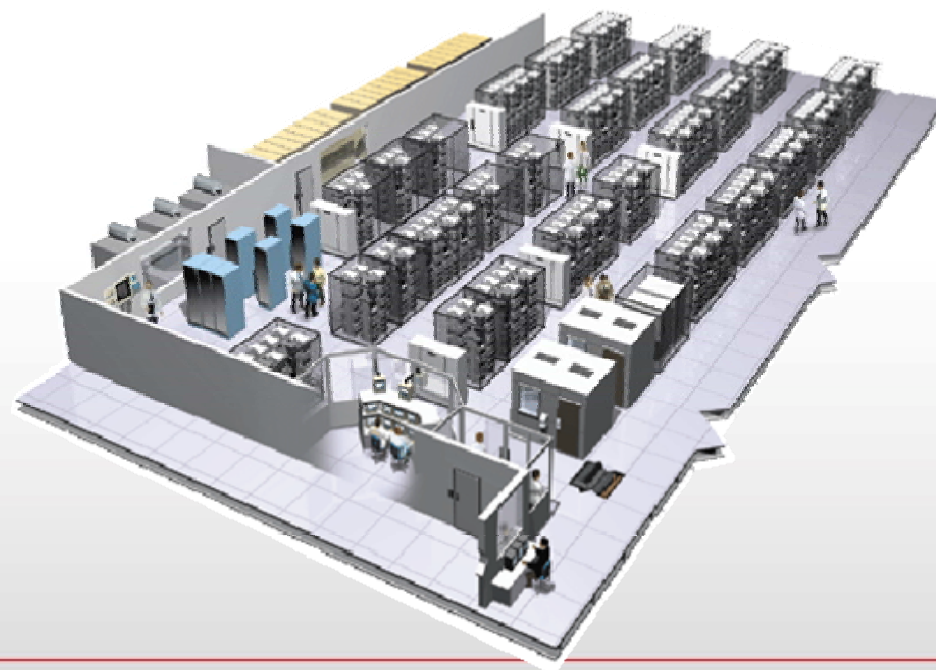
- Gartner 2010 Magic Quadrant

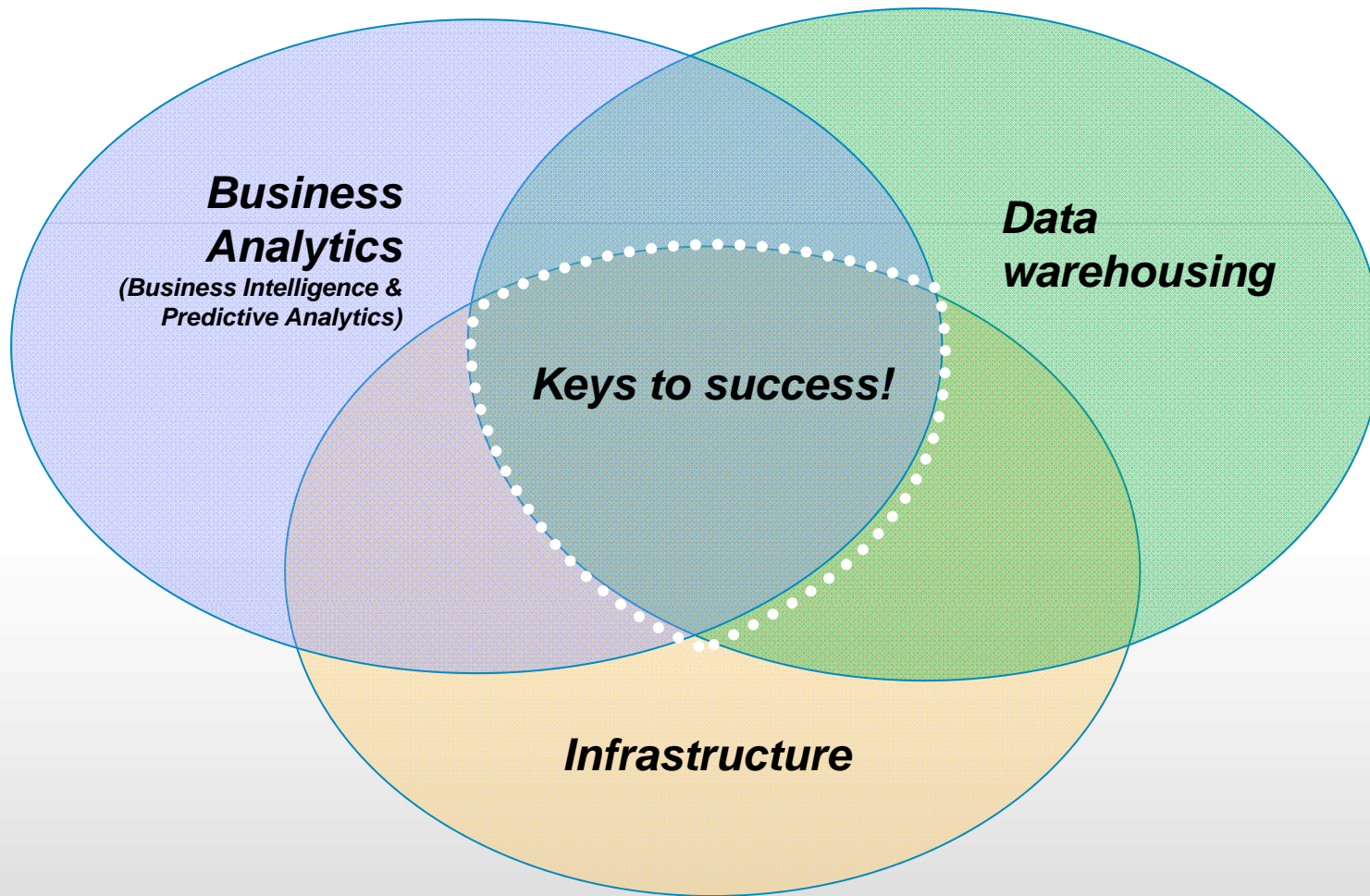# Infrastructure complexity and cost on the rise

