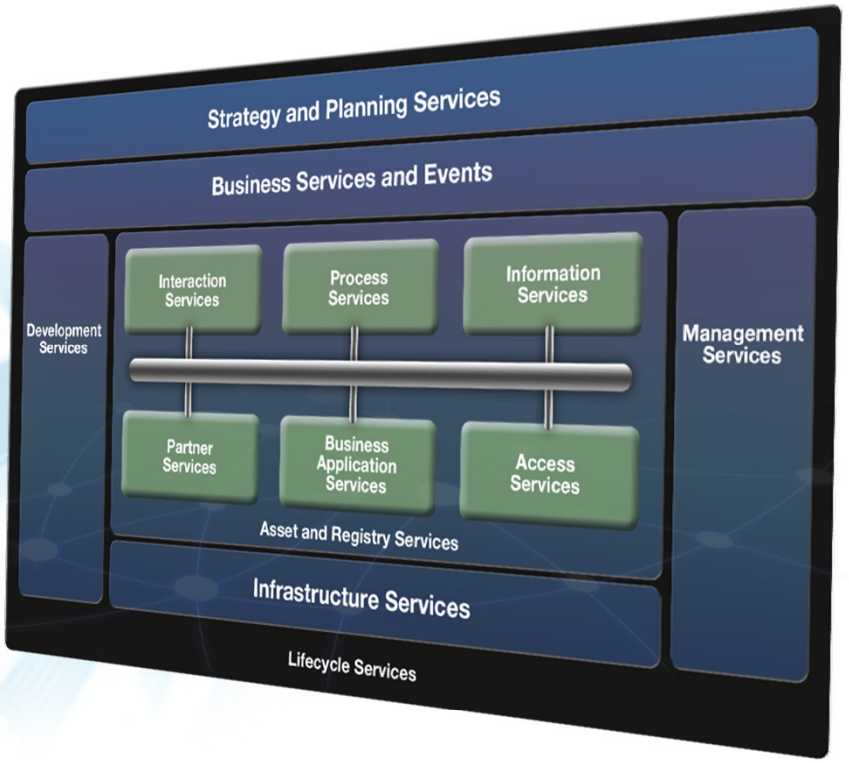
Simply Good Design:
2012 IBM SOA Architect Summit

SOA on Your Terms

And Our Expertise

SOA Design Principles and Big Data



Data sources are growing, and new sources are emerging

90% of the data in the world today has been created in the last two years, 2.5 quintillion bytes of data created every day

1.3 Billion RFID tags in 2005
30 Billion **RFID tags in 2010**

4.6 Billion **mobile phones worldwide**

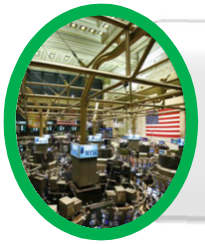
2 Billion **Internet users in 2011**
By 2013, annual internet traffic will reach ***667 Exabytes***

Google processes
> 24 Petabytes **of data in a single day**

Facebook processes
10 Terabytes **of data every day**

Twitter processes
7 Terabytes **of data every day**
250,000,000 tweets

Hadron Collider at CERN generates ***40 Terabytes*** **of data / sec**



For every session, NY Stock Exchange captures ***1 Terabyte*** **of trade information**

What a Smarter Front Office Needs

- *Identify nearest store*
- *Best way to reach them*
- *Watch for transactions of interest*
- *Access history and total spend*
- *Correlate internal client info*
- *Identify gold customers*
- *Multiple credit cards?*

Know Clients Better
Know their location
Reach them now
Use Authoritative Info

- *What stuff's of interest to clients?*
- *What discount to offer?*
- *What can improve overall revenue?*

Determine Next Best Action
Strategic insight from info
The right thing to do here and now

Benefits

Have Better Compliance
Check Qualification, Risk and Exceptions

- *Interaction compliant with HIPAA or Sarbanes-Oxley rules?*
- *Does the client qualify for this loan?*

