Colin Shearer
Global Executive, Advanced Analytic Solutions
12th June 2014

Predicting success:
Innovating with advanced analytics in the era of big data

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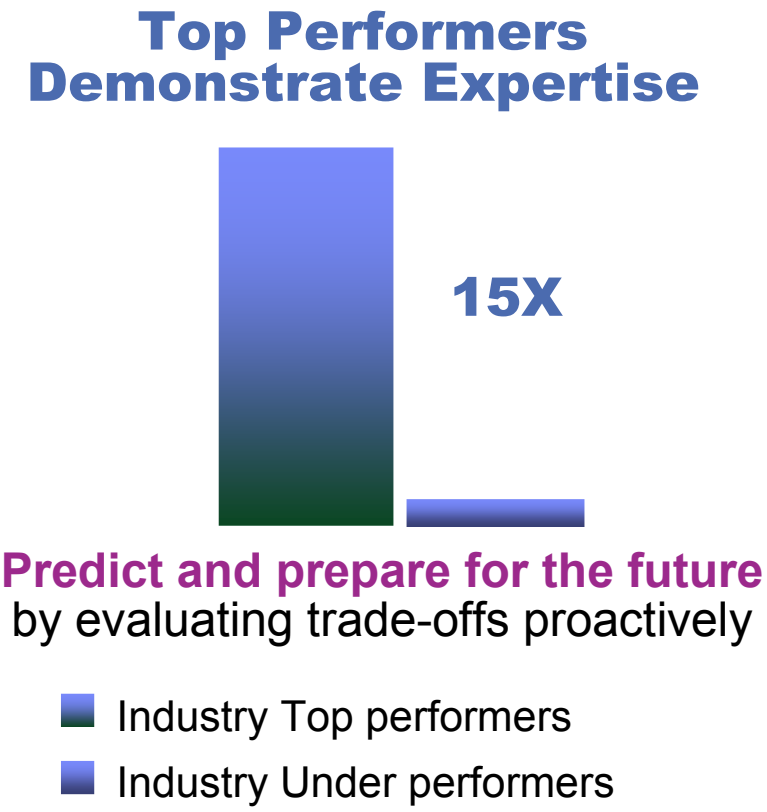
Going beyond Insight to *Foresight*



Source: IBM: Break Away with Business Analytics and Optimization Study

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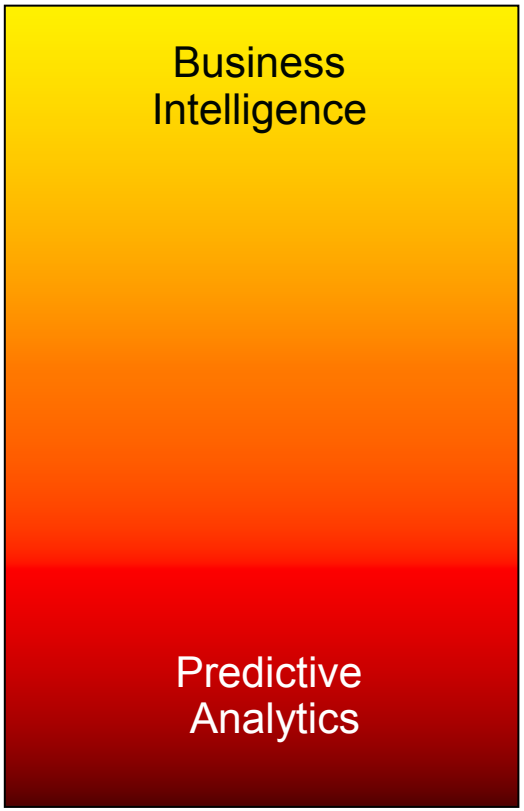
Extracting intelligence: Full-spectrum analytics



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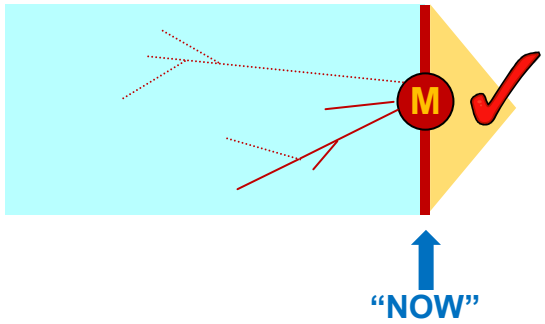
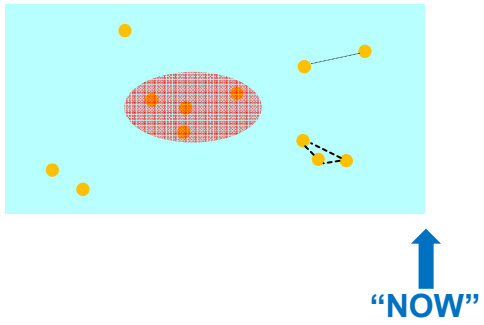
The Predictive Advantage

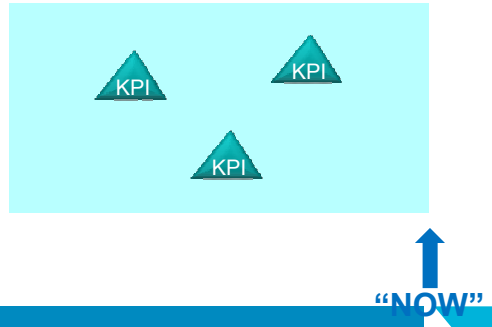
Predictive Models
- Leverage current and historical data
- Make robust predictions on current and future cases
- Provide “actionable insight” to drive better decisions



Predictive Analytics:
- Algorithms automatically discover significant patterns
- “Learn” from historical data – create *predictive models*



Traditional BI and Conventional Analysis:
- Insight, metrics, etc. up to this point in time
- User initiative to explore data



