

HIGH STAKES, HIGH REWARDS



Building a better
working world

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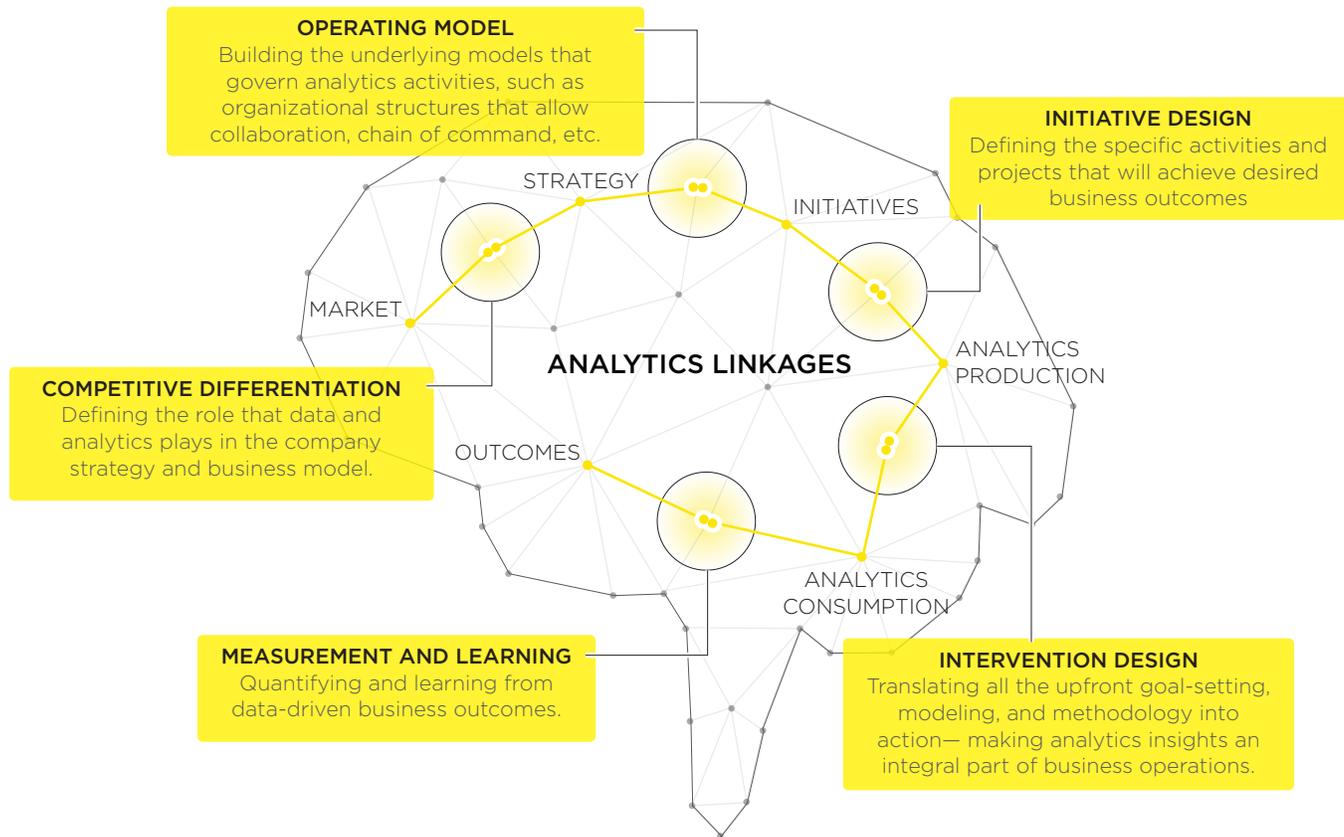
EXECUTIVE SUMMARY



The drive to know more about customers, markets, and internal operations is not new. Large enterprises have been investing in data and advanced analytics for years to improve understanding and decision-making.

What's different today? The stakes are higher than ever. In an era of widespread business disruption, leaders aren't using advanced analytics to simply improve existing activities—the strategic use of data is transforming traditional process driven organizations to help them become more competitive, increase revenues and profits, reduce risk, and guide them to new initiatives. What about less mature organizations that aren't using advanced analytics to deliver exceptional products and services? Traditional process-driven organizations are now being disrupted by “2.0 organizations” of the information age. These organizations use data as a strategic asset and build entire business models around leveraging insights to deliver exceptional products and services. This is often in contrast from traditional organizations that are process-based, and the data generated is frequently seen as a secondary byproduct.

Global executives that understand the full value of advanced analytics are making it a core element in their business strategies and using them as a competitive differentiator. That's why they're embedding analytics into all parts of their enterprises, beyond traditional pockets like marketing and sales departments. “There's a growing recognition that analytics can be applied in all parts of the business, if not to completely reinvent the business” says Chris Mazzei, chief analytics officer and emerging technology leader at EY. “And while many companies started analytics initiatives to improve current processes, they're now expanding to rethink what they sell, how they sell it, who they sell it to, and how to differentiate themselves from their competition.”



As a result, senior leaders are opening their minds—and their checkbooks—to capitalize on opportunities created by the explosion of data and sophisticated analytics at a time of rapidly decreasing compute and storage costs. But a new survey by EY and Forbes Insights shows that this is one area where simply boosting investments doesn't necessarily lead to better outcomes. In fact, many large enterprises throughout the world still struggle to achieve the promise of today's analytics capabilities.

The survey of more than 1,500 global executives found that fundamental problems arise at the crucial points between the steps organizations take as they move from identifying new business opportunities, acting on insights and then measuring the

outcomes of their data-driven strategies. We liken them to synapses in the brain, where communications pass from one cell to another.

The difference is that in the brain, these communications pass naturally from cell to cell, while in large enterprises, the smooth flow of information isn't automatic. The EY-Forbes Insights research shows that the way global enterprises handle these junctures translates into business success and leads to clear stratifications in analytics maturity. **For example, top performers with advanced analytics strategies—among other maturity differentiators—are considerably more likely to enjoy growth in revenues and operating margins of 15% or more, along with significant improvement in their risk profile.**

A closer look at the survey results shows sophisticated users of advanced analytics experience additional benefits:

70% of top performers have used advanced analytics to overhaul business strategies and update how they compete in their respective markets

75% operate a full range of enterprise, departmental, and line-of-business analytics groups that operate within a well-aligned framework

- They can capitalize on artificial intelligence and other forms of predictive and prescriptive modeling for insights about possible future outcomes and ways to address them
- Because advanced users of analytics incorporate them early in the business development processes, they can deliver better outcomes by shaping initiatives based on actual insight rather than gut instinct
- Leaders can accurately measure business value to demonstrate the impact—and validity—of their investments in advanced analytics

What does it take to join the Leader's Circle?

- First, leaders must understand the opportunities as well as the risks associated with each of these five synapses and how each threat is impacting their own organizations. This requires a thorough assessment of the processes used when formulating data-driven strategies, an honest review of key analytics capability maturity, and a plan for closing any gaps.
- Next, pay particular attention to overarching themes that emerged in the survey results. For example, a pain point common to each is a lack of collaboration among business units and analytics specialists when defining desired outcomes, designing operational models, and measuring the results. Without this cross-department cooperation, the goal of turning analytical insights into action can break down at any stage of the process. In short, don't forget the human element, which was the overriding theme of our

previous report on data and analytics.

