

PEOPLE | PROPERTY | REPUTATION

ASSET PROTECTION

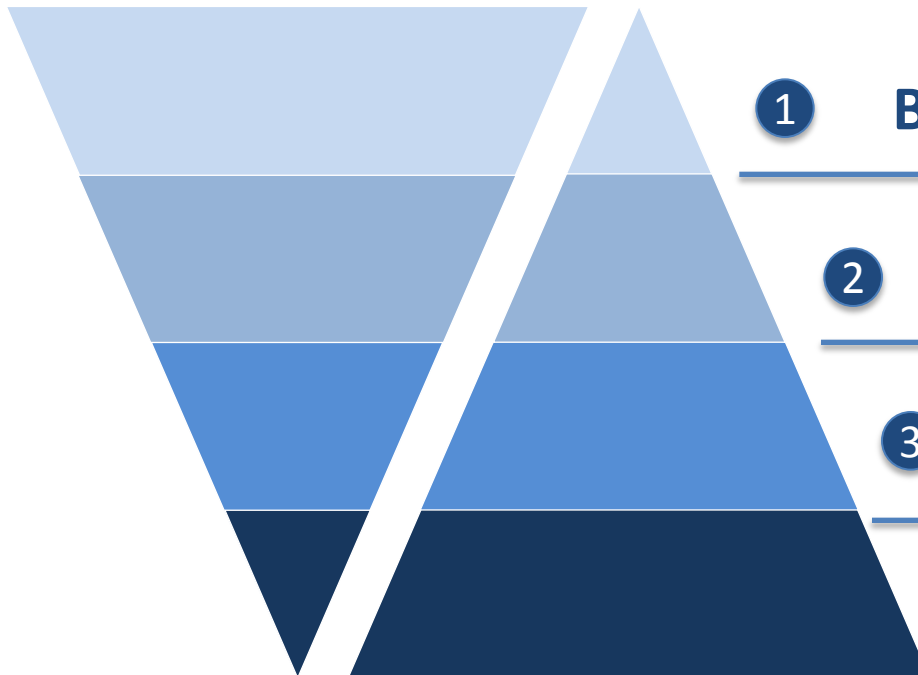


THE VOICE OF FOOD RETAIL 

Loss Prevention and Data Analytics: Are you where you need to be?

Are you where you need to be?

Data Volume



1

Big Data

2

Strategy and Goals

3

Data Analytics

4

Operationalization

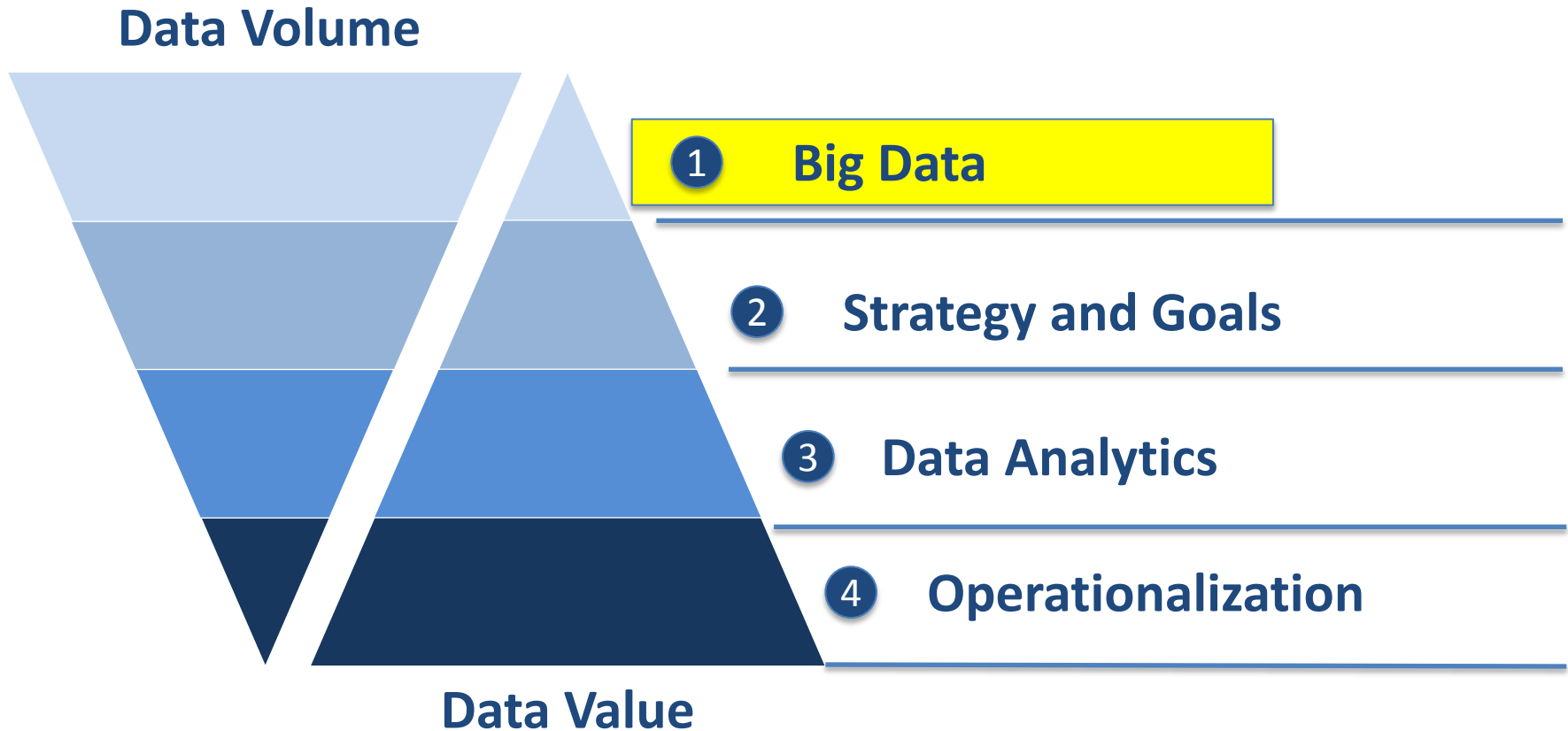
Data Value

Are you where you need to be?

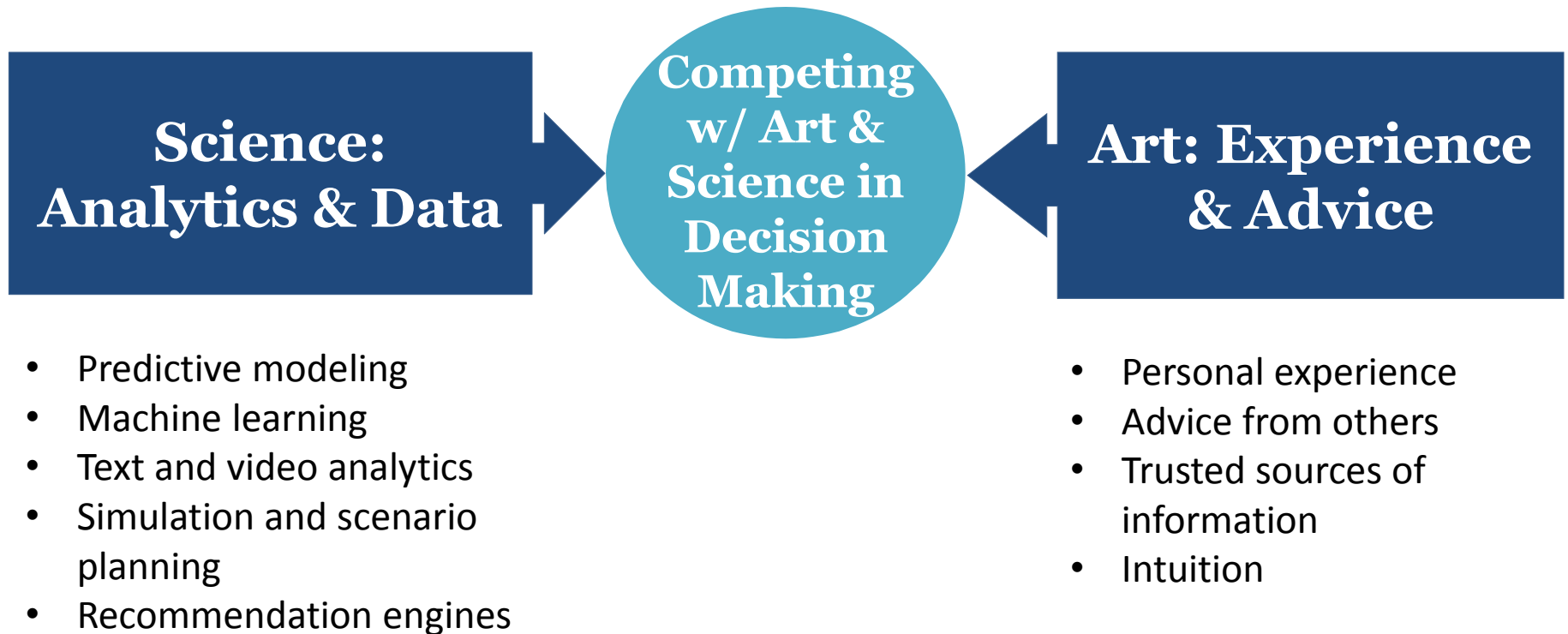
What challenges are you facing?