- Growing physical servers and network gear

- Excessive energy usage and heating problems

- Inadequate power and cooling infrastructure

- Data silos and data synchronization

- Linear per processor software costs
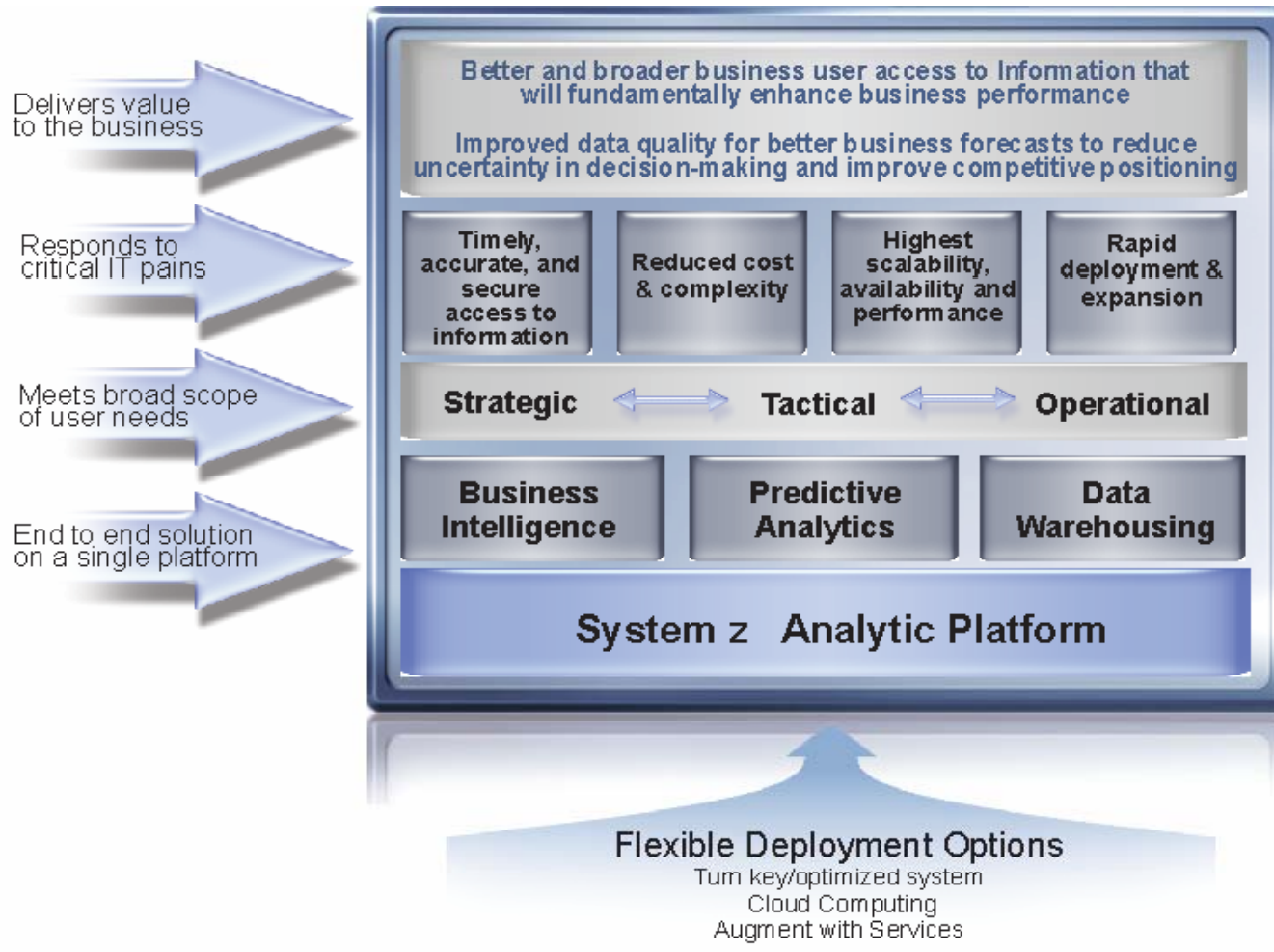
- Linear staffing costs

