

Modernizing Your Data Warehouse Environment

Claudia Imhoff

Intelligent Solutions, Inc.

September 21, 2016

Key themes driving IBM's analytic strategy

Engaging

Breakthrough

Pervasive



*Address the Needs of the Business User,
Without Sacrificing Breadth of Capabilities*

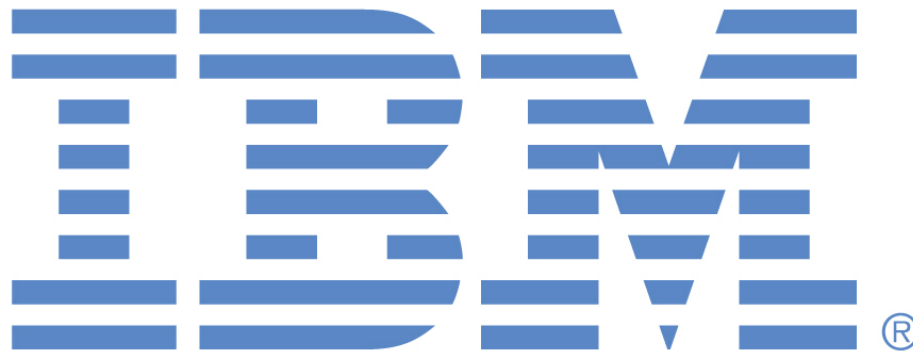


**Expanding the
Analytical Arsenal
to Address More
Data, More Use
Cases**



**Exploit New Ways
to Deliver
