



OSIsoft®
REGIONAL
SEMINARS 2012
The **Power** of **Data**



The Power of Data

Presented by **Jon Peterson**



Today's rapidly growing flood of big data represents immense opportunity for forward-thinking marketers. But to fully leverage the potential that exists within these massive streams of structured and unstructured data, organizations must quickly optimize ad delivery, evaluate campaign results, improve site selection and retarget ads. This is where the IBM Neleza[®] Factor comes into play, enabling a fluid analysis of complex data capable of unleashing a torrent of innovative, next-level ideas and results.

DRIVING MARKETING EFFECTIVENESS BY MANAGING
THE FLOOD OF

The Economist
 The data deluge
 AND HOW TO HANDLE IT

BIG DATA?

BIG DATA = BIG OPPORTUN

data management

TAMING BIG DATA
 Get a handle on the next (big) thing

TURNING BIG FOR THE PEOPLE
 Data can get folks in the game

WATSON'S HELPERS
 The next big jump?

SEED THE CLOUDS
 How to bring social media service



Google™

1998



1994



altavista™
SEARCH SOFTWARE

1995



1994



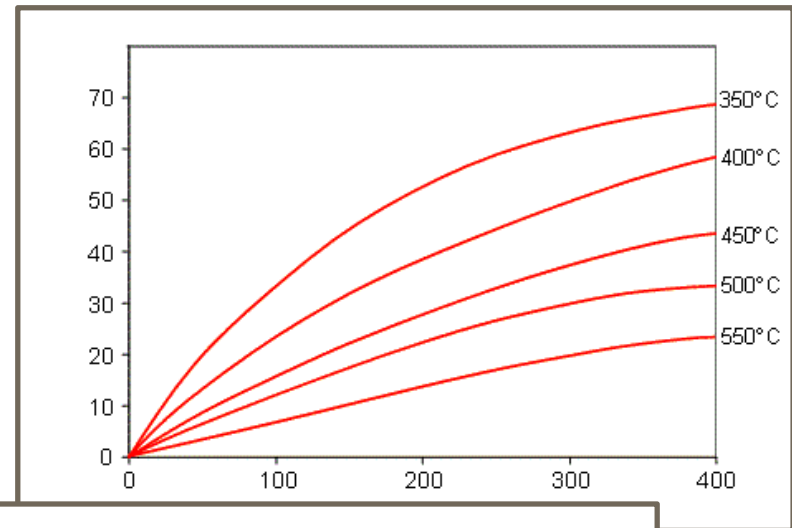
1995

YAHOO!®

1995

OSIsoft History

- Advanced control
- Asymptotic nirvana
- Business nirvana?



Business Success

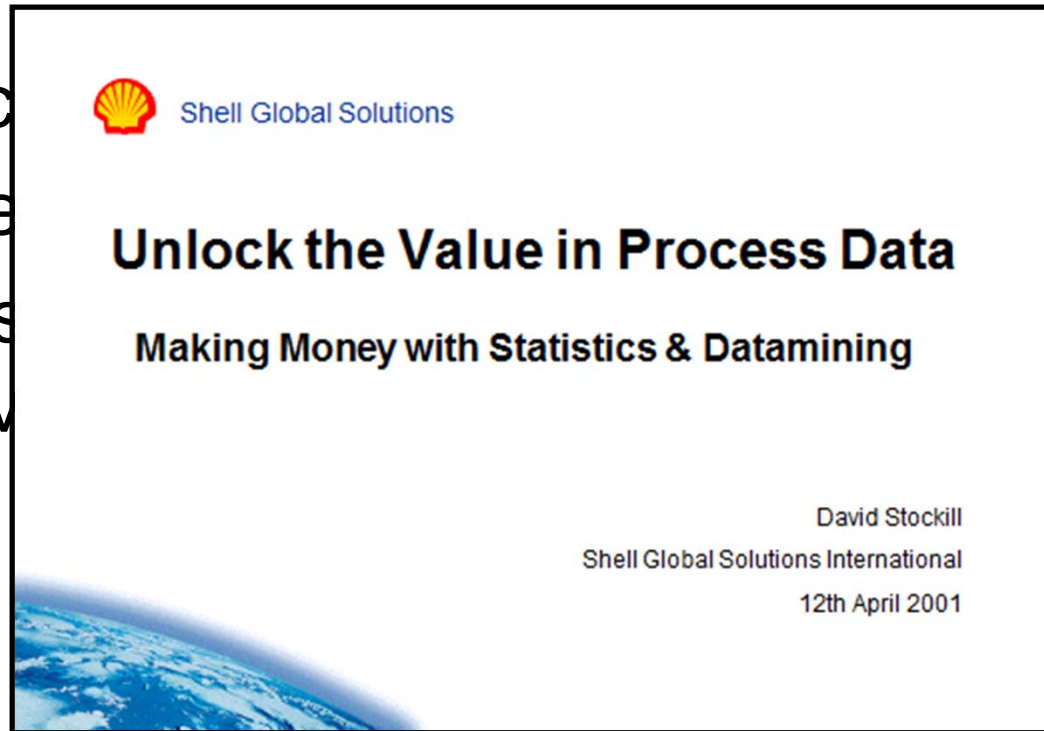
- Advanced control: a metaphor for business success?
 - In market availability
 - Matching production to customer demand
 - Regulatory compliance

