Big Decisions:
Using data and analytics to transform decision-making in Healthcare and Life Sciences

Insights from PwC's Big Decisions™ Research

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PwC's Global Data and Analytics Survey 2016: Big Decisions™

Why

- Strategic decisions create value for an organization.
- Decision-makers are now face-to-face with an opportunity to learn from massive amounts of data.
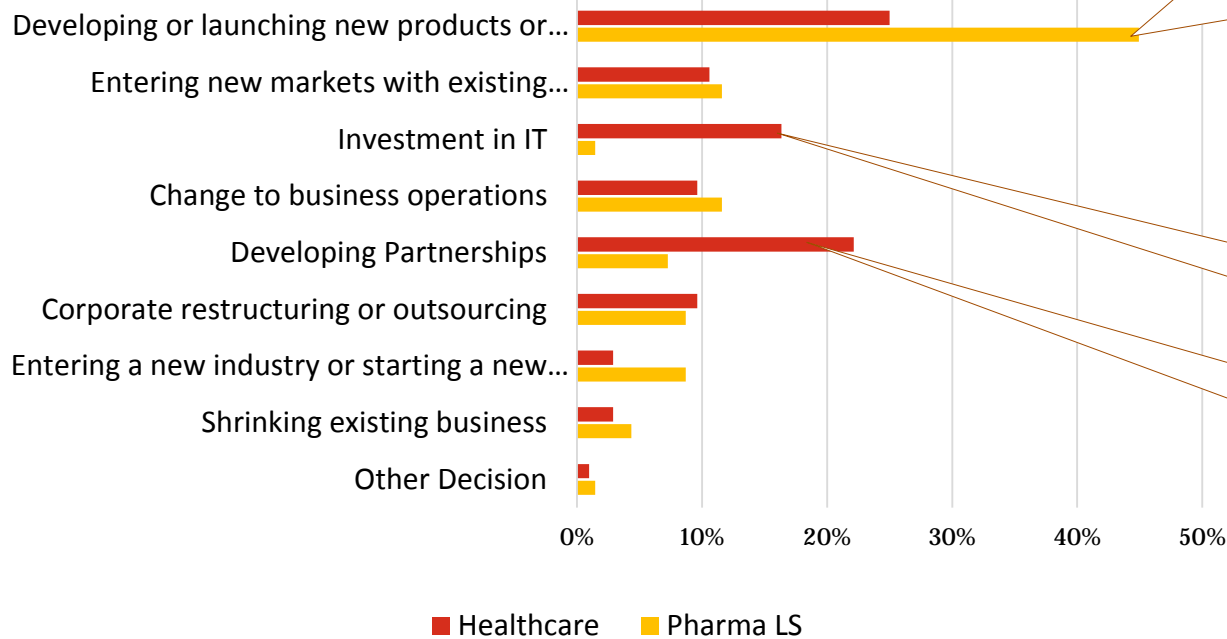- How can we apply data analytics to create greater value?

What

- What types of decisions will you need to make between now and 2020?
- What types of data and analytics do these decisions require?
- What is the role of machines in decision making?
- What's your ambition for improving decision speed and sophistication to make these decisions in your organization?

Who

- 79% senior decision-makers (C-Level Executive or SVP / VP title)
- 58% of total Healthcare / Life Sciences based respondents had revenues of $1 billion last year
- 52% respondents are based in US

Top Healthcare and Pharma LS strategic decisions focus on developing /launching new products or services, developing partnerships and Investment in IT

Which one of the following best describes this key strategic decision?

Developing or launching new products or...
Entering new markets with existing...
Investment in IT
Change to business operations
Developing Partnerships
Corporate restructuring or outsourcing
Entering a new industry or starting a new...
Shrinking existing business
Other Decision

0% 10% 20% 30% 40% 50%

■ Healthcare   ■ Pharma LS

"Adjust product development to meet evolving risk needs of the market"

"what areas of science to invest & how big"

"Company will need to determine the appropriate allocation of resources towards R&D aligning with the evolving pressures around efficacy and economics."

"Investing in I.T. to improve access to information from previously difficult to access sources of data."

"Population Health strategy with multiple partners"

"How to continue success in a highly regulated industry while maintaining value for our partners and customers."