Intelligence At the
Point of Impact**

Sponsor



Speakers



Claudia Imhoff
President and Founder,
Intelligent Solutions, Inc.



Robert Routzahn
Program Director, Data
Warehouse and Hadoop
Marketing, IBM

Agenda

- Extending the Data Warehouse Architecture
- Use Cases for a Modern BI Environment



Next Generation BI



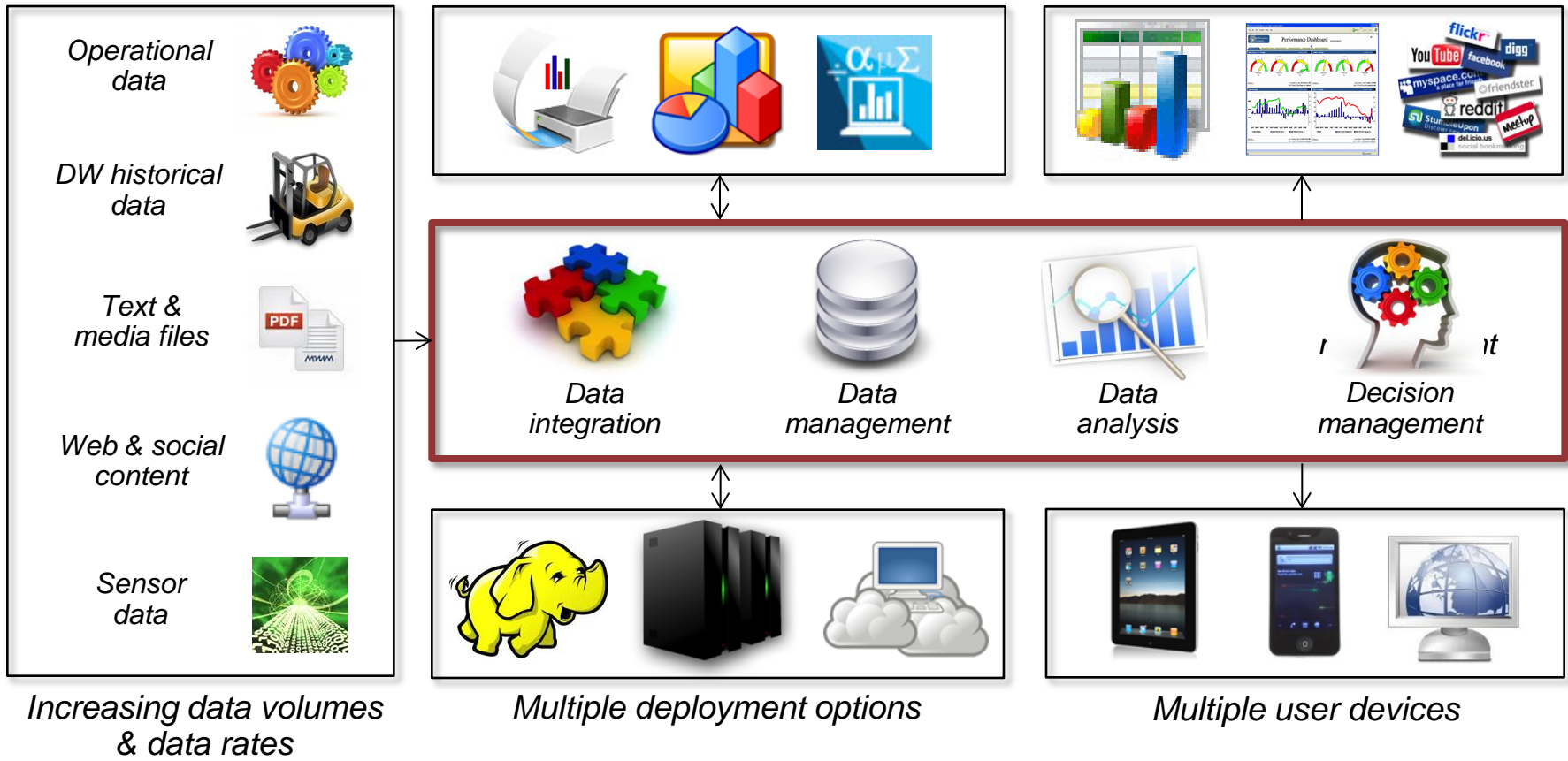
Based on a concept by Shree Dandekar of Dell

