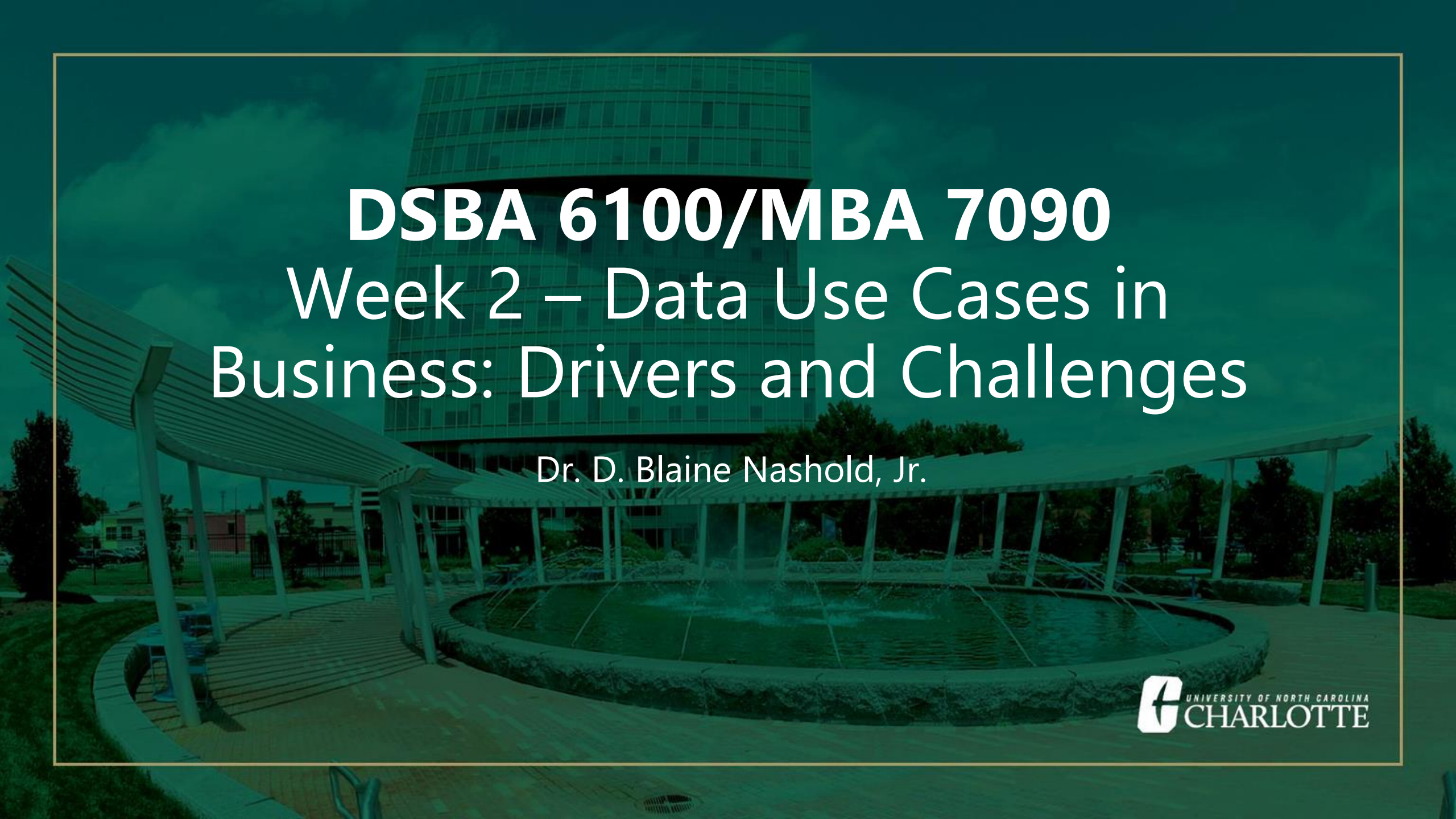

DSBA 6100/MBA 7090

Week 2 – Data Use Cases in Business: Drivers and Challenges

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Discussion Outline

- Intro to Data continues…
  - What is “Analytics”?
  - Big Data Ecosystem
- Data in Big Companies
  - Opportunities with data
  - The technical building blocks
  - Organizational structures & skills
  - Need for data’s value proposition

Big Data in Big Companies – Summary of Article by Davenport & Dyche

Key topics/questions from the article “Big Data in Big Companies”

- How “new” is data for big companies?
- Opportunities with data
- The “big data stack”
- Organizational structures and skills
- Integrating analytics environments
- Data’s value proposition

How do large companies view data?