- What is driving my losses
- Ideation
 - Who do you involve in developing your analytics?
 - Where is the data?
 - Does my analytics model correlate to processes and goals?
 - What steps can I take to improve?
- Are your goals linked to company goals?
- Do your metrics use a common language?
- Are your metrics reactive or proactive?

Data: Volume vs. Value



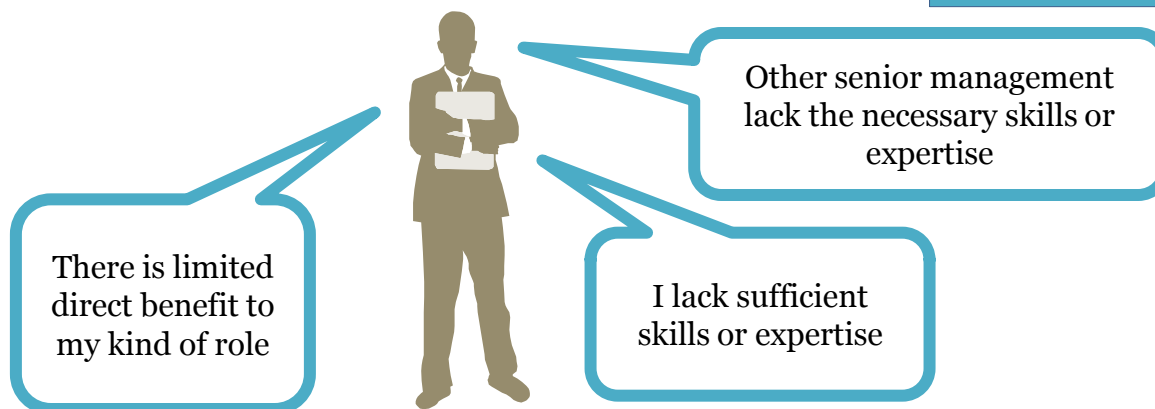
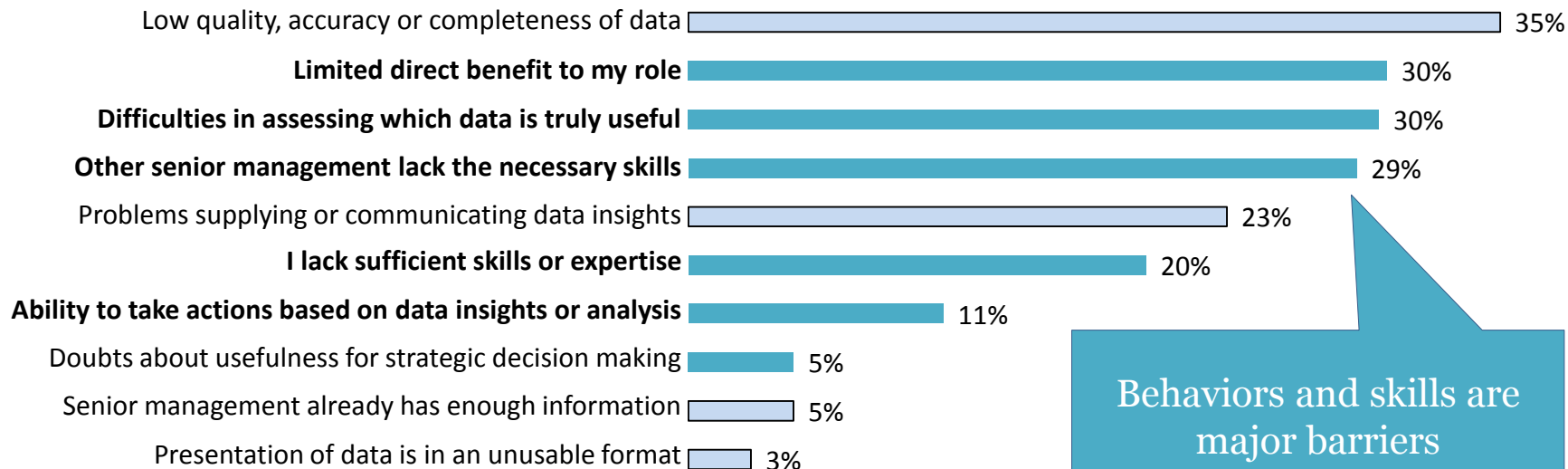
C-level leaders are grappling with how to balance Art and Science in their decision making processes



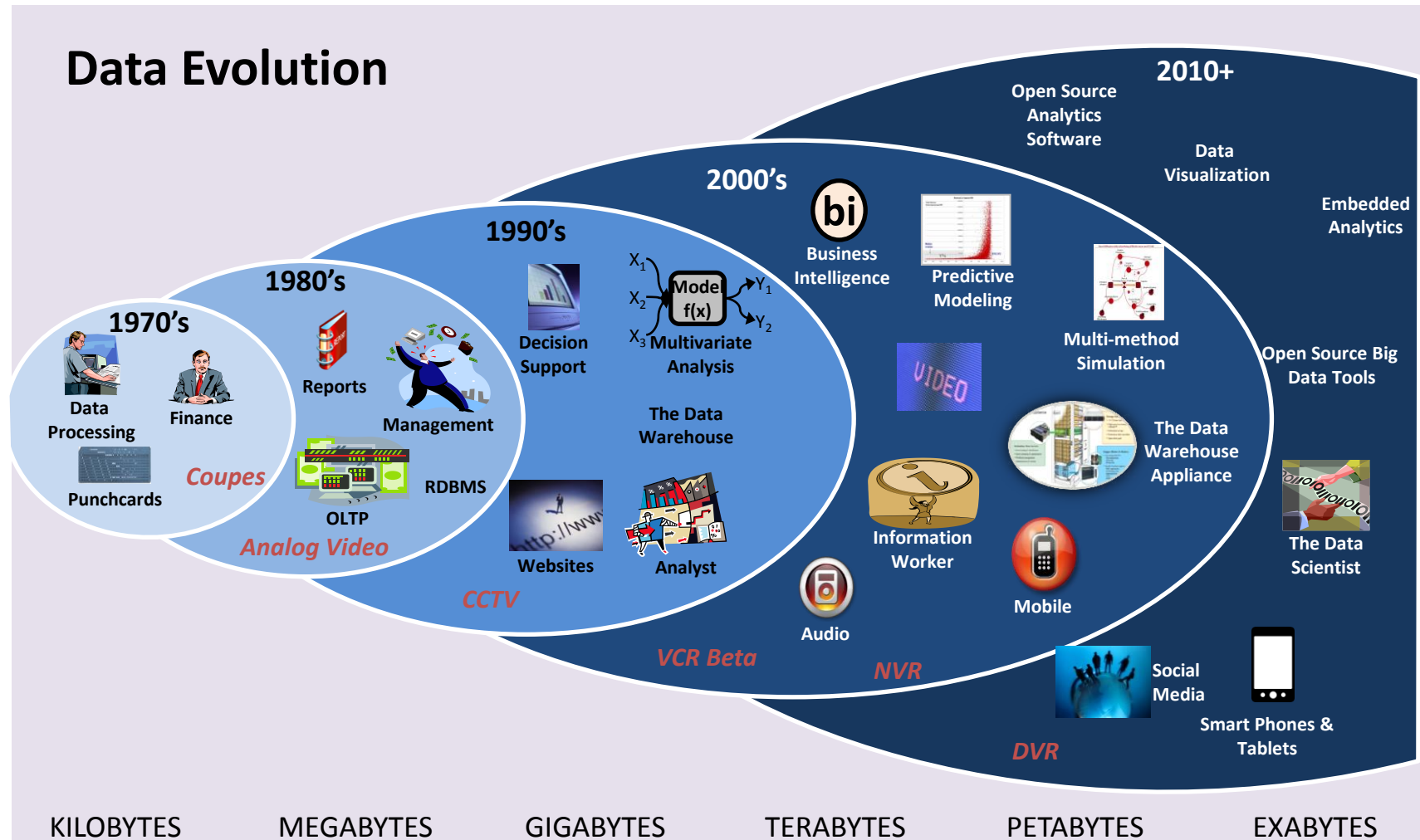
Only 38% of respondents placed the most reliance on “data and analytics” oriented inputs in their last decision (Source: PwC's Global Data & Analytics Survey 2014)