- Frequent outages

Source: The BI Survey 8, Gartner, 03/09

A successful strategy requires the integration of all key components

Business Analytics
(Business Intelligence & Predictive Analytics)

Data warehousing

Keys to success!

Infrastructure

A new option: IBM Business Analytics and data warehousing on System z

Delivers value to the business

Responds to critical IT pains

Meets broad scope of user needs

End to end solution on a single platform

Better and broader business user access to Information that will fundamentally enhance business performance

Improved data quality for better business forecasts to reduce uncertainty in decision-making and improve competitive positioning

| Timely, accurate, and secure access to information | Reduced cost & complexity | Highest scalability, availability and performance | Rapid deployment & expansion |

Strategic ⟷ Tactical ⟷ Operational

| Business Intelligence | Predictive Analytics | Data Warehousing |

System z Analytic Platform

Flexible Deployment Options
Turn key/optimized system
Cloud Computing
Augment with Services

Customers select System z to meet critical business needs
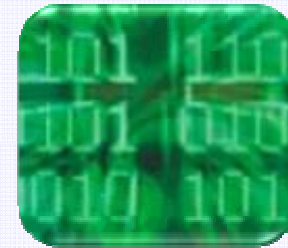
High business growth

HIGH SCALABILITY

Continuous business operations

HIGH AVAILABILITY & RELIABILITY

Flexibility and speed to respond

EXTREME VIRTUALIZATION

Reduce business risk

INDUSTRY LEADING SECURITY

Green strategy Energy and space

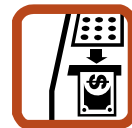**EFFICIENCY**

Secure Cloud Services

CLOUD

Companies are recognizing mainframe cost savings

*Based on an analysis of actual IT spend and business performance, comparing companies with greater than average mainframe mix vs. less than average mainframe mix…***

44%
lower IT cost per credit card transaction

31%
lower IT cost per consumer loan

25%
lower IT cost per mega watt hour produced

24%
lower IT cost per hospital bed

20%
lower IT cost per airline passenger

26%
lower IT cost per new vehicle

25%
lower IT cost per retail store

23%
lower IT cost per barrel of oil

"…in the long run the marketplace rewards those that make the optimum use of the right computing resources in the right way as evidenced by business performance"