Executives shared with PwC the most anticipated changes to impact your sectors in the next 5 years

Arrival of the baby boomers generation: older; more demanding; **willing to pay for additional added value products** in the Heath care sector

Significant increase in **utilization of technology** in treatment program. **Use of apps** to monitor recovery utilization of technology incorporation of **new holistic non-traditional modalities** for treatment

Internet of things everything connected

Declining government reimbursement

Regulatory changes in healthcare

The movement to **population health** and more **business shifting to risk**

Comparatively, Healthcare & Pharma LS expect to see **more "creative"** change with **less "status quo"**.

The real difference to note is how Healthcare is anticipating **"radical" game-changing** events over the next 5 years.

Whereas Pharma / LS estimates **"intermediating"** change with **core activities threatened**.

Obtaining market leadership will be a key motivator when it comes to strategic decision making
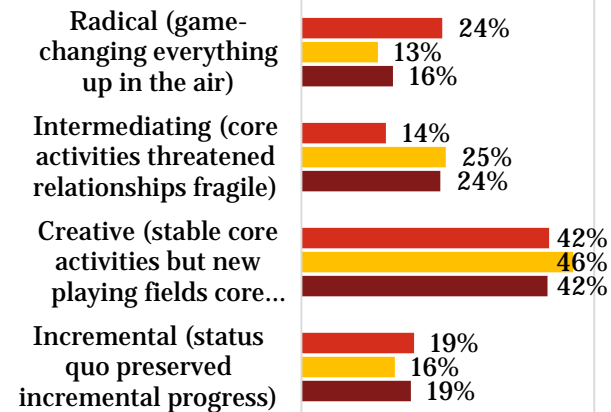
Key strategic decision will be motivated by:

Global

Market Leadership

A Need to Survive   Ability to Disrupt

Healthcare

Market Leadership

A Need to Survive   Ability to Disrupt

Pharma LS

Market Leadership

A Need to Survive   Ability to Disrupt

Healthcare's strategic decisions appear more in line with the global population, more motivated by desire for **market leadership** and **a need to survive**.

Pharma LS's strategic decisions more motivated by desire for **market leadership** and **ability to disrupt** than other sectors.

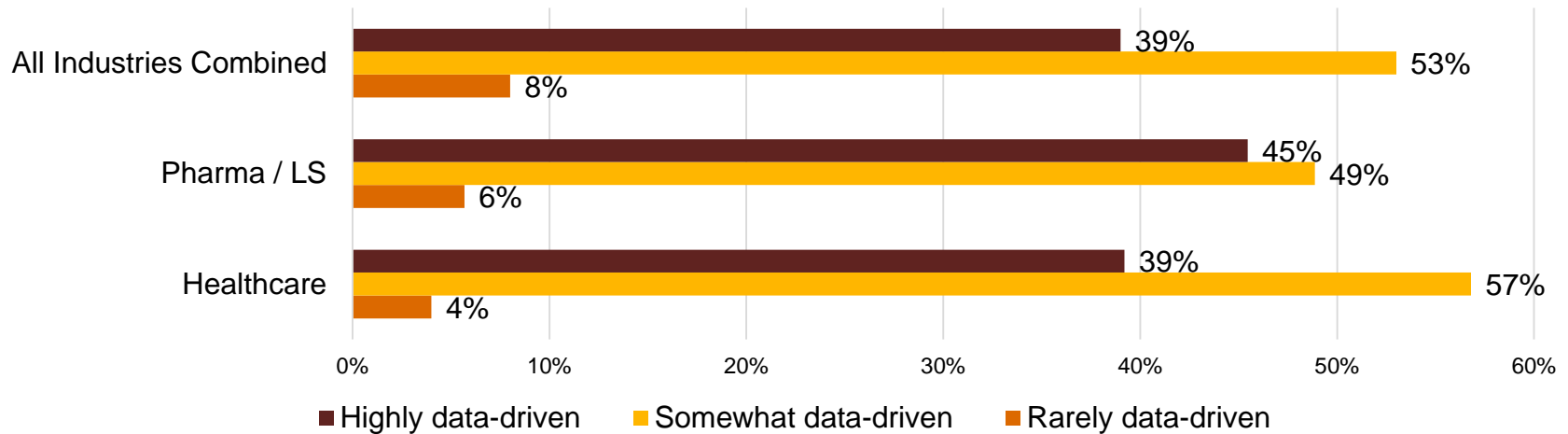### Between 2015 and 2020, change in my industry will likely be…

Radical (game-changing everything up in the air)	Healthcare	24%
	Pharma LS	13%
	Global	16%
Intermediating (core activities threatened relationships fragile)	Healthcare	14%
	Pharma LS	25%
	Global	24%
Creative (stable core activities but new playing fields core…)	Healthcare	42%
	Pharma LS	46%
	Global	42%
Incremental (status quo preserved incremental progress)	Healthcare	19%
	Pharma LS	16%
	Global	19%

■ Healthcare   ■ Pharma LS   ■ Global

Majority do not identify as "highly data driven"

Majority in Pharma / LS and Healthcare say they are not highly data driven..