“Behavioral”, “skill-related” and “data quality” are cited as barriers to data-driven decision making

Barriers to integrating more data and analytics in decision-making

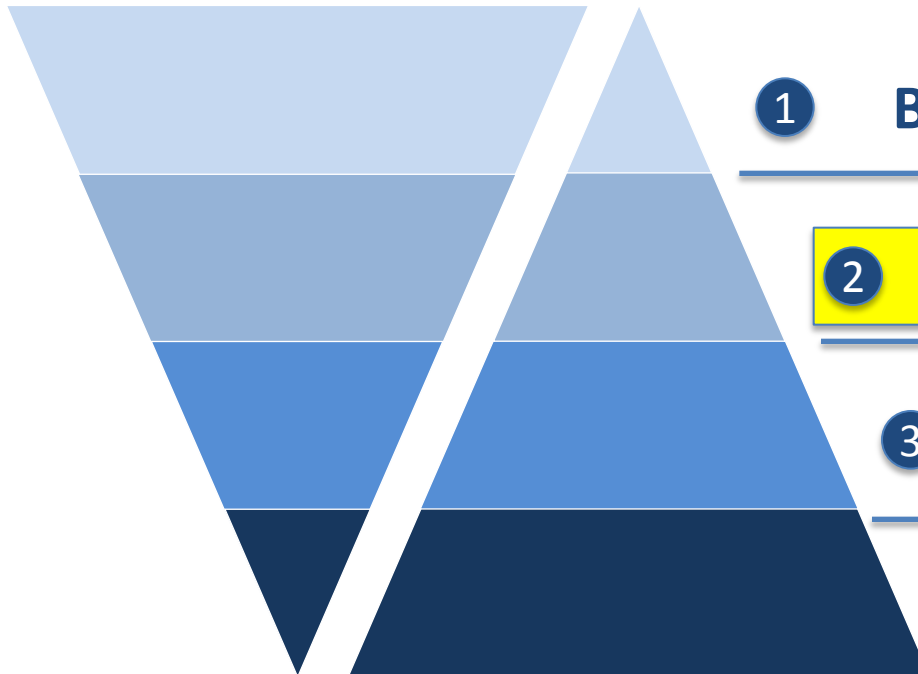


Big Data is part of a broader data evolution which has impacted technology, information management and advanced analytics