- Third, apply best practices specific to each synapse to avoid common stumbling blocks. To differentiate best-in-class data companies from less advanced peers, the report slices and dices the survey's findings to reveal important distinctions across industry sectors, geographical regions, and functional departments. It also creates four-stage maturity rankings showing trends among respondents that are Leaders, Challengers, Developing companies, and Lagging organizations. These rankings highlight success factors in each of the five synapse categories and pinpoint what it takes to become an analytics leader. In addition, we present insights from in-depth interviews with global executives who explain in detail their strategies for people, processes, and technology that add up to analytics success.

THE DATA & ADVANCED ANALYTICS MATURITY RANKINGS

The results of a global survey conducted by EY and Forbes Insights found clear differences among enterprises at various levels of analytics maturity.

LEADING: 7%

Their analytics strategy is well-established and central to the overall business strategy. Their current state of competitive ability in data and analytics is market-leading.

CHALLENGING: 45%

Their analytics strategy is established and starting to be viewed as a key strategy.

DEVELOPING: 38%

Analytics strategy is established for specific lines of business, but it's not fully aligned across the enterprise.

LAGGING: 10%

Lagging organizations lack an analytics vision or strategy at this time. They rate themselves well behind competitors in some areas.

METHODOLOGY

This report is based on a survey of 1518 executives conducted by Forbes Insights in August and September of 2016. 34% of the executives are based in the Asia-Pacific Rim region, 34% in the Americas, and 32% in EMEA. Respondents are C-level executives, of whom 25% are chief executives or presidents of their organizations. Industries represented include telecommunications, technology, manufacturing, financial, pharmaceuticals, healthcare, media & entertainment, energy, government, automotive, consumer products and retail. Organizations surveyed had at least \$500 million in annual revenues, and 21% had revenues of more than \$50 billion.

WHY MATURITY MATTERS

Share of respondents achieving each outcome



REVENUE GROWTH
15% OR MORE

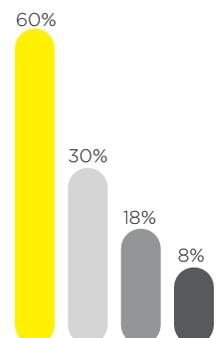
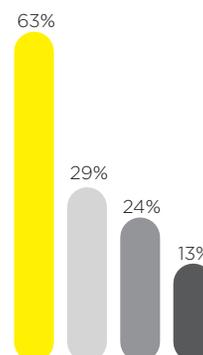
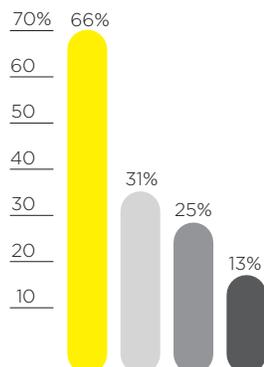


OPERATING MARGIN
15%+ OR MORE

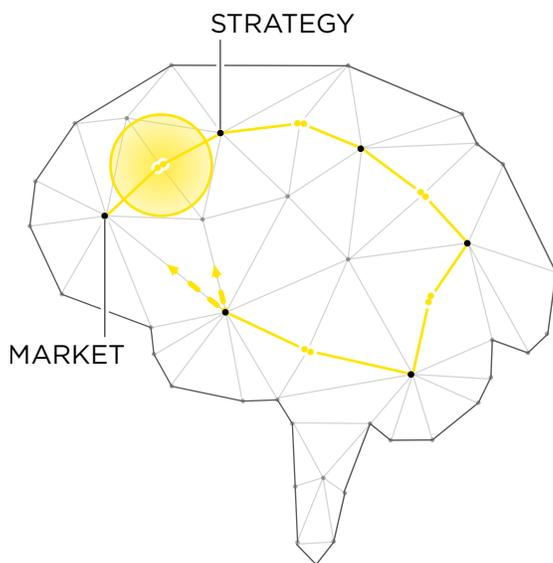


RISK PROFILE IMPROVEMENT

- LEADING**
- CHALLENGING
- DEVELOPING
- LAGGING



COMPETITIVE DIFFERENTIATION



The drive—and indeed the need—to capitalize on advanced analytics is being fueled by fundamental changes resulting from new digital technology. Among the most impactful to the global enterprises surveyed are the rise of the Internet of Things, increased concerns and regulation surrounding data privacy and security, and the shift of IT resources to the cloud. Approximately a quarter of the respondents described the importance of these areas as critical and causing a fundamental reevaluation of business strategies.

When it comes to advanced analytics success, higher performing enterprises have something in common—analytics are an enterprise-wide strategy, not an ad-hoc endeavor that varies from department to department. This area is showing steady progress. In a similar **EY-Forbes Insights survey a year ago**, only 16% of respondents had achieved an analytics strategy that encompassed their entire enterprise, compared to 23% of this year's respondents. An enterprise-wide advanced analytics strategy is something only the Leading enterprises have been able to achieve. Only 27% of Challengers, 10% of Developing companies, and

KEY FINDINGS

- Enterprise-wide strategies are key to analytics effectiveness
- Less mature enterprises see only pockets of analytics proficiency
- Lack of collaboration and alignment within the management committee blocks success

none of the Lagging organizations say that advanced analytics is fully established, enterprise-wide business strategy which makes this a critical distinction for the top performers.

Establishing an enterprise-wide view of analytics requires senior leaders to understand the transformative potential of data in their organizations. “In the past, there’s been a distinction between the use of analytics to improve the current business processes versus the use of analytics to change the way the company is competing,” Mazzei explains. “Many companies started using analytics by focusing on processes, but as they saw success in this area, they realized it can help them in strategic ways, such as determining what to sell, how to sell it, who to sell to, and how to stay differentiated from their competition. This gets to the fundamental role that advanced analytics can play in re-imagining the business. The ultimate role of advanced analytics is to help shape the fundamental business model for the next two years, five years, and beyond.”

If advanced analytics strategies are still evolving, how do most enterprises turn the rich reserves of data available today into a competitive differentiator? The answer reveals a patchwork of narrow approaches. Most of those outside the top tier acknowledge a limited-to-modest or insignificant impact. By contrast, 70% of the Leaders are already seeing a seismic shift in their organizations in the form of overhauled business strategies and how they compete in their respective markets.

The year-over-year differences are illuminating. For example, a year ago, only 16% of the respondents said analytics was central to the overall business strategy. Similarly, the size of the group with no strategy shrank by half since 2015.