The Power of Data

- Advanced control is a use of data
- But, there are many other uses of the data
- Our customers liked the advanced control but they loved the data

The Power of Data

- Advanced
- But, the
- Our cus
they lov



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rol but

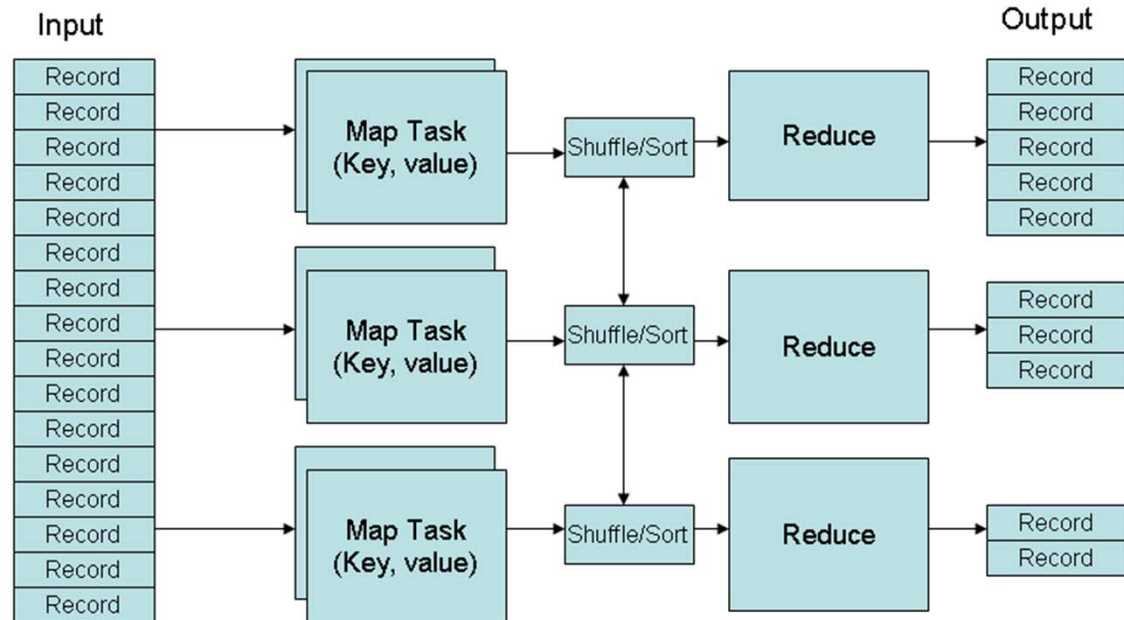
Google

- Why did they beat the earlier contenders?
 - Technology
 - Recognized there was more data than meets the eye

Map-Reduce



- Technology
- Acts on data
- Solves a specific class of problems



Keys to Realizing the Power of Data

- Understanding the problems at hand--what are you trying to solve. What questions are you trying to answer?

“The important and difficult job is never to find the right answers, it is to find the right question.”

Peter Drucker, *The Practice of Management*

“The formulation of a problem is often more important than its solution.”

Einstein

Keys to Unlocking the Power of Data

- All the data. Think beyond the obvious and especially data that may not last long.

Keys to Unlocking the Power of Data

- Ingenuity, insight and discovery to have some ideas that can be answered with proper data analysis.

Keys to Unlocking the Power of Data

- The technology and skills to do the analyses

What's New?