Data: Volume vs. Value

Data Volume



1 Big Data

2 Strategy and Goals

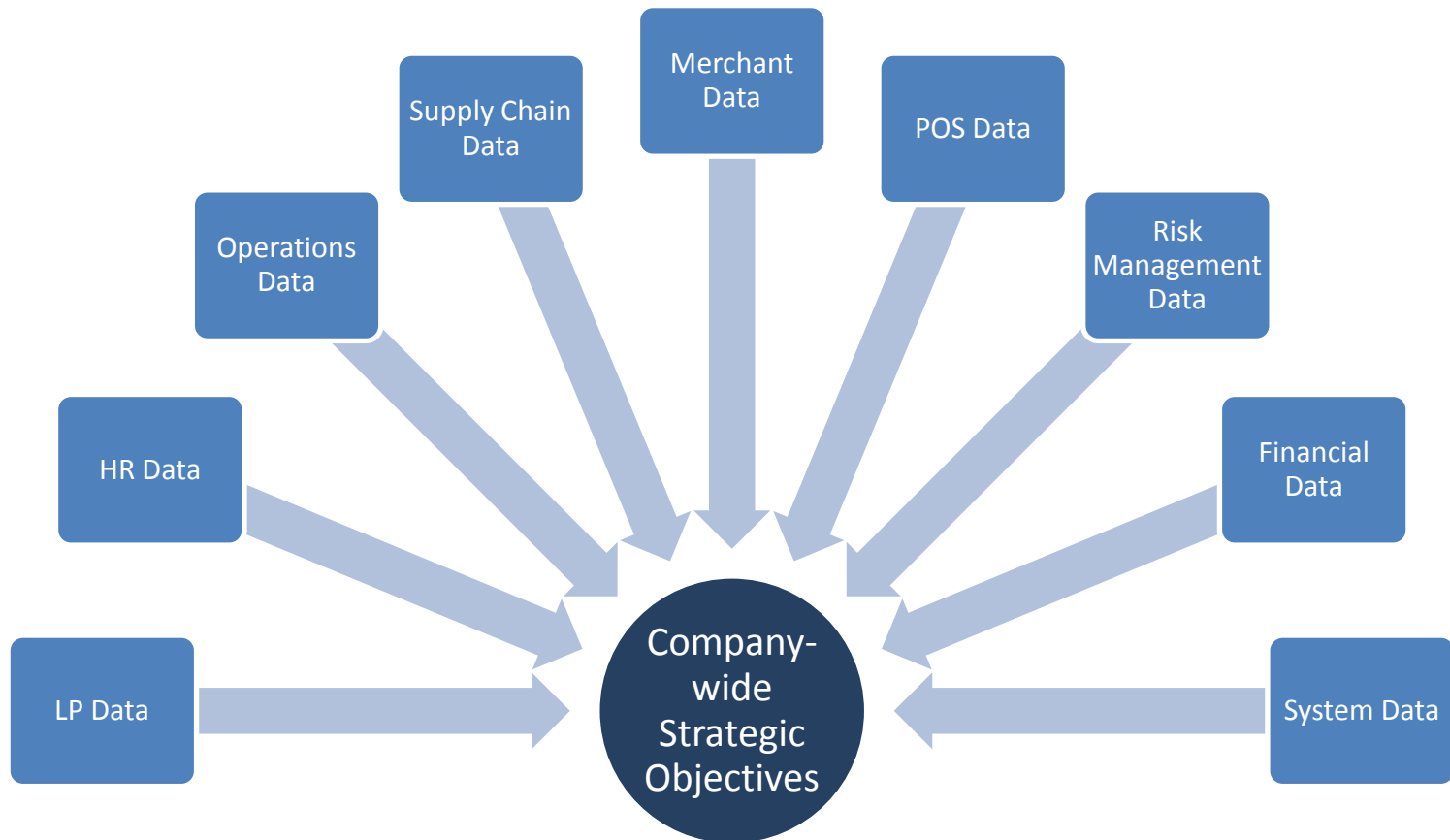
3 Data Analytics

4 Operationalization

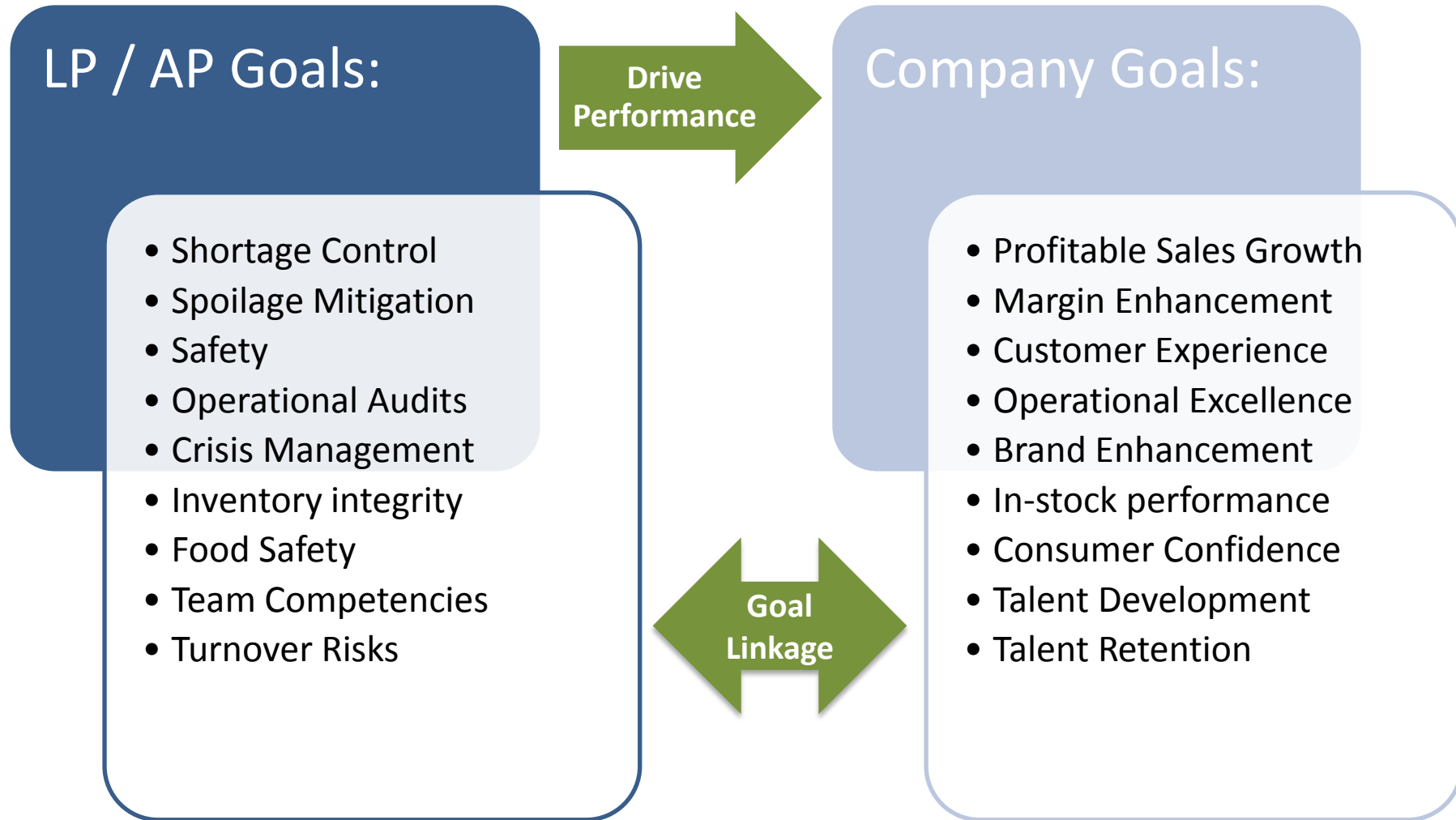
Data Value

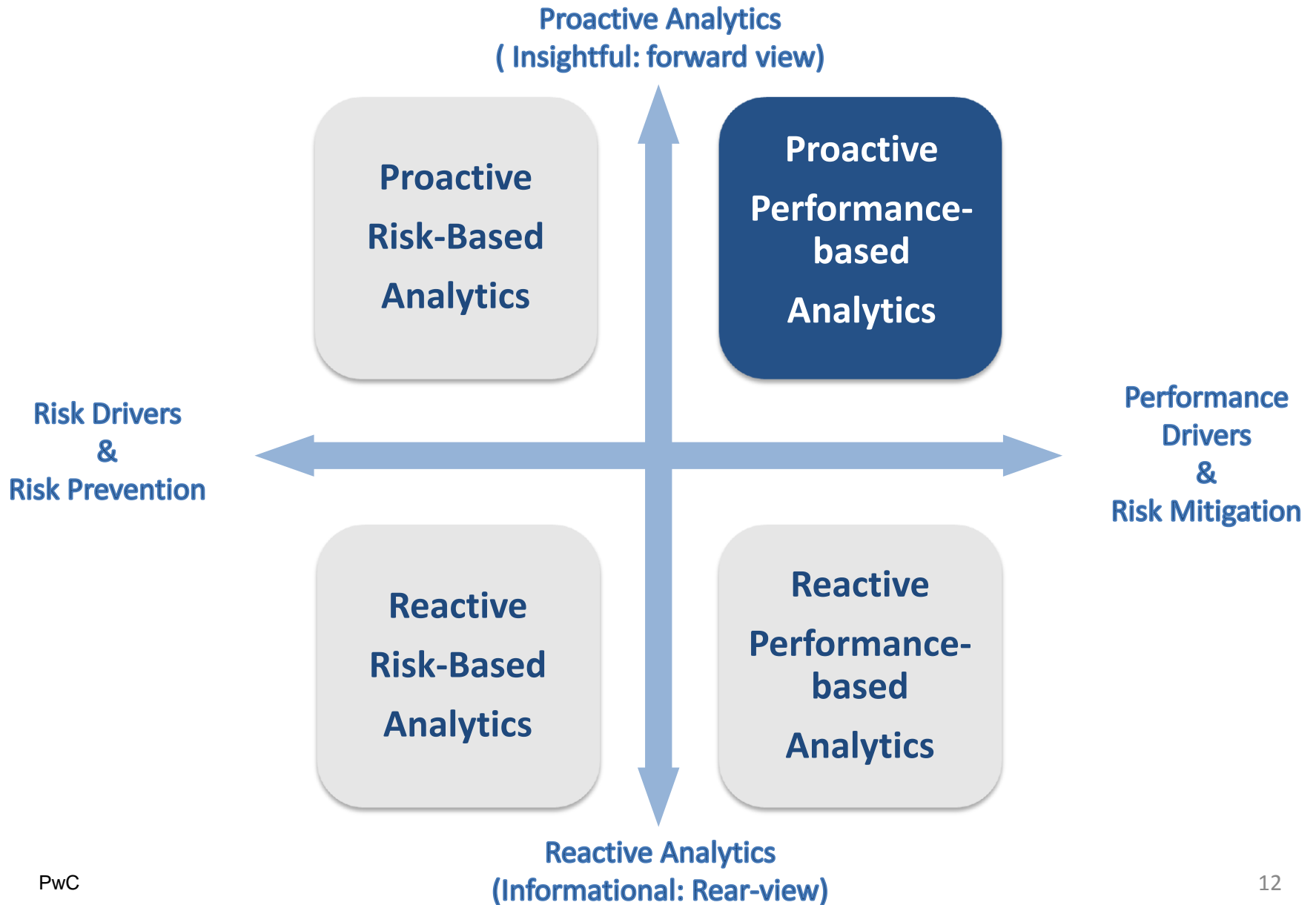
Data Silo Conundrum

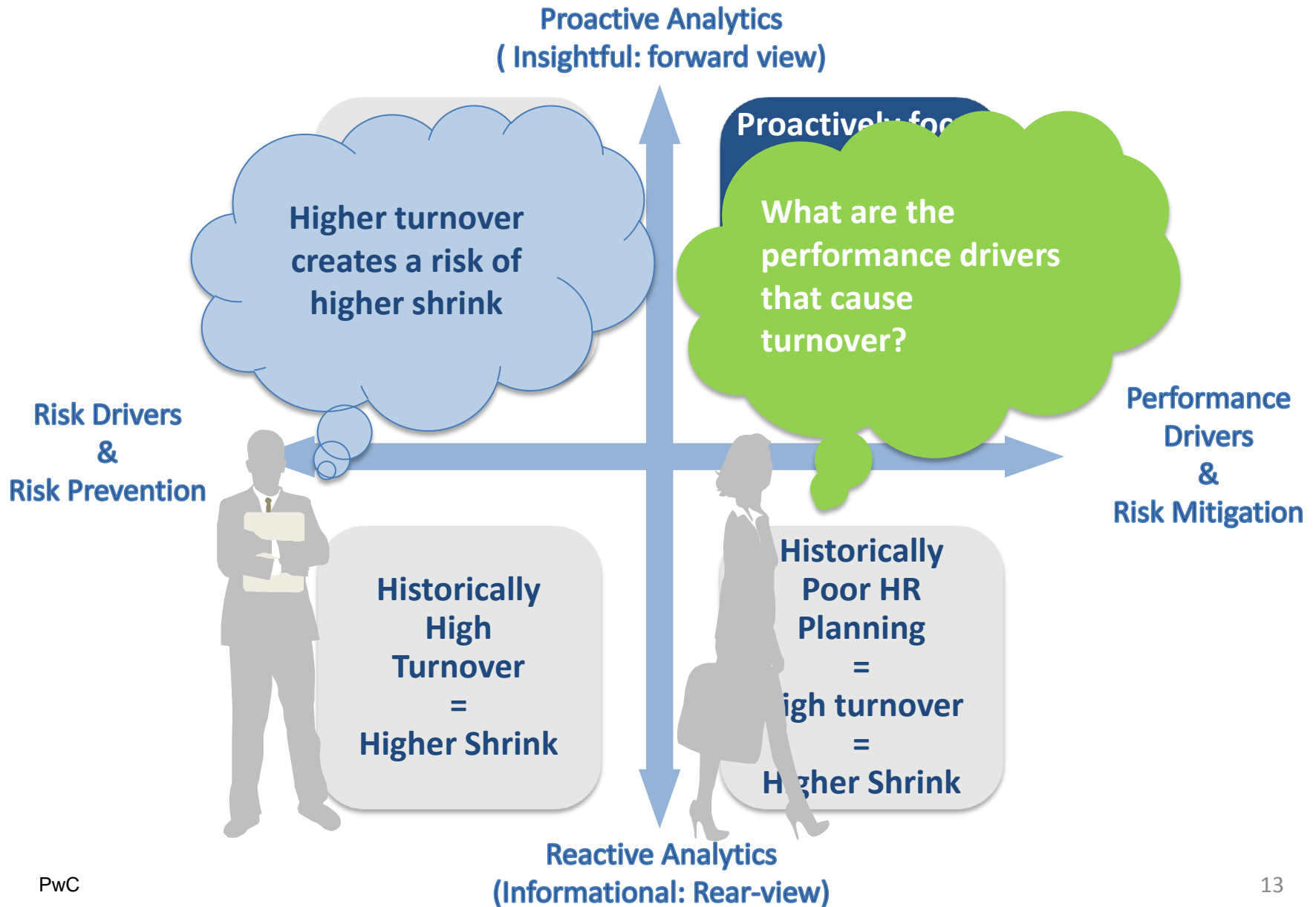
Data considered and aggregated for analysis should be determined by company-wide strategic