Which of the following best describes decision-making in your organization (highly, somewhat or rarely data-driven?

All Industries Combined: Highly 39%, Somewhat 53%, Rarely 8%
Pharma / LS: Highly 45%, Somewhat 49%, Rarely 6%
Healthcare: Highly 39%, Somewhat 57%, Rarely 4%

■ Highly data-driven ■ Somewhat data-driven ■ Rarely data-driven

*n = # of type of data-driven organization

Healthcare and Pharma / LS respondents said they mostly rely on descriptive and diagnostic analytics

Only 17% (Pharma / LS) and 10% (Healthcare) said they use data to help them understand what should happen next and how (Prescriptive Analytics)
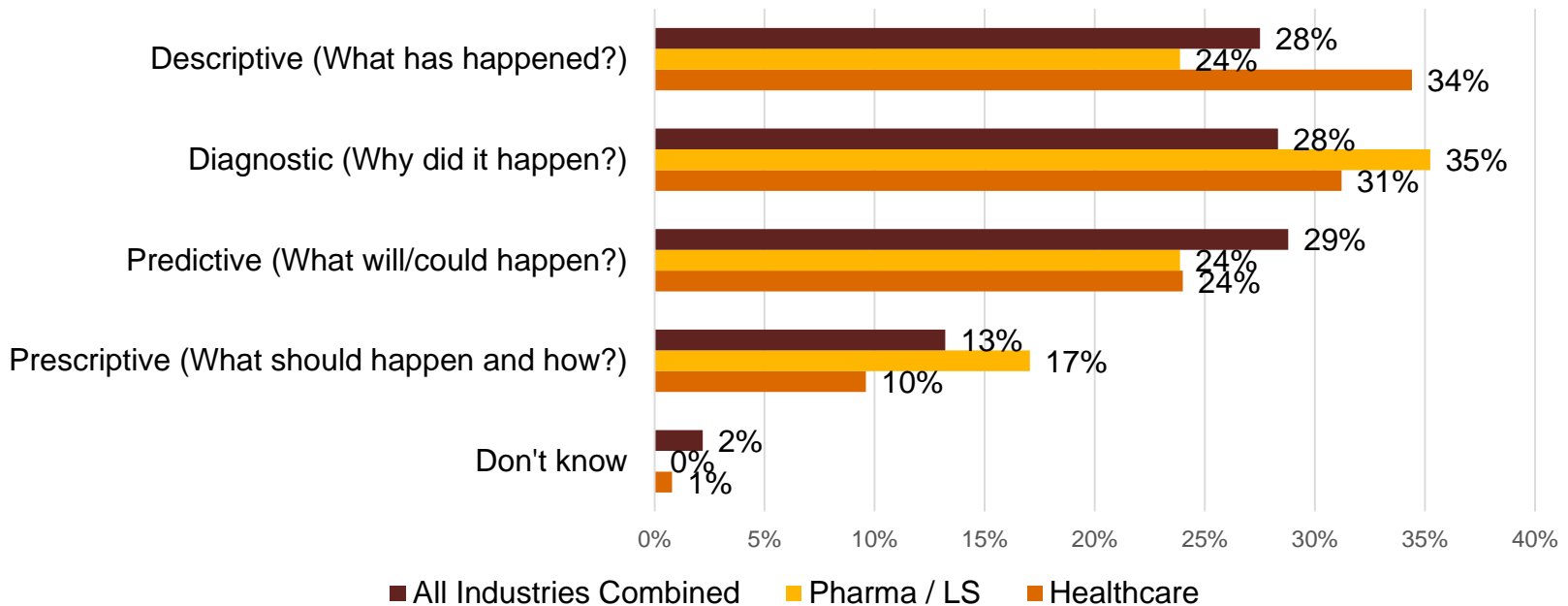
*n = # of type of data-driven organization by type of analytical technique applied