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It's all about outcomes

Be More Right, More Often

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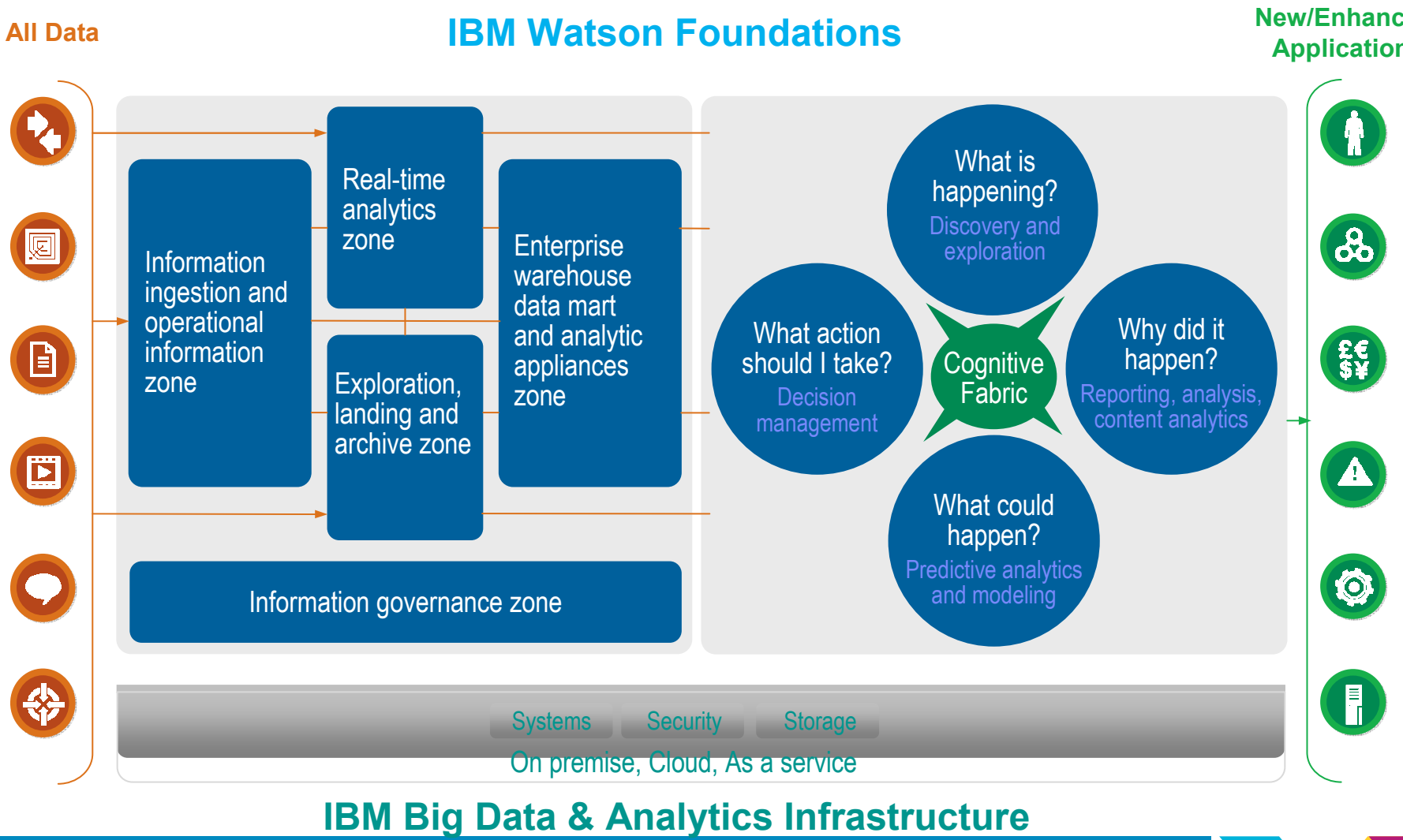
Realize It. IBM Big Data & Analytics



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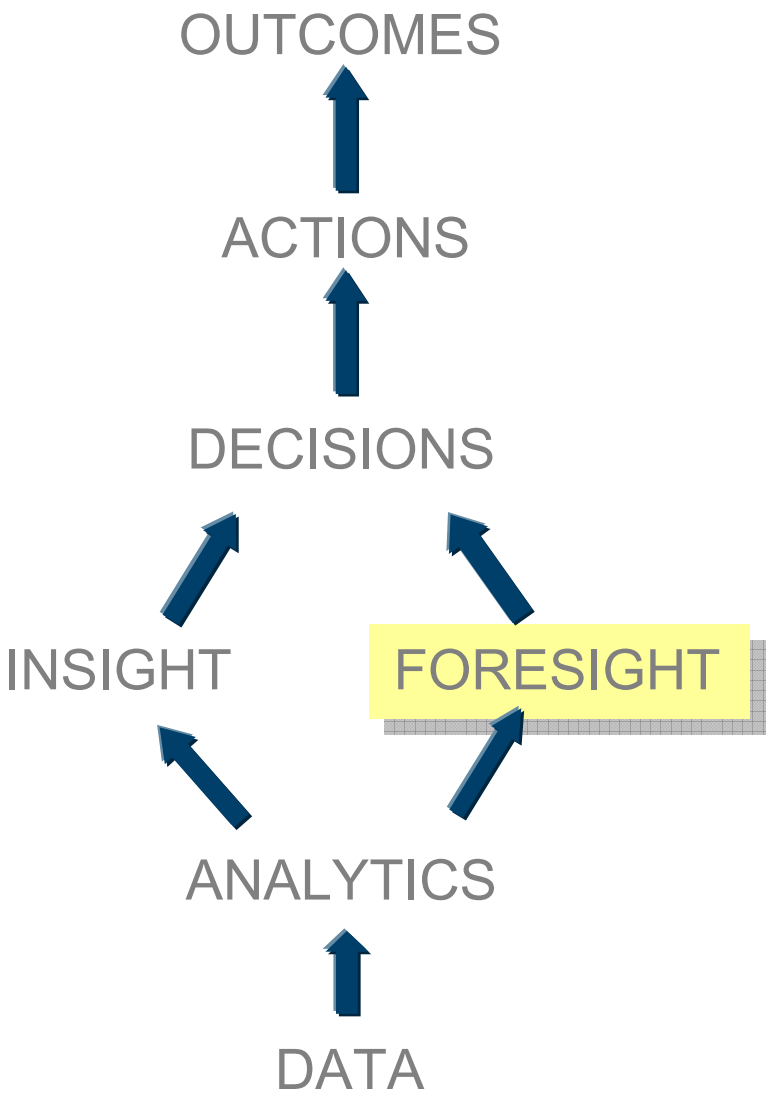
It's all about outcomes

Be More Right, More Often



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IDC - Independent Financial Impact Studies

"The median ROI for the projects that incorporated predictive technologies was 145%, compared with a median ROI of 89% for those projects that did not."

Source: IDC, "Predictive Analytics and ROI: Lessons from IDC's Financial Impact Study"

Update: 2011 study showed ROI for predictive analytics at 250%!