objectives. Not doing so leads to “data silos” and one-off analyses.



Linking Your Goals With Company Goals







Linking Your Goals With Company Goals

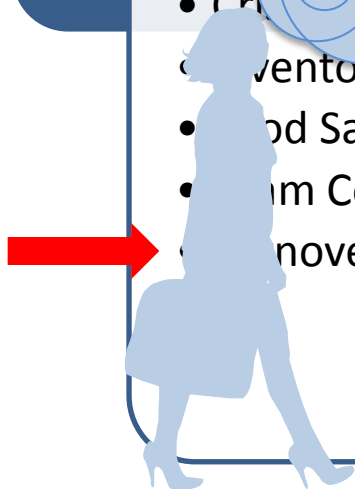
LP / AP Goals:

- Shortage
- Spoilage
- Safety
- Op
- Cr
- Inventor
- Food Safe
- Team Comp
- Turnover Risks

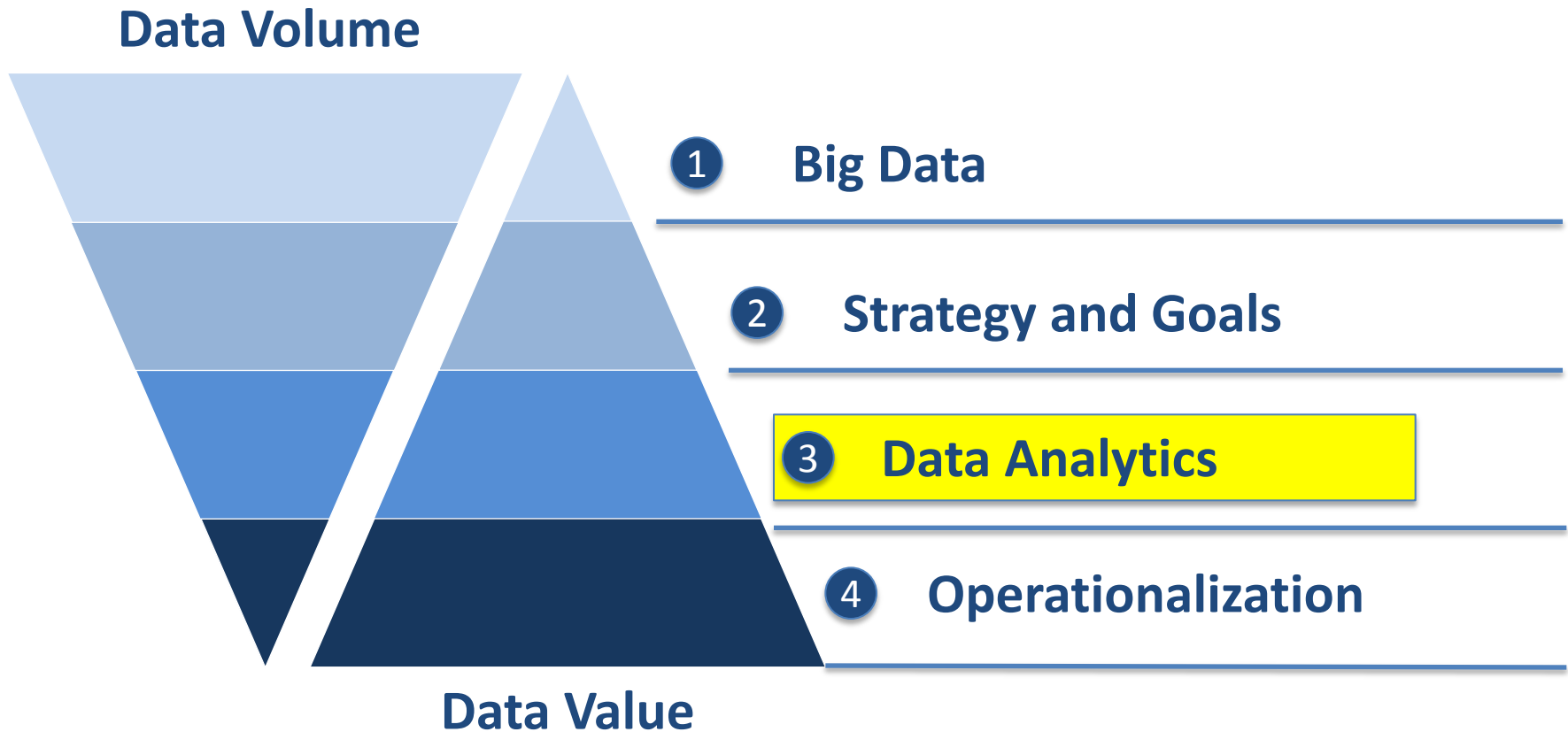
What are the performance drivers that cause turnover?