- Viewed as a continuing evolution towards more data
- Large firms impressed more by
  - Lack of structure in data
  - Opportunities presented by new forms of data
  - Low cost of technologies to store and analyze data
- Firms already used to handling large volumes of data are excited about new data sources that can provide a more complete picture of customers and operations
- Some firms are adding structured data from sensor and other devices to their existing structured data to optimize business operations
  - UPS, GE

Opportunities with Data

- Major objectives of companies implementing data analytics
  - Cost reduction from data tools
  - Time reduction
  - Develop new data-based offerings
  - Support internal business decisions
- Choosing the objective has implications for strategy, process, and outcome
- Most companies focus on one or two objectives

Opportunities with Data

- Cost reduction from data tools
  - Adopting data tools for data storage and processing is a major driver of cost reductions
  - Most data platforms are open source, cheaper and can easily scale to large volumes & variety
  - A large US bank's use of Hadoop clusters to achieve an order of magnitude in savings over a traditional data warehouse
  - The challenge is to have reliability & security of the new data platforms like traditional computing platforms
  - Data tools used to reduce costs
    - UPS optimizes package delivery routes and saves fuel
    - International financial services firm uses Hadoop clusters
    - GroupM centralized data services for its 120 offices

Opportunities with Data

- Time reduction from data tools
  - Moving analytics modeling from traditional IT to distributed IT systems can save time
  - Macy's merchandise price optimization application reduced cycle time for complex analytical calculations from days to minutes or seconds
  - It also allowed Macy's to run more models with more data
  - Ceasars Entertainment used data tools to respond in real time for customer marketing and service

