



TRANSFORMING DATA INTO ACTIONABLE KNOWLEDGE

The Ninth National Quality Colloquium

Sanjaya Kumar, MD, MPH

President and CEO

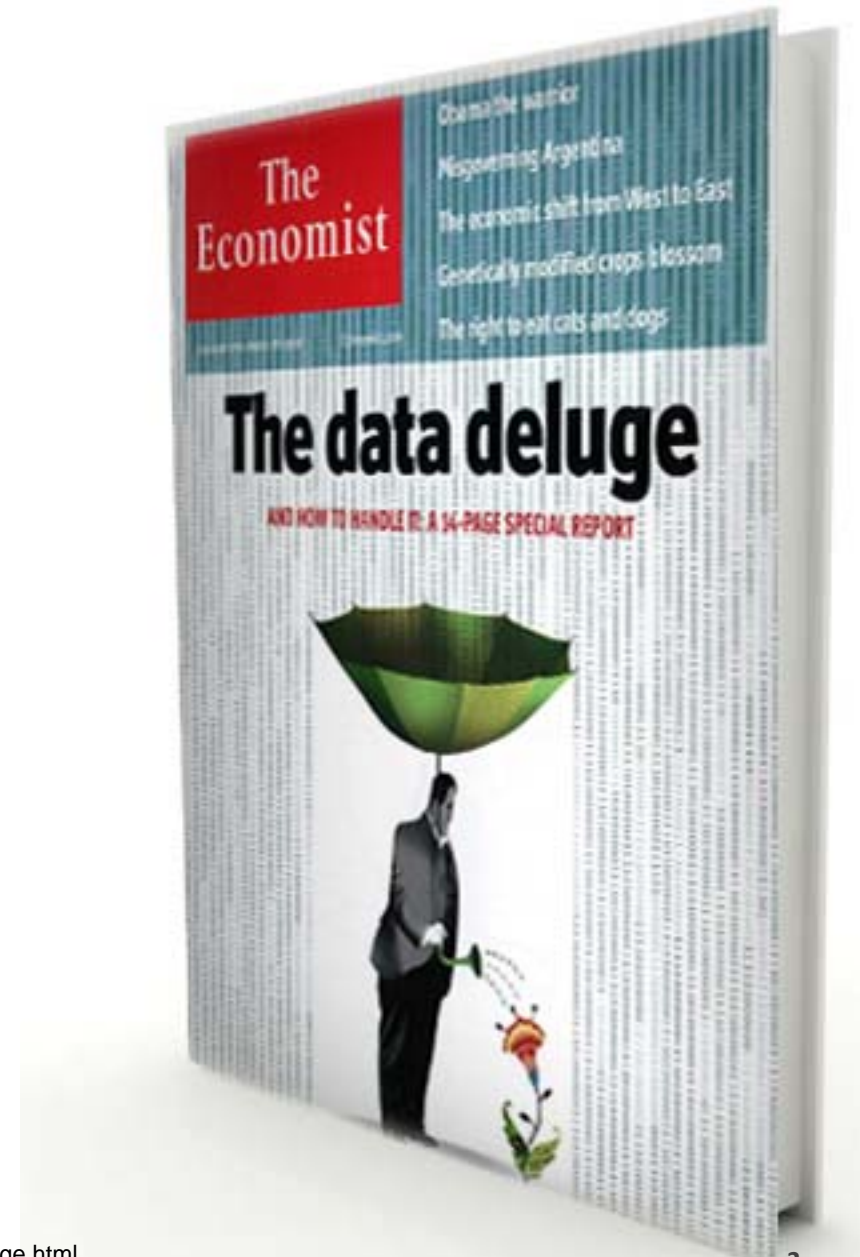
Quantros, Inc

August 17, 2010

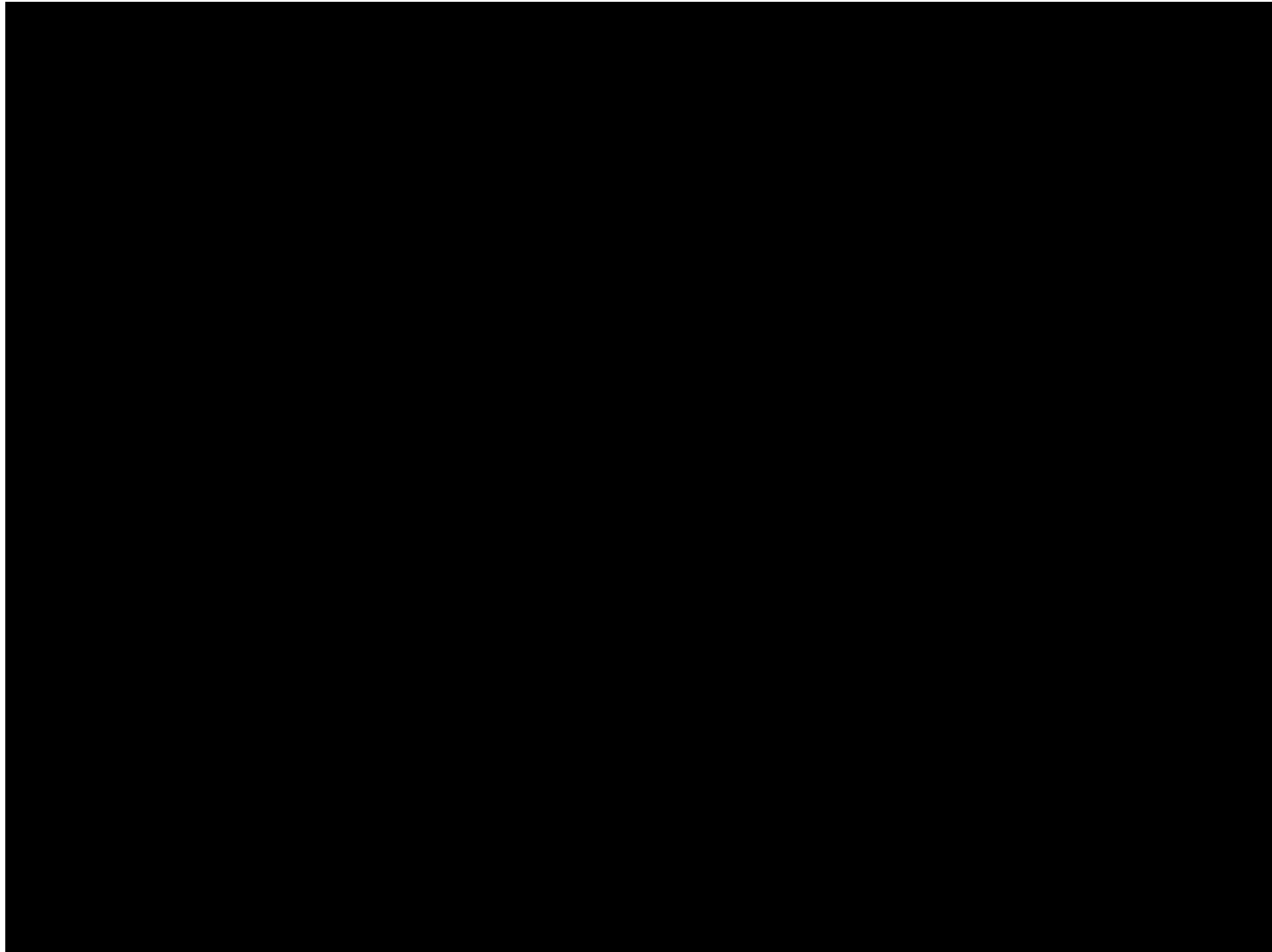
QUANTROS

Age Of “Big Data”

- **Macroeconomic Effect**
- **Collect**
- **Store**
- **Correlate**
 - Real-time clinical data with financial and operational data
- **Analyze**
- **Provide senior leadership with actionable knowledge**
- **Business intelligence solutions**



Data Alone Can be Dangerous...