Dr. Howard Rubin, CEO and Founder, Rubin Worldwide

The value of System z to an Enterprise BA and DW Initiative

Timely, accurate and secure access to information	- Provides faster access to transactional data on System z through co-location - Speeds up business decisions / faster access to broader, more detailed data - Protects against unauthorized access to data - Minimizes data duplication to increase user confidence in the data
Reduced cost and complexity	- Reduces total cost of computing through consolidation/standardization - Reduces complexity through a simple, flexible architecture - Reduces administration cost up to 50%
Highest scalability, availability and performance	- Applies the industry's highest availability to mission critical business information - Quickly implements cost effective disaster recovery - Scales up to more users, out to more functionality and data - Drastically improves query response times up to 1000X
Rapid deployment and expansion	- Provides agility to align strategy with minimal expense and disruption to the business - Offers a cost effective enterprise solution that can grow incrementally with growing business requirements - Flexible deployment options to accommodate unique business needs

End-to-end Business Analytics and Data Warehousing solution on a single platform
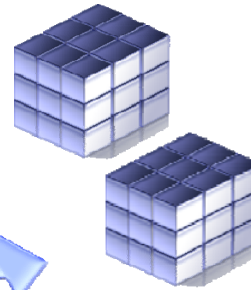
IBM System z

InfoSphere warehouse
Smart Analytics Optimizer

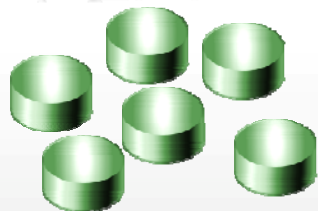**Cognos BI**
SPSS Predictive Analytics

Data Warehouse

Cubing Services

Powercube Services

DB2 for z/OS VUE
DB2 Utilities Suite

ELT

Operational Source Systems - Structured & Unstructured Data

Flexible deployment options
Smart Analytics System 9600, Cloud Computing, IBM Services

IBM Cognos Business Intelligence for Linux on System z
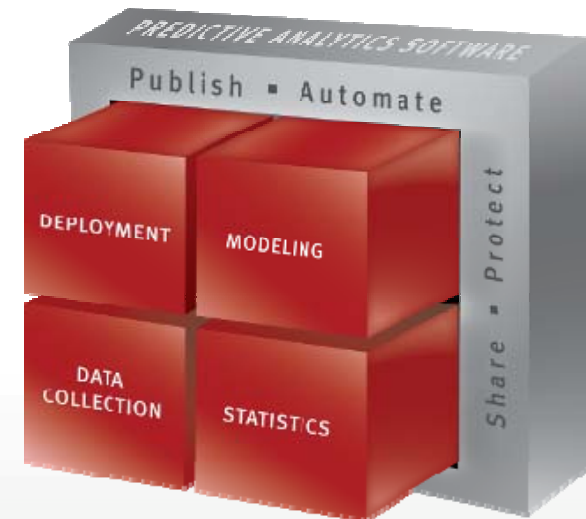
Business Analytics

- **Full range of BI capabilities**
  - Query, reporting, analysis, dashboarding, real-time monitoring

- **Delivers information where, when and how it is needed**
  - Self-service reporting and analysis
  - Automated delivery of information in context
  - Author once, consume anywhere

- **Purpose-built SOA platform that fits client environments and scales easily**
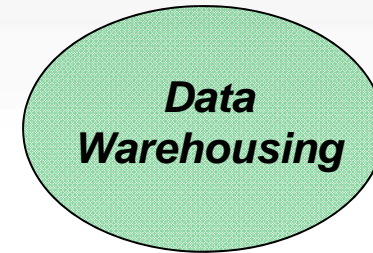
IBM SPSS for Linux on System z

Business
Analytics

- **Full breadth of predictive analytics**

  – Data collection, statistics, data mining,
    predictive modeling, deployment services