A Complex BI Environment

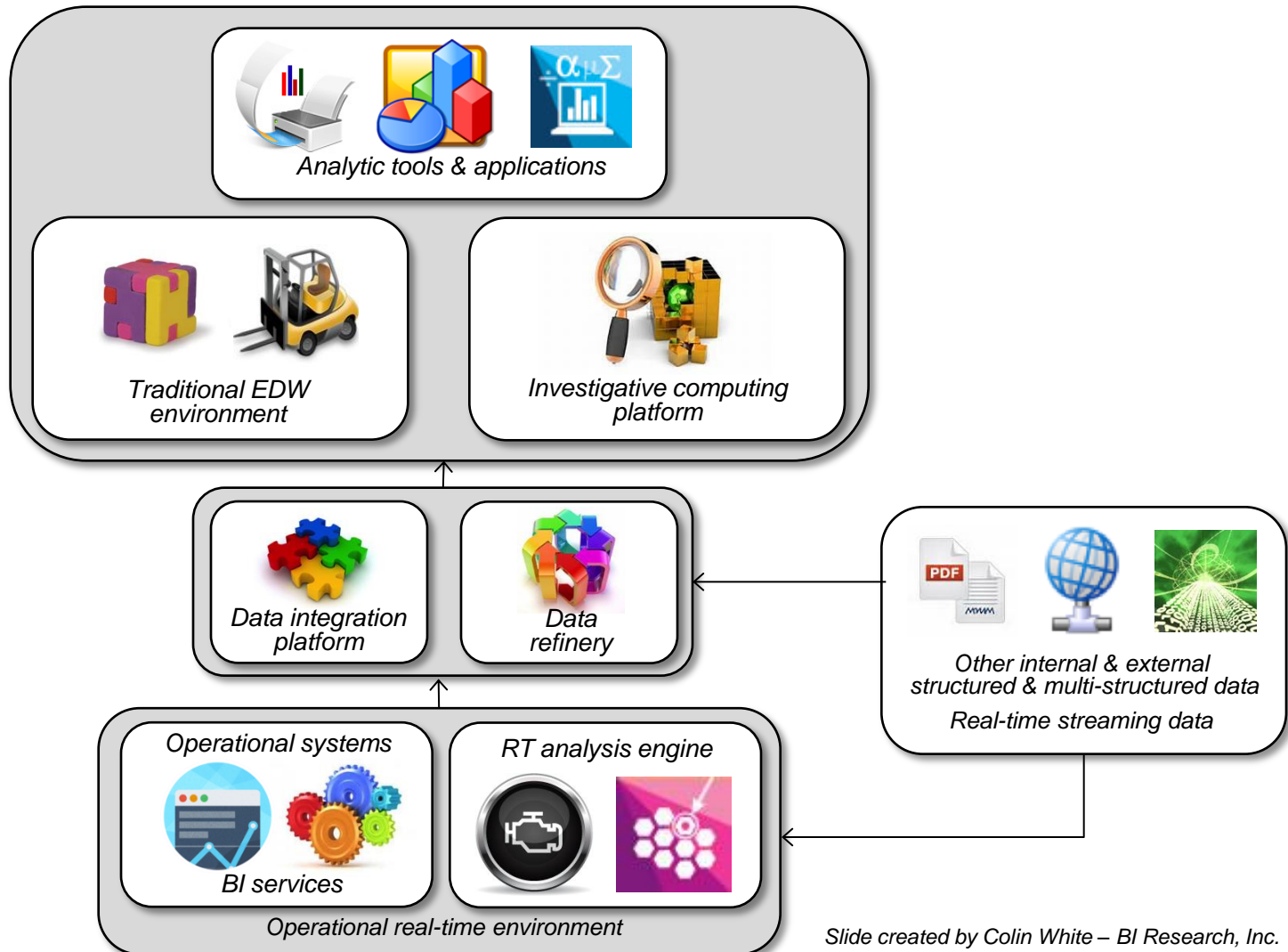
Multiple data sources

Sophisticated analytics
+ complex analytic workloads

Multiple output formats



The Extended Data Warehouse Architecture (XDW)



Slide created by Colin White – BI Research, Inc.



Agenda

- Extending the Data Warehouse Architecture
- ➔ ▪ Use Cases for a Modern BI Environment



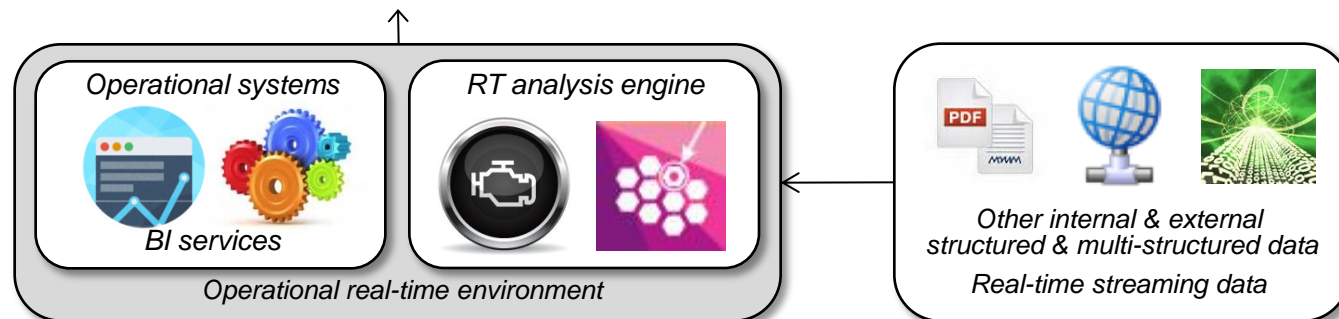
Operational Analytics Use Case

Embedded or callable BI services:

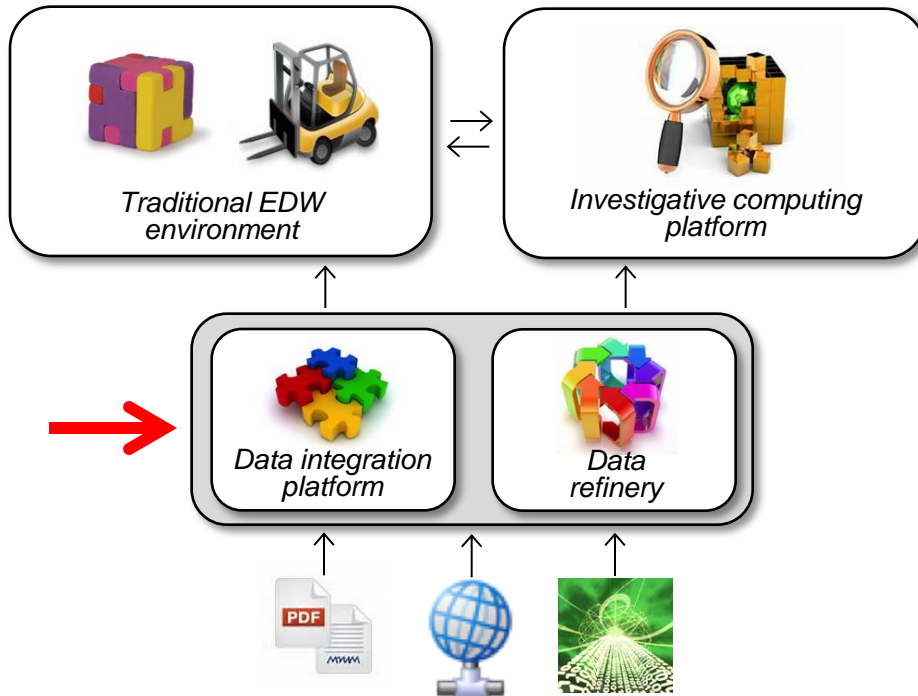
- Real-time fraud detection
- Real-time loan risk assessment
- Optimizing online promotions
- Location-based offers
- Contact center optimization
- Supply chain optimization

Real-time analysis engine:

- Traffic flow optimization
- Web event analysis
- Natural resource exploration analysis
- Stock trading analysis
- Risk analysis
- Correlation of unrelated data streams (e.g., weather effects on product sales)



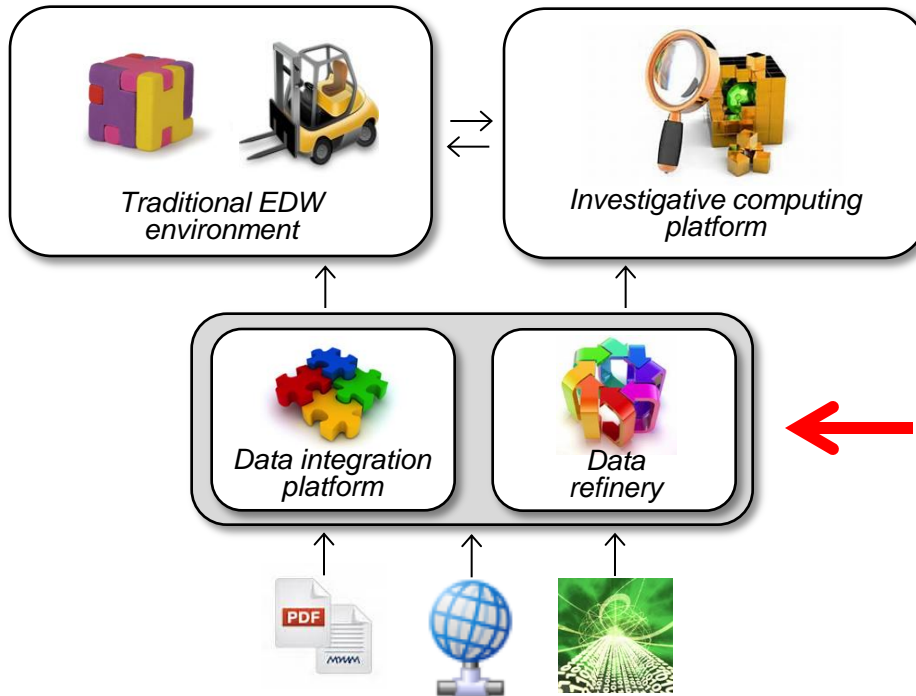
Data Provisioning Use Case: Data Integration