- Job Competencies and role expectations
- Applicant Screening
- On-boarding and training
- Leadership & Performance Management
- Talent Development and Career Mapping
- Compensation and Benefits
- Full time / Part time ratio....

How do I link turnover to company strategies and goals?



Data: Volume vs. Value



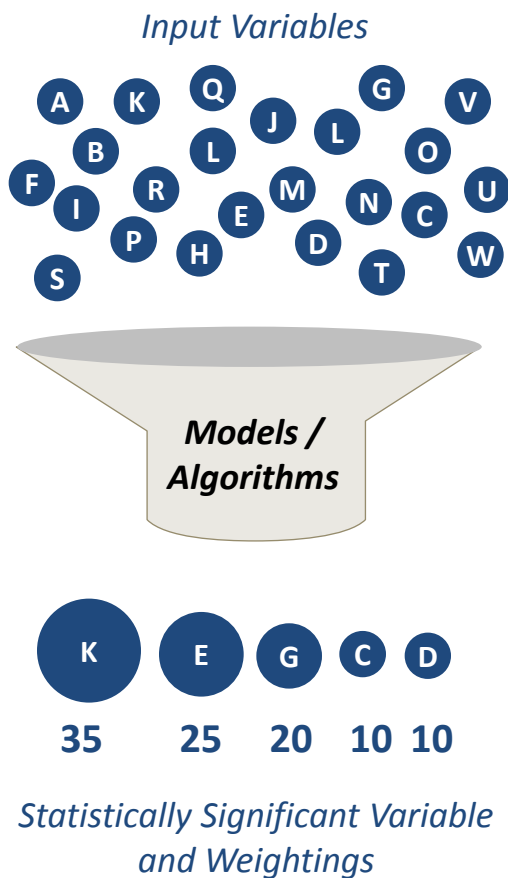
Correlation vs Causation

The “Redskin Rule”

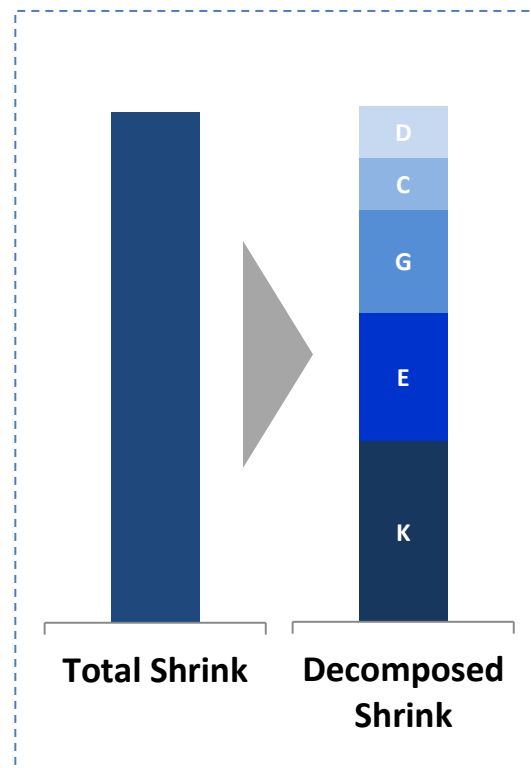
When the Redskins win their home game before the National Presidential election, the party of the incumbent President retains the presidency; when the Redskins lose, the opposition party wins

Year	Presidential Election Result	Rule upheld?
2012	Obama defeats Romney	no
2008	Obama defeats McCain	yes
2004	Bush defeats Kerry	yes
2000	Bush defeats Gore	yes
1996	Clinton defeats Dole	yes
1992	Clinton defeats Bush	yes
1988	Bush defeats Dukakis	yes
1984	Reagan defeats Mondale	yes
1980	Reagan defeats Carter	yes
1976	Carter defeats Ford	yes
1972	Nixon defeats McGovern	yes
1968	Nixon defeats Humphrey	yes
1964	Johnson defeats Goldwater	yes
1960	Kennedy defeats Nixon	yes
1956	Eisenhower defeats Stevenson	yes
1952	Eisenhower defeats Stevenson	yes
1948	Truman defeats Dewey	yes
1944	Roosevelt defeats Dewey	yes
1940	Roosevelt defeats Willkie	yes
1936	Roosevelt defeats Landon	yes
1932	Roosevelt defeats Hoover	no

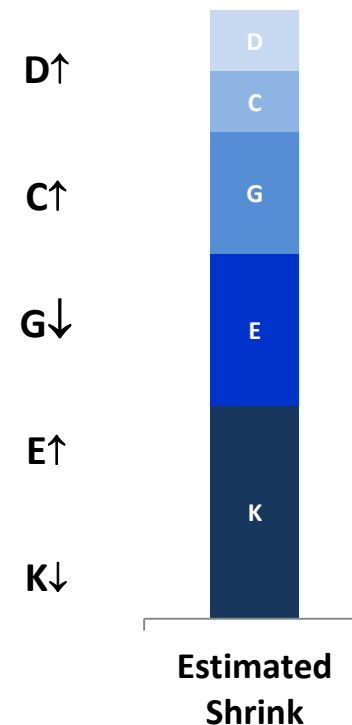
Validating & Quantifying Drivers of Impact



Decomposing Total Impact

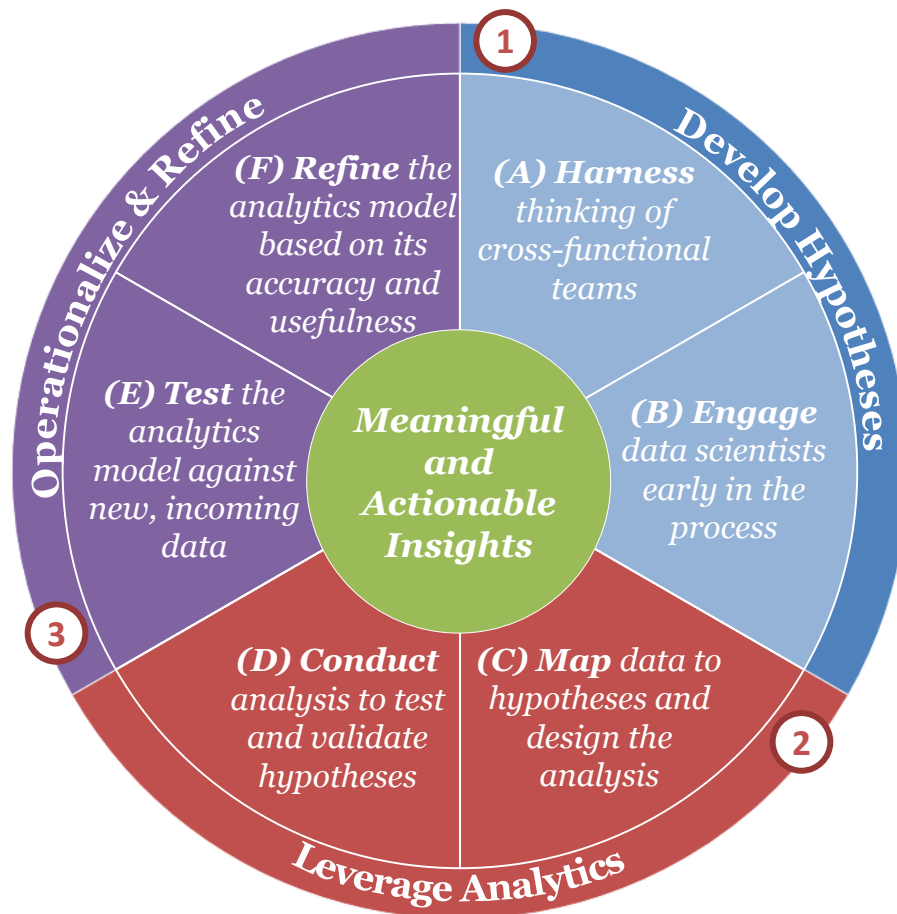


Estimating Future Impact



Questions addressed:

- E. How accurate and useful is my analytics model?
- F. How can I improve upon the accuracy and usefulness of the model?