- Availability of lots of data from many sources; and growing
 - Machine and devices
 - Business
 - WWW
 - Social
- Technology to process, store, access and analyze the data

Big Data

“Datasets whose size is beyond the ability of typical database software tools to capture, store, manage, and analyze”

Dobbs, Richard; Bugin, Jacques; Hung Byers, Angela; Roxburgh, Charles; Manyika, James; Global Institute, McKinsey; Brown, Brad; Chui, Michael (2011-05-13). Big data: The next frontier for innovation, competition, and productivity (Kindle Locations 95-96). McKinsey Global Institute.

Characteristics

Volume



Velocity



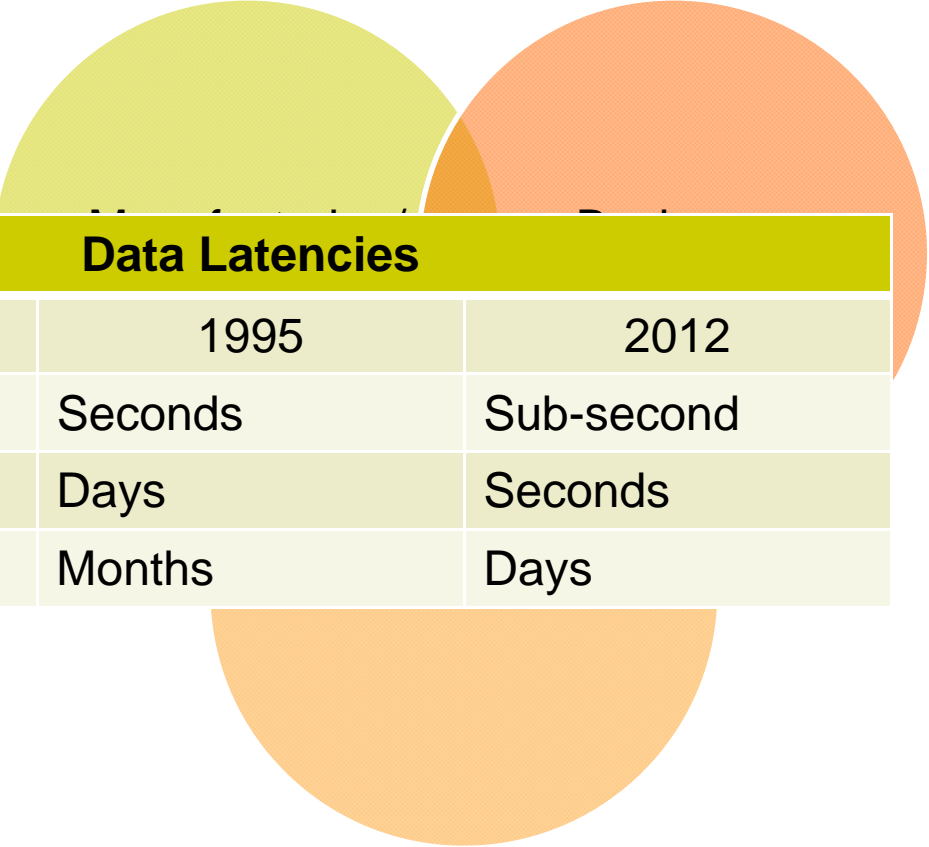
Variety



Valuable



Variety



Data Latencies		
	1995	2012
Mfg/Ops	Seconds	Sub-second
Business	Days	Seconds
Customer	Months	Days

Building a Big Data Function

- Commit to data as a Competitive Advantage
- Organize to exploit Big Data's potential
- Build out a low-cost, reliable infrastructure for data collection and storage (and distribution)
- Flexible infrastructure that can scale up effectively
- Start layering on complex analytics

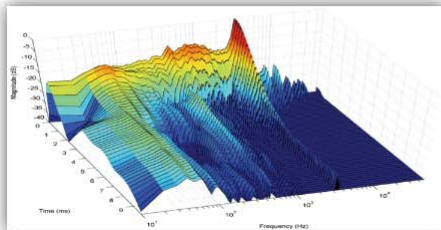
- 1 Jeff Hammerbacher, "Competing through data: Three experts offer their game plans", McKinsey Quarterly, October 2011, McKinsey Global Institute
- 2 Brad Brown, Michael Chui, and James Manyika, "Are you ready for the era of 'big data'?", McKinsey Quarterly, October 2011, McKinsey Global Institute