- Heavy lifting process of extracting, transforming to standard format and loading structured data – mostly batch
- Physically consolidates data into “trusted” EDW sets for analysis
- Invokes data quality processing where needed
- Employs low-cost hardware and software to enable large data volumes to be combined and stored
- Requires more formal governance policies to manage data security, privacy, quality, archiving and destruction



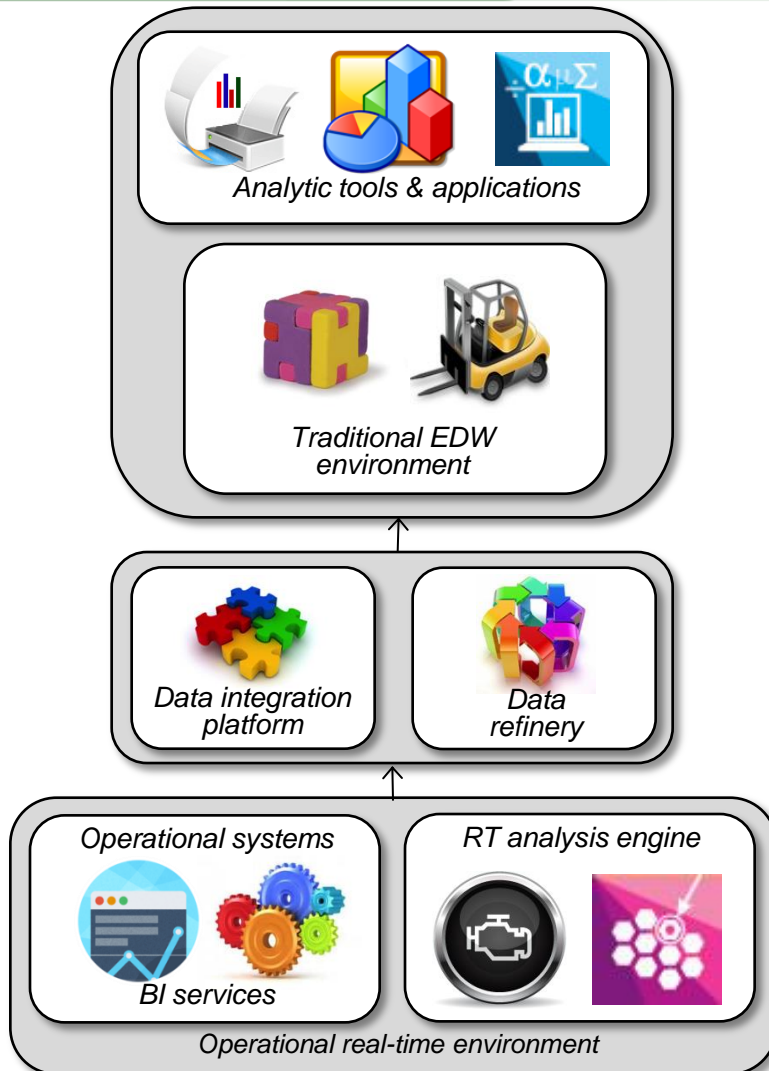
Data Provisioning Use Case: Data Refinery