- **Putting prediction in hands of the business**

  – Decision Management

- **Driving better business outcomes**

  – Attract and retain more profitable customers

  – Detect and prevent fraud

  – Improve resource allocation

IBM Data Warehousing for System z

Data Warehousing
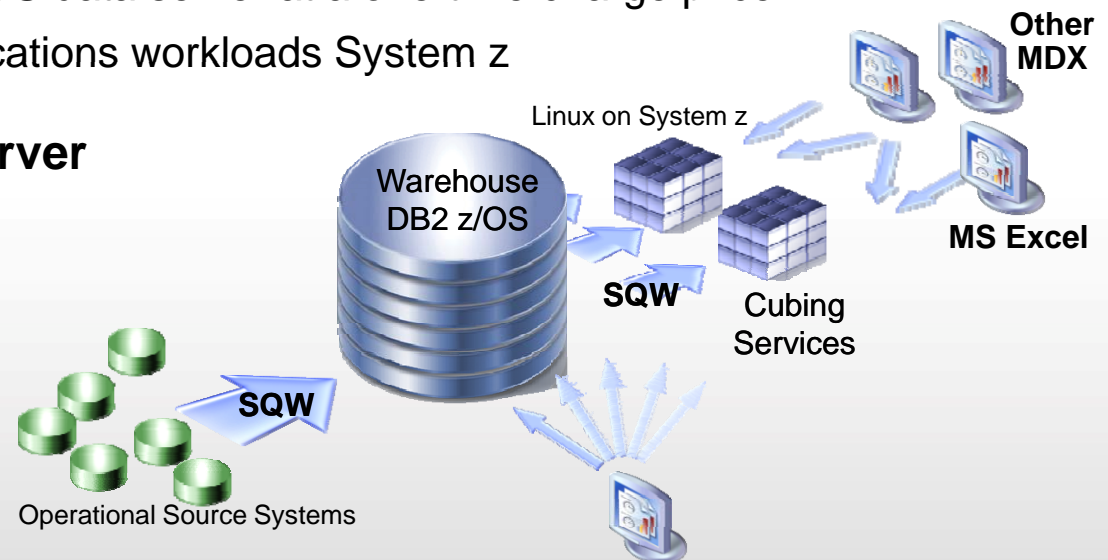
IBM InfoSphere Warehouse

- Adds core DW and analytics capability to DB2 for z/OS
- Advanced physical database modeling and design
- In-database data movement and manipulation capabilities
- Multidimensional reporting and analysis of data with Cubing Services

IBM DB2 Value Unit Edition

- Offers the same robust DB2 for z/OS data server at a one-time charge price
- Available for eligible net new applications workloads System z

IBM InfoSphere Information Server

- Profiles, cleanses and integrates information from heterogeneous sources to drive greater business insight faster, at lower cost

Other MDX

Linux on System z

Warehouse DB2 z/OS

SQW

MS Excel

SQW

Cubing Services

Operational Source Systems

IW Design Studio

IBM Performance 2011

IBM Smart Analytics Optimizer
Capitalizing on the best of relational and columnar databases

Data Warehousing

What is it?

The IBM Smart Analytics Optimizer is a workload optimized, appliance-like add-on that enables the integration of business insights into operational processes to drive winning strategies. It accelerates select queries, with unprecedented response times.
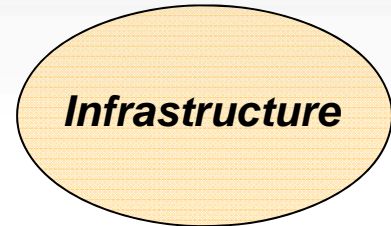

How is it different?

- **Performance:** Unprecedented response times to enable 'train of thought' analyses frequently blocked by poor query performance.

- **Integration:** Connects to DB2 through deep integration, providing transparency to all applications.

- **Self-managed workloads:** queries are executed in the most efficient way

- **Transparency:** applications connected to DB2 are entirely unaware of the accelerator

- **Simplified administration:** appliance-like hands-free operations, eliminating many database tuning tasks

Breakthrough technology enabling new opportunities

IBM zEnterprise System
A new dimension in computing

Infrastructure

Unified management for a smarter system: zEnterprise Unified Resource Manager

- *Unifies management of resources, extending IBM System z® qualities of service end-to-end across workloads*
- *Provides platform, hardware and workload management*

The world's fastest and most scalable system: IBM zEnterprise™ 196 (z196)

