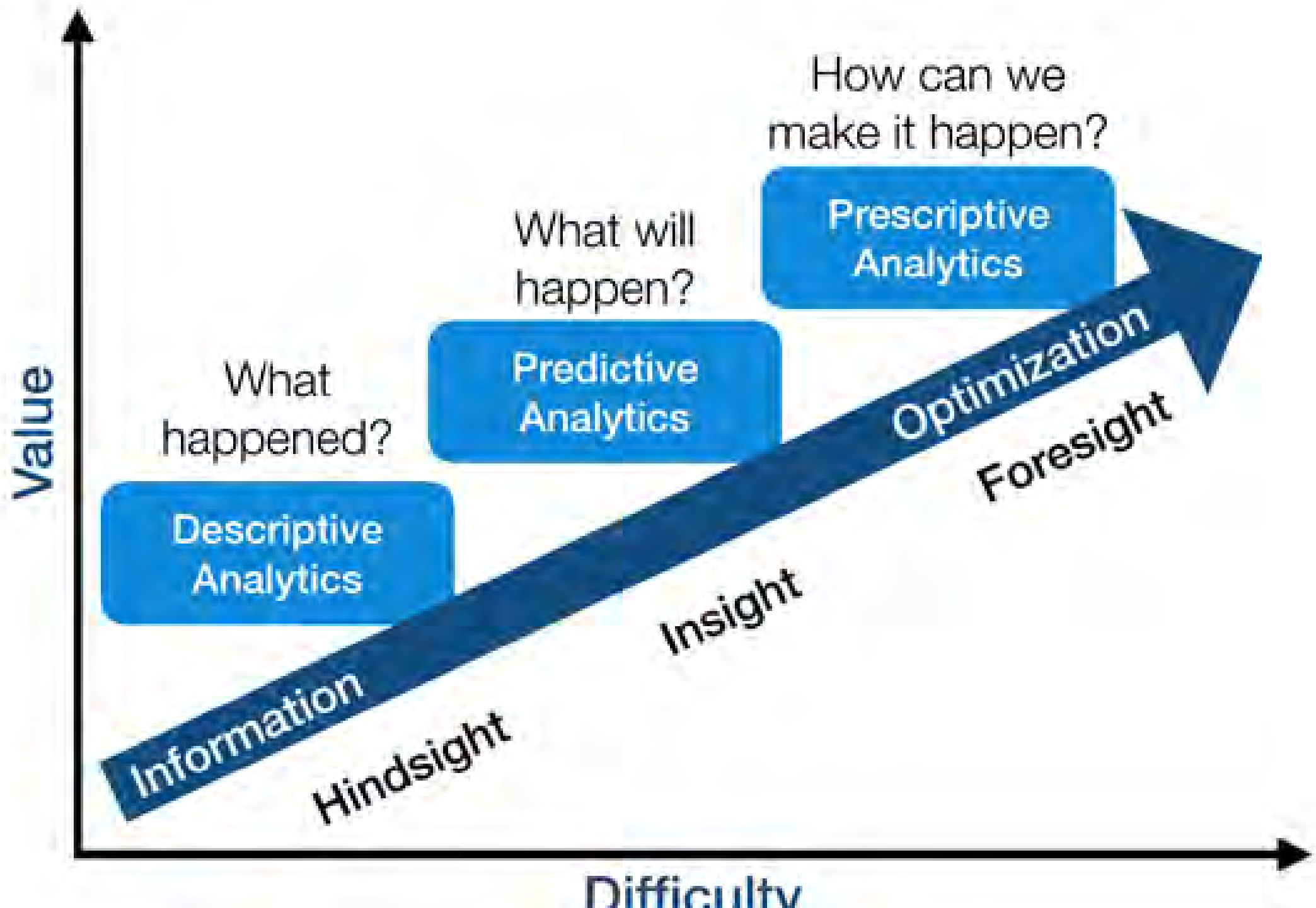# Digitizing Construction Information: A Global Directive

How do "Big Data Technologies", "Analytics" and "Machine Learning" help transform this new landscape and can it be used to influence the design decision process?

What We Believe: Market Changes

Data Explosion

2x

Every Two Years[1]

Cloud

$205B

Public Cloud Spend by 2020[2]

Self-Service

80%

Time Preparing Data[3]

Real-Time

82%

Adopting Real-Time[4]

1. Global data created and copied annually to reach 44 trillion gigabytes by 2020. Source: International Data Corporation, Inc., The Digital Universe of Opportunities: Rich Data and the Increasing Value of the Internet of Things, April 2014, sponsored by EMC Corporation.
2. Worldwide Public IT Cloud Services Revenue in 2020. Source: IDC, Worldwide and Regional Public IT Cloud Services Forecast, 2016-2020. December 2016.
3. "Data scientists spend up to 80% of their time preparing data for analysis." Source: Sagence Consulting, What is Really Missing in Big Data ROI? February 2015.
4. 82% of organizations are in some phase of adopting real-time analytics or planning to within the next 12 months. Source: IDC, CloudView Survey 2016: Real-Time Analytics Adoption to Grow Rapidly, Especially for IoT, March 2016.