- Ingests raw detailed structured and unstructured data in batch and/or real-time into a managed data store
- Distills data into useful business information and distributes the results to downstream systems
- May also directly analyze certain types of data
- Also employs low-cost hardware and software to enable large amounts of detailed data to be managed cost effectively
- Requires (flexible) governance policies to manage data security, privacy, quality, archiving and destruction



Traditional EDW Use Cases



Most BI environments today

- New technologies can be incorporated into EDW environment to improve performance, efficiency & reduce costs

Use cases

- Production reporting
- Historical comparisons
- Customer analysis (next best offer, segmentation, life-time value scores, churn analysis, etc.)
- KPI calculations
- Profitability analysis
- Forecasting



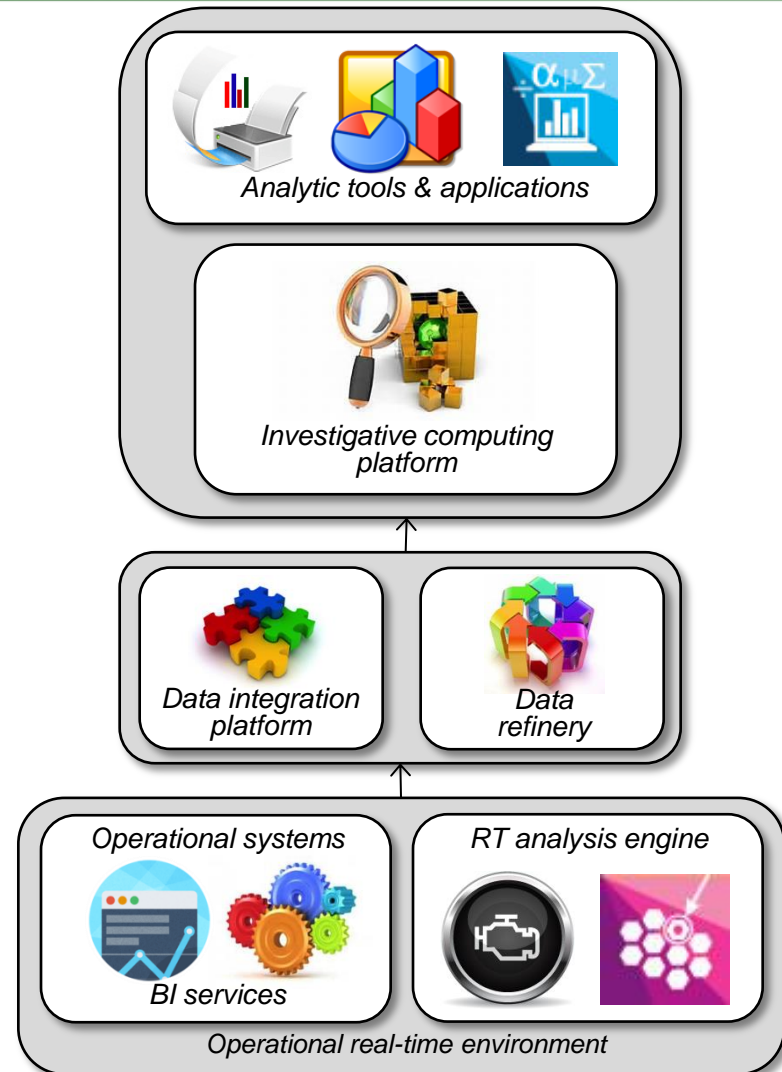
Investigative Computing Use Cases

New technologies used here include:

- Hadoop, in-memory computing, columnar storage, data compression, appliances, etc.

Use cases

- Data mining and predictive modeling for EDW and real-time environments
- Cause and effect analysis
- Data exploration (“Did this ever happen?” “How often?”)
- Pattern analysis
- General, unplanned investigations of data





Discussion

What You'll Need...