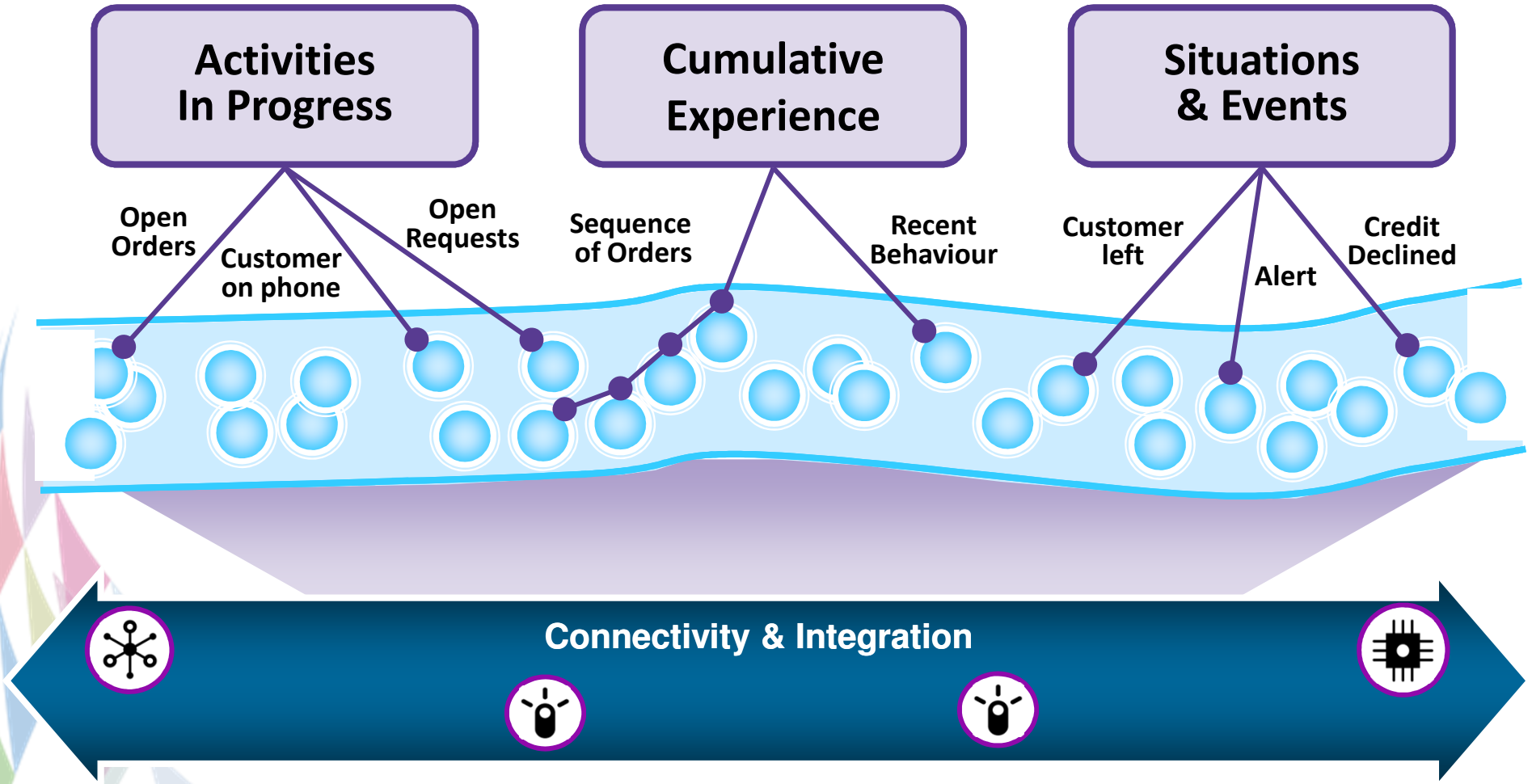
Adapt Now
Perform Process now
Improve processes, decisions and infrastructure
Make deployed platforms adaptive

- *Meet in person the important customer in the branch office*
- *Are some loan applications taking longer due to lack of systematic collection of documents?*
- *Are too many fraudulent claims missed?*
- *How to cope with changing workload to avoid slow response?*

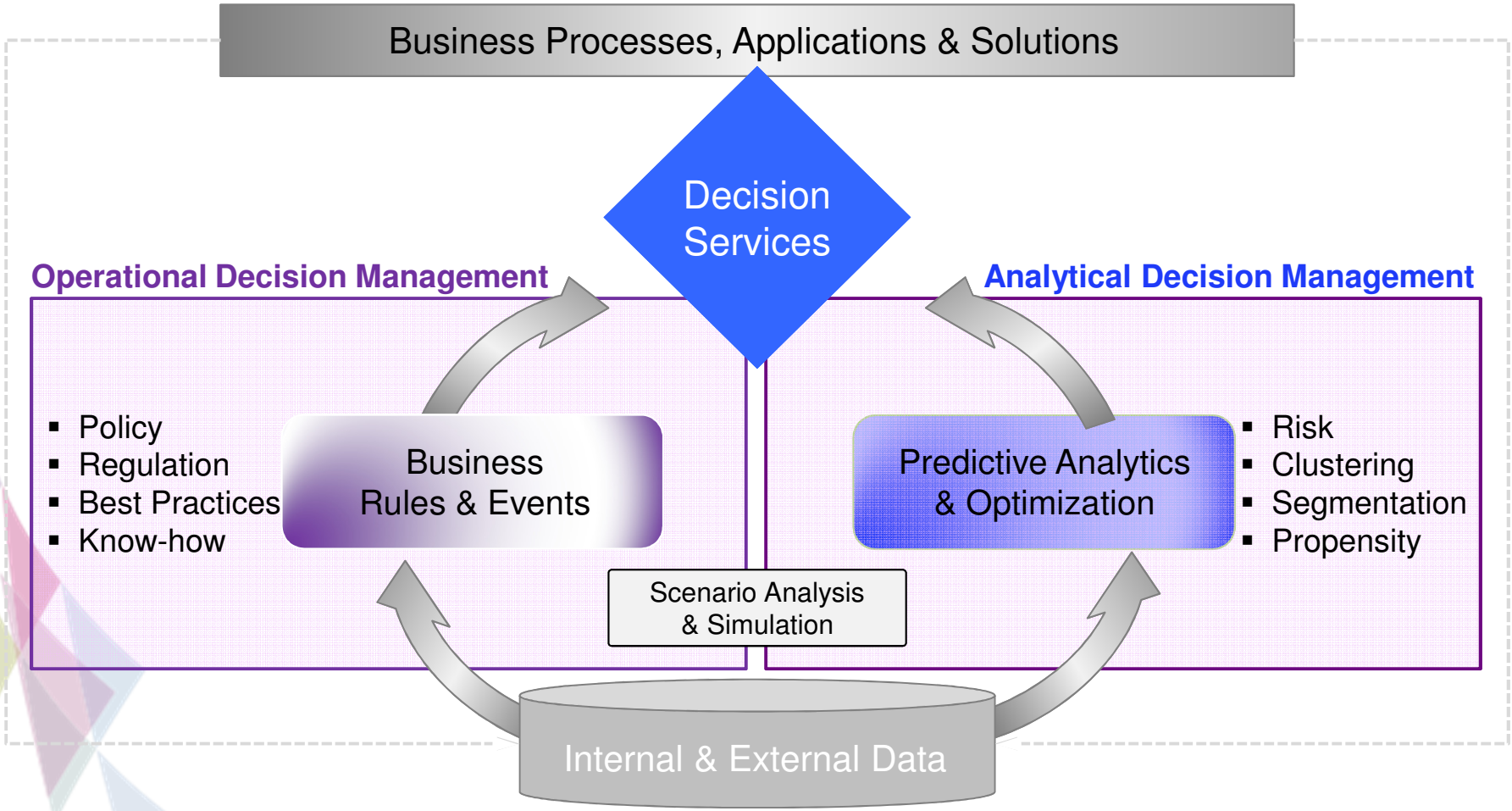
Smarter Front Office decomposed: ***Business***