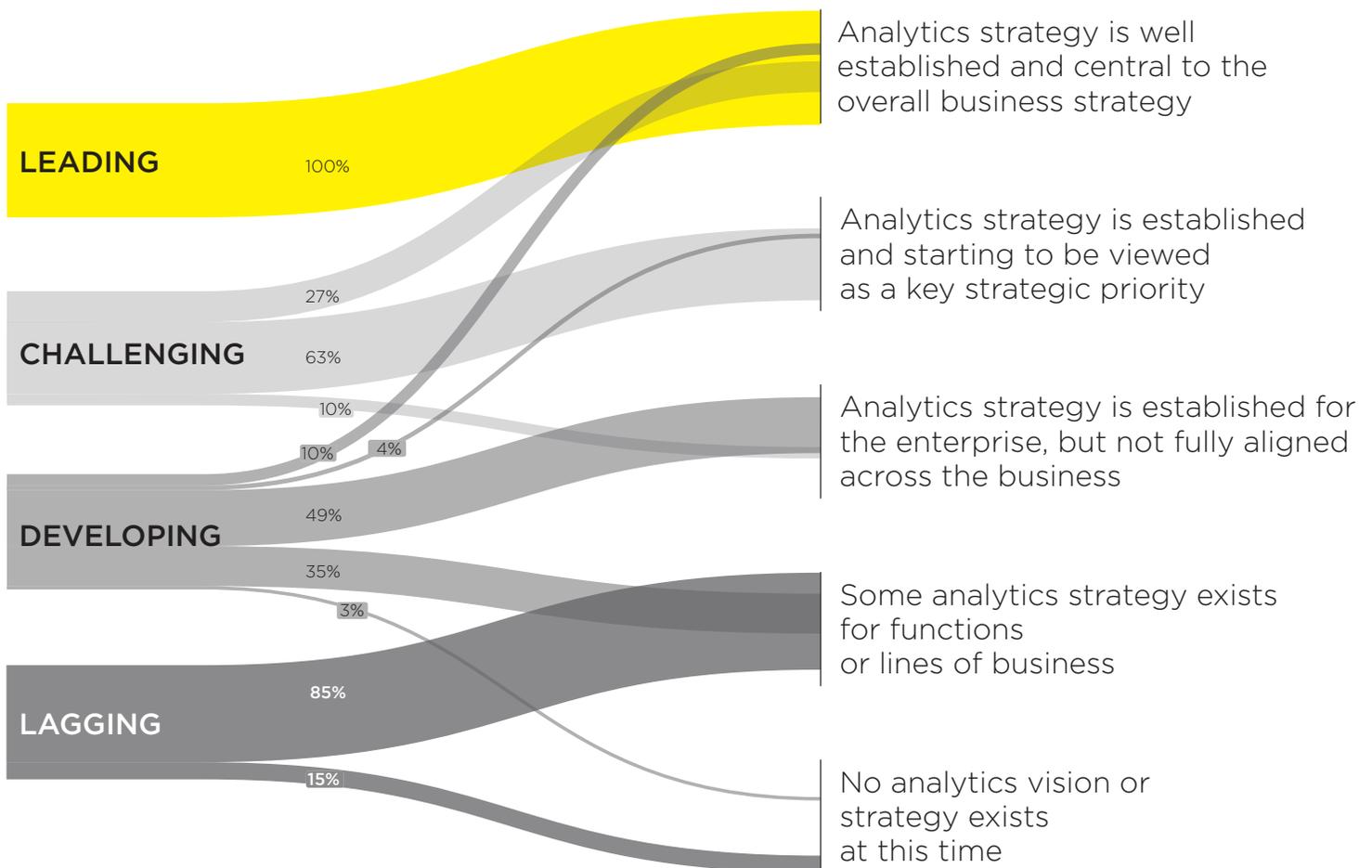
What's more, advanced analytics is having an impact in many key businesses, with some activities – notably fulfilling customer needs and informing financial decisions – seeing particular progress.

In 2015, 30% said a top goal for advanced analytics was to increase sales or revenues. The latest survey shows a strong foundation is in place to accomplish this – a quarter of the executives now say advanced analytics has completely changed their ability to target customers, while 26% see a complete change in how

they fulfill customer needs. In addition, a goal for a fifth of the respondents in 2015 was increasing the quality and targeting of interactions with partners and vendors. In 2016, nearly a quarter of the executives said advanced analytics helped them make wide-scale changes to partner networks.

However, less mature companies still have work to do. These organizations are likely to see pockets of advanced analytics proficiency, as they target usage in specific business areas. For example, 68% of Challengers already rely on advanced analytics to better target customers for specific products and services or are nearly there. This falls short of where the Leaders are (90%), but creates a clear advantage over Developing companies and Lagging organizations.

WHAT BEST DESCRIBES THE ROLE OF DATA AND ADVANCED ANALYTICS IN THE BUSINESS STRATEGY IN YOUR ORGANIZATION?



HOW IS DATA AND ANALYTICS IMPACTING YOUR BUSINESS STRATEGY IN THE FOLLOWING AREAS?

	No impact	Limited to modest impact	Changing some aspects of the business strategy	In the process of changing significant elements of our strategy	Has already completely changed our business strategy and how we compete
CUSTOMER NEED	1%	9%	25%	38%	26%
REVENUE MODEL	3%	8%	26%	39%	25%
HOW WE SELL AND DELIVER	2%	10%	25%	38%	25%
COST STRUCTURE	2%	9%	27%	39%	23%
HUMAN CAPITAL	3%	10%	26%	38%	23%
FINANCING	4%	11%	25%	35%	26%
WHAT IS SOLD	4%	10%	27%	35%	23%
PARTNER NETWORK	4%	11%	27%	35%	23%
TARGET CUSTOMERS	5%	11%	26%	33%	25%

IMPACT ACROSS MATURITY LEVELS FOR EACH BUSINESS AREA

Combined percentage "In the process" or "Has already completely changed" business strategy

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1223	93	638	410	82
Customer Need	64%	93%	70%	54%	42%
Revenue Model	63%	91%	68%	53%	49%
How We Sell and Deliver	63%	94%	70%	49%	42%
Cost Structure	62%	91%	64%	53%	52%
Human Capital	61%	94%	65%	52%	49%

IMPACT ACROSS MATURITY LEVELS FOR EACH BUSINESS AREA (CONT.)

Combined percentage "In the process" or "Has already completely changed" business strategy

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1223	93	638	410	82
Financing	61%	87%	64%	52%	46%
What Is Sold	58%	90%	62%	50%	34%
Partner Network	58%	94%	63%	47%	39%
Target Customers	58%	90%	68%	42%	31%

Similarly, advanced analytics give Challengers a competitive advantage over less mature peers in understanding changing tastes in products and services.

Differences like these help explain why only about a third of all respondents consider themselves ahead of the competition. Developing companies and Lagging organizations exhibit even healthier doses of realism—they acknowledge being behind—sometimes well behind—competitors.

To understand why some business areas capitalize on advanced analytics more than others, focus on people-related pain points. As companies analyze their pain points and how to address them, it's important to note that the problems aren't static. They're likely to change at each stage of the maturity cycle. For example, Lagging organizations and Developing companies frequently struggle with issues relating to budgets, lack of full commitment by senior executives, and inadequate leadership. Once achieving Challenger status, companies may have at least partially addressed those early problems, but others, such as a lack of collaboration among different stakeholders, become prominent. The Leaders aren't in

the clear either - as they make progress in earlier-stage challenges, they must turn their attention to organizational, cultural, and process challenges.

In particular, lack of collaboration and alignment within the management committee blocks success in the competitive differentiation synapse and elsewhere. It rises near the top in each of the remaining four synapses, as well. Senior-level commitment and support for data-driven cultures is another gap that surfaces in competitive differentiation and in the operating model synapses. Clearly, when devising strategies, stakeholders must give special attention to overcoming the lingering effects of intuition-based cultures where decision-makers trust "gut feel" more than what data reveals. "Treating data as a strategic asset is as much a cultural change as putting the right capabilities in place," says Brenda Niehaus, group CIO of Standard Bank, headquartered in Johannesburg, South Africa. "You have to drive this from the highest levels of the organization and develop clear use cases so people can see, touch, and feel the value."

To better utilize advanced analytics for strategic gain, enterprises must foster a cultural shift designed to

promote collaboration and data analytics skills. At some companies, chief analytics officers and other senior data experts are leading this shift. “We’ve worked throughout the entire company—from the corporate headquarters to the individual hotels—to determine everyone’s information needs and identify what gaps exist,” says Carlos Lopez, vice president of business intelligence, management control, and investor relationships at Melia Hotels International, a brand based in Spain that operates facilities throughout the world. “This did more than just help us understand what actions to take going forward. It sent the message that we all have the same goals and that analytics resources are here to make the lives of business people better.”