- *Ideal for large scale data and transaction serving and mission critical applications*
- *Most efficient platform for large-scale Linux® consolidation*
- *Leveraging a large portfolio of z/OS® and Linux on System z applications*
- *Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)*

Scale out to a trillion instructions per second: IBM zEnterprise BladeCenter® Extension (zBX)

- *Selected IBM POWER7® blades and IBM System x® Blades[1] for tens of thousands of AIX® and Linux applications*
- *High performance optimizers and appliances to accelerate time to insight and reduce cost*
- *Dedicated high performance private network*

z/OS
z/VM
z/VSE
z/TPF
Linux

HMC

AIX
Linux

1 All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

IBM zEnterprise 196: The heart of the new machine

The industry's fastest and most scalable enterprise system

Infrastructure

5.2 GHz superscalar processor

Up to 96 Cores, 1 to 80 configurable for client use

Up to 3 TB RAIM memory

Over 100 new instructions

1.5MB L2 Cache per core, 24MB L3 Cache per processor chip

Cryptographic enhancements

Optional water cooling

Dramatic improvement over IBM System z10™:

For Linux

Up to **60%**

Improvement in performance

for **35%**

Less cost

For z/OS

Up to **40%**

Improvement in performance

with **60%**

More capacity

- With no increase in energy consumption
- And even better performance with new software

IBM Performance 2011

Flexible deployment options
IBM Smart Analytics system

Analytics software

- Business intelligence
- Cubing services
- Text analytics and data mining

Powerful data warehouse

- Warehousing platform
- Advanced workload management
- System automation

Hardware and services

- Flexible server platform options
- Modular storage capacity
- Build, deploy, health check and premium support services

IBM Smart Analytics system
What smart organizations want and need for faster results

EVERYLYTHING you need for Business Analytics –
not *just* a data warehouse appliance…

Analytics software

- Business Intelligence
- Cubing services
- Text analytics and data mining

Powerful data warehouse

- Warehousing platform
- Advanced workload management
- System automation

Hardware and Services

- Flexible server platform options
- Modular storage capacity
- Build, deploy, health check and Premium Support Services

Transforming information into business insight

3x Faster

*Workload optimized analytics
  run business intelligence 3x faster*

50% less floor space

Data compression reduces storage cost

World-record performance

IBM Smart Analytics system offerings deliver analytics value without forcing migration
Faster time to value, faster business results

Meeting clients where their information is…

9600

Based on System z

…Advanced query/workload management

…Database designed and optimized for system

…Disk controller, optimized to reduce data latency

7700 New

Based on POWER7 Servers

…Scaling to hundreds of terabytes of data

…Standard Solid State Drive – reducing data latency

…Extract insights from untapped information

1050 New

Based on System x

…Cost-effective solutions for analytics and report

…Compact, appliance-like single analytics solutio

…Available for mid-market

2050 New

Based on System x

…Cost-effective solutions for analytics and BI

…Balance of power and simplicity out of the box

…Available for mid-market

5600

Based on System x

…Designed for business analytics workloads

…Growth flexibility at exceptional price-to-performance

…Optional Solid State Drive – reducing data latency

IBM Smart Analytics Cloud
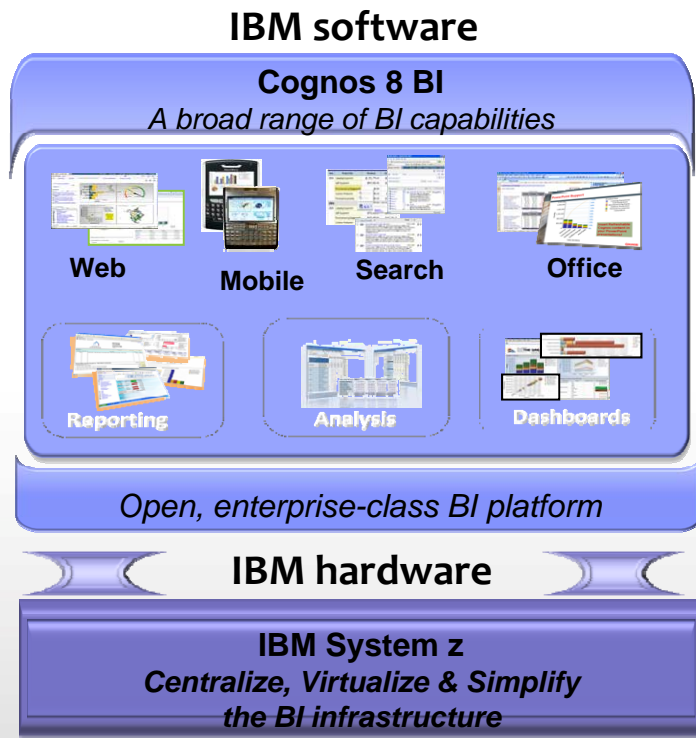
	Creates …	That delivers …
Smart Analytics Cloud	A private cloud within the enterprise	A solution for delivering business intelligence to the entire organization