Tap into data already flowing through the business

Applying intelligence to flow of real-time data to enable insight

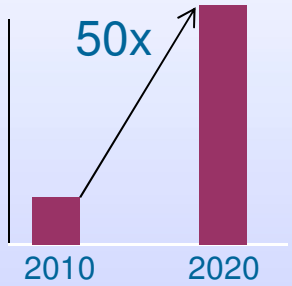


Smart Decisions: Decision Management is a business discipline that enables organizations to automate, optimize and govern repeatable business actions



Big Data is more than just big - the 4 V's of Big Data

Cost efficiently processing the growing **Volume**



35 ZB

Responding to the increasing **Velocity**

30 Billion RFID sensors and counting

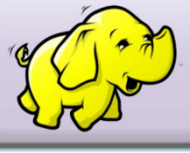
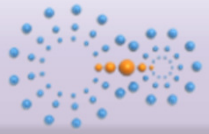
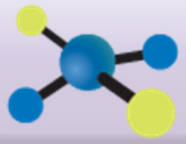
Collectively Analyzing the broadening **Variety**

80% of the worlds data is unstructured

Establishing the **Veracity** of big data sources

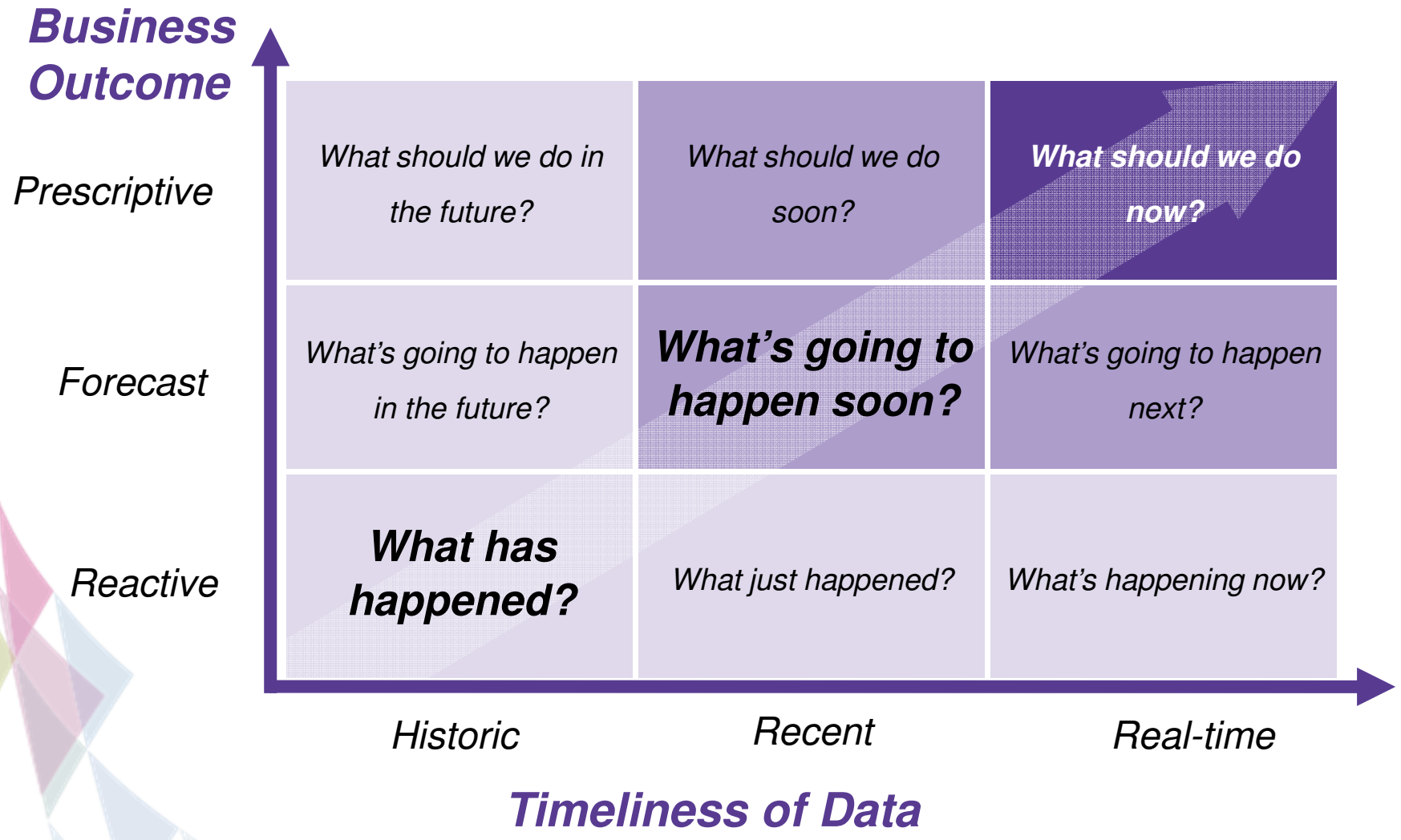
1 in 3 business leaders don't trust the information they use to make decisions