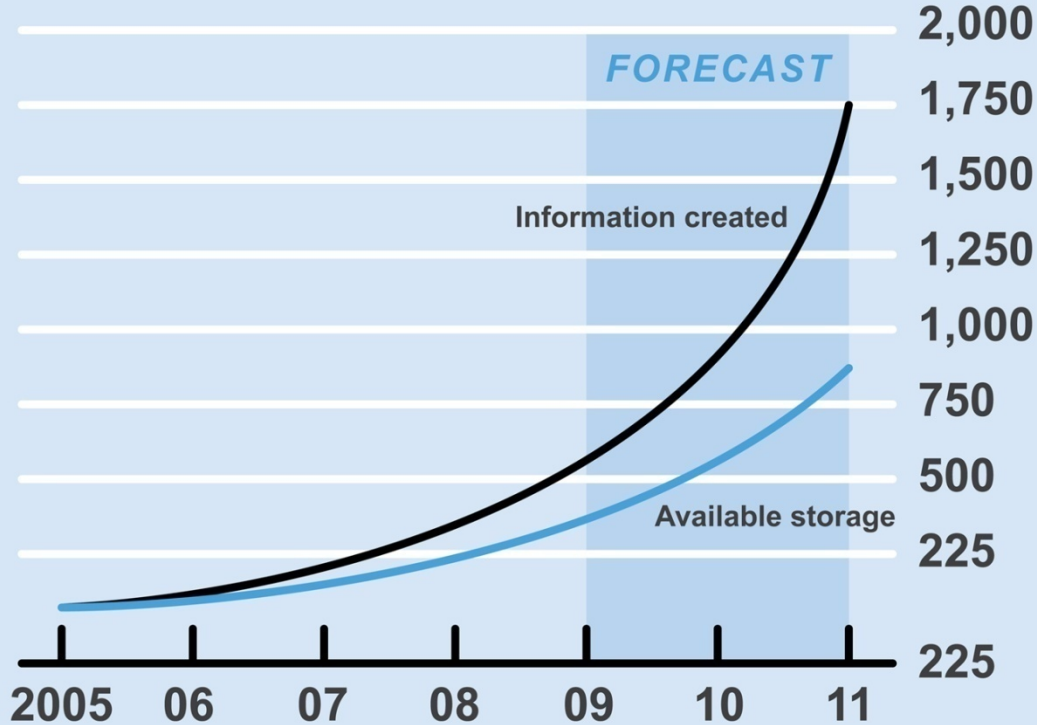
Growth in Healthcare Data

Overload

Global information created and available storage
Exabytes

More Data
Last 3 Y
Previous
Combin

40,000 BCE
cave paintings
bone tools



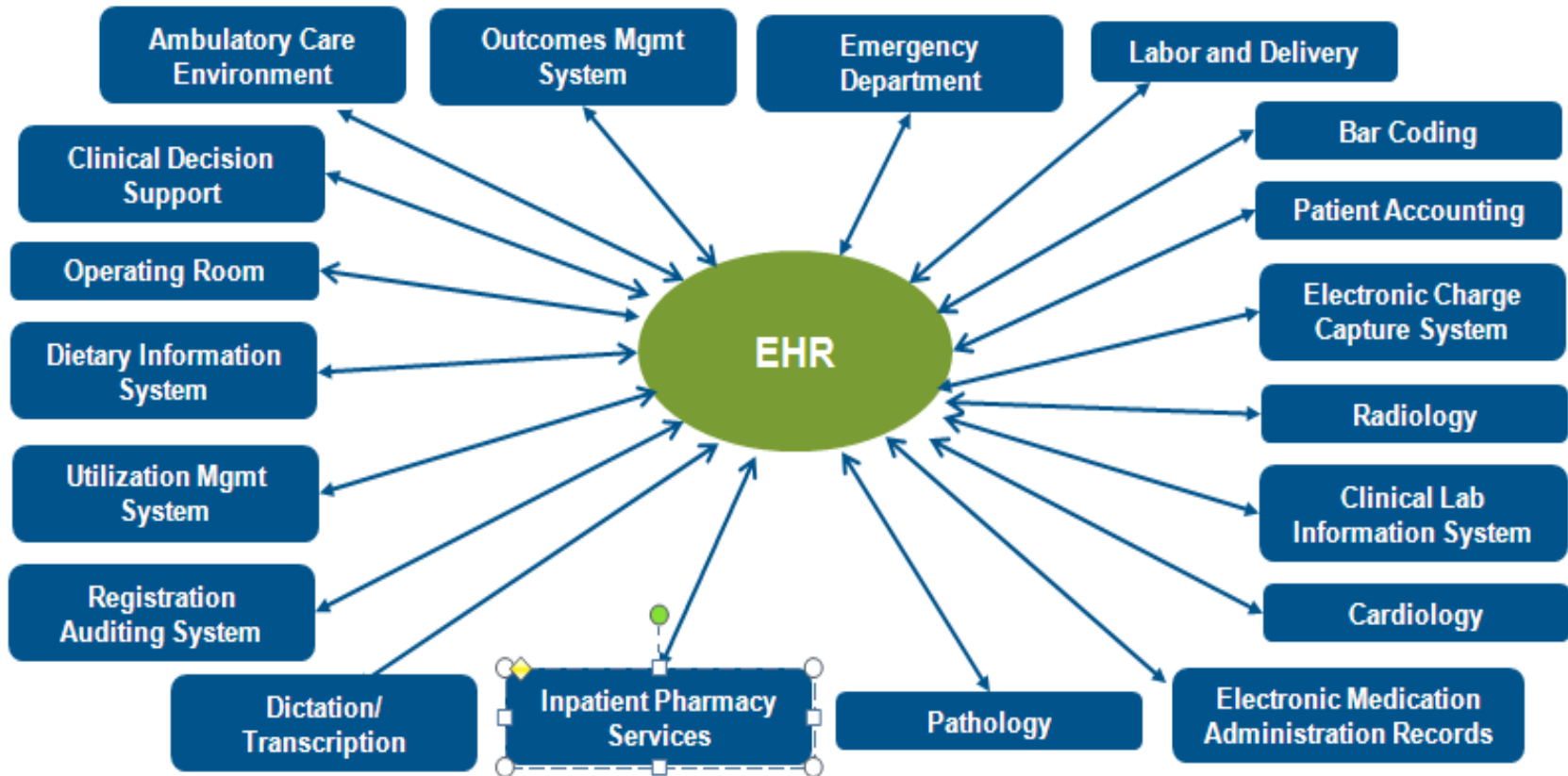
Storage

Petabytes

Source: IDC

INFORMATION MANAGEMENT CHALLENGES

Healthcare Data Sources



American Hospital Association

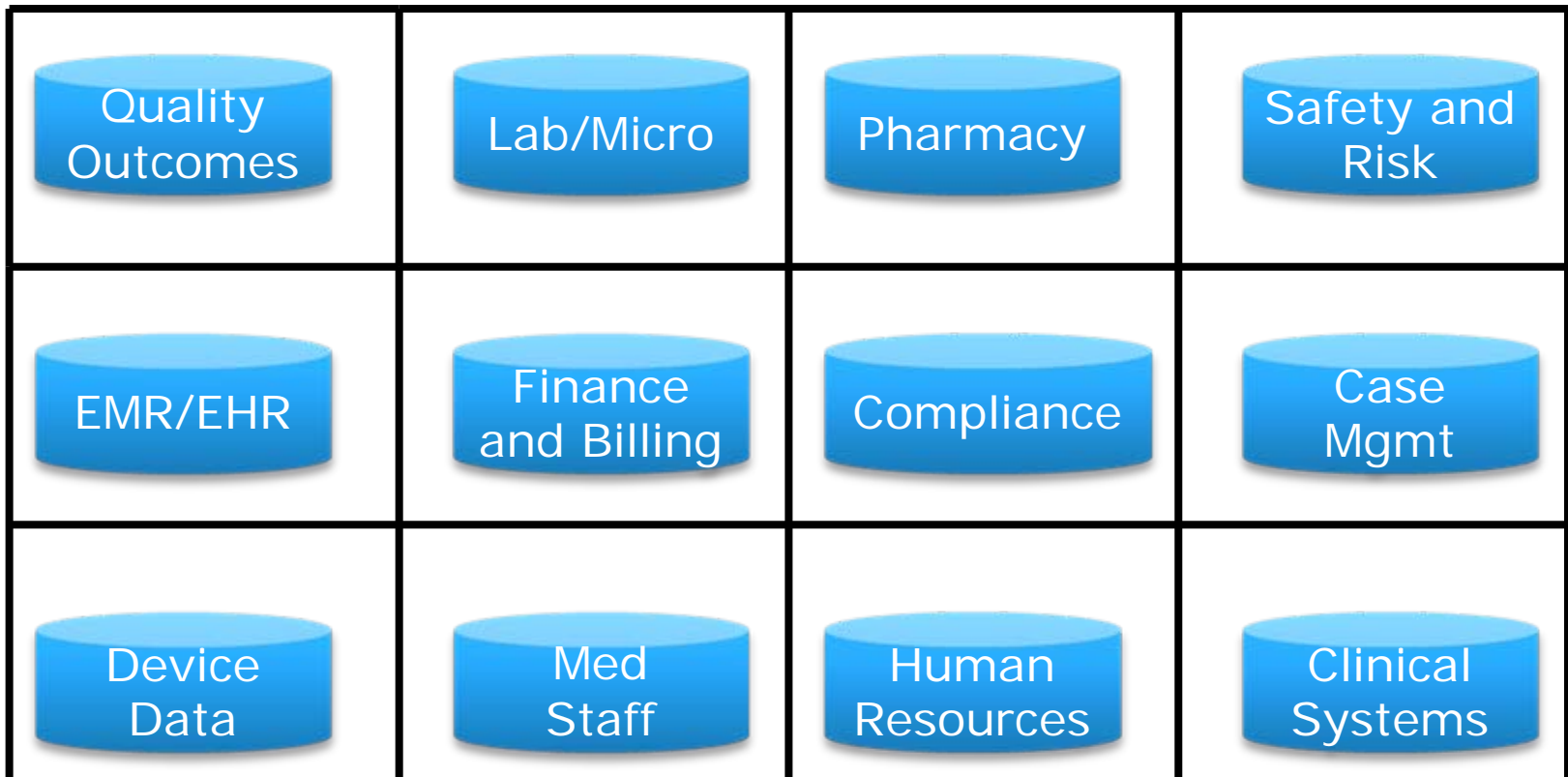
Source: Avalere Health adaptation based on ProHealth Care's iCare hospital information system and electronic medical record.

Research and analysis by Avalere Health



Healthcare Providers Have a Wealth of Data...

But It's Compartmentalized and Isolated



Problems Are Not New

- **Difficult acquisition from electronic systems**
- **Multiple and disparate systems**
- **Unnecessary barriers in the exchange**
- **Resource-intensive data mapping efforts**

AHRQ Conference on Health Care Data Collection and Reporting

Collecting and Reporting Data for Performance Measurement: Moving Toward Alignment

Report of Proceedings

November 8-9, 2006
Chicago, IL

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
540 Gaither Road
Rockville, MD 20850
www.ahrq.gov

BPA Contract Number 2032005000032938

Prepared by:

The Foundation of Research and Education (FORE) of the American Health
Information Management Association (AHIMA) and the Medical Group
Management Association Center for Research (MGMA CFR).

Barriers Include...