Data Infrastructure

- As important as other infrastructure
 - Communication
 - Energy
 - Water
 - Transportation
- Most efficient way to deliver services needed by many



PI SERVER 2012



Syncro Phasors

4.8K data streams, 120Hz
3 years online
Unique Events: 55 Trillion
Estimated Data: 430TB

430TB



Data Center

100K cells, 2M breakers
10 years online
Unique Events: 105 Trillion
Estimated Data: 840TB

840TB



Automated Metering

20M meters, 5-min reads
7 years online
Unique Events: 177 Trillion
Estimated Data: 1,410TB

1,410TB



Fleet Monitoring

1K assets, 1M points
10 years online
Unique Events: 6,307 Tr
Estimated Data: 50,460TB

50,460TB

PI Server 2012

	2010 R3	2012
Max Point Count	2 x 10 ⁶	20 x 10 ⁶
Max Data In Rate	100,000 ev/sec	1 x 10 ⁶ ev/sec
Max Data Out Rate	5 x 10 ⁶ ev/sec	10 x 10 ⁶ ev/sec
Online Archives	5,000 archives	50,000 archives
Real-time Updates	200,000 sign-ups	10 x 10 ⁶ sign-ups
Point Changes	10 points/sec	2,000 points/sec
Startup Time	20 minutes	10 minutes