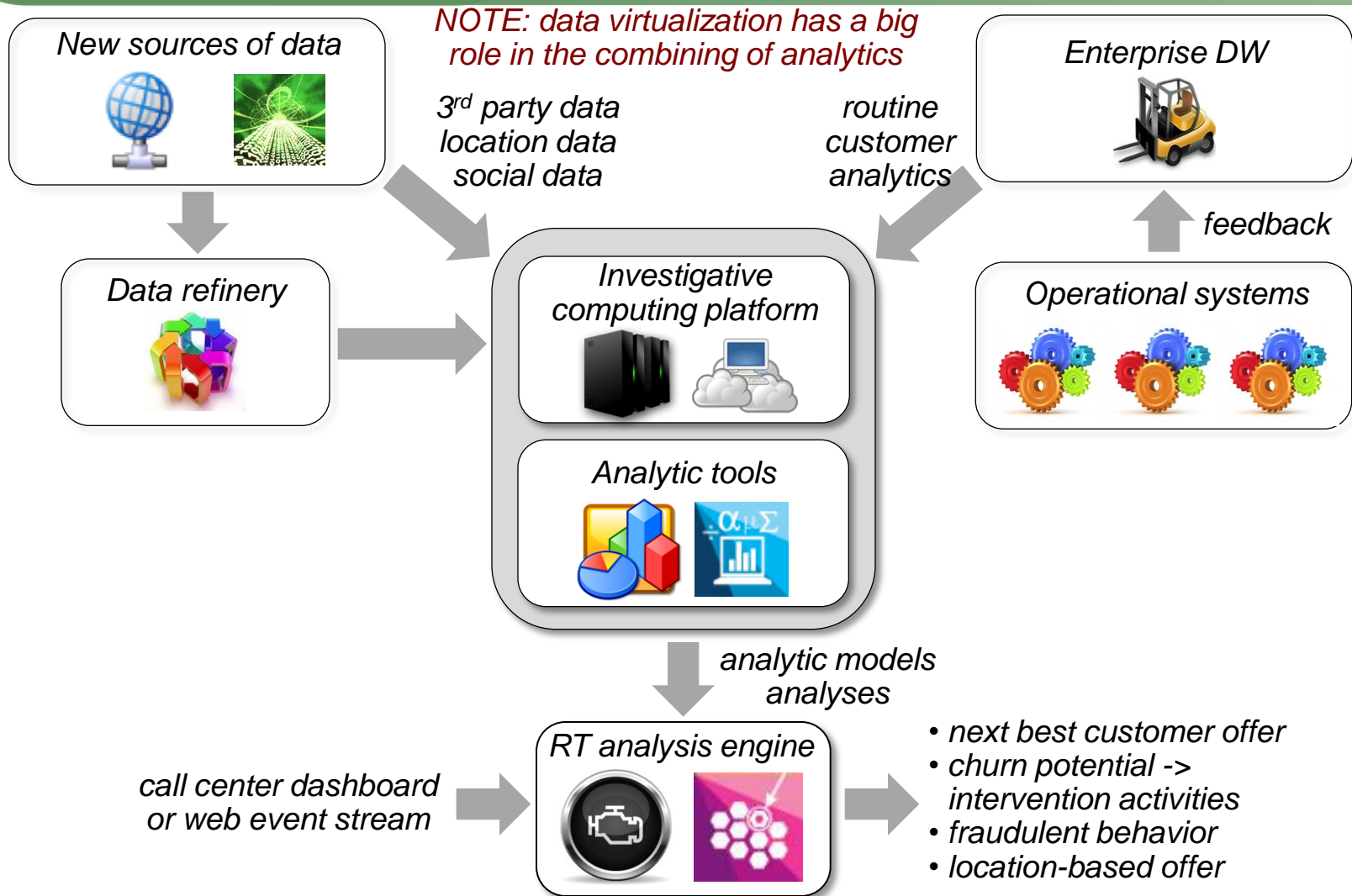


What You'll Need...