Leveraging Big Data requires multiple platform capabilities

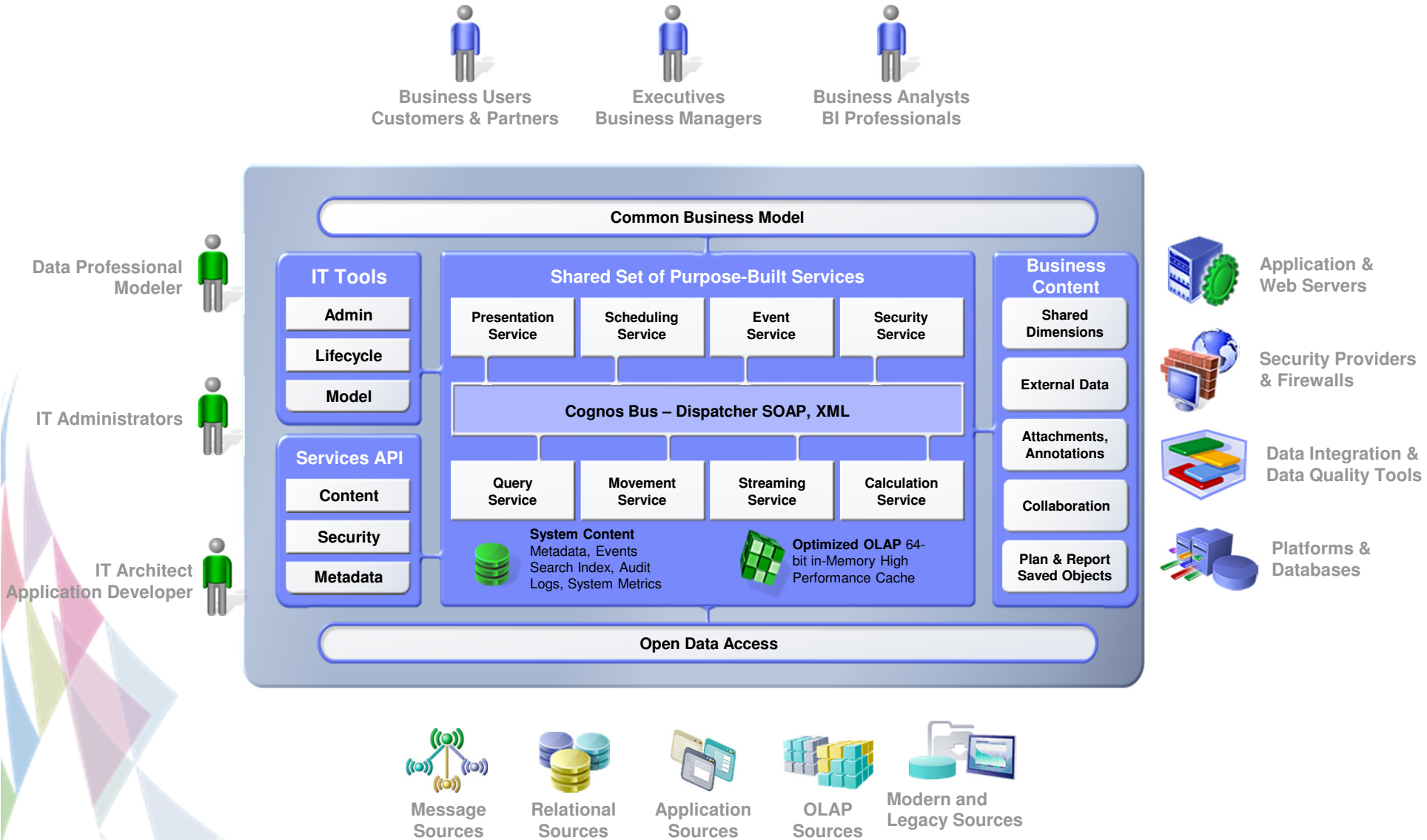
Understand and navigate federated big data sources		Federated Discovery and Navigation
Manage & store huge volume of any data		Hadoop File System MapReduce
Structure and control data		Data Warehousing
Manage Streaming Data		Stream Computing
Analyze Unstructured Data		Text Analytics Engine
Integrate and govern all data sources		Integration, Data Quality, Security, Lifecycle Management, MDM

Progressively becoming more Predictive

Giving up the notion of "certain truth"