Questions addressed:

- A. What could be driving results?
- B. Where is the relevant data? Does it exist?

Questions addressed:

- C. What is the most relevant analytics model or methodology?
- D. Which hypotheses are valid? Where are there quick hits?

Example: Shrink Predictive Model Development

Develop Hypotheses

- Included LP, Inventory Control Merchandising, Operations, Finance, Store Management, Supply Chain, Logistics, IT, Analytics
- Hypotheses included crime rates, store type, manager tenure, category mix, NPS, inventory levels, unit integrity
- Aligned hypotheses 82 different data elements plus 60 derived variables; pulled from many different systems

Average Hourly Rate	Receipt Amount Discount	Store Last Renovation Type
Actual Sales Amount	Receipt Amount Suspended Transactions	Store Real Estate Type
Actual Hours	Return Dollars	Store: Ease Locating
Amount Gift Cards Redeemed	Return Units	Store: Friendliness Cl
Amount Manually Keyed	Sales Cost	Store: Help In Fitting R
Amount Media Exchange	Sales Dollars	Store: Knowledge Of P
Amount Cash Over-short	Sales Units	Store: Likelihood To R
Audit Cover Days	Score: Alerts Escalated	Store: Likelihood To R
Audit Score	Score: Alerts Generated	Store: Made Me Feel W
Budgeted Sales Amount	Score: Assistance Available	Store: NPS
Case Stolen Amount	Score: Atmosphere Reflect Nils	Store: Over Satisfaction
Crime Index	Score: Benchmark	Store: Sample Size
Earned Hours	Store Last Renovation Type	Store: Speed Checkout
Items In Suspended Trans	Store: Ease Locating	Store: Team Friendly And Sincere
Locality Category	Store: Friendliness Cl	Store: Recommendation Matching Needs
Mobile POS Net Sales	Score: Help In Fitting R	Shrink Audit Classification
Number Carton Shipments	Store: Knowledge Of P	Shrink Combined Cost
Number Cartons	Store: Likelihood To R	Shrink Combined Net Sales
Number Cash Over-short	Store: Likelihood To R	Shrink Combined Unit Sales
Number Fraud Cases	Store: Made Me Feel W	Shrink Dollar Amount Lost
Number Gift Cards Redeemed	Store: NPS	Shrink Unit Lost Percentage
Number Manually Keyed	Store: Over Satisfaction	Standard POS Net Sales
Number Media Exchange	Store: Sample Size	Store First Open Date
Number Mobile POS Rec	Store: Speed Checkout	Store Last Renovation Date
Number Of HIT	Store: Team Friendly And Sincere	
Number Of Mpos Devices	Store: Recommendation Matching Needs	
Number Of Registers	Shrink Audit Classification	
Number Standard POS R	Shrink Combined Cost	
Number Suspended Trans	Shrink Combined Net Sales	
Overtime Hours	Shrink Combined Unit Sales	
Presence Of EAS	Shrink Dollar Amount Lost	
Presence Of Security Gua	Shrink Unit Lost Percentage	
Quantity Cartons	Standard POS Net Sales	
Real Estate Category	Store First Open Date	
Real Estate Concept	Store Last Renovation Date	

Leverage Analytics

- The analytics team leveraged modeling techniques to boil down the data into 8 driving factors
- Some were expected, such as presence of a security guard and % cash over/short
- Some were unexpected, such as renovations and sell through rate

Variable Name	Definition	Effect on Store shrinkage category based on increase in variable*
Presence of security guard	Whether security guard is present or not	0.91
% of amount of equipment division sales by sales amount	Derived variable calculated as: 1/(Equipment division sales (monthly average) / Sales amount (monthly average))	0.78
Units sold per square foot of selling area	Derived variable calculated as: Units sold / Selling area (Monthly average)	0.75
Actual hours	Derived variable calculated as: 1/(actual hours (monthly average))	0.40
% of amount of cash over or short by sales amount	The cash over or short (monthly average) expressed as percentage of sales (monthly average)	0.29
Renovation category of store - remodel	Stores where renovation category is "Remodel"	0.43
Locality category of store - street	Store's where locality category value is "Street"	0.43
% of amount of media exchange cash back by sales amount	Derived variable calculated as: % of amount of media exchange cash back (monthly average) / Sales amount (monthly average)	0.22

Operationalize & Refine

- The model was used to apply risk ratings to individual stores to help structure future preventative strategies

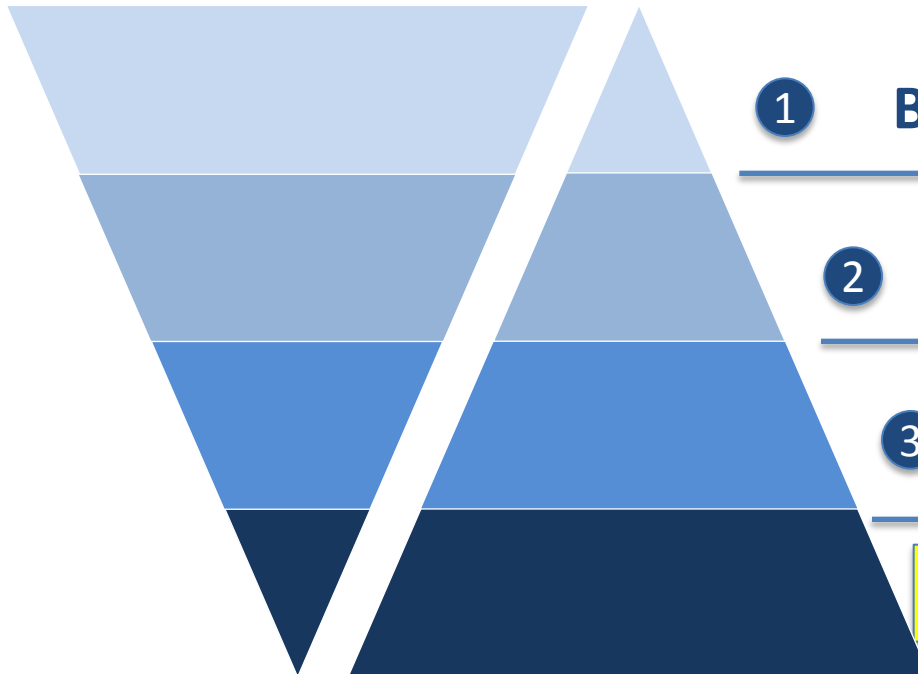
Store Number	Presence of Security Guard	Renovation Category Remodel	Locality Category Street	Fiscal Year 2013						
				Shrink Model Score	Shrink Category	Inverse Equipmen t Sales %	Inverse Actual Hours (10 ³)	% Cash Over- short	% Amount Media Exchange Cashback	Units by Selling Space Size
2	0	1	0	0%	Q1	16.14	223.83	0.01%	0.04%	2.18
3	0	0	0	25%	Q4	19.83	140.046	0.02%	0.02%	2.97
4	0	0	0	12%	Q3	19.93	223.735	0.01%	0.02%	2.79
5	0	1	0	6%	Q2	14.01	180.81	0.00%	0.01%	2.79
6	0	0	0	3%	Q1	16.57	150.876	0.00%	0.00%	3.34
7	0	0	0	3%	Q1	15.93	346.164	0.01%	0.01%	2.05
8	0	1	0	6%	Q2	14.16	204.573	0.00%	0.02%	2.63
9	0	0	0	20%	Q4	17.32	286.3	0.02%	0.11%	2.64
14	0	1	0	8%	Q3	15.12	150.349	0.00%	0.03%	3.22
15	0	1	0	27%	Q4	17.32	264.448	0.02%	0.03%	2.26
16	0	0	0	3%	Q1	15.94	134.082	0.00%	0.01%	3.60
17	0	1	1	32%	Q4	14.64	101.917	0.01%	0.04%	3.76
19	0	1	1	0%	Q1	7.99	32.794	0.00%	0.00%	11.53
21	0	0	0	0%	Q4	25.40	171.809	0.01%	0.02%	3.08
22	0	1	0	9%	Q3	15.41	238.38	0.01%	0.01%	2.84
23	0	1	0	33%	Q4	23.76	237.831	0.01%	0.01%	3.46
24	0	1	0	48%	Q4	27.05	110.078	0.03%	0.01%	5.52