Whereas across other industries, companies are using different principles to drive growth in their business models

Examples – Information Monetization Models

Illustrative Health Care Applications

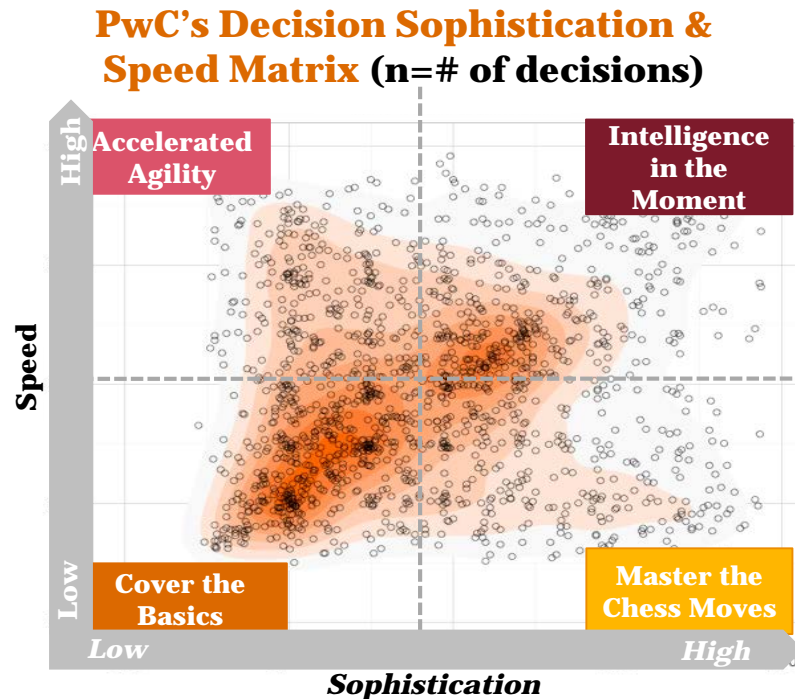| Risk Prediction and Prevention	Shifting from reacting to risks to predicting and preventing risks	*Customizing interventions* with clinical, wearables, and patient behavioral data
Decision Enhancement	Targeting critical decision makers with more timely insights	*Accelerating clinical trials* by monitoring site efficiency, enrollment or patient drop-out
Simulation	Monitoring and simulating operations to improve performance	*Simulating demand scenarios and supply chain disruptions* to understand impact of demand fluctuation or disruptions on ability to deliver product to patient
Disruptive Products and Services	Creating massive unstructured and structured data sets to deliver new, disruptive products and services in value chains or ecosystems	*Improving targeting* by integrating large-scale genomic data with clinical data to understand disease biology
Hyper Targeted Offers	Aggregating and analyzing massive amounts of customer data to enable real-time hyper-targeted offers	*Enhancing patient engagement and product compliance* by integrating demographics, social and clinical data
Information Driven Markets	Creating markets that didn't exist using real-time data exchange to better match buyers and sellers	*Advance precision medicine* by building research and clinical data collaborations with providers to better interpret trial results

Organizations are at different levels of maturity in decision making "speed" and "sophistication" to create value……

PwC's Decision Sophistication & Speed Matrix (n=# of decisions)