Collaboration between advanced analytics specialists and business people also overcomes the practice of relying too much on gut-feel decision making. “People want data really badly until they’ve got it—then they argue with it,” says Janice Carey, head of information management at Monash University in Melbourne, Australia. “So we’re putting a lot of emphasis on organizational change.”

One outgrowth of those efforts is Carey’s push to have members of her team work closely with internal clients to solve their business problems. This is a departure from the data staff’s traditional role, which was often akin to being order takers asked to generate a new report in response to a business peer’s request. “It’s absolutely vital for us to understand what someone’s overarching goal is,” Carey explains. “That way, we can relieve people of the upfront work of managing data so they can perform the high-value analyses that will ultimately produce business value.”

Advanced analytics leaders point to one other vital element for promoting collaboration. “We have sponsorship from top-level and functional executives,” says Krishnakumar Ramasubramanian, head of business performance management and analytics at Max Life Insurance, the largest non-bank promoted private life insurance carrier based in India. “This has helped us create the necessary ecosystem in terms of bringing in expertise, people skills, and technical infrastructure, and creating a culture that relies on data-based decision making, thereby making our journey successful and rewarding.”

Looking beyond cultural considerations, enterprise leaders also must understand the financial commitments needed to successfully infuse business initiatives with advanced analytics. **Over the next two years, more than half of survey respondents plan to invest at least \$10 million in data and analytics resources. The Leaders will double-down in this area, with 85% expecting to open their checkbooks to this degree.** This comes on the heels of similar spending levels in the previous two years.

These investments can do more than help companies understand how to better fulfill customer needs and other business concerns noted previously. They also sow seeds for new revenue streams. Although interviews with global executives show that data monetization strategies are in early stages of development, this is clearly an area that executives want to cultivate for the future. In particular, survey respondents are exploring ways to sell the insights from advanced analytics, in addition to collaborating with partners for a market advantage and to enhance customer experience.

Further insights emerge when comparing responses to data monetization strategies and results cited earlier about the impact of advanced analytics on business activities. For example, executives who said that advanced analytics has completely changed their business strategy and how they compete are actively pursuing monetization from a variety of angles. Fifty-three percent are looking to collaborate with partners to leverage market position and enhance customer experience, while 52% and 50% of that group, respectively, see potential for selling the insights from advanced analytics to existing and new customers. By contrast, the numbers of those that have seen only some or a modest impact from advanced analytics are lower in these areas by double-digit percentages in some cases.

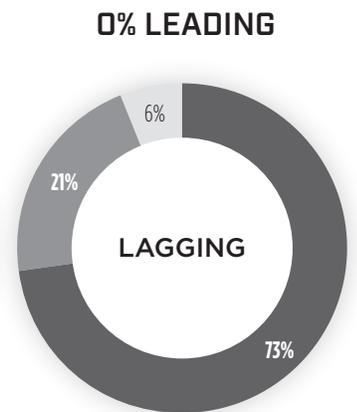
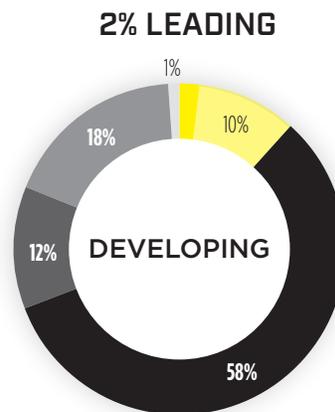
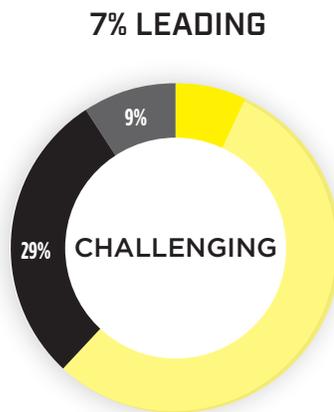
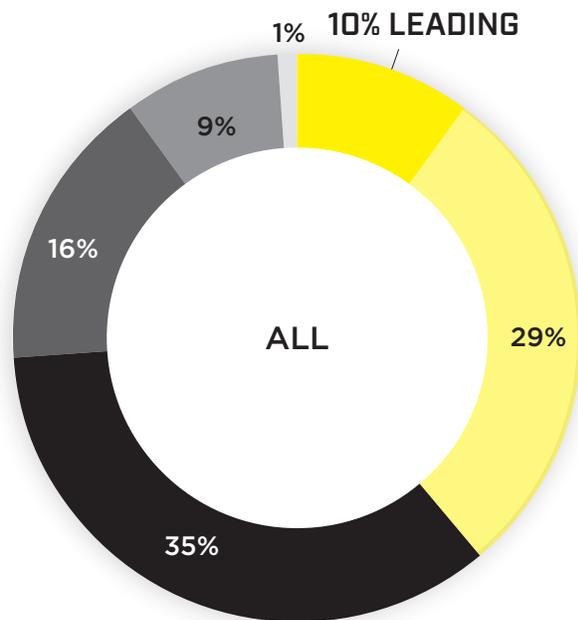
Clearly, leaders in advanced analytics want to build on their successes by finding new ways to exploit their competitive position. A clear-eyed view of competitive challenges, along with a willingness to do what’s culturally and financially necessary, are essential for improving advanced analytics strategies and taking full advantage of analytics-related resources.



OVER THE NEXT TWO YEARS, MORE THAN HALF OF SURVEY RESPONDENTS PLAN TO INVEST AT LEAST \$10 MILLION IN DATA AND ADVANCED ANALYTICS RESOURCES.

HOW WOULD YOU DESCRIBE YOUR CURRENT STATE OF COMPETITIVE ABILITY IN DATA AND ANALYTICS?

-  MARKET LEADING
-  AHEAD IN MOST AREAS
-  GENERALLY AT PARITY WITH COMPETITORS
-  BEHIND IN SOME AREAS
-  WELL BEHIND
-  DON'T KNOW, UNSURE



WHAT ARE YOUR TOP PAIN POINTS WHEN IT COMES TO DEVELOPING OR REFINING THE BUSINESS STRATEGY TO ACCOUNT FOR DATA AND ANALYTICS?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Organization, culture and decision-making based more on intuition than data	49%	45%	49%	51%	45%
Lack of collaboration/alignment among members of the management committee	44%	36%	50%	42%	33%
Regulatory constraints prevent us from acting	44%	50%	44%	43%	42%
Lack of budget and other forms of organization commitment	39%	35%	37%	41%	42%
Lack of senior leadership support	34%	28%	30%	35%	48%
No appetite for a major transformation that would result from data and analytics-driven strategies	33%	27%	31%	34%	40%
We have not had the right leader to serve as a catalyst for change	31%	25%	30%	32%	36%
Data and analytics is not changing our business strategy	9%	18%	10%	7%	5%

RECOMMENDATIONS

1 Ensure advanced analytics initiatives are closely aligned with the overall business strategy and how the organization creates competitive differentiation. As more data is unified and created across the enterprise, leadership has the opportunity to ask better questions and leverage an asset that their competitors do not possess - insights about their operations and customers.