Analytics: IBM Cognos – Built on SOA design princples



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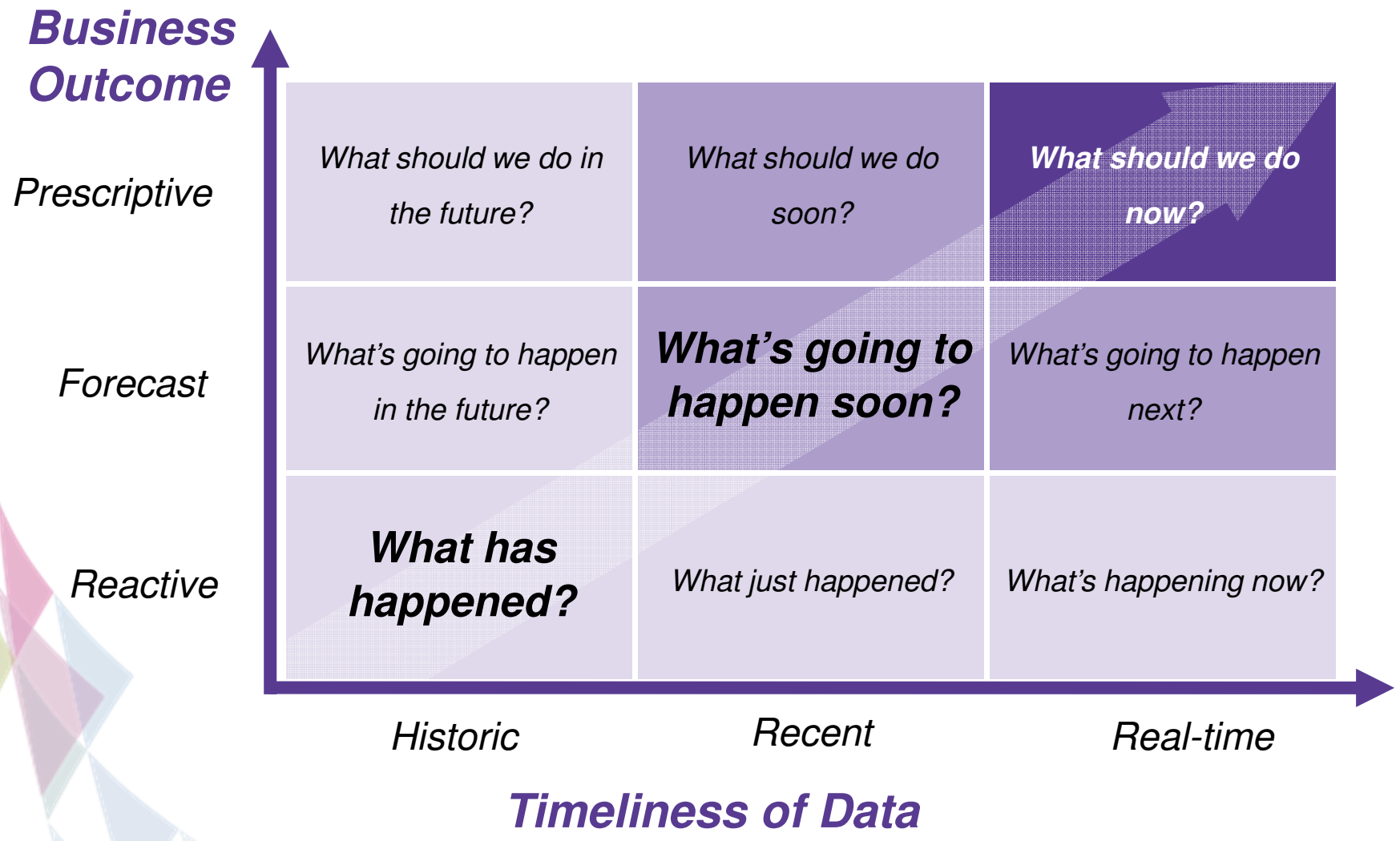
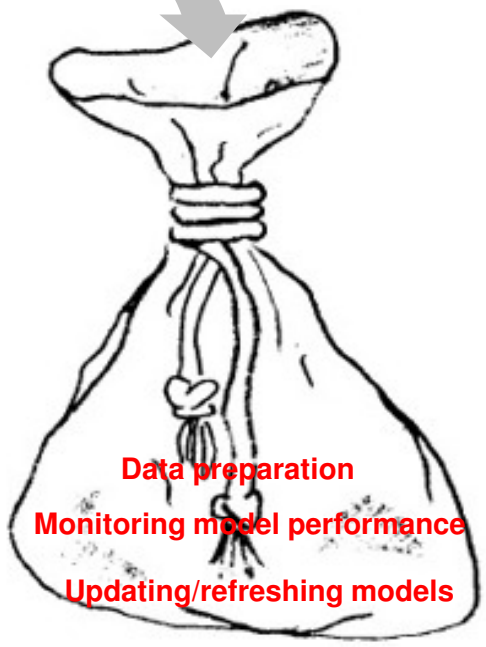


Predictive analytics: SPSS – Built on SOA design princples

- **Imagine a service that would take care of all the essential but time consuming, repetitive administrative functions so that the analyst could spend his time doing what he likes to do best**

Analyze!