Insufficient data



Incorrect data associations



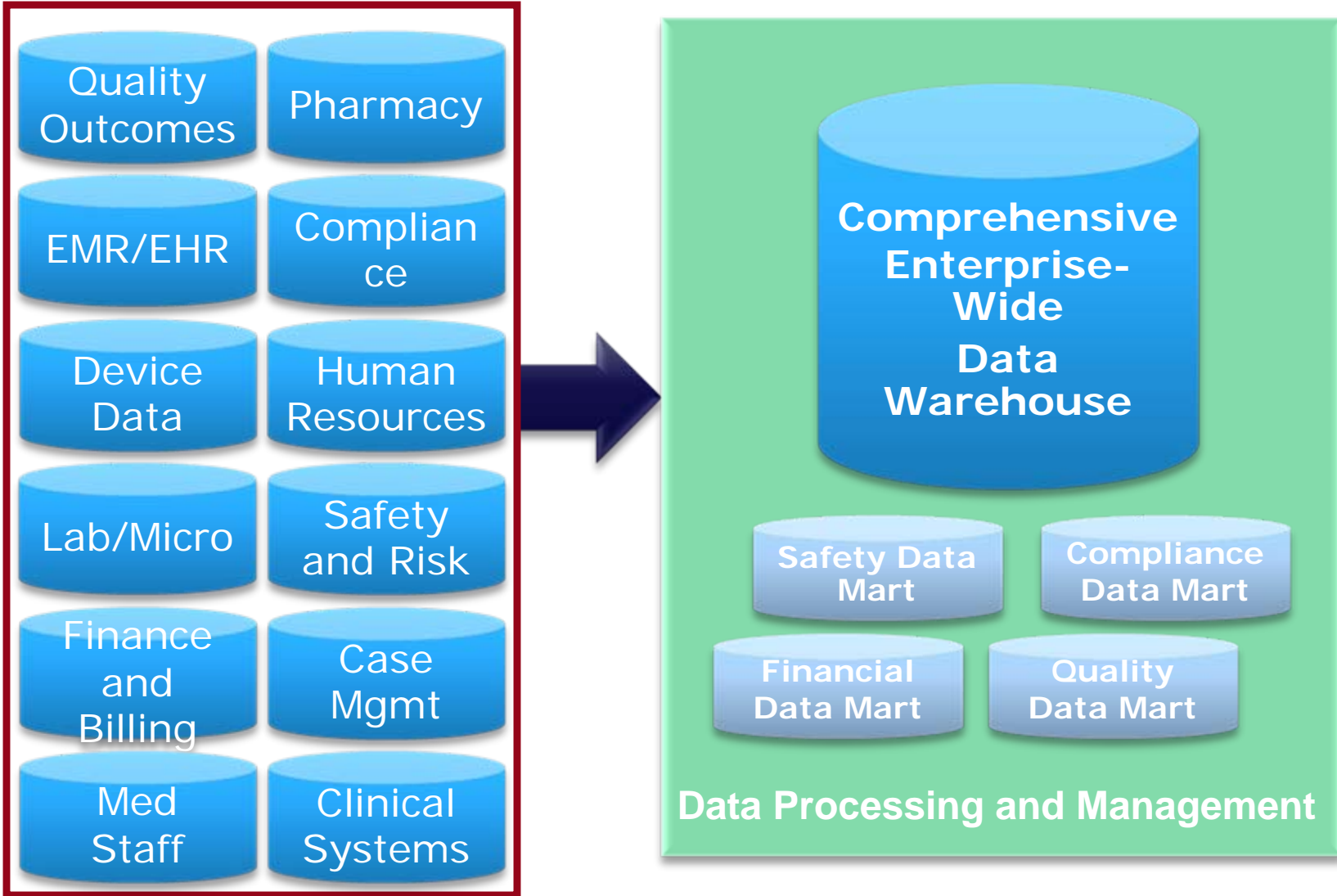
No timely access to data



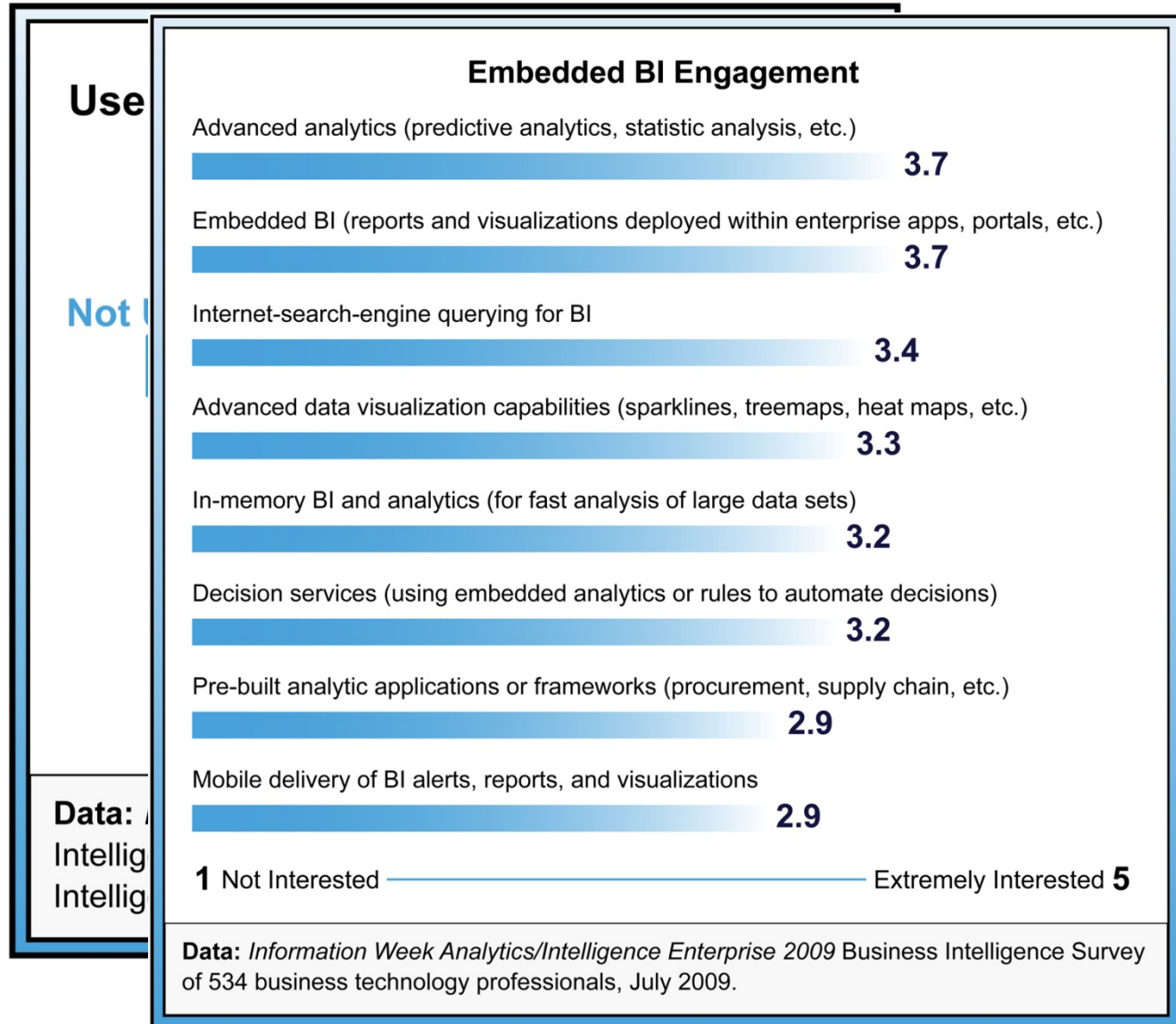
Lack of insight into correlations

OVERCOMING THE CHALLENGES

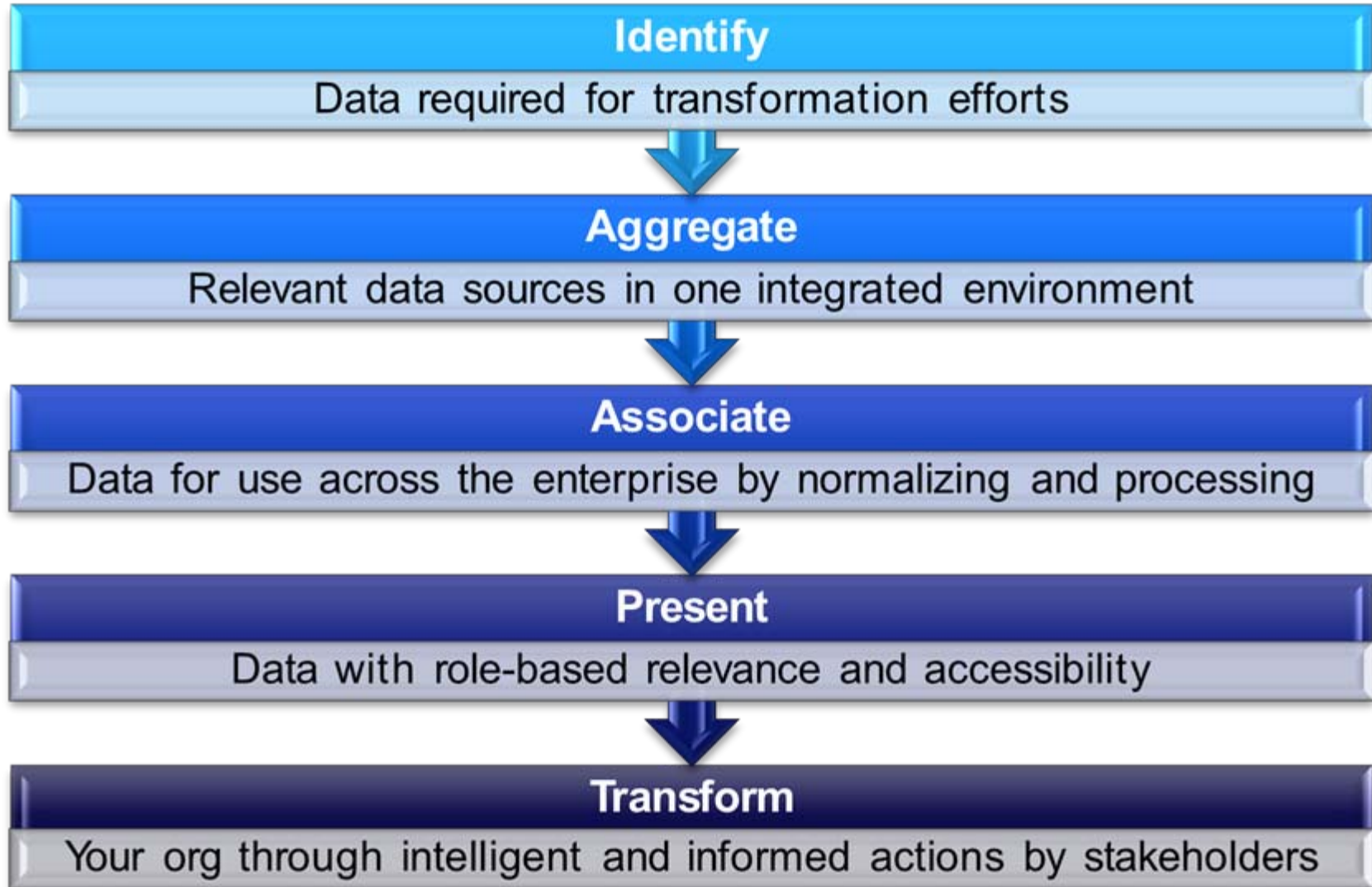
Creating the Transformation Picture



Using BI Tools



The 5 Step Transformation Process

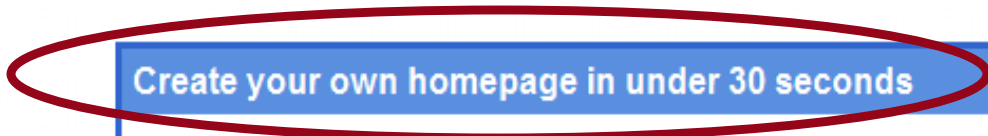




[Advanced Search](#)
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Google Search

I'm Feeling Lucky



Create your own homepage in under 30 seconds



Select Interests: (Choose all that apply)

- Music
- News
- Entertainment
- Technology
- Business
- Games
- Humor
- Sports
- Social
- Art
- Cooking

Select a theme:

-
-
-
-
-

Choose Location:

Country/Region: City/Zip code:

(Already have a page? [Sign in](#) to see your stuff.)

See your page

Weather

North Attleboro

 **84°F** Current: Partly Cloudy
Wind: SW at 10 mph
Humidity: 55%

Wed	Thu	Fri	Sat
			
87° 72°	84° 63°	81° 59°	79° 60°

The Wall Street Journal

WHAT'S NEWS VIDEO MOST POPULAR

Arizona Immigration Law Partly Blocked
A federal judge blocked key sections of Arizona's tough new immigration law, granting the Obama administration's ...