- The model also identified key thresholds for each main driver of shrink to assist in the ongoing monitoring efforts

Independent Variable	Q1				Q2				Q3				Q4			
	Maximum	Minimum	Mean	Median	Maximum	Minimum	Mean	Median	Maximum	Minimum	Mean	Median	Maximum	Minimum	Mean	Median
Presence of security guard	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1
Inverse of % cash over/short (10 ³)	35.80	9.11	13.49	14.30	18.26	4.49	14.04	14.78	41.40	4.14	15.99	15.85	46.11	5.85	17.46	17.46
Number of units sold per square foot of selling area	7.27	5.19	2.99	2.47	11.51	5.60	2.91	2.75	9.87	8.01	2.97	2.77	13.85	8.09	3.04	2.98
Inverse of actual hours (10 ³)	324.80	46.80	227.90	208.40	395.70	17.64	229.02	208.40	365.70	41.18	201.40	204.12	311.41	18.12	201.40	201.40
Amount in case of cash over/short as % of sales dollars	0.07%	0.00%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%	0.10%	0.00%	0.01%	0.01%	0.00%	0.00%	0.00%	0.00%
Renovation category remodel	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1
Locality category street	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1	1	0	0.94	1
Amount in case of media exchange cashback as % of sales dollars	0.49%	0.00%	0.00%	0.00%	0.14%	0.00%	0.01%	0.01%	0.10%	0.00%	0.01%	0.01%	0.11%	0.00%	0.00%	0.00%

Data: Volume vs. Value

Data Volume



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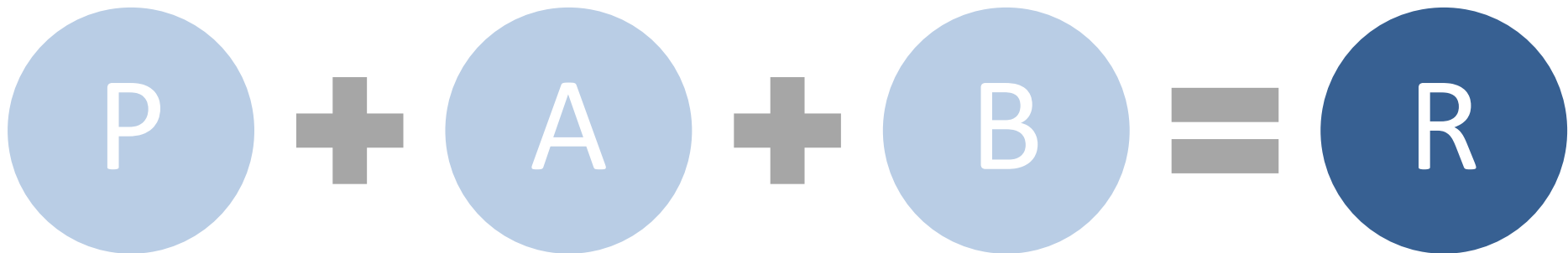
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Operationalization

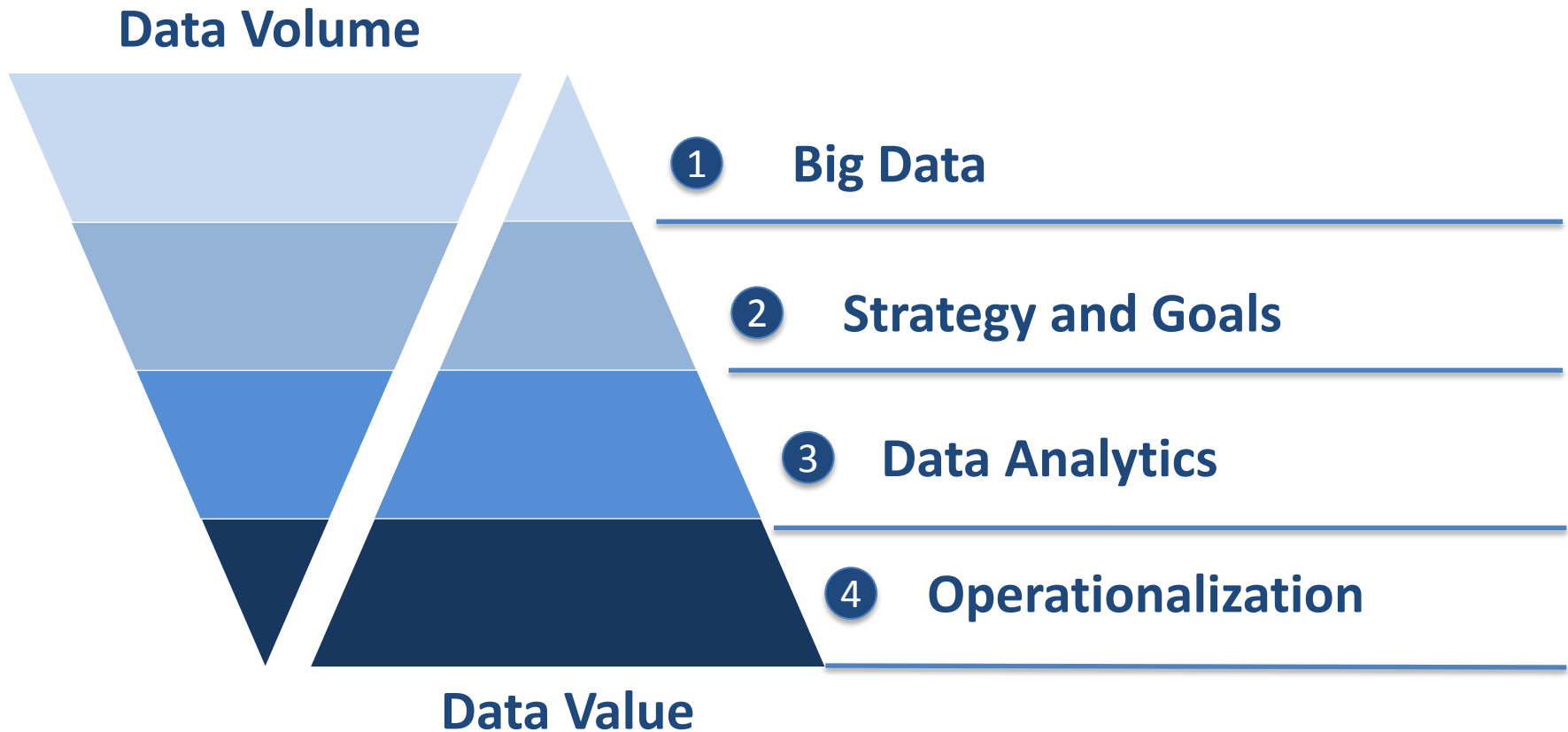
Data Value

Results Equation

Processes + Analytics + Behaviors = Results



Are you where you need to be?



Are you where you need to be?

- Past the “Redskin” Rule
- How is your team balancing the art and science of decision making?
- Have you moved from reactive to proactive?
- How mobile is your data?
- Have you tied your goals and metrics into the broader company goals and metrics?

PwC's Loss Prevention, Strategy and Analytics Service

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ASSET

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PROTECTION



Thank you!

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