The solution components:

Flexible Deployment Options

IBM software

Cognos 8 BI
A broad range of BI capabilities

Web   Mobile   Search   Office

Reporting   Analysis   Dashboards

Open, enterprise-class BI platform

IBM hardware

IBM System z
Centralize, Virtualize & Simplify the BI infrastructure

IBM Services:

- **Phase 1**: Create awareness of, a strategy for and a governance foundation for BI across the organization

- **Phase 2**: Preparation for the Smart Analytics Cloud

- **Phase 3:** Install the base cloud, integrate into the corporate enterprise and test the cloud use cases

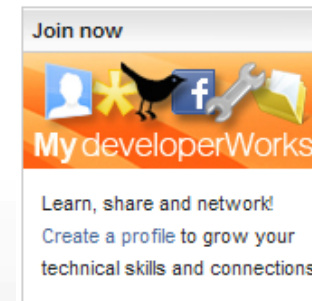- **Phase 4:** Educate the enterprise for on-going success with the Smart Analytics Cloud

IBM Professional Services
Accelerated success

- **New "how-to" books deliver expertise**
  - BI Strategy Book
  - BI on Cloud
  - BI Redbook
- **Workshops to help shape strategy**
  - Champion workshops
  - Business Analytics experience
- **Services & Training**
  - Proven practice workshops, learning assessment and user adoption services
  - Broader portfolio of self-paced training options
- **Growth in communities**
  - Innovation Center
  - IBM developerWorks, C^3 Blog
  - Twitter, Facebook and Linked-in

Miami-Dade County
Selects IBM System z platform to expand their IBM Cognos 8 BI enterprise infrastructure

"

*…We are now **able to expand the usage of our Business Intelligence reporting**. By the end of 2010, we will have **users from over 42 County departments with over 1500 users creating and consuming reports with stable environments on System z.***

"

—Jaci Newmark, Project Lead, Enterprise Business Intelligence Architecture,

Miami-Dade County

✓**11 days to go from distributed to System z deployment model**

✓**Consolidated multiple BI deployments onto a single platform**

✓**Consolidate multiple, disparate data sources onto a single platform**

✓**Ensured 99.999% availability & complete disaster recovery plan**

University of North Carolina Health Care
Deploys a hybrid data warehouse solution combining the strengths of InfoSphere and DB2 software on System z and System p platforms

" *With the deployment of the Carolina Data Warehouse for Health, we have been able to <u>increase the timeliness of the information</u> available to our researchers, staff and physicians," "Because the system can also support general queries that relate to the diagnosis and treatment of a wide array of patients, we are now able to <u>make more intelligent decisions</u> leading to improved patient care."* "

Donald Spencer, MD, MBA,
Associate Director of Medical Informatics, UNC Health Care

Numius' Client Success Story
Uses DB2 for z/OS and Cognos 8 BI for Linux on System z

✓Produced 400 reports in the same time as 1 report in the old environment

   ✓400 reports ran in 45 minutes as opposed to 1 report in 46 minutes

   ✓Easily supported 130 concurrent users, as opposed to 8 on the source environment

✓No reports timed out, not one user was rejected. Even when the system slowed down, it remained stable

✓The client would not need to redesign his application to achieve his objective of reaching out to a large community

✓This solution helps improve waste control in Belgium by informing producers, consumers and authorities faster and more thoroughly