2 Consider what new products, services, and capabilities can be created by considering data as an asset in its own right. The value of data as an enterprise asset, and the insights derived from advanced analytics, comes as data is de-siloed and the enterprise embraces

experimentation to drive real innovation. The continued adoption of big data technologies, cloud services and machine learning / AI have provided an opportunity to experiment at scale, cost effectively.

3 Focus on creating alignment and closer collaboration among stakeholders from all relevant departments - define what 'good' will need to look like and remove organizational and policy barriers to effectively execute.

WHAT DATA MONETIZATION STRATEGIES IS YOUR ORGANIZATION USING OR EXPLORING?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
We're exploring ways to sell data to new customers	43%	57%	40%	45%	43%
We're exploring ways to combine our data and analytics with partners as a mechanism to leverage market position	43%	58%	51%	36%	26%
We're exploring ways to sell analytics insights to new customers	42%	52%	42%	41%	37%
We're exploring ways to sell analytics insights to existing customers	41%	45%	41%	40%	41%
We're exploring ways to sell data to existing customers	31%	59%	27%	29%	33%
We're exploring ways to combine our data and analytics with partners to develop brand new products and services	29%	47%	38%	19%	11%
We are not exploring data monetization strategies	6%	3%	4%	7%	11%

MONETIZATION STRATEGIES VS. ANALYTICS IMPACT

	No impact	Limited to modest impact	Changing some aspects of the business strategy	In the process of changing significant elements of our strategy	Has already completely changed our business strategy and how we compete
We're exploring:					
Ways to sell data to existing customers	47%	29%	21%	28%	52%
Ways to sell analytics insights to existing customers	25%	36%	39%	43%	47%
Ways to sell data to new customers	37%	42%	41%	44%	50%
Ways to sell analytics insights to new customers	20%	40%	41%	44%	46%
Ways to combine data and analytics with partners to leverage market position	14%	33%	37%	52%	53%
Ways to combine data and analytics with partners to develop new products	16%	15%	21%	36%	44%
We are not exploring data monetization strategies	27%	10%	6%	2%	4%

THE DIFFERENCE A YEAR MAKES

REGIONAL DATA AND ADVANCED ANALYTICS MATURITY RANKING



In order to measure advanced analytics maturity, we created a composite metric of questions highly correlated to competitive differentiation, operating model, initiative design, intervention design, and measurement learning and applied this to our survey results. Regional progress in maturity remained steady from 2015 to 2016, with enterprises in Asia and the Pacific maintaining their top ranking. Companies in the Americas and those in Europe, the Middle East, and Africa also maintained their second and third positions, respectively.

ADDITIONAL DATA POINTS UNCOVER ADVANCED ANALYTICS POWERHOUSES

New information captured in this year's more comprehensive survey offers additional insights for assessing the advanced-analytics capabilities of more countries than in 2015. Broad improvements are apparent throughout the world, but Asia and Latin America showed particular strength. For example, focusing on those markets with more complete survey data this year shows India and Brazil now rank among the world's advanced analytics leaders.

On the surface, the regional rankings appear to show only modest progress in analytics maturity in the past year, but this is misleading. Delve deeper into the year-over-year findings, and important trends emerge. For example, while regional ranks didn't change in 2016, companies in countries within those regions demonstrated forward progress in analytics proficiency. For example, U.S. enterprises jumped from #5 to #2 in the year-over-year results, while German firms similarly advanced two levels, moving from #7 to #5.

COUNTRY	2016 RANK	2015 RANK	TREND
CHINA	1	1	*
UNITED STATES	2	5	▲ +3
UK	3	3	-
FRANCE	4	2	▼ -2
GERMANY	5	7	▲ +2
CANADA	6	4	▼ -2
JAPAN	7	6	▼ -1

Note: Table is based on countries included in both 2015 and 2016 studies.

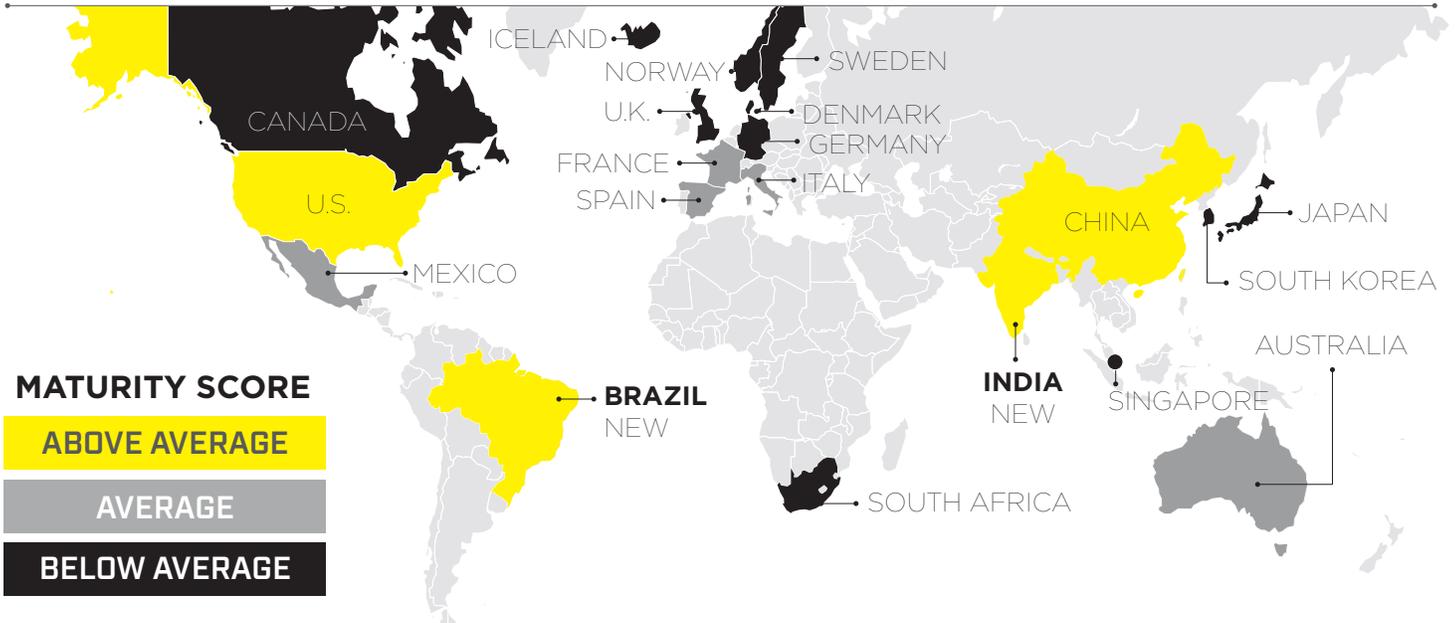


YEAR-OVER-YEAR RESULTS SHOW CHINA MAINTAINED ITS TOP RANKING FOR MATURITY, WHILE THE U.S. AND GERMANY REGISTERED THE MOST PROGRESS.



AMONG NEW COUNTRIES SURVEYED IN THE EXPANDED EY-FORBES INSIGHTS SURVEY FOR 2016, INDIA AND BRAZIL ESTABLISHED THEMSELVES AMONG GLOBAL LEADERS.

EMERGING POCKETS OF ANALYTICS EXCELLENCE



INDUSTRY SECTORS GAIN EXPERTISE

Regional trends aren't the only news in this year's survey. The results also show that select industries and business departments are better understanding the importance of using advanced analytics more effectively—and they're finding ways to better capitalize on their rich data reserves.