Sophistication

- Analytics maturity
- Data breadth & depth
- Decision approach

Increasing sophistication should simplify, not increase complexity

High

Accelerated Agility

Intelligence in the Moment

Speed

Low

Cover the Basics

Master the Chess Moves

Low   *High*

Sophistication

Speed

- Time to answer question
- Time to decide action
- Time to implement / measure

Speed is as much about structure as it is about data & analytics

Data *Speed and Sophistication* in the Healthcare & Pharma LS: Where they think they *ARE* versus where they *WANT TO BE*
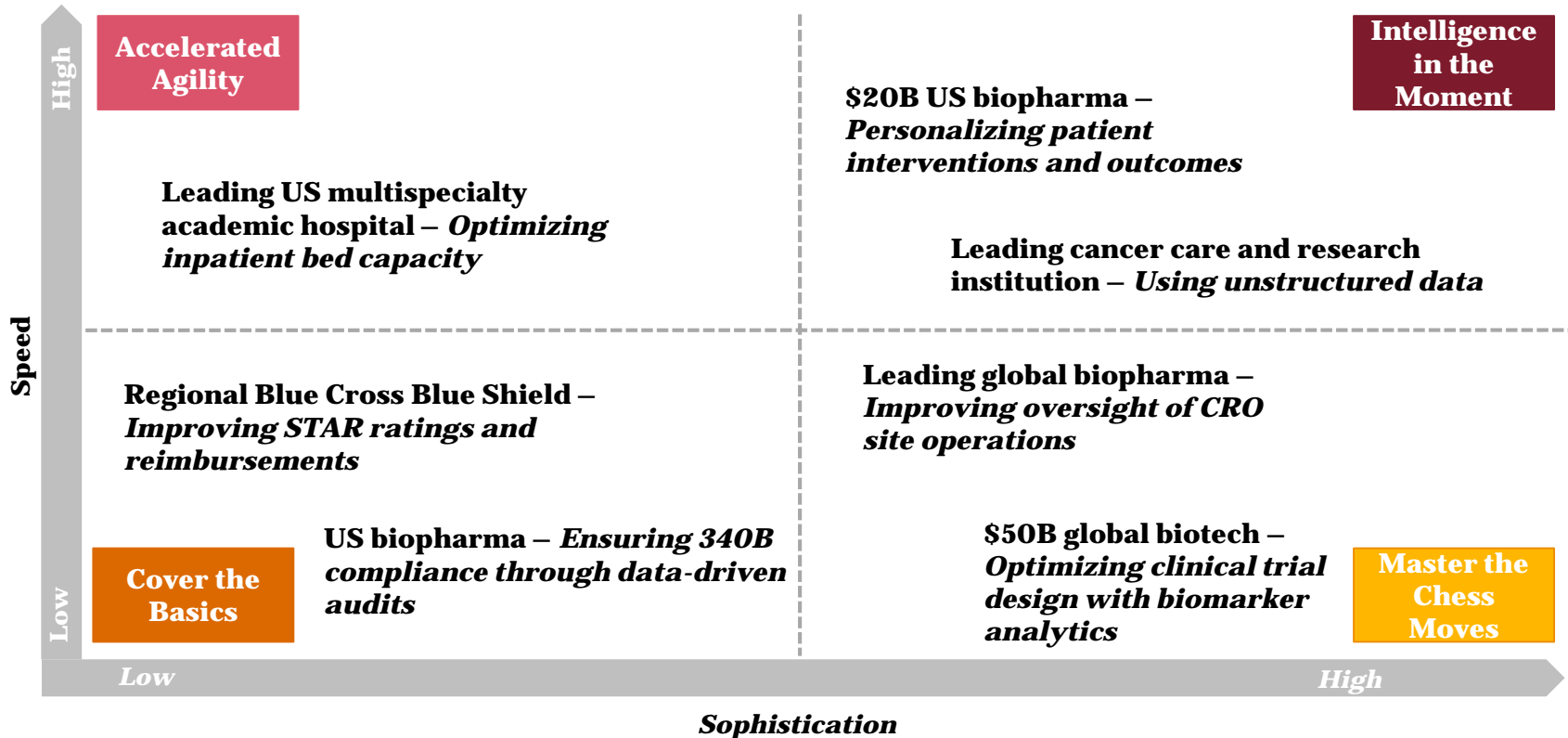
Top Strategic Decision for both Healthcare and Pharma LS: Developing or launching new products or services
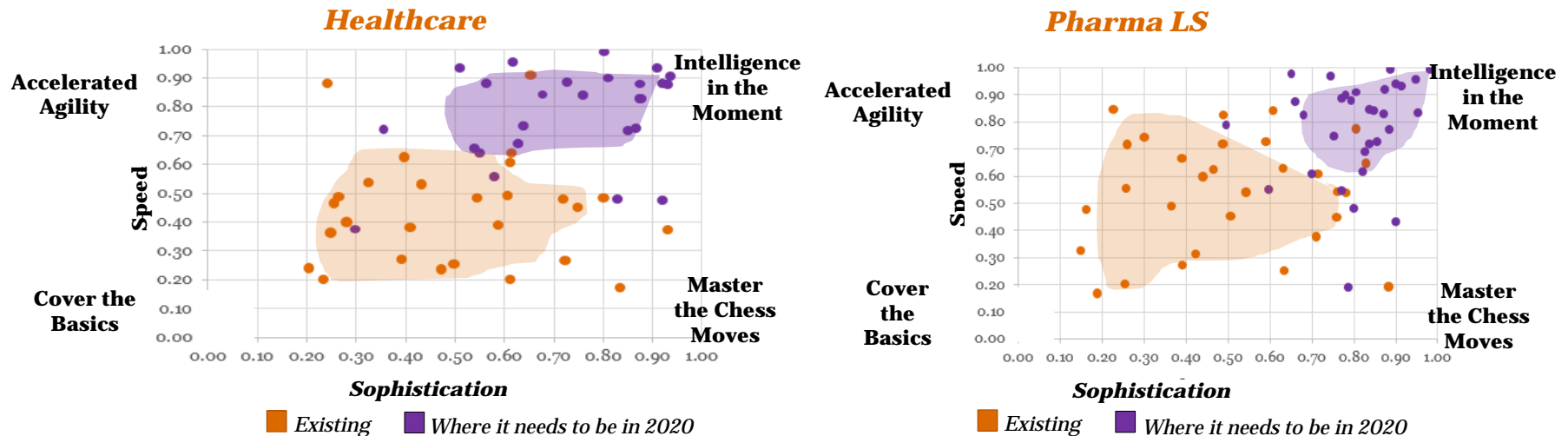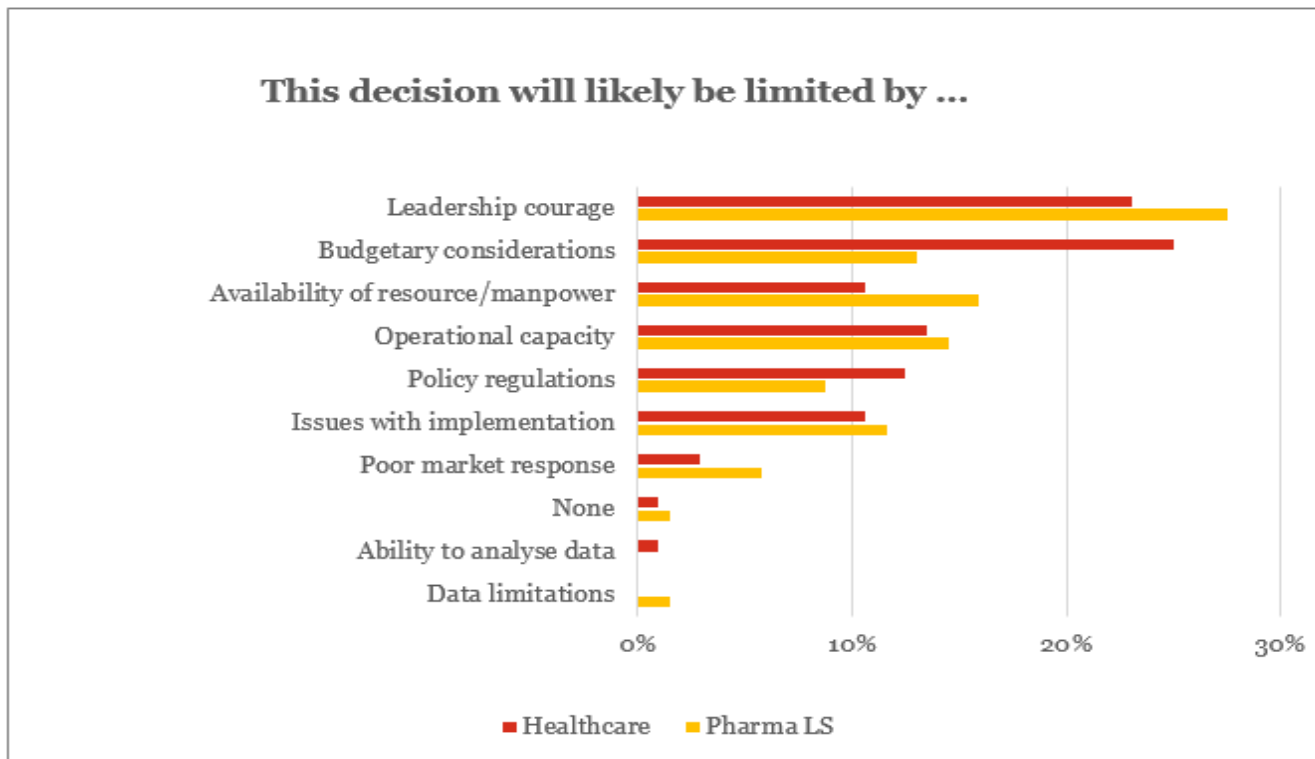