Jo Coutuer, Senior Business Intelligence Architect, Numius

IBM Cognos BI Total Cost of Ownership Study

Explores the TCO of choosing an x86 based infrastructure vs. System z for a Cognos 8 BI deployment using proven IBM TCO measurement methodology

✓Average savings over 5 years of with a System z deployment: 36%

✓Reduction in high availability costs with System z: 50%

✓System administration savings alone pay for System z investment

Blue Insight,
The IBM internal Private Analytics Cloud

" *Our commitment to informed decision making led us to consider private cloud delivery of Cognos via System z, which is the enabling foundation that makes possible* **+$25M savings over 5 years**. "

— *IBM CIO Office*

✓Consolidated 115 multi-product, departmental BI deployments to 1 Cognos 8 BI on System z

✓Support for our global workforce (2009: 72K, 2010: 130K, 2011: 200K)

✓Realizing value from +60 data sources across IBM

✓Projected $25M in savings (60% Consolidation, 35% Standardization, 5% Automation

Industry analysts agree

*"In short, I believe that **mainframes are the most modern platforms available** in the commercial marketplace today."*

Source: Clabby Analytics, Migrate From Mainframe? To What?, Joe Clabby, June 24, 2010

*"Companies that buy into outdated hype about its complexity fail to realize the potential **performance gains associated with mainframe use."***

Source: Aberdeen Group, The Fable of Mainframe Complexity, Max Gladstone,

May 5, 2010

*"Clients wishing to **evolve** their legacy application portfolios **into more-modern technologies and architectures can do so on the IBM mainframe**."*

Source: Gartner, Mainframe Modernization: When the Platform Is the Solution,

Dale Vecchio, 8 January 2010

*"The mainframe has long been recognized as a platform with an **enviable reputation for reliability, security, and efficiency**, Ovum considers that IBM by exploiting these characteristics has produced the next generation of data centre and cloud centre management platforms."*

Source: Roy Illsley, Principal Analyst, Ovum

Typical utilization for servers
Windows: 5-10%   Unix: 10-20%   **System z: 85-100%**

System z can help **reduce** your floor space
up to **75%-85%** in the data center

Thank You

For additional information
ibm.com/software/data/businessintelligence/systemz/

System z can lower your total cost of ownership, requiring **as little as 30%**
of the power of a distributed server farm running equivalent workloads

The cost of storage is typically **three times more** in
distributed environments

IBM product portfolio
Business Analytics and Data Warehousing on System z

Business Intelligence

- Cognos 10 Business Intelligence

Predictive Analytics

- SPSS Statistics 19
- SPSS Modeler
- SPSS Collaboration and Deployment Services

Data Warehousing

- DB2 for z/OS VUE (Value Unit Edition)
- InfoSphere Warehouse
- Smart Analytics Optimizer

*Solution Edition for Data Warehousing (pricing option)

Data Integration and Movement

- InfoSphere Information Server
- InfoSphere Change Data Capture
- InfoSphere Replication
- InfoSphere Federation
- Global Name Recognition

Master Data Management

- InfoSphere Master Data Management Server

InfoSphere Industry Models

- Banking, Insurance, Retail. Telco, Heath Payor, Heath Provider, Financial Markets

Flexible Deployment Options

- IBM Smart Analytics System 9600
- IBM Smart Analytics Cloud
- IBM Services

Information protection and compliance on the System z platform

- Reduce number of security intrusion points by reducing the complexity of the architecture

- Secure data with cryptography, encryption, user identification, authentication at all levels

- Apply security capabilities rated the highest by government agencies

- Provide granular protection with column access control at the cell level

- Apply administrative authorities without allowing data access

- Use legendary built-in security and trace features for end-to-end auditing capabilities

Transform your data into trusted, strategic assets

Business Analytics software services

Maximize your software investment and drive better business outcomes with Business Analytics Software Services.

- Take the right training at the right time:
  ibm.com/cognos/training

- Engage a technical product expert:
  ibm.com/cognos/consulting

- Find knowledge and resources at your finger tips
  ibm.com/cognos/customer center

Join our community!

@IBMCognos and @IBMSPSS on Twitter

- On the web:
  ibm.com/software/analytics/community