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ufone

Improved response by

100%

with better models, and campaigns targeted to customers unique tastes

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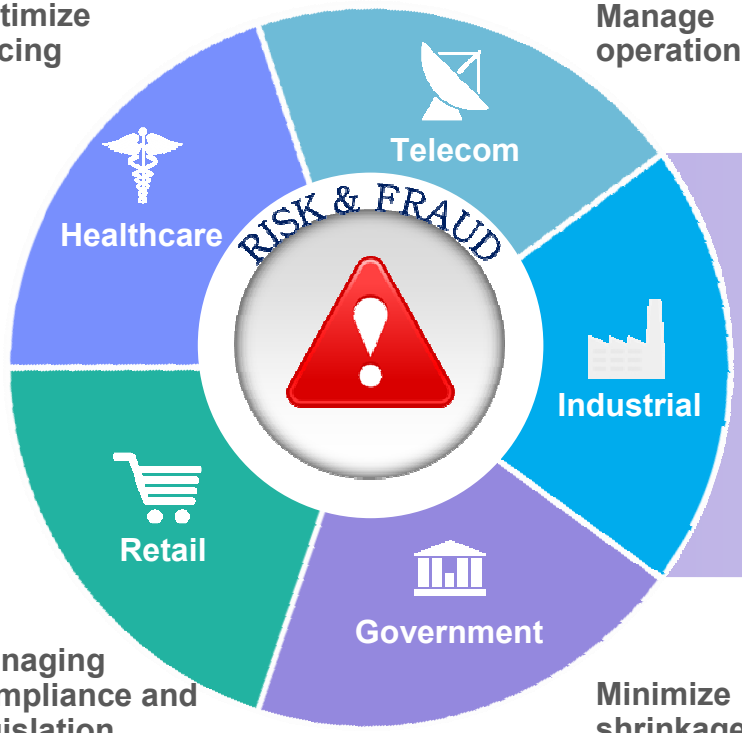

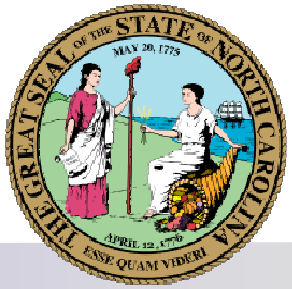

Identified

$200M

in suspicious Medicaid claims

Review and prioritize tens of thousands of providers and hundreds of millions of claims in minutes

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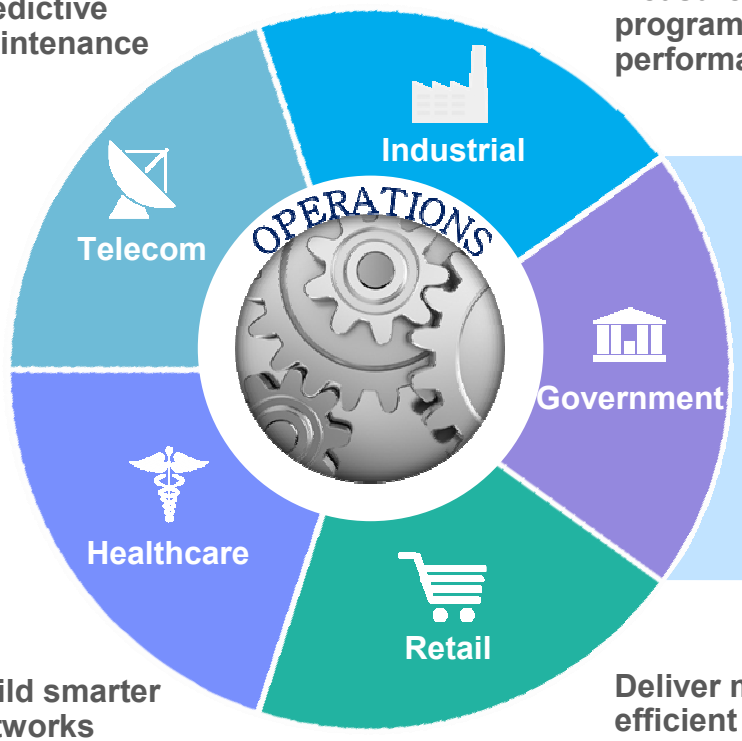

Build smarter supply chains

ELIE TAHARI

97%

Accuracy in predicting demand

Leveraging analytics to predict customer orders four months in advance

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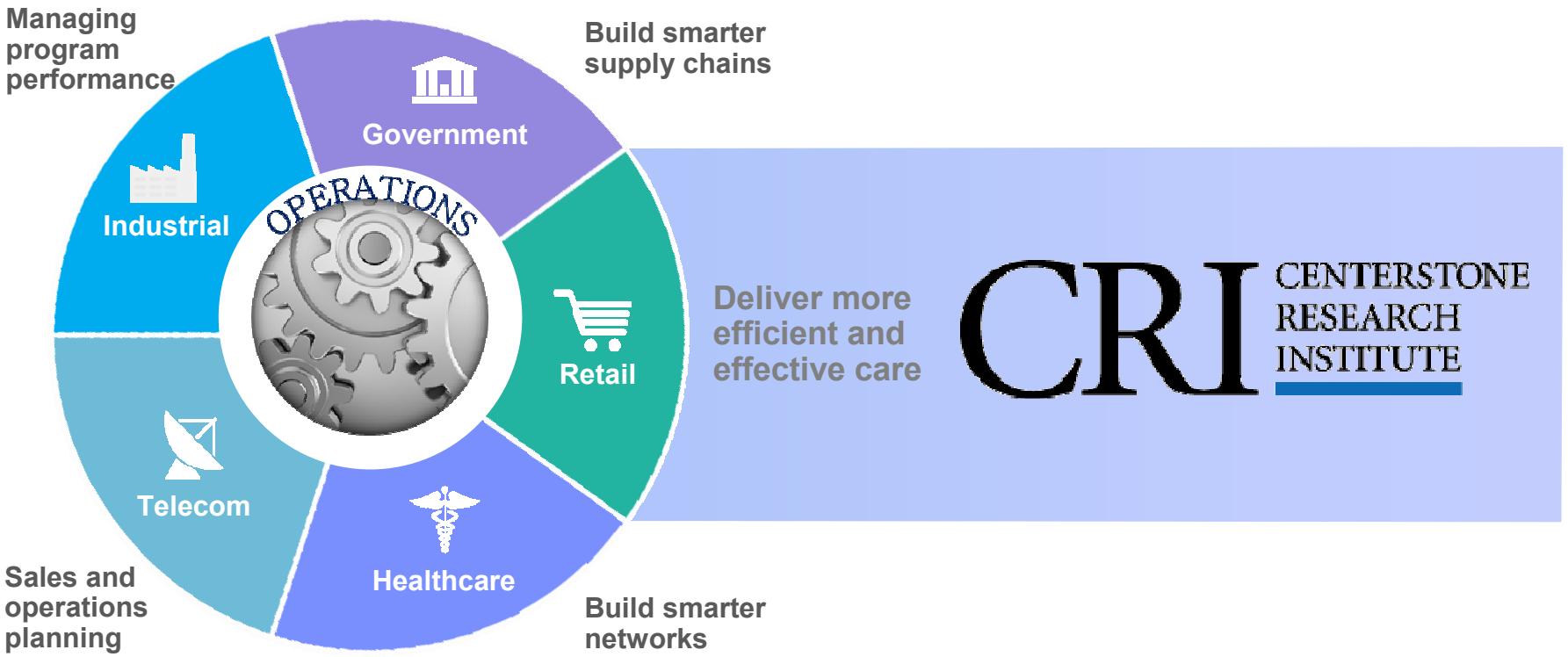