Rising Temperatures Harm Ocean Plant Life

Pakistan Jet Crash Kills All 152 Aboard

Glum Fed Report Weighs on Stocks

Judge: No Charges for Gov. Paterson


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Date & Time



Wed
JUL
28

Gmail



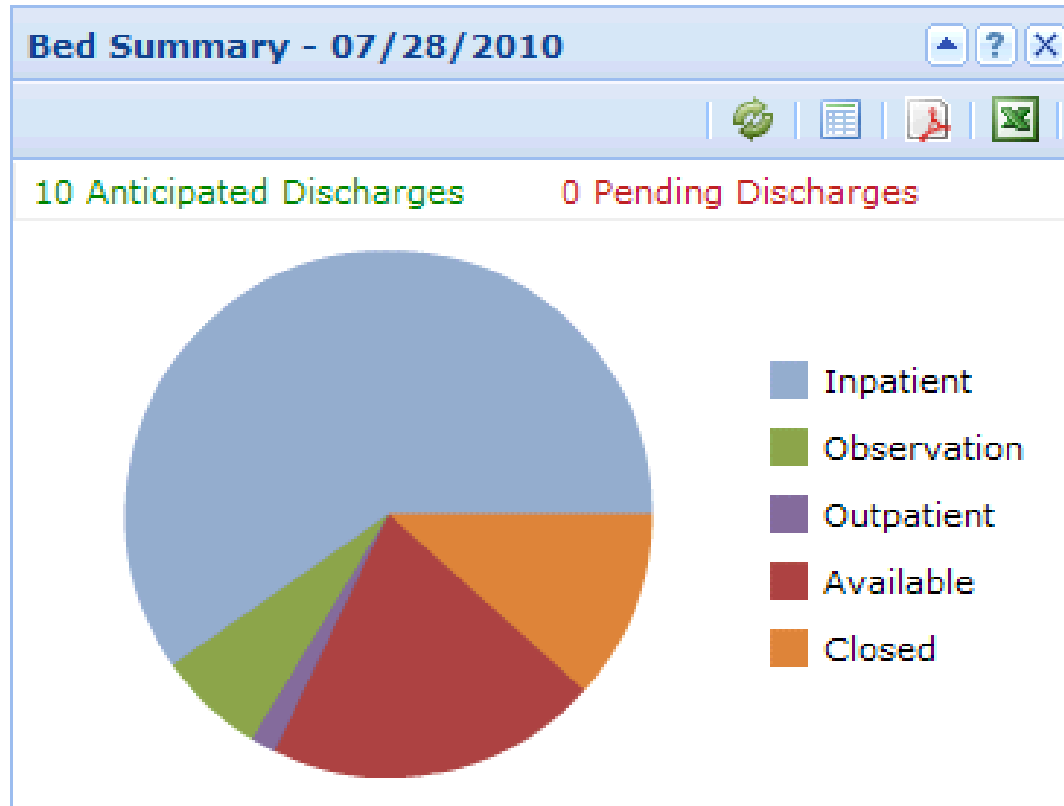
Create an Account

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And Many More...

Healthcare-Centric Widgets



Portal Page: On-Demand Analytics

Welcome John to IRIS Executive
Quantros Demo Hospital | Mar 20, 2010 2:30 PM

Scorecard
Home Settings Help Log Out

KPM Monitor

Year 09 | Q2 09 | **Aug 09** | Jul 09 | Jun 09

Search & Add...

KPM ID	Performance	Volume
AMI-1	98.8 % (0.2 ↑)	527 (32 ↑)
AMI-2	96.3 % (0.4 ↓)	682 (43 ↓)
AMI-3	92.2 % (1.3 ↑)	986 (41 ↑)
AMI-4	86.9 % (4.1 ↓)	276 (65 ↓)
AMI-5	50.0 % (4.3 ↑)	27 (3 ↑)
AMI-7	99 Min (6 ↓)	87 (9 ↑)
AMI-7a	55.4 % (1.2 ↑)	165 (↔)
AMI-8	368.0 Min (43.2 ↑)	21 (2 ↑)
AMI-8a	83.4 % (2.9 ↑)	61 (7 ↑)
AMI-9	100.0 % (↔)	73 (3 ↑)

Case Mix Index (Rolling 12 Months)

All Payers

Case Mix Index (Blue bars), CMI Baseline (Green line)

LOS & Charges Variance

Year 09 | Q2 09 | **Aug 09** | Jul 09 | Jun 09

Top 10 LOS Var

Provider (ID)	Cases	LOS Variance	Charges Variance
Clarke, S (1401381)	6	-69% (-2.24)	-75.2% (-\$34,227)
Kim, D (1403422)	6	-39% (-1.39)	-42.2% (-\$13,765)
Stratmann, H (1405825)	7	-39% (-0.97)	6.3% (\$1,938)
Fraser, A (1402242)	39	-30% (-0.53)	-1.5% (-\$344)
Kratz, D (1403532)	32	-30% (-0.5)	27.5% (\$6,030)
Ledger, G (1403664)	15	-29% (-0.42)	-12.5% (-\$2,523)
Geier, D (1402357)	16	-29% (-1.45)	-39.7% (-\$9,634)
Bansal, S (140579)	58	-28% (-1.01)	-26.5% (-\$9,626)
Hover, A (1402990)	30	-28% (-1.67)	-37.1% (-\$12,336)
Atwood, S (140502)	12	-27% (-1.19)	-12.5% (-\$3,352)