IBM SPSS Collaboration and Deployment Services 5.0

More Time on your hands for Analysis

Progressively becoming more Predictive

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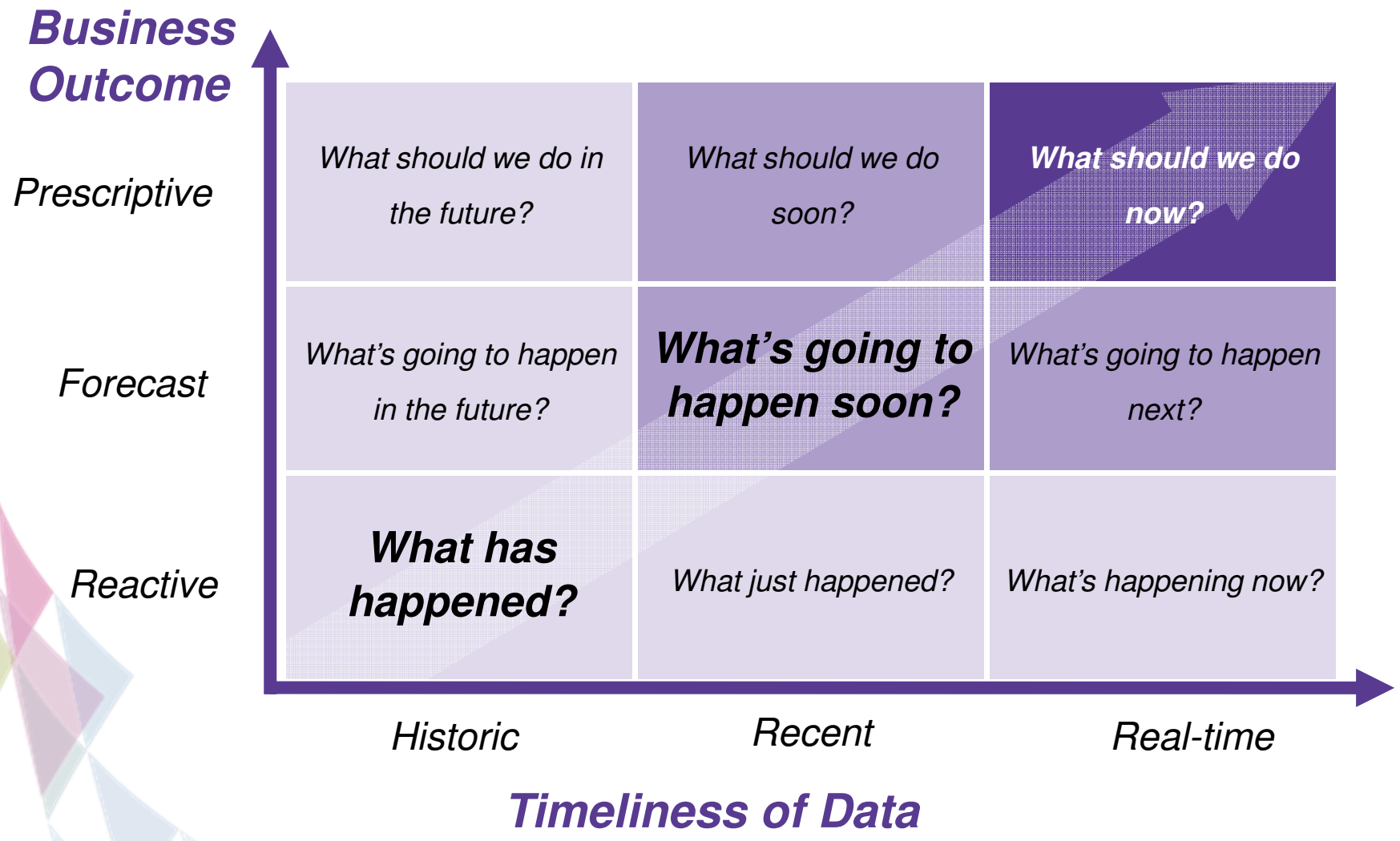