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Industrialisation of Analytics

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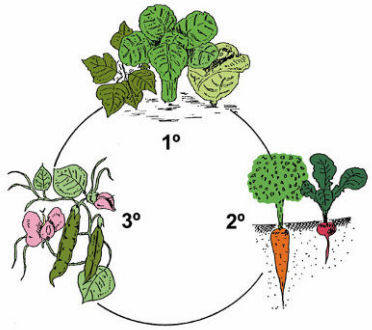
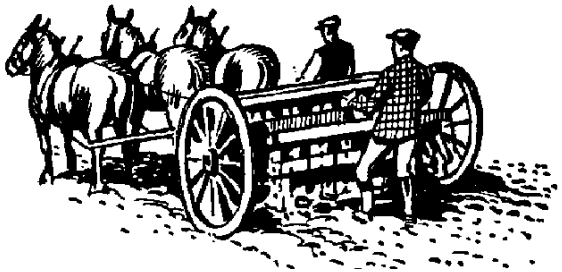
The Agricultural Revolution – from ~1700





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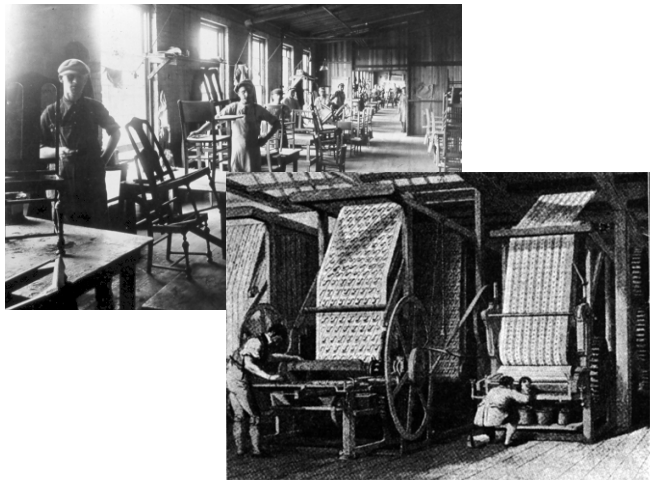
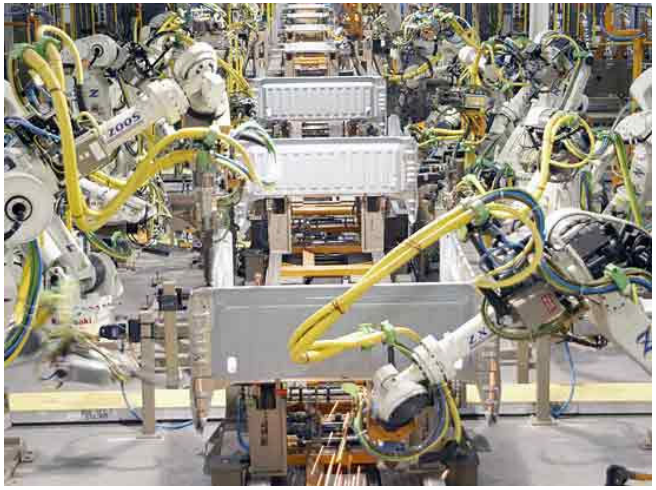
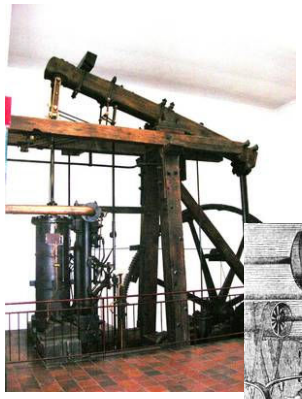
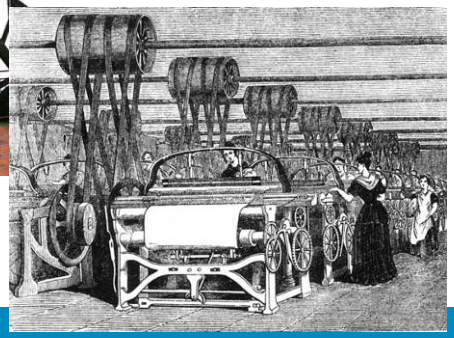
The Industrial Revolution – from ~1780









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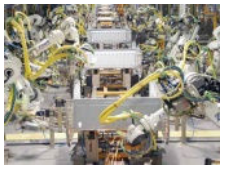
What revolutions do for the world…

Agricultural Revolution

Industrial Revolution



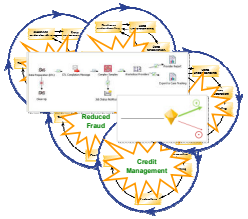
Scale the effects…

…multiply the benefit…

…by orders of magnitude…

…and make a far broader range of consumers able to benefit.

Analytical Revolution



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So how does this fit with the emergence of the "Data Scientist" - "The Sexiest Job of the 21st Century"?

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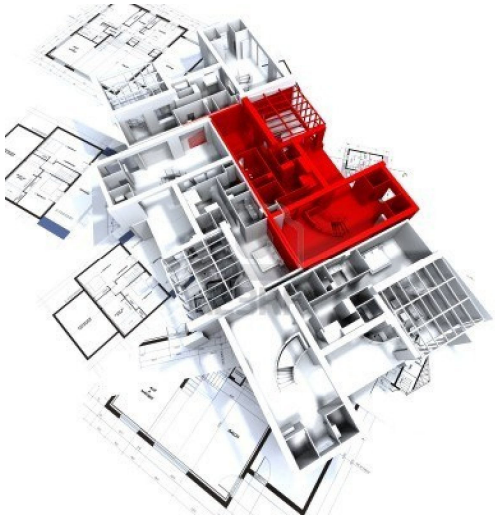
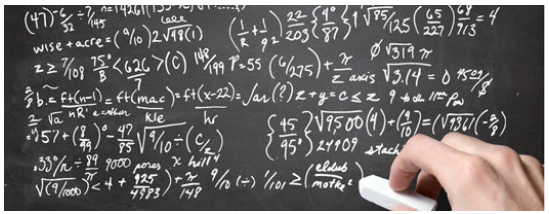
Let's suppose….