Volume Distribution by Admit Source

Year 09 | Q1 10 | **Jan 10** | Dec 09 | Nov 09

Top 6 Admit Source

ER PR TH CR PD N/A

Provider Outcome Ratio

Year 09 | Q2 09 | **Aug 09** | Jul 09 | Jun 09

Brother, M

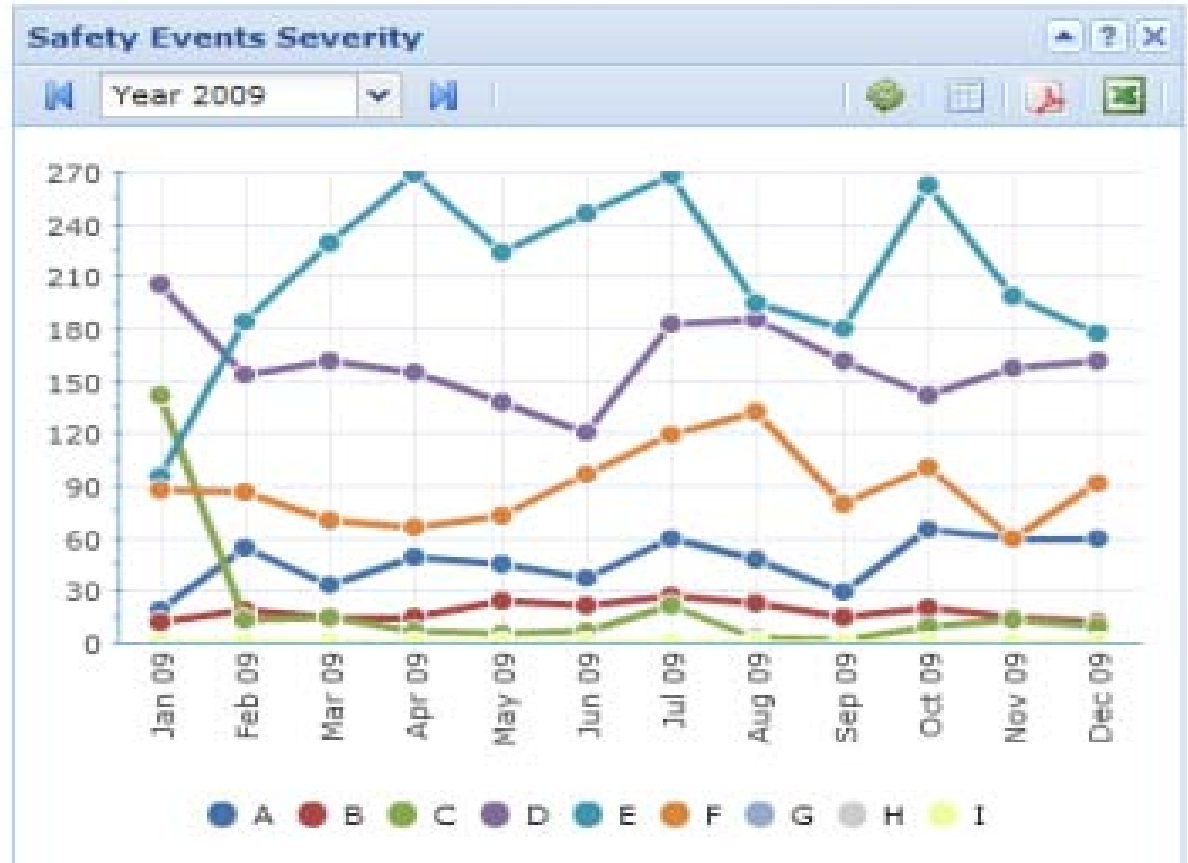
Provider Service Line Department

Volume & Mortality Distribution by DRG

Year 09 | Q2 09 | **Aug 09** | Jul 09 | Jun 09

Top 10 Mortality DRG

Patient Volume % Mortality



Configurable

Stakeholders configure the application to meet their requirements

Scorecard View More Measures

The screenshot displays the QANTROS Scorecard View interface. At the top, there are navigation tabs for 'i Scorecard', 'i Views', 'Alerts (3 New)', and 'FYI Mails (12 New)'. Below these are category filters: 'Overall', 'Quality', 'Safety', 'Compliance', 'Finance', and 'Operations'. The main content area is titled 'Quality >> Performance >> Myocardial Infarction (AMI)'. A toolbar includes 'Default', 'Add', 'Delete', 'Reset', 'Refresh', 'PDF', and 'Excel' buttons. A search bar and a date selector for 'Nov 2009' are also present. The main table lists various performance metrics with columns for 'KPM ID', 'Key', 'Volume', and 'Rolling 13 Months Performance'. A context menu is open over the 'Quality' category, showing options like 'Performance', 'Accountability', 'Comparatives', and 'Benchmarks'.

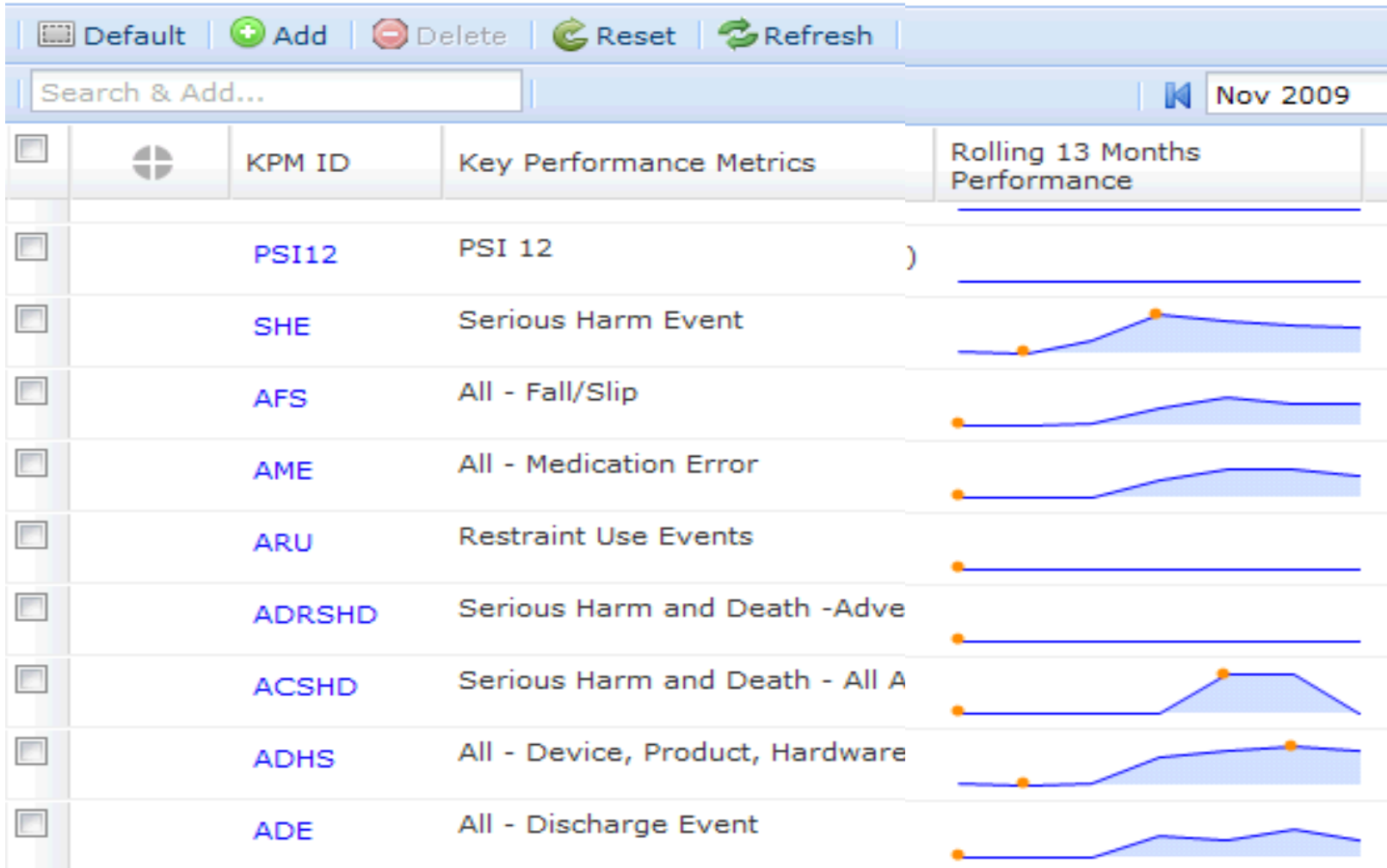
KPM ID	Key	Volume	Rolling 13 Months Performance
AMI-1	Asp	27 (32 ↑)	[Line Chart]
AMI-2	Asp	32 (43 ↓)	[Line Chart]
AMI-3	ACE	36 (41 ↑)	[Line Chart]
AMI-4	Adult Smoking Cessation Advice/Counseling	86.9 % (4.1 ↓) 276 (65 ↓)	[Line Chart]
AMI-5	Beta-Blocker Prescribed at Discharge	50.0 % (4.3 ↑) 27 (3 ↑)	[Line Chart]
AMI-7	Median Time to Fibrinolysis	99 Min (6 ↓) 87 (9 ↑)	[Line Chart]
AMI-7a	Fibrinolytic Therapy Received Within 30 Minutes of Hospital Arrival	55.4 % (1.2 ↑) 165 (↔)	[Line Chart]
AMI-8	Median Time to Primary PCI	668. Min (13 ↓) 77 (2 ↑)	[Line Chart]
AMI-8a	Primary PCI Received Within 90 Minutes of Hospital Arrival	83.4 % (2.9 ↑) 61 (7 ↑)	[Line Chart]