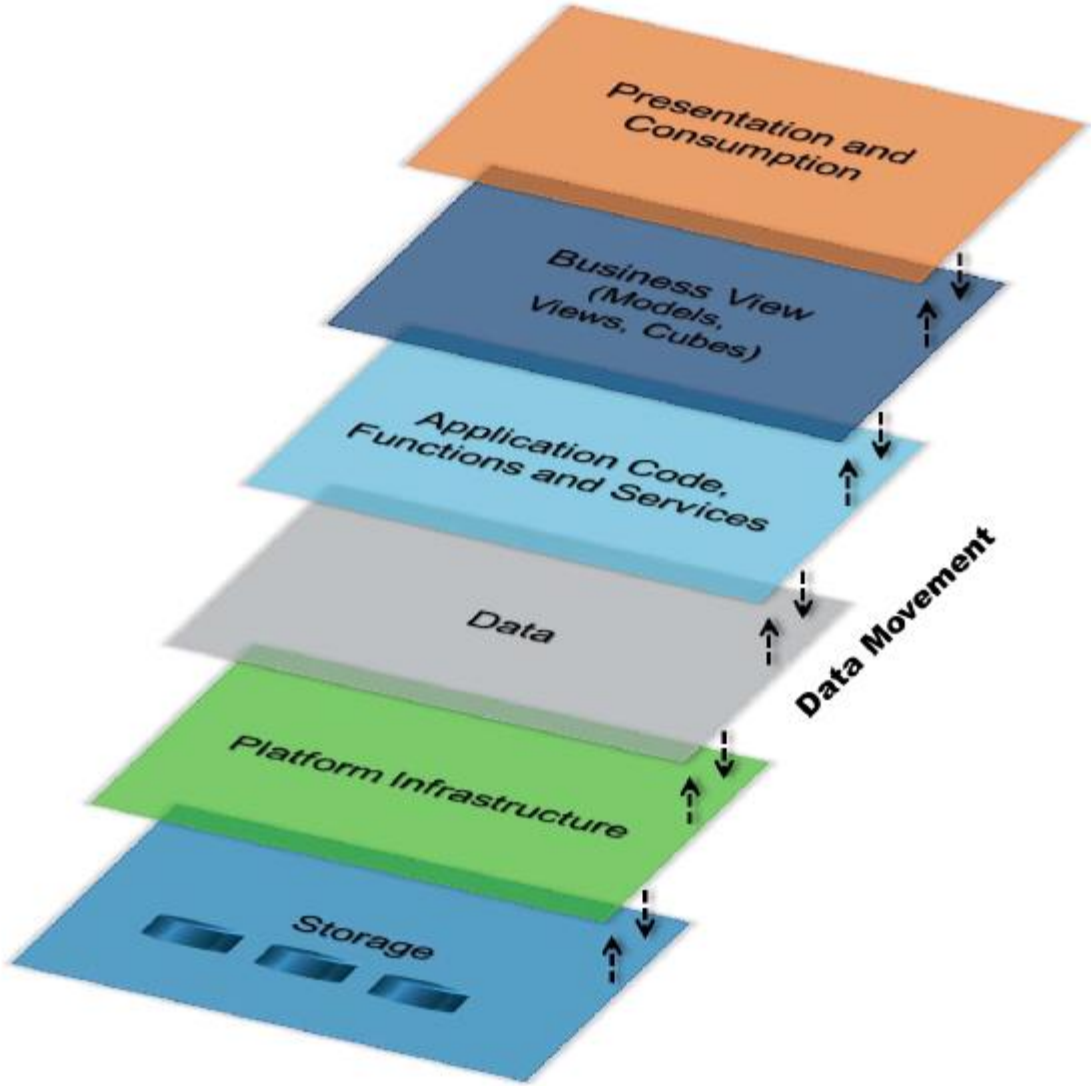
Opportunities with Data

- Developing new offerings
  - Businesses that traditionally collect a lot of data can build products and services based on the data
  - Amazon and Google are classic examples for recommendations
  - LinkedIn's People You May Know (PYMK) employs multifactor analysis to identify possible new connections
  - Other examples?

Opportunities with Data

- Supporting internal business decisions
  - Big banks combine multi-channel data to make better decisions on customers
  - United Healthcare's processing of customer calls using text analytics to identify customer satisfaction/dissatisfaction
  - Other areas of data supported decisions are supply chain management, risk management, and pricing - why are these "big data" problems?
  - Fraud detection

Data Stack (Fig 1)



Organizational Structures and Skills

- Organizational structural accommodations
  - Most likely divisions to take up data are existing “analytics” or “IT architecture” or “IT innovation”
  - Most likely aligned with marketing or online business units
  - Having a close relationship with business units addressing data and IT units supporting them is likely to succeed
- Skills
  - Augmenting existing analytical staff with data scientists
  - Building teams to get access to all data skills rather than hunting for the data scientist unicorn
  - A key sought after skill is to explain data outcomes to executives – ability to tell a story with data