MARKET CHANGES => INCREASED CHALLENGE
Shift Needed to Get Big Value From Big Data

Current State Pains

to

Future State Potential

- Opportunity cost - Data stuck in silos

- Efficiency and security risk - Shadow self-service

- Bad decisions – Multiple versions of truth

- Data quality challenges- Business/IT divide

- Unsustainable budget – Decentralized cost

- Poor user experience- Legacy EDW approach

- Untimely insight- Report factory <u>not</u> scalable

- Enable use cases – Put data in hands of business

- Governed self-service with security

- Fact based decisions - One version of the truth

- Continuous data quality impr.- Data is a team sport

- Optimized budget – Centralized efficiencies

- Best user experience- Scalable, performant DW

- Fast time to insight- Self service insights in scale

WHY CARE?

- Companies harnessing Data, Cloud & Insight
  - 2x Operating Margin
  - $100M Operating Income
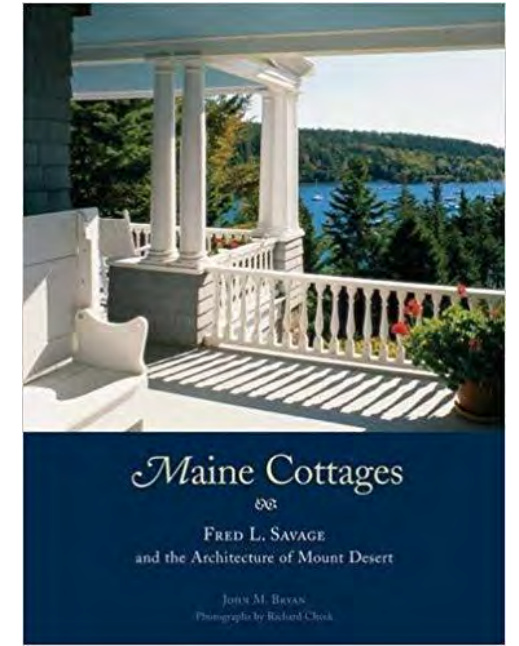
Financial services

Retail

Manufacturing

Consumer goods

Source: Keystone Strategy interviews Oct 2015 - Mar 2016

The journey of a thousand miles begins with a single step.

Lao Tzu

FOREST MANAGEMENT

Maine Cottages
FRED L. SAVAGE
and the Architecture of Mount Desert

BIG DATA => BIG VALUE SOLUTION ARCHITECTURE
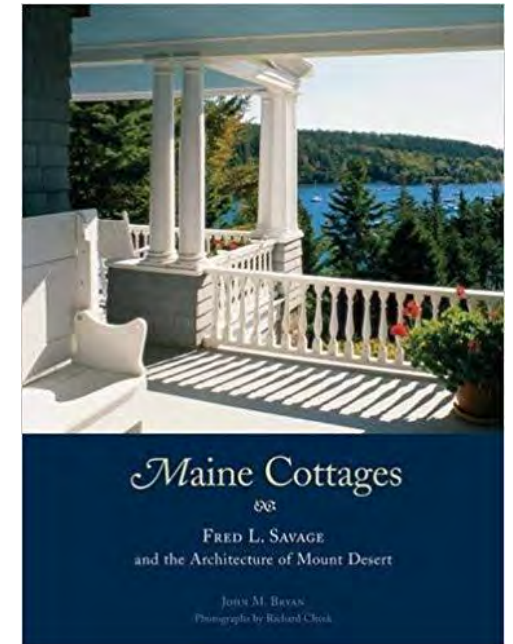
Load

Profiling

Ingestion

Transformation

Predict

Present

Enrichment

Discovery

Analyze

abiliscorp.com

8

CAMDEN NATIONAL BANK

Challenges

Business

- $4B Assets, 60 Centers, Regional Leader
- Organic Growth – Cross Sell Financial Svs
- New Client Growth – Sell Svs to New Clients

Technical

- Silo'ed Systems making it difficult to KYC
- Lack of Centralized Data Platform capabilities

Benefits

Business

- 360 degree view to see opportunities
- Operationalize Strategic Goals
- Unlock the value of employees with insights

Technical

- Snowflake-Talend-Tableau- Scalable Solution
- Enterprise platform for supporting the Bank

Approach

- Land and expand – start small get value, expand over time
- Connect and ingest core systems into a data lake
- Process data in the lake to support use cases
- Shift now to predictive = > Customer Churn

NORTHERN LIGHT HEALTH

Northern Light Health

Challenges

- Gather relevant data from EMHS' many individual and community partners.
- Turn medical costs and health outcomes into actionable business intelligence information.
- Produce three visually robust scorecards capable of providing real-time data on an on-going basis.
- Finalize the project within tight deadline and limited resources.