User Configurable Scorecards

IMPROVING PERFORMANCE

Scorecard for Patient Safety

Overall >> Performance



Falls- With and Without Injuries

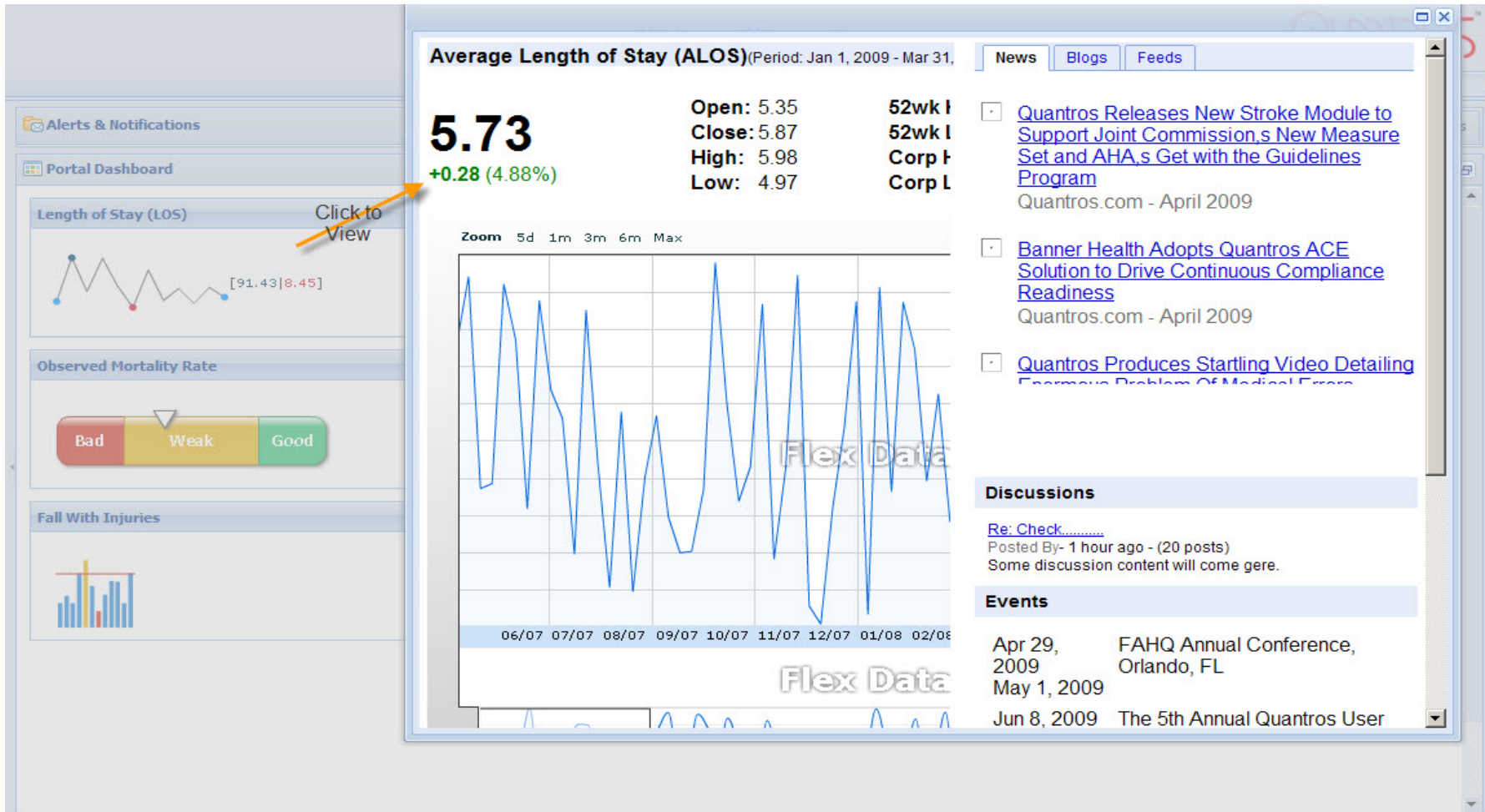
- Correlated to LOS and cost

Falls with Injuries vs. Falls with No Injuries

PDF Excel Select Region ... Select Facility ... Select Department ...											
	Falls With Injuries					Falls With No Injuries					Difference
	Overall	Minor	Moderate	Major	Extreme	Overall	Minor	Moderate	Major	Extreme	
Record Count	35	5	16	13	1	252	14	132	82	24	
LOS (Average)	12.39	8	10.75	15.84	14	12.47	11.92	9.42	15.7	18.33	-0.08
LOS (Median)	9.5	4	7.5	12	14	9	10	7	11	14	0.5
Total Charges (Median)	\$ 54,590	\$ 34,146	\$ 41,760	\$ 95,053	\$ 223,984	\$ 48,444	\$ 44,506	\$ 36,163	\$ 80,270	\$ 84,413	\$ 6,146
Total Charges (Average)	\$ 88,188	\$ 46,740	\$ 53,363	\$ 126,099	\$ 223,984	\$ 83,445	\$ 45,399	\$ 52,583	\$ 117,837	\$ 157,874	\$ 4,743
Total Cost (Median)	\$ 11,281	\$ 8,800	\$ 7,601	\$ 18,470	\$ 24,861	\$ 9,222	\$ 7,763	\$ 6,943	\$ 13,885	\$ 16,019	\$ 2,059
Total Cost (Average)	\$ 14,521	\$ 5,191	\$ 10,577	\$ 19,984	\$ 24,861	\$ 16,098	\$ 9,493	\$ 9,331	\$ 23,884	\$ 30,565	\$ (1,577)

From Identification to Prevention

Key Performance Measure Attributes



The Drilldown

View trend, key comparatives and data for associated indicators

Cost of Quality

- Clinical care correlated to LOS and Charges
- Consequences of poor care

AMI-PACS Quality Analysis

PDF Excel			
Select Region ... Select Facility ... Select Department ...			
Description	Compliant Care	Non-Compliant Care	Difference
Corporate			
Record Count	3354	227	
LOS (Average)	5.5	6.52	-1.02
LOS (Median)	4	4.5	-0.5
Total Charges (Average)	\$ 97,644	\$ 110,604	-\$ 12,960
Total Charges (Median)	\$ 77,351	\$ 811	-\$ 3,705
Total Cost (Average)	\$ 15,236	\$ 18,470	-\$ 3,234
Total Cost (Median)	\$ 11,142	\$ 11,457	-\$ 314

**Shorter LOS and Lower Costs =
Better Quality Care**

INSIGHTS INTO THE FUTURE

Where Clinical Business Intelligence is Headed...

- **Joining disparate data sources into actionable info**
- **Creating an information-empowered culture**
- **Pointing out needs, connection points for new applications**
- **Leveraging existing infrastructure**

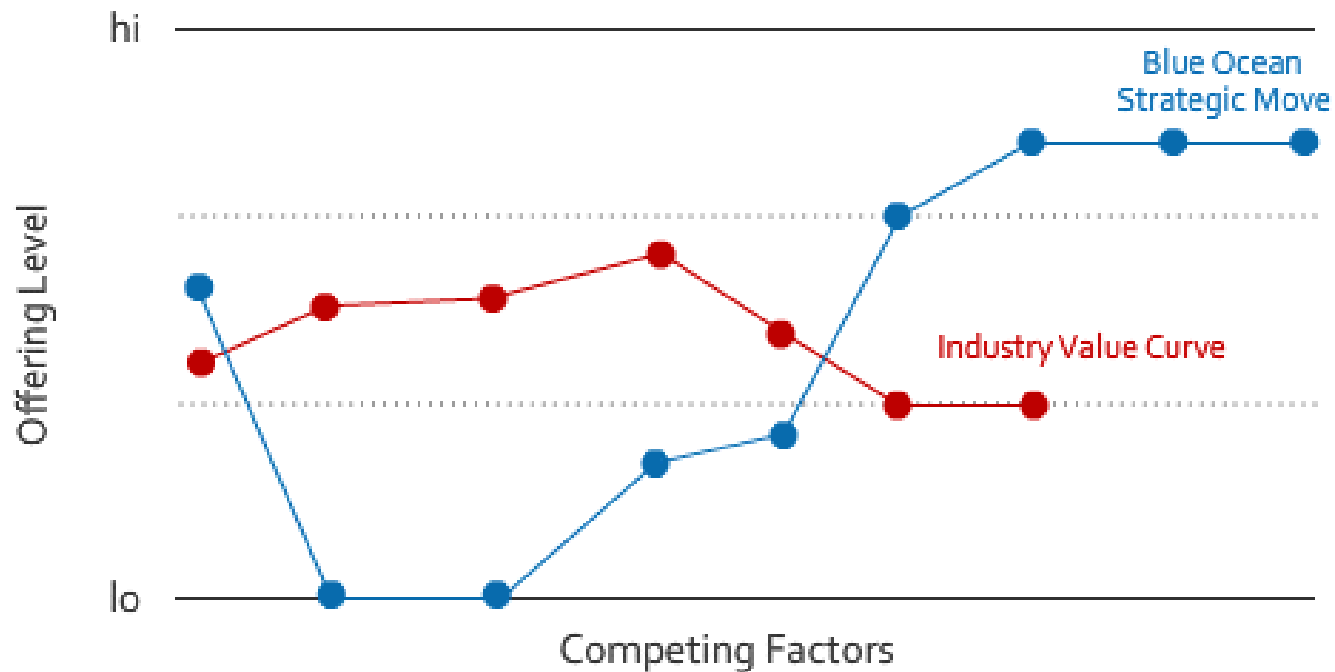


Clinical Business Intelligence empowers organizations to realize the best possible value