Consistent themes across both Pharma LS & Healthcare is the **wide spread confidence/lack of confidence** in the **current state** of their organizations, in respect to **both data speed and sophistication**.

However, there is strong consensus to compete in Developing or Launching New Products or Services **both will need to improvements**.

Increasing "speed" and "sophistication"... a few examples

Accelerated Agility

Intelligence in the Moment

High

$20B US biopharma – *Personalizing patient interventions and outcomes*

Leading US multispecialty academic hospital – *Optimizing inpatient bed capacity*

Leading cancer care and research institution – *Using unstructured data*

Speed

Regional Blue Cross Blue Shield – *Improving STAR ratings and reimbursements*

Leading global biopharma – *Improving oversight of CRO site operations*

Cover the Basics

US biopharma – *Ensuring 340B compliance through data-driven audits*

$50B global biotech – *Optimizing clinical trial design with biomarker analytics*

Master the Chess Moves

Low

Low　　　　　　　　　　　　　　　　　　　　　　　　　　　　*High*

Sophistication

Anticipated limitations: "Leadership courage" and "Budgetary considerations" are most often cited...

This decision will likely be limited by ...

Leadership courage
Budgetary considerations
Availability of resource/manpower
Operational capacity
Policy regulations
Issues with implementation
Poor market response
None
Ability to analyse data
Data limitations

0%   10%   20%   30%

■ Healthcare   ■ Pharma LS

Pharma LS: In absolute terms, **leadership courage, available resources / manpower and operational capacity** are the most anticipated limitations.

Compared with Healthcare, where respondents are far **less concerned** with **available resources/manpower**...

and...

are far **more concerned** with **budgetary constraints** followed by **leadership courage**, the latter being a consistent top concern across our global benchmark

Improved decision making with Data & Analytics requires overcoming common decision traps

	Anchoring Trap	Overconfidence Trap	Status-Quo /Sunk Cost Trap	Confirming-Evidence Trap *(Confirmation Bias)*	Framing Trap	Availability Bias *(Rush to Solve)*
Decision Trap						
Description	Disproportionate weight to first information received	Overestimate judgment and predictions; remember success, forget errors	Perpetuates the current state or past decisions; risk-averse mindset	Seek supporting information; avoid contradictory information	How a problem is framed influences the decisions made	Rely on information that is most readily available
Maximize D&A Impact	Show options & present range of facts	Use gaming	Simulate and quantify risk of status quo	Leverage benchmarks	Use different framings (competitor, customer, employee)	Create Comprehensive Decision Support Systems

Effectively making decisions with D&A requires tailoring the approach and benefits to the decision makers style

Charismatic

The Charismatic
- Easily enthralled, but uses balanced approach
- Emphasize bottom line results

Controller

The Controller
- Unemotional and analytical
- Only implements own ideas

Follower

The Follower
- Relies on others' past decisions to make current choices
- Late adopter

Skeptic

The Skeptic
- Decisions made on gut feeling
- Challenges every data point

Applying D&A
- Co-present with trusted advisor
- Emphasize credibility of D&A data sources
- Arguments grounded in reality
- Presentation capitulates to skeptic leaders' ego

Thinker

The Thinker
- Toughest to persuade
- Risk-averse
- Attention to detail

Key findings from Big Decisions survey

✓ More organizations are taking a data-driven approach to making strategic decisions.

 Are you?

✓ Data-driven organizations are using machines to de-risk their decisions.

✓ Executives have great ambition to increase decision speed and sophistication, but everyone expects to fall short of their ambition.

 What's your expectation?

✓ Organizations face many limitations in their decision making, however data and the ability to analyze data are the least of their concerns.

> *Highly data-driven companies are three times more likely to report* ***significant improvement*** *in decision making, but only 1 in 3 executives say their organization is highly data-driven.*
> *Where will you be?*

For more information, contact:

Patrick Figgis
Global Leader, Health
Tel: +44 207 804 7718
patrick.figgis@pwc.com

Dean Arnold
Europe, Middle East, Africa Leader, Health Industries
Tel: +44 (0) 20 721 38270
dean.c.arnold@pwc.com

Kelly Barnes
Asia Pacific, Americas Leader, Health Industries and Global Health Industries Consulting Leader
Tel: +1 (214) 754 5172
kelly.a.barnes@pwc.com

Q&A

For more information visit, www.pwc.com/bigdecisions

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