….you want to commission an opera house for your city

We want an aesthetically stunning building that makes a bold statement. It needs acoustics fit for its purpose. It should be constructed, and operate, in an environmentally sound manner



It needs to stay up



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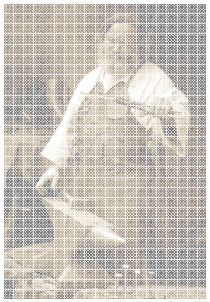
Typical mis-apprehension of the Data Scientist role



Smart People writing screeds of highly complex code

Big Data Platform

- Content Management
- Hadoop System
- Stream Computing
- Data Warehouse

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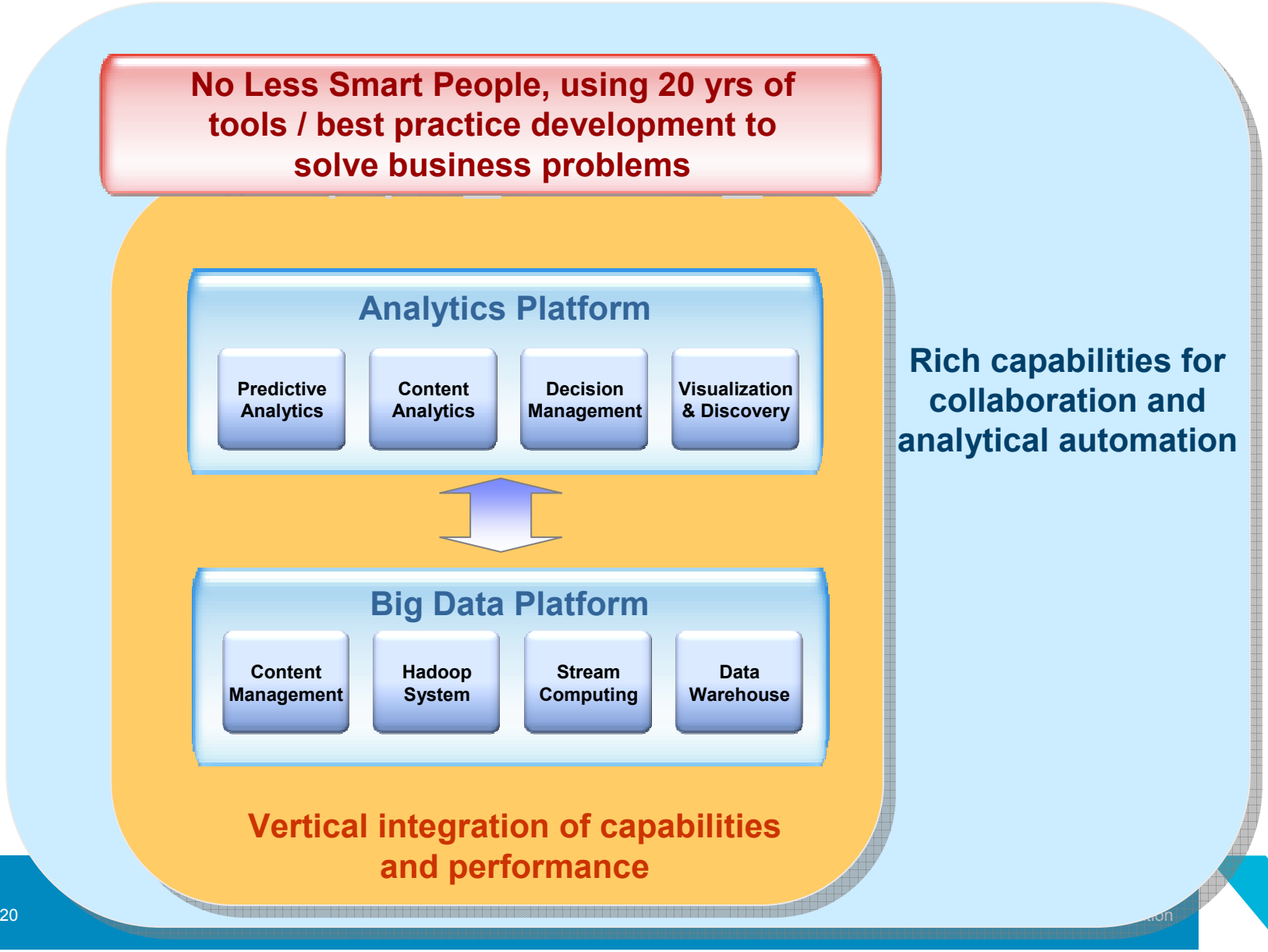
Making Data Scientists effective in the age of Industrial Analytics



From Analysis to Action

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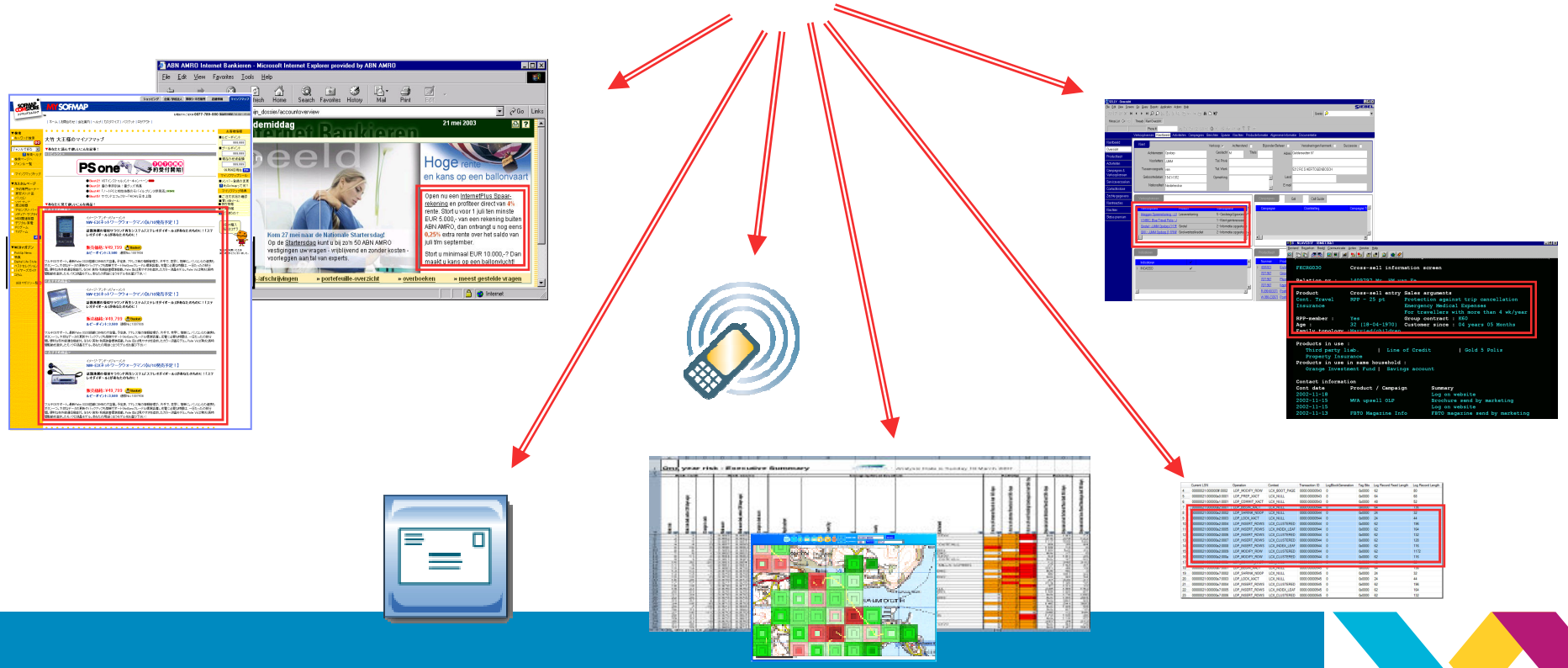
Acting On Analysis