Focusing on Disruptive Technology

Strategy Canvas

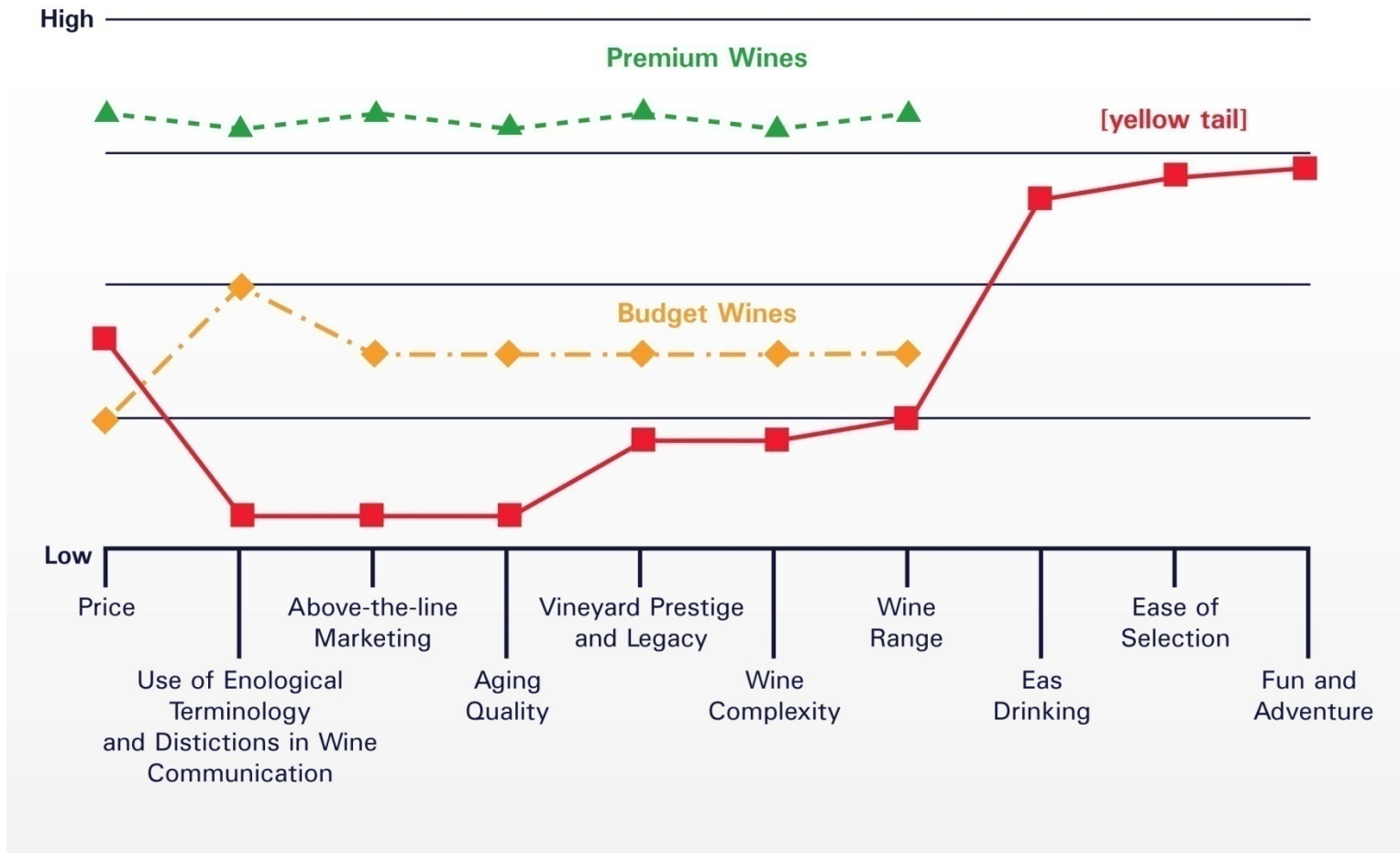
[Return to BOS tools](#)



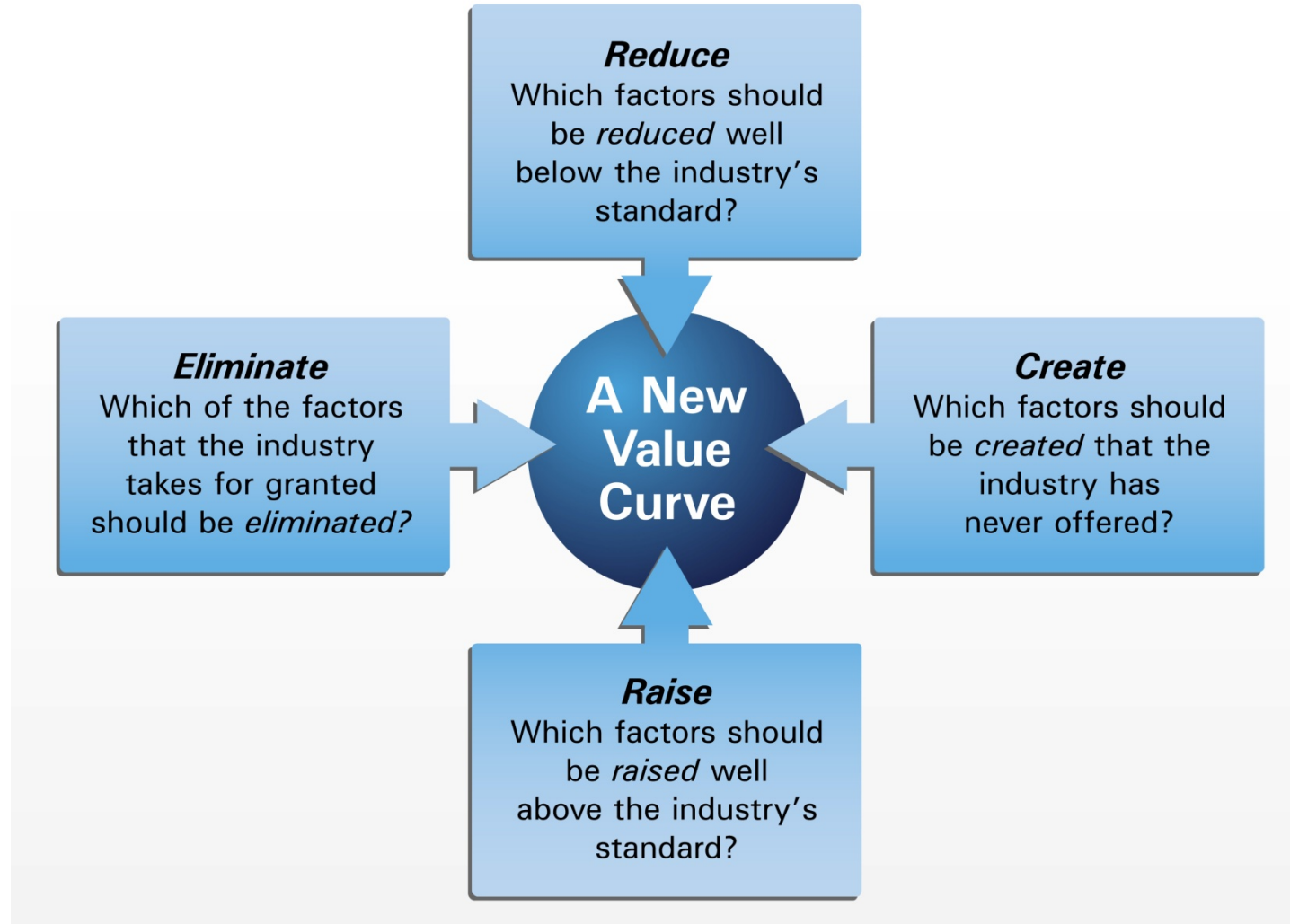
Source: http://www.blueoceanstrategy.com/abo/strategy_canvas.html

Strategy Canvas Example

The Strategy Canvas for [yellow tail]



Four Actions Framework



Influences and Trends to Stay Ahead of:

- **Transparency**
- **"P4P" into "P4O"**
- **Expanding Measurement Focus**
 - From inpatient, to outpatient, to patient & family across settings
- **"Activated Employer" Interest/Involvement**
- **Distributed Decision Making at "Highest and Best Use"**
- **"Activated Patients"**



Questions