Solution

- Visual scorecards o better see and understand outcomes and costs
- Deploy scorecards out to 700+ staff

"Abilis did a great job developing the Executive Board scorecards. The board adopted the new and improved analytics platform, and it's a platform my team will be able to build upon for years to come. Abilis' continued training support and other IT professional services has demonstrated their belief of creating collaborative partnerships with their customers."

E.J. Hikel, Director of Enterprise Information Management

THE CHRONICLE OF HIGHER EDUCATION

Challenges

Business
- Print business under pressure
- Subscribers expect personalized content
- Hard to use client data for Mtg & Prod Dev

Technical
- 12 Silo'ed Systems
- Lack modern reporting tools
- Disconnected 'My Portal' w/ backend

Benefits

Business
- 360 degree client view to support Prod & Mktg needs
- Timely information to make service adjustments

Technical
- Improved efficiencies automating DI
- Modern toolset to scale to meet business needs

Approach
- Chief Revenue Officer- first MVP
- Land and Expand to additional use cases
- Customer portal to deliver Chron One

AMERESCO

Challenges

- Develop an evolutionary proof-of-concept system
- Ensure complete, effective, information-based results
- Work within a tight budget and time constraints
- Create a clean and simple user interface

Benefits

- A consolidated monitoring platform for multiple power plants
- Operational dashboard to clearly display Ameresco's desired KPIs.
- This dashboard allows them to effectively monitor the power plants in real-time
- First predictive use case in development – solve $1M problem

"Abilis was able to take a very rough idea and create a functional and easy to use platform that we can expend. We are now able to remotely monitor our power plants in real-time, saving us valuable time and resources. I would not hesitate to contact Abilis when in need of an innovative solution and an effective team."

Rob Meghart, Engineer Systems and Controls, Ameresco

SHELL

Challenges

- **Disjointed Inventory Distribution**: Stocking practices driven by vendor recommendations, history and "gut feeling".
- **Limited DSS (Decision Support System) Data Availability**: Limited focus using historical data to come up with decisions.
- **Lost Business Agility**: Excessive or insufficient stock at Shell's locations (oil rigs have significant business implications.)

Solution

- **Databricks Runtime**: The team to dramatically improved the performance of the simulations.
- **Interactive Workspace**: Data scientists are able to collaborate on the data and models via the interactive workspace.
- **Cluster Management:** Significant reduction in total cost of ownership by moving to the Databricks cloud solution
- **Automated Workflows**: Build reliable and fast data pipelines to predict when to purchase parts and where to place them

Predictive Modeling: Scalable predictive model developed & deployed across 3,000 types of materials at 50+ locations.

Historical Analyses: Each material model simulates 10,000 Markov Chain Monte Carlo iterations to capture historical distribution of issues.

Massive Performance Gains: Reduced the inventory analysis and prediction time to 45 minutes from 48 hours on a 50 node Apache Spark™ cluster on Databricks — a 32X performance gain.

Reduced Expenditures: Cost savings equivalent to millions of dollars per year.

BECHTEL

Challenges

- 98% of construction mega-projects overrun on cost or time.
- Unable to scale to effectively handle large neural networks.
- They were building algorithms that would have taken years to run on their previous hardware.
- Poor collaboration between data engineering and data science due to team and data silos.
- Too much time spent on lower-value activities (maintenance, upgrades, security issues, governance, and controls).

Solution

- Apache Spark as the unified analytics engine for ETL, analysis, and data science.
- Databricks Unified Analytics Platform to simplify infrastructure management, foster cross-team collaboration, and train and deploy deep learning models through a more iterative and automated process.
- Federated their security controls to ensure a single set of permissions to access the platform.
- Can potentially yield **10s to 100s of millions of dollars in savings and value add to their customers**.

" With Databricks, data scientists are empowered to marshal the resources they need on demand, developers can focus on productionizing the code and pushing out services, and the business is able to collaborate directly with data scientists in real-time. This enables us to iterate much faster."

Justin Leto, Sr. Big Data Architect and Engineer at Bechtel

VINCI

Challenges

- VINCI is a global player in concessions and construction.
- They design, finance, build and operate infrastructure and facilities that help improve daily life and mobility for all.
- As a holding company with 185,000+ employees spread across the world in 2,100 companies, efficiently managing employee data is critical, e.g. for effective communications, and onboarding or terminating an employee.

Solution

- VINCI selected Talend to integrate employee information from different sources and in different formats to get a single employee view leading to improved operational efficiencies.
- It allows VINCI to easily adapt to organizational changes, deliver a better understanding of human resources, improve overall human capital efficiency and focus on a person centric view.
- A one-stop, instant overview of 157,000 employees

"Talend provides us with a one-stop, instant overview of our employees, helping us better manage skills and talents and the whole of our HR programs."

JEAN HUOT, DIRECTOR OF INFRASTRUCTURE AND SERVICES, VINCI

We can help you in your data journey…