- Combine analytical results with business knowledge
  - Rules, Policies, Exclusions/Inclusions, Constraints…
- Integrate with the operational systems that support key business processes



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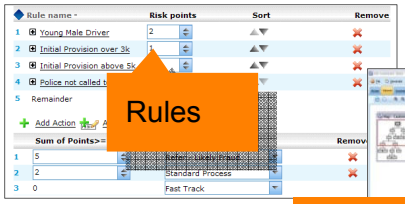
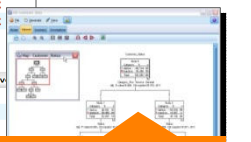
Decision Management for Big Data & Analytics

Call Center makes right offers at the right time to inbound customer calls

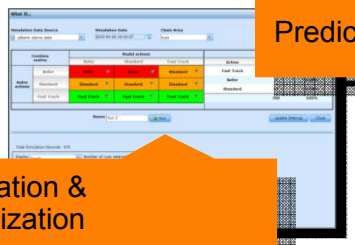
Structured, Unstructured, Social Media & Business Intelligence Data



Rules



Predictive Analytics



Simulation & Optimization

Level	Points
Low Risk	> -
Medium Risk	> -
High Risk	> +8

Scoring

Front-line Rep delivers simple action at the point of impact

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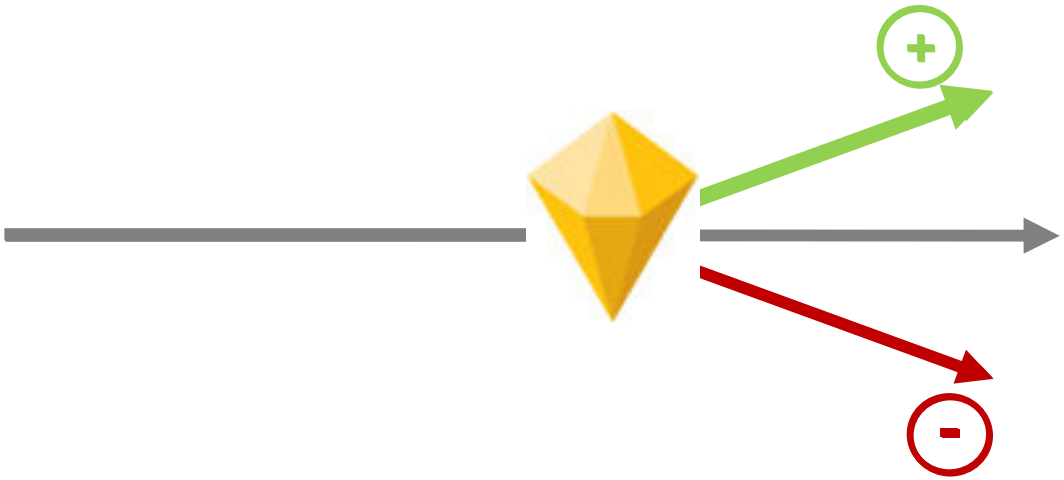
Delivering ROI through improved decision making

- Inserting “intelligence” at key decision points in business processes to improve outcomes – and automate decisions



Be More Right, More Often

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Real-time decisions on high-volume streaming data

				Site Name	Latitude	Longitude	Cell ID	Street Address	City	Zip	ST	Antenna Orientation
				WO Tower	30.70201	-86.14404	083G2034	348 MCGREGOR AVENUE NORTH	MOBILE	36606	AL	120.
				WO Tower	30.70201	-86.14404	083G2034	348 MCGREGOR AVENUE NORTH	MOBILE	36606	AL	230.
				WO Tower	30.70201	-86.14404	083G2034	348 MCGREGOR AVENUE NORTH	MOBILE	36606	AL	80.
				Lakefront	30.68625	-87.99525	083G2118	1595 BATTLESHIP PKWY	Athens	36527	AL	290.
				Lakefront	30.68625	-87.99525	083G2118	1595 BATTLESHIP PKWY	Athens	36527	AL	320.
				North Tower	30.67917	-87.84	083G2126	31282 ONE HORSE RD	Athens	36527	AL	80.
				North Tower	30.67917	-87.84	083G2126	31282 ONE HORSE RD	Athens	36527	AL	200.
				North Tower	30.67917	-87.84	083G2126	31282 ONE HORSE RD	Athens	36527	AL	320.
AL	MOBILE MSC BSC24-01	22301	21267	North Tower	30.67917	-87.84	302P2126	31282 ONE HORSE RD	Athens	36527	AL	80.
AL	MOBILE MSC BSC24-01	22301	21268	North Tower	30.67917	-87.84	302P2126	31282 ONE HORSE RD	Athens	36527	AL	200.
AL	MOBILE MSC BSC24-01	22301	21269	North Tower	30.67917	-87.84	302P2126	31282 ONE HORSE RD	Athens	36527	AL	320.

Asian phone operator

- Real-time analysis of CDRs to trigger contact and offers based on usage/behaviour and network experience
  - *“Dear customer, we apologize for the bad coverage. As a token of regret, we are activating a free bundle of 20 free minutes of calls in the next 24 hours.”*
  - Rewards for e.g. *"20 minutes of calls over the next 12 hours"*