The manufacturing and financial services sectors were the standouts in 2016. They tied for demonstrating the most progress in the year-over-year rankings, each moving up three positions in the latest survey. Other sectors posting solid progress included government, healthcare, and technology.

SECTOR	2016 RANK	2015 RANK	Change
TELECOMMUNICATIONS	1	*	*
TECHNOLOGY	2	3	▲ +1
MANUFACTURING	3	6	▲ +3
FINANCIAL SERVICES	4	7	▲ +3
PHARMACEUTICALS**	5	9	▲ +4
HEALTHCARE	6	8	▲ +2
MEDIA & ENTERTAINMENT	7	*	*
ENERGY - OIL & GAS	8	10	▲ +2
GOVERNMENT	9	11	▲ +2
CONSUMER & RETAIL	10	4	▼ -6
AUTOMOTIVE	11	*	*

*2015 data sample size was too small for valid ranking or year-over-year comparisons

** Small sample size for 2016



AGAINST A BACKDROP OF BROAD GAINS IN MATURITY ACROSS MANY INDUSTRIES, MANUFACTURING AND FINANCIAL SERVICES SHOWED THE MOST PROGRESS SINCE 2015.

PROFICIENCY IMPROVEMENT, BY DEPARTMENT OR FUNCTION

Percentage of firms rating the data analytics proficiency of each department a 4 or 5 on a scale where 1 is “not proficient” and 5 is “highly proficient.”



HIGHEST SCORING INDUSTRIES AMONG TOP DEPARTMENTS



↑ INDUSTRY AVERAGES SHOWED DOUBLE-DIGIT GAINS IN 2016 VERSUS THE PREVIOUS YEAR'S SURVEY, EVEN IN THE BUSINESS AREAS THAT STILL LAG BEHIND.

What's the common thread among these diverse industries that're making advanced analytics a business imperative? While every industry is being disrupted by new digital technology, market insurgents, and shifting customer demands, these five (manufacturing, financial services, government, healthcare and technology) are facing particularly intense competitive pressures. The sophisticated use of advanced analytics gives organizations in these areas a way to differentiate themselves from competitors and understand how to evolve their products and services.

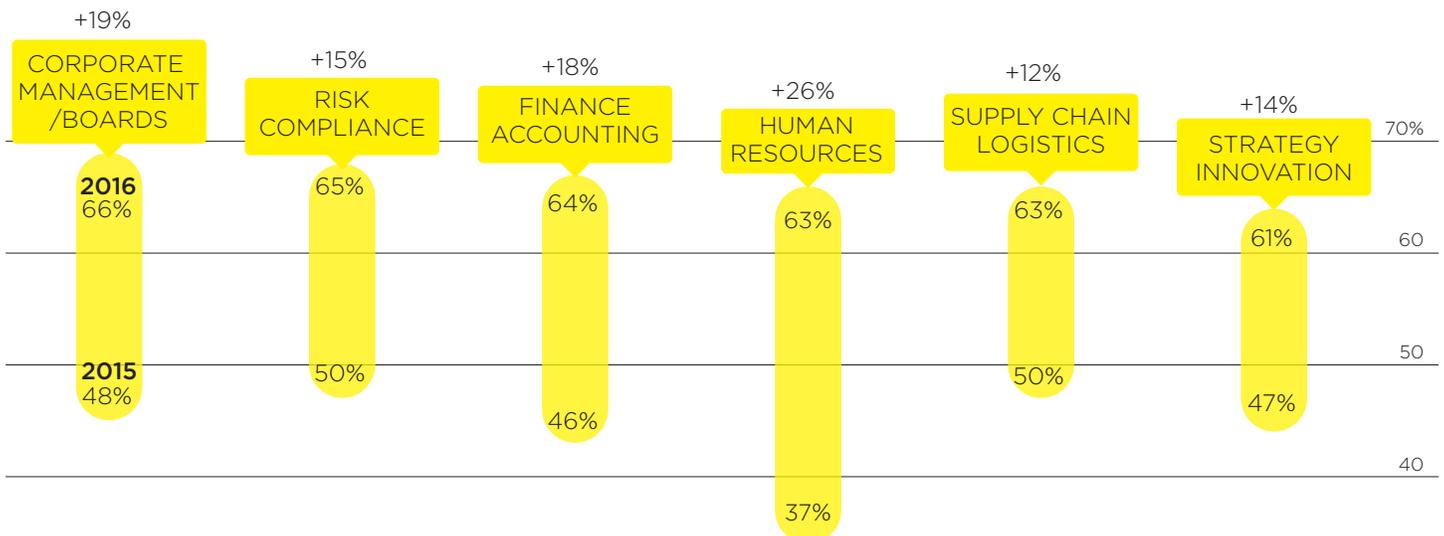
Two years of survey results also reveal where advanced analytics is having the biggest impact on business functions. For example, in both the 2016 and 2015 surveys, we asked the global executives to rate the advanced analytics proficiency of individual departments, and then tracked where the most progress is being made. It's notable that proficiency is on the rise across all business functions—in fact, each area has registered double-digit gains since 2015. Nevertheless, a handful of business functions are

showing especially impressive results.

While all departments contribute to the overall success of enterprises, organizations are seeing unique incentives to effectively apply advanced analytics in the four units where proficiency reigned in 2016. For HR, there's the intense global competition for highly skilled talent. Similarly, a high level of customer outreach is the key to brand loyalty in an age when customers have the resources to find, evaluate, and transact with companies anywhere in the world. Sales and marketing, two areas that have been long-time consumers of data, are under more pressure than ever to find new revenue opportunities and use targeted campaigns to connect with customers.

The year-over-year results show important progress is being made by region, sector, and business function. But as the rest of the report shows, global enterprises still face significant challenges as they work to use advanced analytics more effectively.

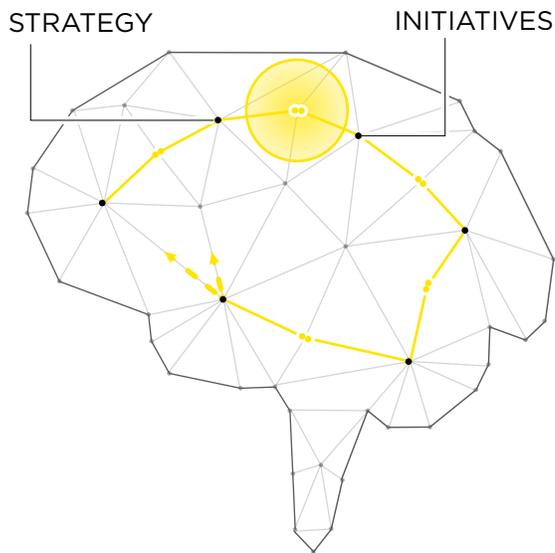
OTHER DEPARTMENTS SHOW SOLID PROFICIENCY GAINS



SINCE 2015, THE BIGGEST GAINS IN A DATA AND ADVANCED ANALYTICS PROFICIENCY OCCURRED IN FOUR BUSINESS UNITS, WITH HUMAN RESOURCES SHOWING THE BIGGEST JUMP

(Note: For more details about rankings and performance trends by industry and region, see Appendices.)

OPERATING MODEL



As enterprises mature in their use of advanced analytics for business initiatives, they must intensify their focus on the underlying operating models that govern these activities. The chances of success increase for enterprises that develop models that support collaboration, so stakeholders from anywhere in the enterprise can work together for business success. Without that holistic approach, companies will continue to see pockets of analytics proficiency in some departments, while others fail to fully benefit. For example, a solid segment of respondents say they are highly proficient in areas such as information technology, customer service, operations, and sales. But high levels of proficiency are lagging in strategy and innovation, an area where better informed decisions could significantly benefit large organizations.