- Make analytics available to entire business population
 - Make analytics accessible, discoverable
 - Make analytics consumable, understandable
 - Make analytics actionable
- Types of analytics
 - Real-time analytics
 - Historical analytics
 - Actionable analytics



What You'll Need... Fully Integrated Analytics Environment





What You'll Need... Data Interpreters

- Can describe analytical results in terms that the CEO and executive reports can easily understand
 - Part of data science job or another skill set needed?
- Develop story telling ability
 - What does this mean to the company?
 - What does it mean to your products, campaigns, sales?
 - What does it mean to the market place?
 - How will it impact the bottom line?
 - What can the company do?
- These people become the trusted advisors to the C suite!





What You'll Need... An Analytics Program

- Determine objectives & goals for analytics first
- Perform an audit of maturity of internal capabilities like
 - Ability to measure performance metrics, establishment of measurable goals, success in securing budget/resource, ability to create predictive models, quality of data, etc.
- Pick appropriate technologies based on current resources, technical capabilities and priorities of analysis
 - Some BI tools lend themselves to specific real-time analysis (e.g., reduction of fraud, risk or churn)
 - Others are better suited for long-range issues (e.g., new market entrance, customer loyalty and lifecycle management)





What You'll Need... Consumable Analytics

- BI must be more easily understood and consumed!
 - Data visualization
 - Easy user interface
 - Match technology to users' skills
 - Business glossary
 - Data lineage tracking
- Data science is not an ivory tower
 - Speak the language of the business – or you will be overshadowed by “data interpreters”
 - Maintain good working relationship with IT – you'll need them
 - Don't get overly enamored with analytics to the point you forget what the business problem is





What You'll Need... Analytics-Savvy Business

- Education throughout the enterprise is mandatory
 - For all employees!
 - This is **NOT** the same as training on BI tools
 - Education includes how to think analytically/critically, how to interpret results, who to ask for help
 - Advanced BI analysts (business analysts, data scientists, etc.) must evangelize value of analytics
- Many business people don't know where to get training
 - May be embarrassed to ask for it or intimidated by it
 - May not even know what BI resources are available or what data is available



From www.business-help.org





What You'll Need... Help from IT

- Governance still has an important role
 - Determine whether data used is “governed” (e.g., in a data warehouse or MDM environment) or “ungoverned” (e.g., individual spreadsheets, external source)
- IT must have monitoring and oversight capability
 - BI/DW builder needs to administer and manage infrastructure
 - Must be able to monitor the environment
 - Must have oversight into the environment
 - Manage hybrid (cloud and on-premises) deployments





Wrap Up

Need fast time to value to gain business benefits from big data technologies

- *Impractical to use traditional enterprise DW approach for all solutions*
- *Need to extend the existing DW environment to support new capabilities*

Need high performance solutions for supporting new BI analytic workloads

- *One-size fits all data management is no longer viable*
- *Match technologies and costs to business needs and analytic workloads*

Need to modify data modeling and integration approaches

- *Need to support new data types, sources and platforms, and new approaches such as data blending, schema-on-read and data refineries*


Need to modify data governance approaches

- *No longer practical to rigidly control and govern all forms of data – use different levels of governance based on security, compliance, quality and retention needs*



Resources

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August/2016

Dear CIO – Are You Creating a Data and Analytics Environment that Enables Business Innovation?

Claudia Imhoff, Ph.D.

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How CIOs Can Ensure Analytical Success with Open Source Technologies.


Claudia Imhoff, Ph.D.

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Claudia Imhoff, Ph.D.

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On the Ground, in the Cloud, or Both: What You Should Know about Data and Analytics in Hybrid Environments.

Claudia Imhoff, Ph.D.

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For Information and to register for
IBM World of Watson 2016
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Thank You



Questions?



Contact Information

If you have further questions or comments:

Claudia Imhoff, Intelligent Solutions

claudia@bbbt.us

Robert P. Routzahn, IBM

robert.p.routzahn@us.ibm.com