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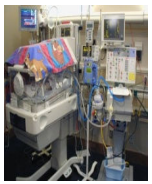
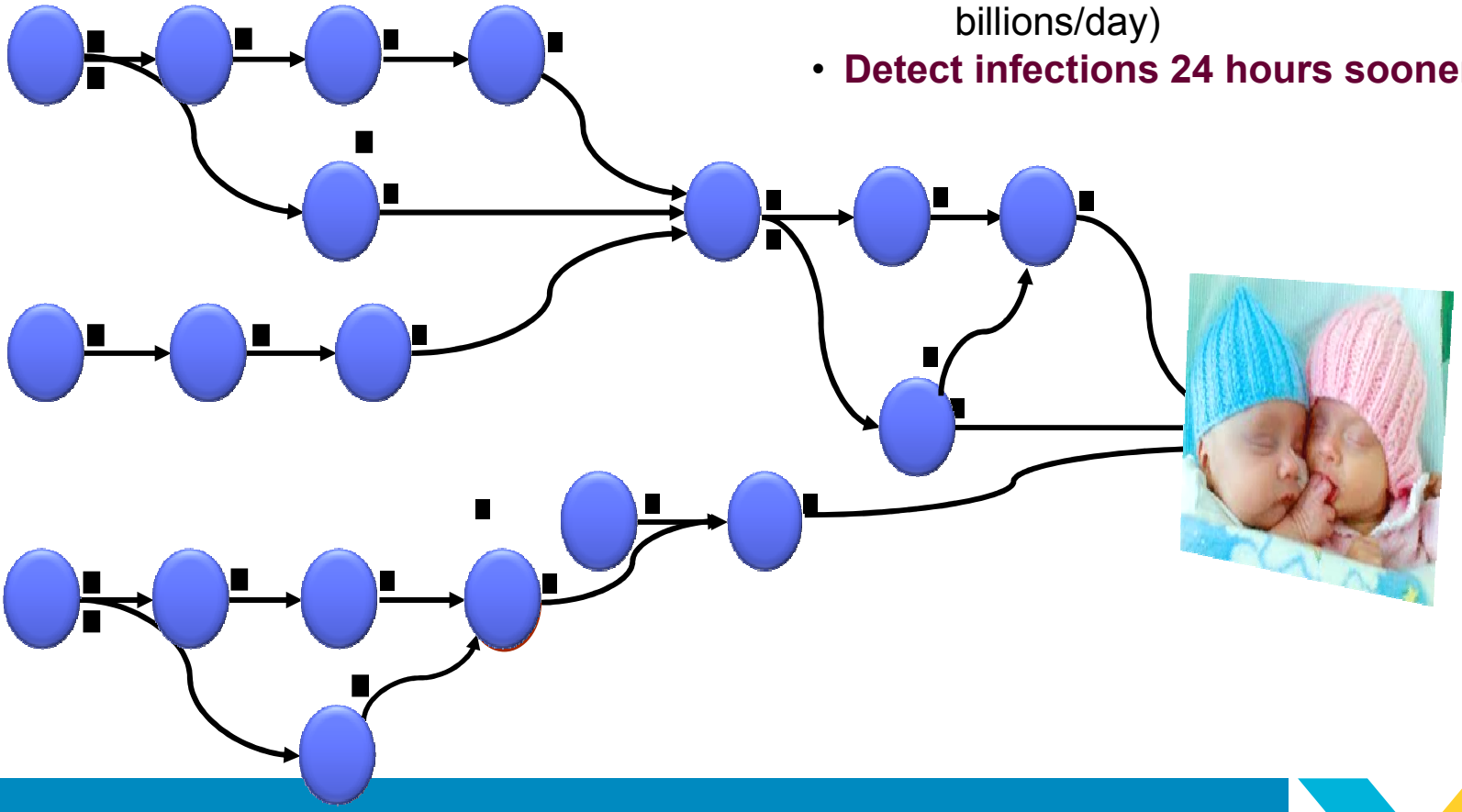
Decisions on Streaming Data

- Neonatal monitoring
  - 120 children monitored
  - 120K messages/sec (ie billions/day)
- **Detect infections 24 hours sooner**





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When the rubber meets the road…

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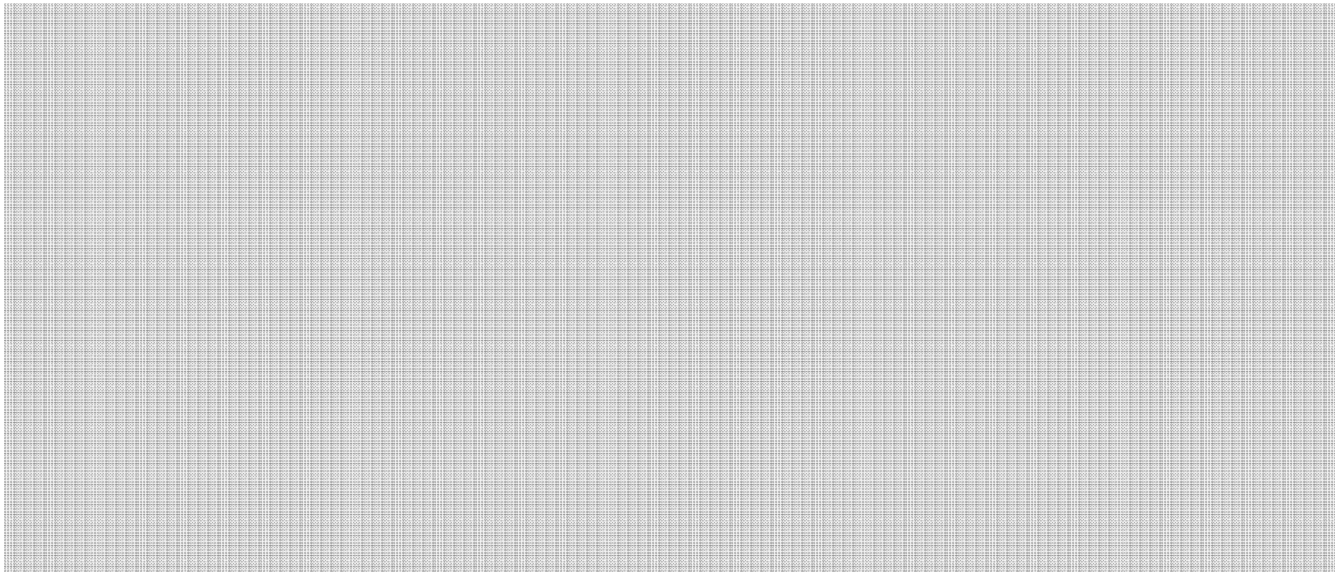
A proven architecture is based on various data sources



Telematics, manufacturing execution systems, existing databases, distributed control systems, notes, …