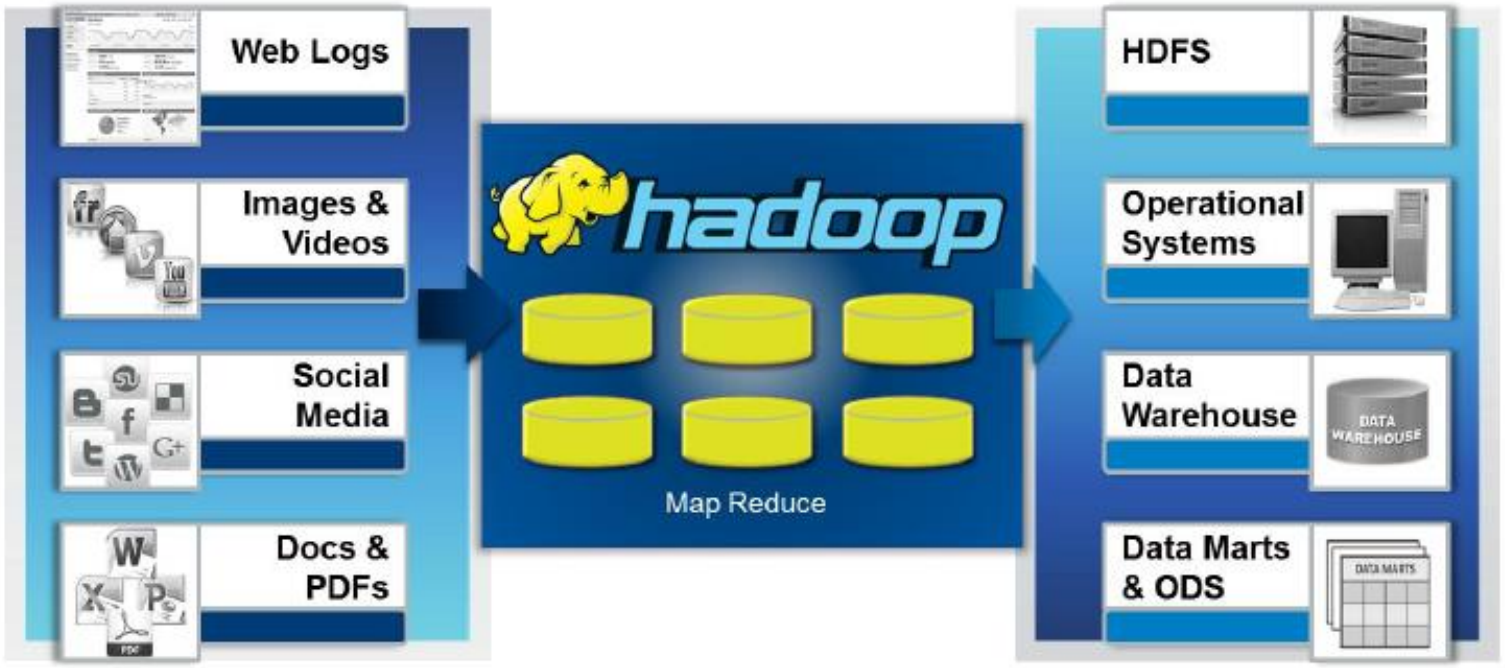
Organizational Structures and Skills

- Data-savvy leadership
  - Fact-based decision-making culture as opposed to gut feel decision making
  - Understanding how data will drive value for their companies and promoting data successes within the firms
    - Analytics pilot projects to demonstrate proof of concept
  - Learning from missteps and false-starts to better plan and deploy
  - Many have responsibilities in other functions in addition to data and analytics
    - E.g., Marketing managers or Risk managers

What structural and skills changes are being implemented in your company in response to data?

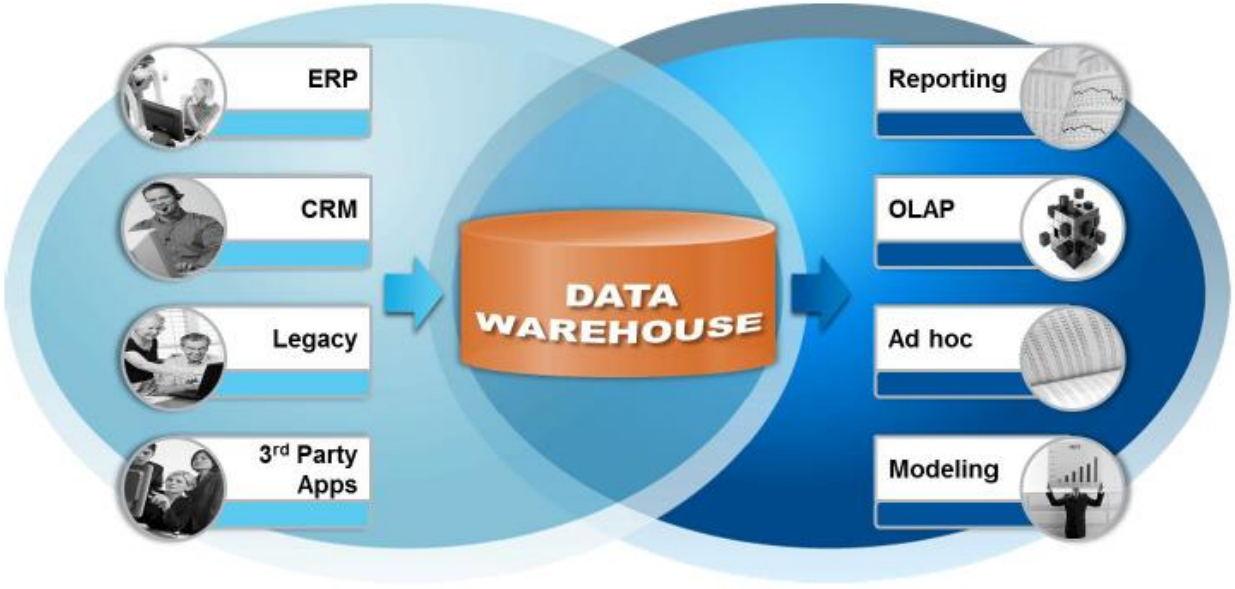
Integrating Analytics Environments

- The ideal data analytics platform (fig 3)