A closer look at individual industry sectors shows further proficiency differences. The upper range of the proficiency scale across the business functions examined in the survey includes a consistent handful of industries: telecommunications, technology,

KEY FINDINGS

- The leaders manage advanced analytics groups within a well-aligned framework across the enterprise, departments and lines of businesses
- The ‘right’ operate model is highly organization and context specific – there is often an evolution that occurs as advanced analytics capabilities mature
- Cross-functional alignment and collaboration is typically the most difficult challenge to overcome when designing and implementing an effective operating model

manufacturing, and banking and asset management. Others see themselves at the top of the scale in areas that matter most to their markets.

Organization and governance have a direct bearing on the maturity of advanced analytics strategies. A decisive 75% of Leaders say they rely on a full range of enterprise, departmental, and line-of-business advanced analytics groups that operate within a well-aligned framework. That’s a stark contrast with the 17% of Challenging companies overall that claim this level of maturity. The difference is even greater for Developing and Lagging firms, which claim only 10% and 1% of maturity in this area. For now, these less mature organizations may aspire to a multifaceted organizational and governance model, but most only claim progress within certain departments and business lines, rather than having a fully formed enterprise framework. Other significant data points are the nearly two-thirds of Developing companies and 56% of Lagging organizations that say only some informal

advanced analytics groups exist in discrete areas of their enterprises.

The close alignment of advanced analytics teams is a necessary foundation for effective operating models. Sixty-seven percent of the Leaders use their enterprise advanced analytics teams primarily to set the overall, organization-wide strategy for advanced analytics. This is important for many reasons, in part because it demonstrates a commitment by senior executives to having data-driven approaches that underlie business initiatives going forward. This is another cornerstone for the cultural changes that surfaced earlier as a critical competitive differentiator. Related to this is the ability of organizations to implement enterprise-wide data governance standards, something that's being accomplished by nearly half (46%) of the leaders. This has ongoing ripple effects because it fosters greater trust in the accuracy and security of corporate data.

How do less mature enterprises compare in these important areas? Even if they've launched enterprise-level advanced analytics teams in some form, their focus

is inward-looking—teams across the remaining maturity segments spend most of their time selecting and managing the right technologies rather than focusing on more-strategic activities.

While important, promoting an enterprise-wide, data-driven culture doesn't mean that marketing, operations, or any other business unit must accept cookie-cutter solutions. After all, each area has unique data needs and desired business outcomes that advanced analytics must address. To balance an enterprise strategy and departmental needs, leading organizations disperse advanced analytics expertise everywhere it's needed and let line of business managers use resources to address their most pressing issues and opportunities. By centralizing data within an enterprise-wide team, companies can ensure each department is basing analyses and decision-making on trusted information that's timely, screened for duplication and inconsistency, and as accurate as possible. Mindful of all these requirements, some organizations are employing a hub-and-spoke model that combines the best characteristics of centralized and federated strategies.

WHICH BEST DESCRIBES YOUR ORGANIZATION'S CURRENT STATUS REGARDING THE ORGANIZATION AND GOVERNANCE OF DATA AND ANALYTICS?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
No organization exists for data analytics	3%	0%	1%	4%	13%
Some informal data analytics groups exist in departments or lines of business	22%	4%	9%	31%	56%
Data and analytics groups are well-established in departments or lines of business	35%	6%	35%	42%	23%
Enterprise-level data and analytics groups are emerging	24%	15%	37%	13%	8%
Enterprise, department and lines-of-business data and analytics groups exist and are well-aligned	17%	75%	17%	10%	1%

IF YOUR ORGANIZATION USES SOME FORM OF ENTERPRISE-LEVEL DATA AND ANALYTICS TEAM (IN ADDITION TO CAPABILITIES THAT EXIST WITHIN BUSINESS UNITS), WHAT IS THE PRIMARY PURPOSE OF THIS TEAM?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Technology Selecting, implementing, managing common technology platform and tools	57%	65%	58%	56%	53%
Data Implementing data governance/standards used across the organization	44%	46%	42%	43%	51%
Advanced Analytics working on use cases that require skills not resident in the businesses	40%	36%	46%	38%	23%
Strategy Setting the overall firm-level data and analytics strategy and plan	39%	67%	39%	35%	36%
Development building models and other assets that can be leveraged across the business	38%	39%	40%	38%	28%
Portfolio Management selecting projects, making investment allocation decisions	21%	16%	23%	20%	15%
Measurement putting in place standards for value measurement,	10%	8%	10%	12%	5%
We do not have a central analytics team	4%	2%	2%	5%	10%

One company that's doing this is QBE Insurance Group, a global property and casualty insurance carrier headquartered in Australia with businesses throughout North America, Europe, Latin America, and the Asia-Pacific region. The company is entering the second year of implementing a global data and analytics framework that leverages centralized capabilities that support local business initiatives. "We believe there are many synergies and efficiencies that result from having a centralized shared-service function and from aligning data and analytics to a broader global strategy," says Gina Papush, chief data and analytics officer for QBE.

But centralizing all data and analytics within a single center of excellence couldn't fully address important differences in local regulations, sales, underwriting, and claims processes. "Because of our global reach, we must strike a balance between being centralized or entirely federated," Papush says.

In addition, she encourages regional staff to share any new analytics solutions and tools they find to be useful with peers in other geographical areas. "There is a great potential for adapting and reusing some solutions, which means we don't have to do everything from scratch in every region," Papush adds.

Looking to the future, enterprises across all four levels would be wise to improve cross-functional alignment and collaboration when creating or enhancing their analytics operating models. But the research shows this remains a significant pain point for the Leaders and Lagging organizations alike. Also noteworthy is the importance of change-management, something that surfaces as a significant pain point for the Leaders, who acknowledge

disruption to existing operating models and the need for change-management skills. It's unlikely other companies view the areas as less significant because they've already overcome these hurdles. More likely, their lower maturity means they're still addressing more fundamental issues and haven't fully realized the ramifications of change.

The findings also show that certain challenges rise to prominence at each stage of the maturity cycle. For

WHAT ARE YOUR TOP PAIN POINTS WHEN CREATING A DATA AND ANALYTICS OPERATING MODEL?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Lack of alignment/collaboration across functions	28%	25%	28%	27%	33%
Lack of change management acumen	27%	34%	29%	25%	18%
Lack of training across functions	27%	33%	27%	28%	21%
Lack of data and analytics proficiency within many functions	26%	16%	26%	26%	28%
Lack of data and analytics leaders at the business-unit level	26%	28%	26%	26%	26%
Lack of vision/buy-in from top levels of management	25%	23%	25%	23%	28%
Lack of adoption/engagement by employees	25%	26%	26%	25%	23%
Data and analytics has not historically been part of an operating model	24%	22%	23%	26%	23%
A data and analytics operating model would disrupt existing models too much	24%	33%	24%	24%	23%
Lack of data/knowledge management sharing	24%	24%	25%	25%	23%
Technology is not integrated	22%	20%	22%	23%	23%
We do not have a mature data and analytics organization/processes/governance	21%	16%	20%	22%	29%

example, Lagging organizations are more likely to struggle with alignment and collaboration issues, as well as process and governance problems. The Leaders and Challengers aren't immune from these issues, but they're more likely to grapple with working to disrupt existing business models and with the resulting change management challenges. At the same time, some pain points cross maturity boundaries, with companies overall trying to cope with a lack of analytics leaders in the business, effective training, adoption of analytics by business users, and widespread sharing of data.