InfoSphere Streams - Analytics for Big Data In-Motion

Key Big Data Challenge – Velocity

Volume

Terabytes per second

Petabytes per day

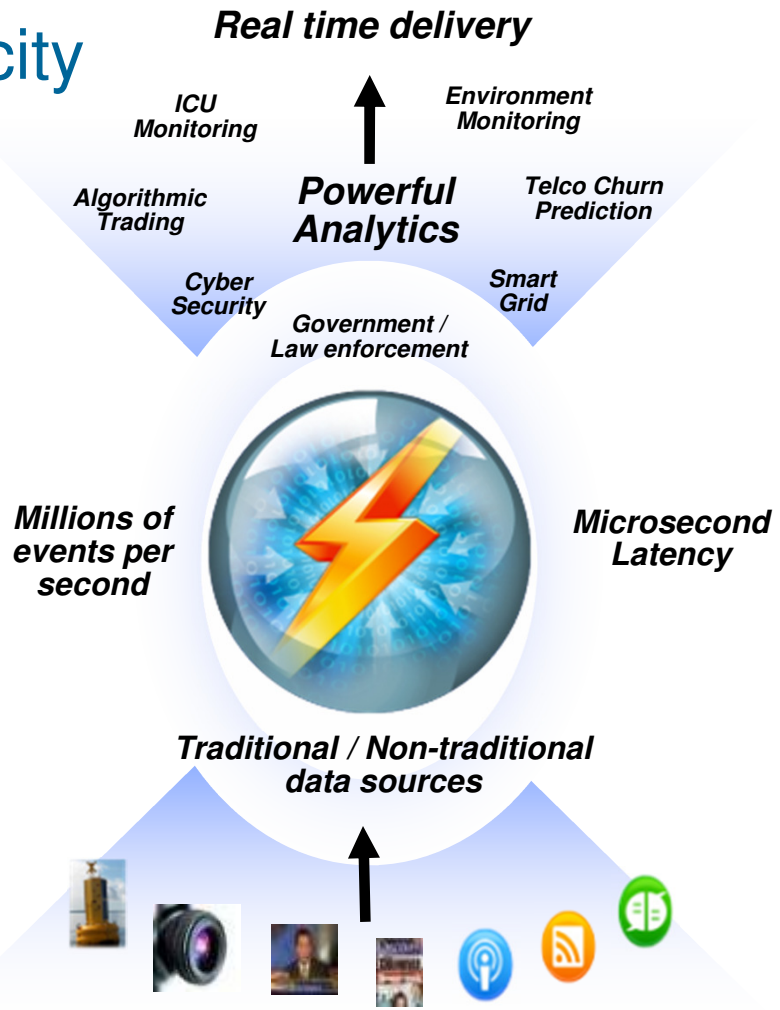
Variety

All kinds of data

All kinds of analytics

Velocity

Insights in microseconds

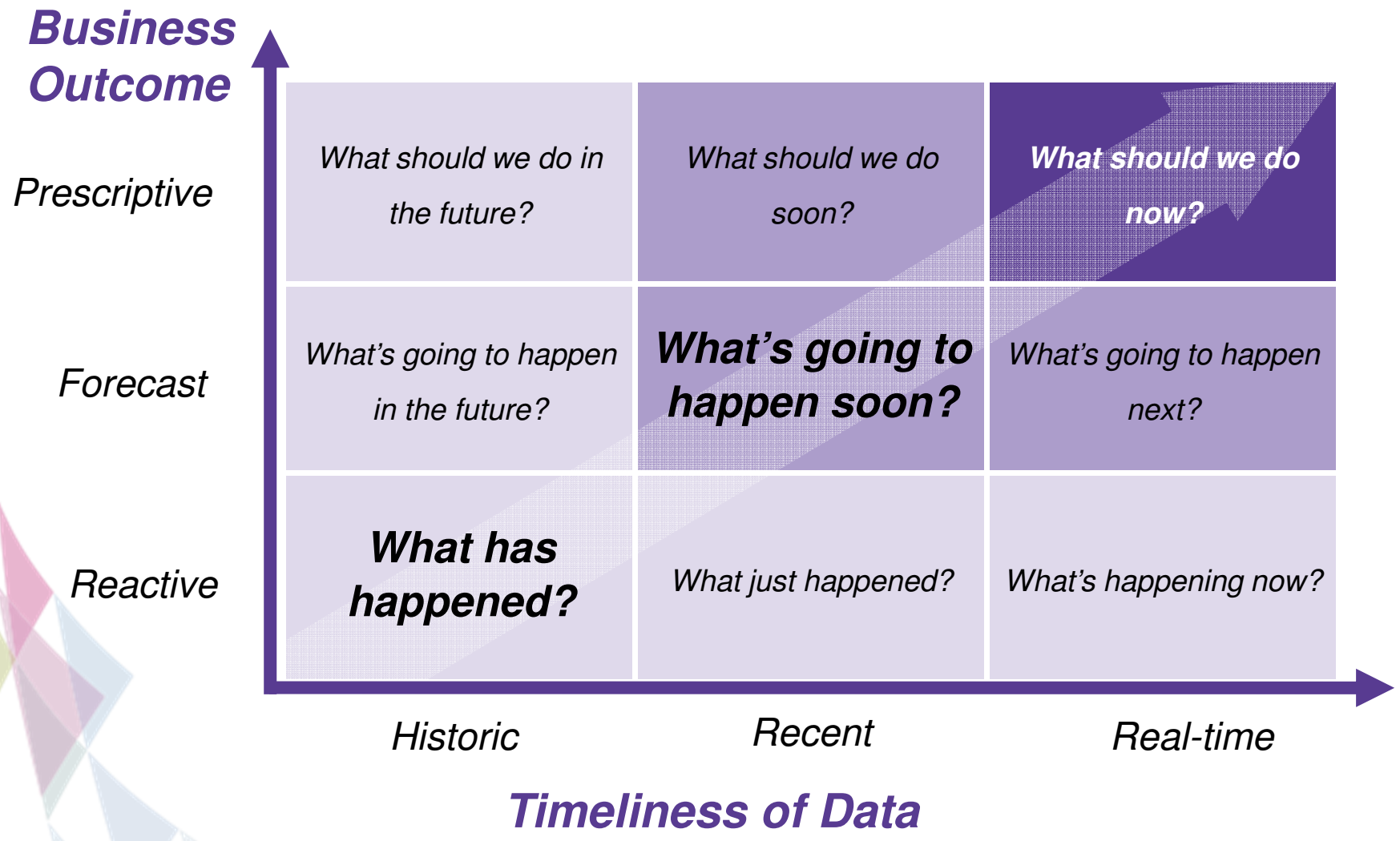


Example Streaming Data Sources:

Video, audio, networks, social media

Progressively becoming more Predictive

Giving up the notion of "certain truth"