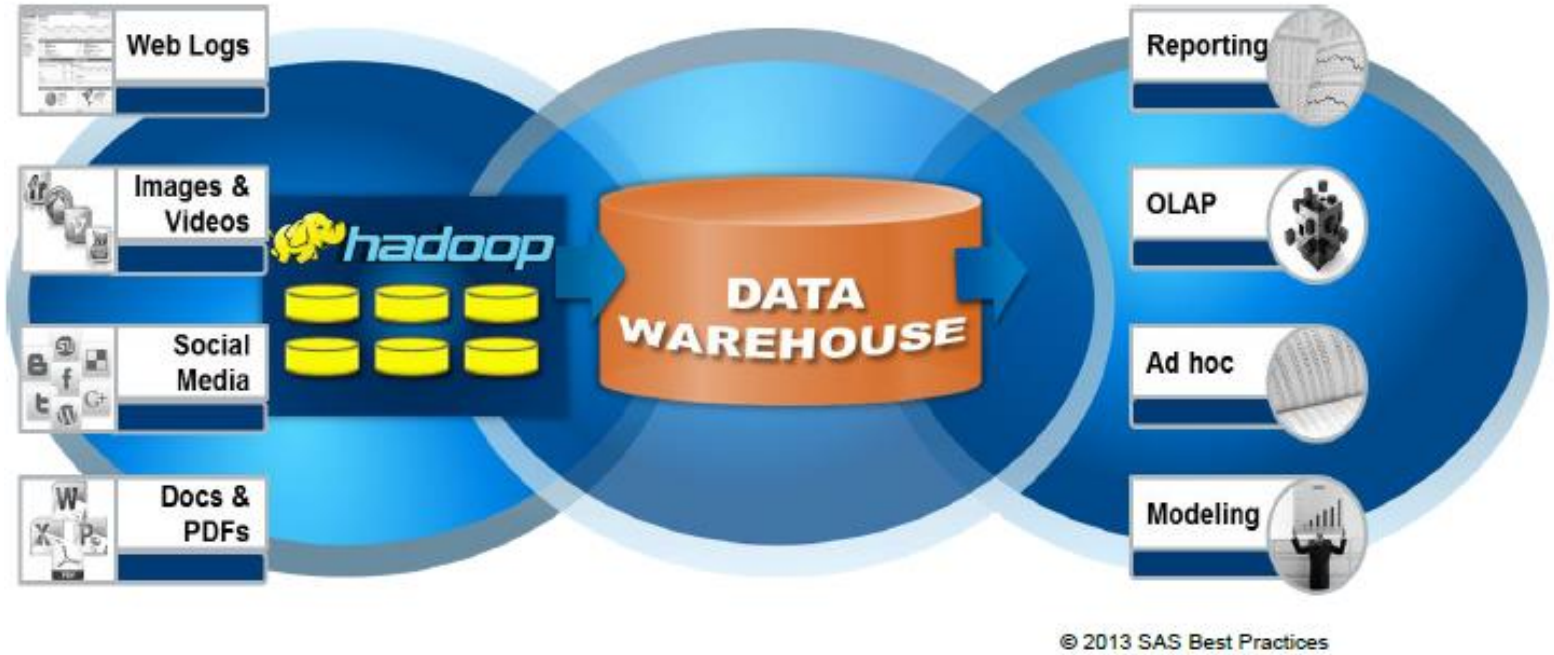
Integrating Analytics Environments

- The reality in most companies today
  - Operational systems serve as data sources for analytics
  - A data warehouse or collection of federated data marts house and integrate data for a range of analysis functions
  - A set of BI and analytics tools enable ad hoc queries, dashboards and data mining



Integrating Analytics Environments

- The integrated solution
  - Incumbent data warehouses continue to use legacy operational systems and store historical data for traditional BI and analytics
  - Data can flow from data warehouse to data environment
  - Hadoop can consolidate key data and populate data warehouse



Data's Value Proposition

- Data cannot be a mere academic exercise or an exploratory project, but needs to demonstrate value in production setting
- **What are the challenges of moving analytics project from prototype to production? Examples?**
- Return on Investment
  - Data early-adopters don't talk about cost savings directly
  - Rather, they emphasize the development of new business capabilities
  - They also emphasize doing things cheaper, faster, and better than before