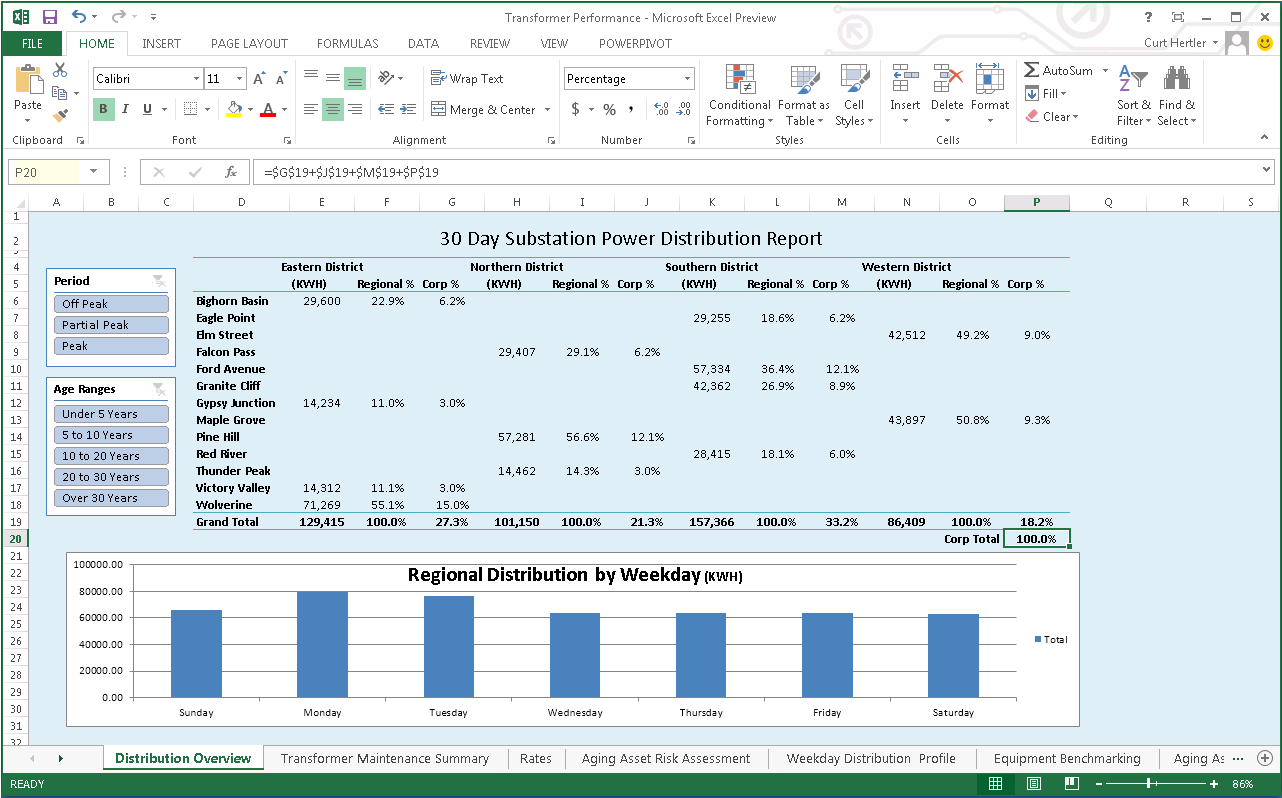
Big Data

- Volume
- Velocity
- Variety

Insights For Any Data, Any Size, Anywhere

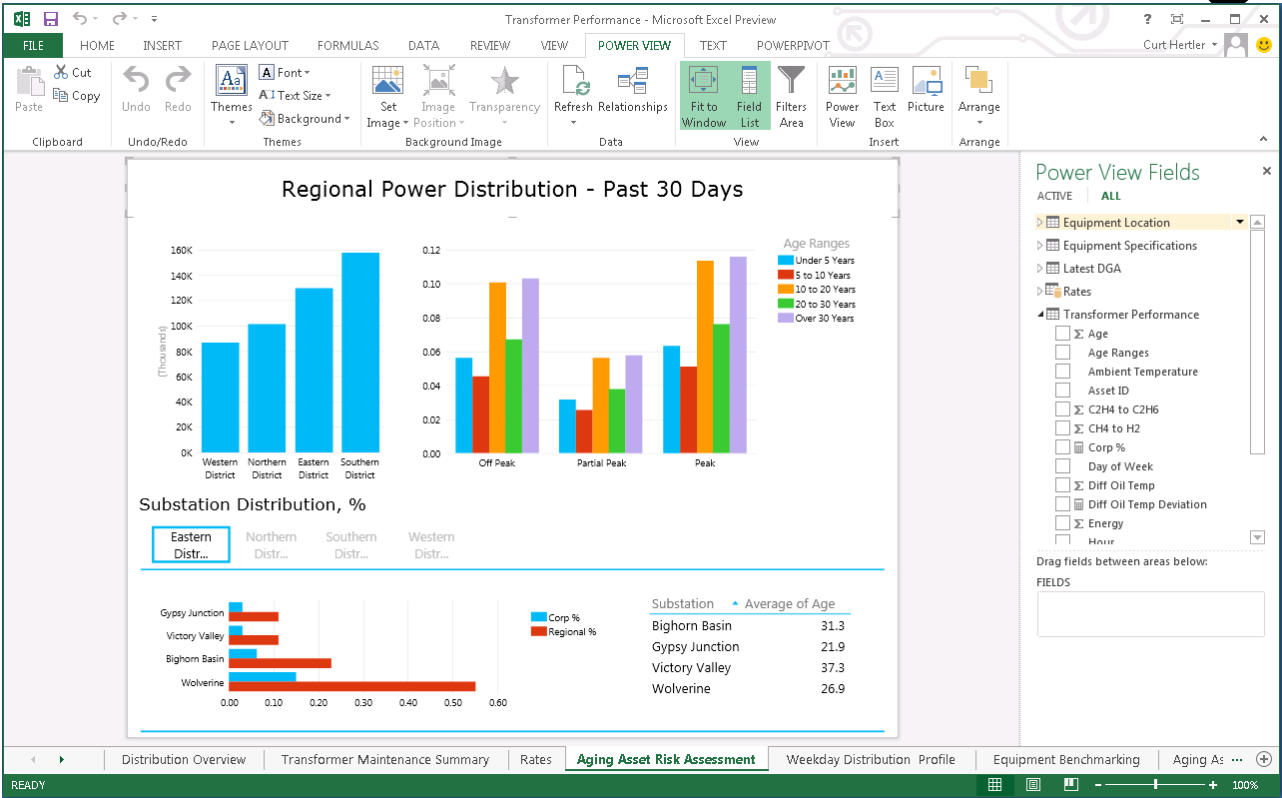


Microsoft Business Intelligence



PowerPivot

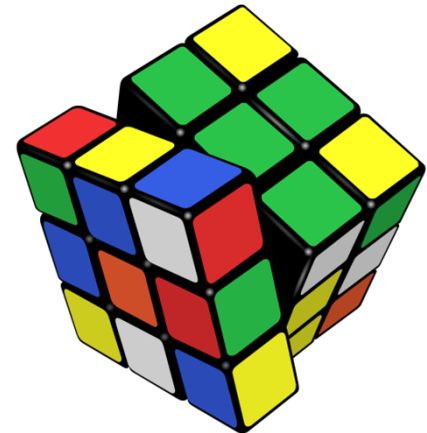
Microsoft Business Intelligence



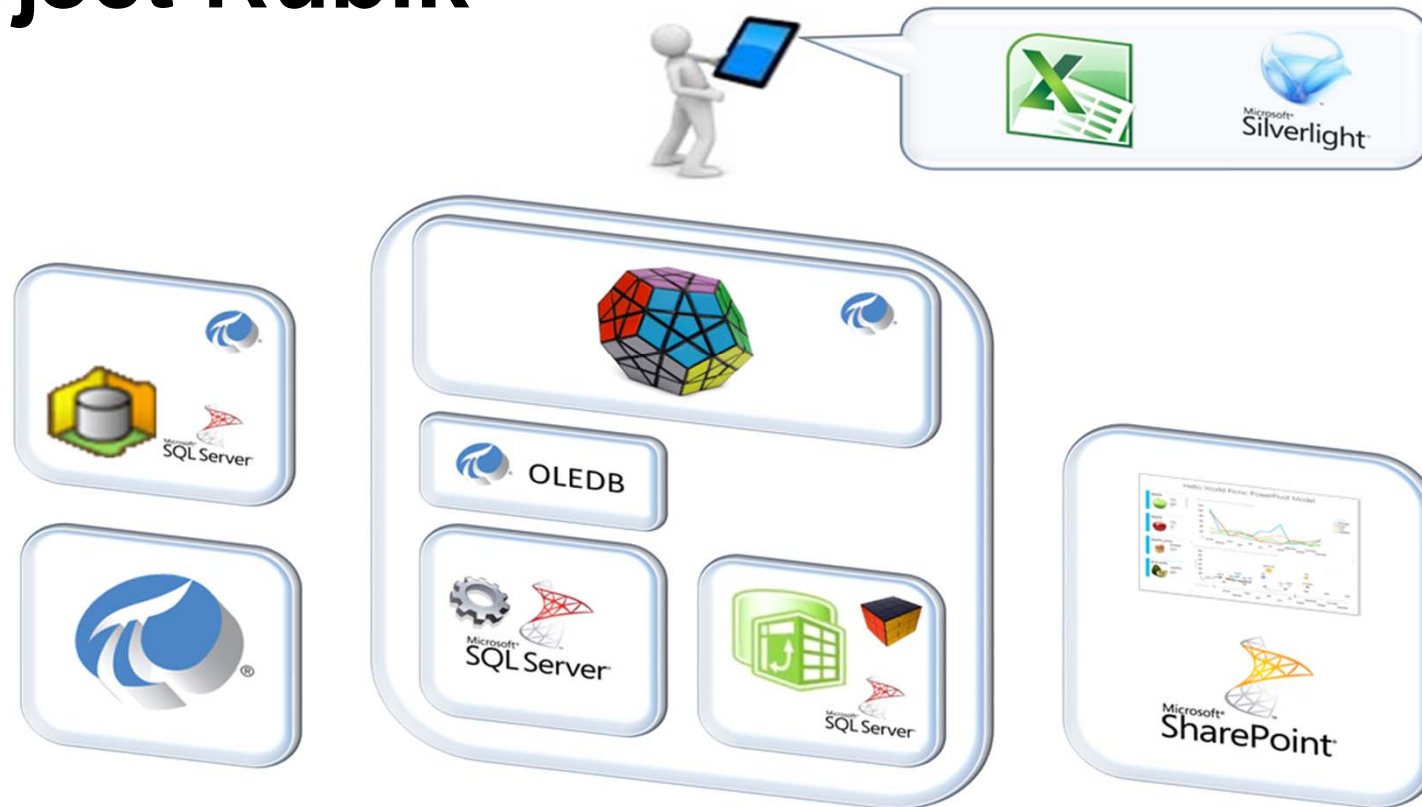
PowerView

Project Rubik

- Integrate PI System Data with Microsoft Business Intelligence
 - Configured models
 - Proper data aggregation



Project Rubik



The Power of Data

1. Understanding the problems at hand--what are you trying to solve; what questions are you trying to answer?
2. All the data. Think beyond the obvious and especially data that may not last long.
3. Ingenuity, insight and discovery; ideas that can be answered with proper data analyses.
4. The technology and skills to do the analyses



THANK YOU

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