IBM Capabilities

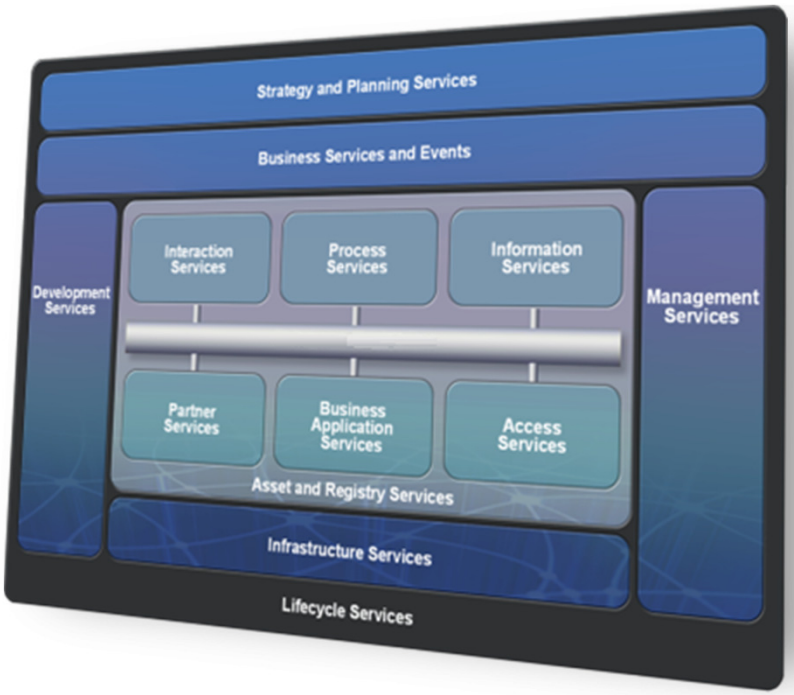
Portfolio of capabilities to underpin the Predictive Enterprise

IBM SPSS	IBM Message Broker MQ Messaging	IBM WebSphere Operational Decision Mgmt
Predictive Modelling & Analytics	**Connectivity & Integration**	**Business Rules & Events**
IBM InfoSphere Streams	IBM COGNOS	IBM NETEZZA
BigData Processing	**Business Reporting**	**Data Warehousing**

Opening up new possibilities?

“Simply good design” principles – applied to (big) data

- Service orientation at the core
- Process integrity at internet scale
- Integration with enterprise capabilities and back-end systems
- Based on industry standards
- Leveraging and extending open source technologies
- Providing the platform for a growing ecosystem



“The beauty of SOA…is that we can change our components as needed, seamlessly…it might be a business process or a whole new business model.”

-Phil Mumford, CEO, Queensland Motorways

“Make SOA a prerequisite architecture. It's time to breathe new life into your SOA initiative, this time by focusing on architecture instead of technology.”

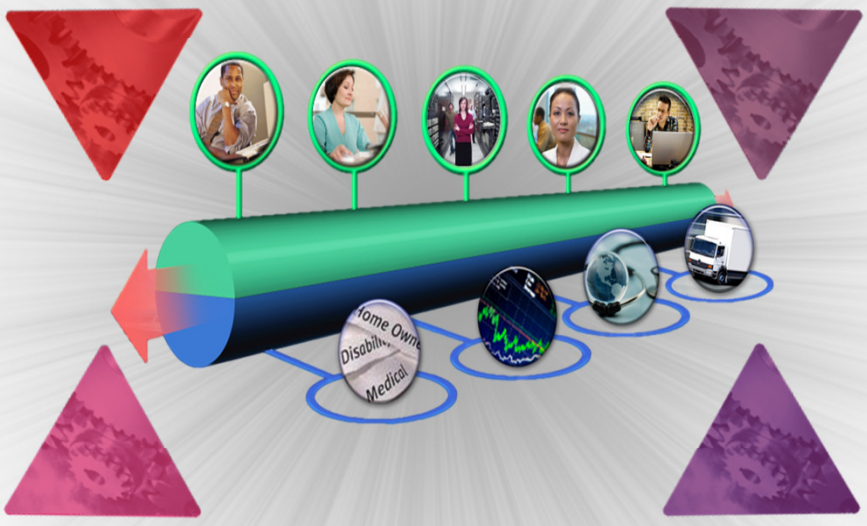
-Gartner Application and Integration Platforms Key Initiative Overview July 22, 2011

SOA and “Big data” together transforms information into insight

Partners

APIs

Cloud Services



Suppliers

Customers

Apps

Patterns

- 2005: Transactional payload (data)
- 2010: Information (data in context)
- 2015: Insight (knowledge)

Developers

How to get started?

- Identify one or two “knowledge problems” (Insight and/or Action) that could be solved by leveraging available information
  - A full scale “what should we do now” solution is not necessarily the best place to start, sometimes simple dashboards can bring a lot of value
- Instrument the necessary information sources and make them available
  - Data cleansing, event instrumentation, information integration etc.
  - Pick solutions that are as close to “out of the box” as possible (e.g. built in event instrumentation for an ESB)
- Choose and apply appropriate type of insight processing capability
  - Use the Outcome/Timeliness table

धन्यवाद

Hindi

多謝

Traditional Chinese

Teşekkür ederim

Turkish

Спасибо

Russian

Gracias

Spanish

شكرا

Arabic

Thank You

English

Obrigado

Portuguese

Grazie

Italian

Danke

German

多谢

Simplified Chinese

Merci

French

Multumesc

Romanian

감사합니다

Korean

ありがとうございました

Japanese