High-volume streaming data

Enterprise asset management systems

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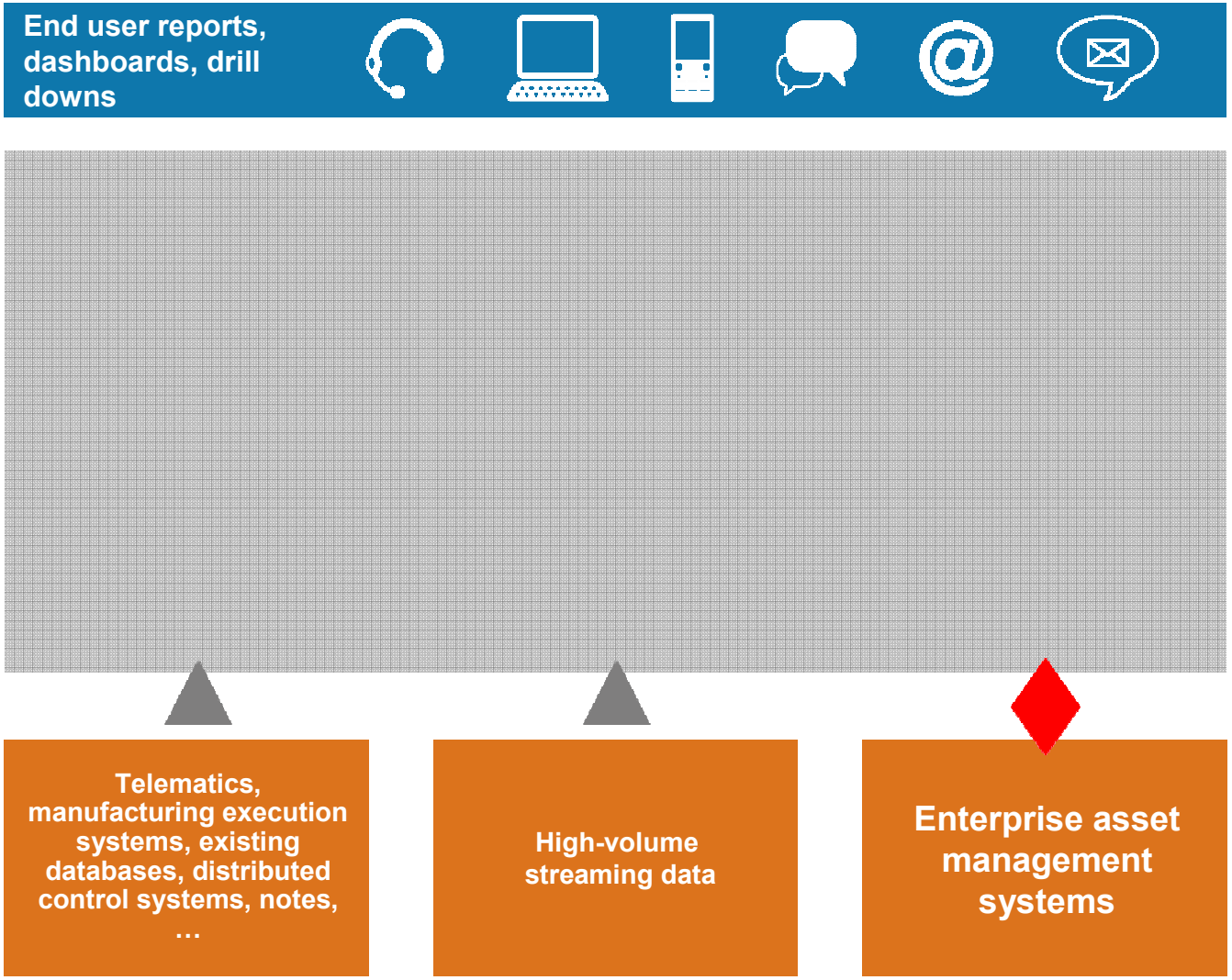
With various outputs



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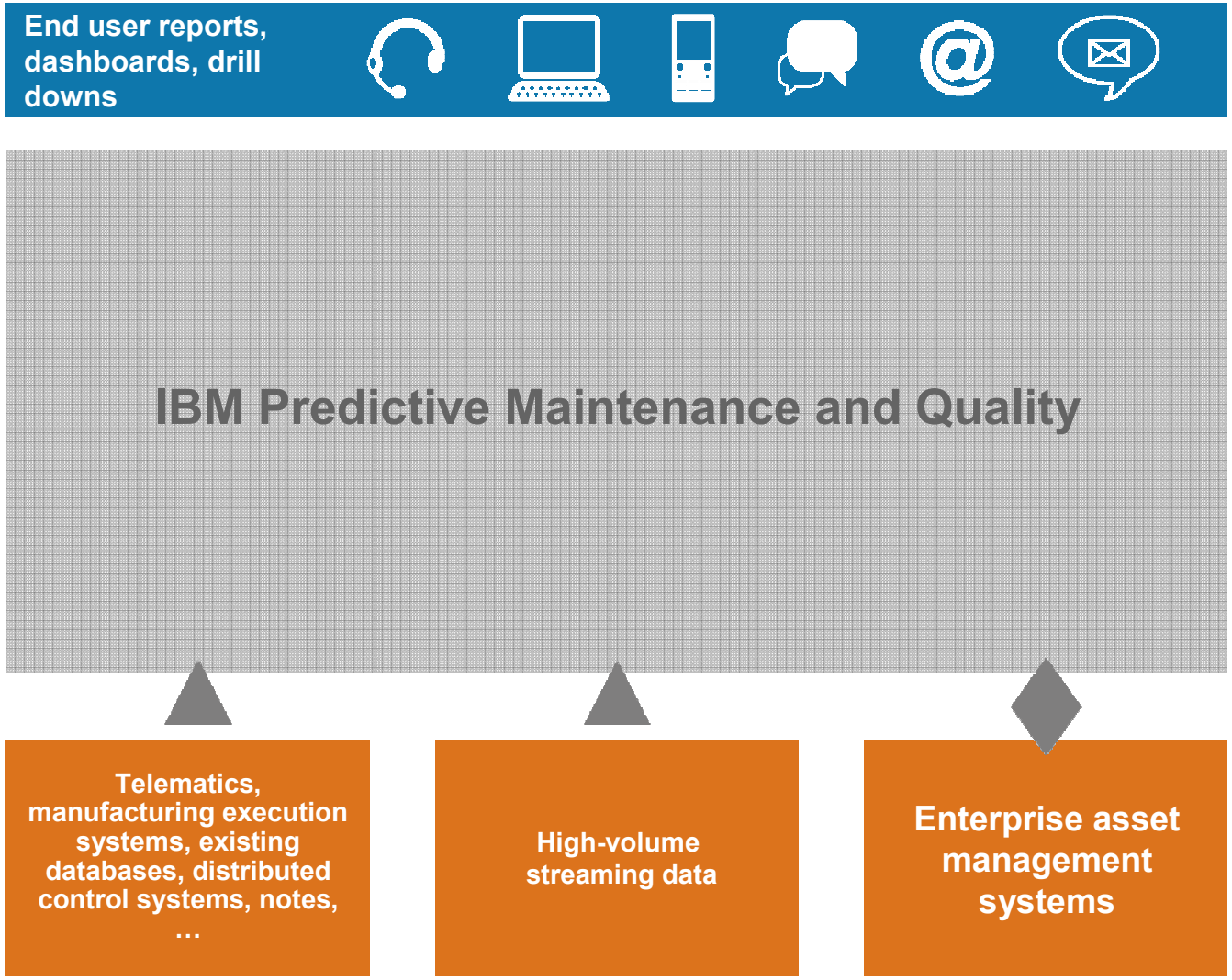
IBM Predictive Maintenance and Quality: from raw data to action



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