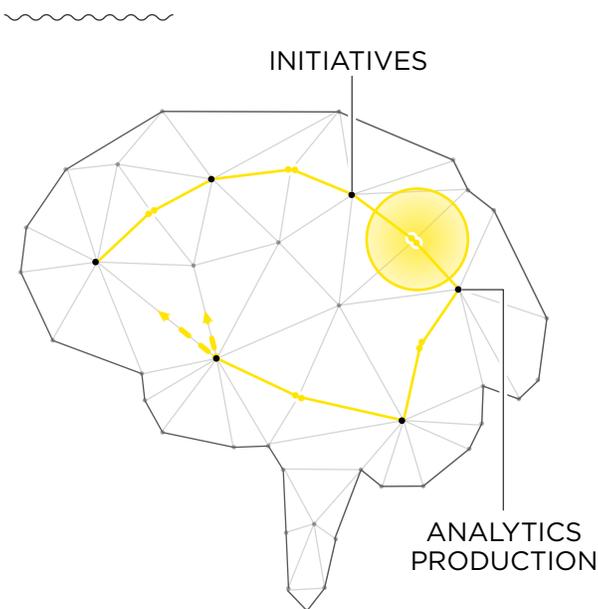
The survey also revealed a significant gap in how executives at various levels of an organization view challenges differently. For example, while more than a quarter (28%) of CEOs and presidents see significant problems stemming from a lack of advanced analytics leaders at the business-unit level, marketing, digital, and operations officers don't rate this highly as a challenge. They're more concerned about lack of alignment and collaboration across functions. Also notable is that senior vice presidents cite the lack of vision and buy-in from top levels of management as a top pain point, a concern that doesn't rank as high for CEOs and presidents. Clearly, alignment and collaboration issues are something that must be addressed across all levels of the enterprise, including the C-Suite.

RECOMMENDATIONS

- 1** Clearly define an operating model that brings advanced analytics resources close to each line of business and function. Support the model with an enterprise-level team charged with focusing on activities, such as analytics strategy, data governance, technology platforms and tools that will yield the highest value across business units and functions.
- 2** Put significant focus on recruiting, developing and retaining individuals who can serve as advanced analytics 'leaders' in various parts of the business.
- 3** Define what it means in your organizational context to have more of an advanced analytics mindset and culture. No operating model will succeed long-term without corresponding focus on creating a culture where practitioners can apply their craft and thrive.

Note: No single operating model is right for all organizations, so individual companies must determine – and then continuously evolve – a model that successfully aligns advanced analytics across their enterprises.

INITIATIVE DESIGN



When executives reach the point of designing the specifics of business initiatives, they must make a series of critical decisions that will guide their use of advanced analytics and ultimately determine the success of their business imperative. This starts with defining the specific business outcomes leaders hope to achieve. “We take a laser-like focus to align any use case with the business strategy, which is very clearly articulated in terms of education and research objectives,” Carey says, echoing a view shared by others. “This gives us a system for scoring proposals—the more a potential use-case aligns with the strategic objectives, the more important it is to the institution.”

Not surprisingly, the goals that ranked highest overall among all respondents were increased sales or revenues and increased customer satisfaction. These are bread-and-butter objectives every top executive can love. But looking deeper into the responses reveals important differences in the perspectives of leaders based on the analytics maturity of their organizations.

KEY FINDINGS

- Leaders are experimenting with advanced analytics across many parts of the business – and then scaling rapidly what works
- Lagging organizations apply inconsistent approaches for initiative design and collaboration problems greatly reduce the chances of success
- A sharp focus on what the initiative is attempting to accomplish and why needs to be driven into various steps of the design process

For example, less mature companies, especially the Developing companies and Lagging organizations, maintain a primarily tactical view of data’s value. Their top outcome choices also include desires to accelerate decision-making, deploy personnel more effectively, and improve current products or services.

However, a step higher on the maturity ladder, Challengers show a mix of tactical and strategic goals, with a desire to develop new products or services also on their analytics wish list. The potential to employ advanced analytics strategically takes on even greater importance for the Leaders—they certainly see tactical opportunities, but they’re even more interested in how they can use data to strengthen themselves in the future. They want to transform business models, develop new products, react more quickly to market changes, and develop closer relationships with partners and vendors. As less advanced companies evolve their advanced analytics strategies, they must embrace a similarly forward-looking orientation as typified by the Leaders.

WHAT SPECIFIC BUSINESS OUTCOMES IS YOUR ORGANIZATION TRYING TO ACHIEVE THROUGH THE APPLICATION OF DATA AND ANALYTICS?

Increase sales or revenues

26%

Increase customer satisfaction/retention

26%

Improve current products/services

25%

Develop new products/services

23%

Improve and streamline internal operations/cut costs

21%

Quality targeted interactions with partners and vendors

21%

Transform business models

20%

Deeper market insights/react quickly to market

19%

Accelerate decision-making

19%

Encourage rapid and constant innovation

19%

More effectively deploy our people

18%

Transform operating models

18%

Enable common enterprise view of customers

17%

MOST IMPACTED SECTORS



HOW OFTEN DO YOU USE CONSISTENT METHODS/APPROACHES FOR DATA AND ANALYTICS INITIATIVE DESIGN (PROJECTS TARGETING A SPECIFIC USE CASE)?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Never	1%	1%	0%	2%	5%
Sometimes	16%	1%	10%	20%	37%
Fairly Often	33%	3%	32%	41%	33%
Very Often	31%	28%	42%	23%	14%
Always	17%	66%	15%	13%	8%
Not Sure	2%	1%	1%	2%	4%

Differences in strategic versus tactical business goals were also apparent in different industries. For example, manufacturers rate advanced analytics as a key strategic resource for reacting quickly to market changes and improving interactions with partners. Pharmaceuticals, mindful of the extended development processes needed to bring new drugs to market, overwhelmingly tie advanced analytics to the development of new products. Consumer products and auto companies share a similar view of the strategic link between analytics and product development. Regionally, Asia-Pacific countries demonstrate their sophisticated use of advanced analytics by rating the more-strategic outcomes higher than their global counterparts. But while European, Middle Eastern, and African respondents take a more tactical view, they stand out in one area: in higher numbers than anywhere else, executives in these regions want to use advanced analytics to transform business models, demonstrating a desire to leap-frog global competitors.

But it will take more than just an attitudinal change to move these companies forward. Behind the scenes, they

must also significantly improve their methods for developing initiative designs. This important stage not only defines the specific strategies enterprises will use to achieve their desired business outcomes. It's also when enterprises create common nomenclatures and structured processes to frame their advanced analytics efforts, while also determining how to incorporate experimentation and agility. This is a particular challenge for the 22% of Developing companies and 42% of Lagging organizations that admit to frequently using inconsistent design approaches. Even Challengers have room for improvement, with 42% saying they're consistent only sometimes or "fairly often." By contrast, 66% of the Leaders say they're always consistent, while 28% chose "very often."

To enhance consistency, companies across the spectrum for advanced analytics maturity must intensify their efforts to improve collaboration. An overriding characteristic that impacts collaboration and other areas is the need for personnel with multiple skill sets. Companies overlook this area because they're

confident they have experienced high performing business people and advanced analytics professionals. Having those groups is important, but it's not enough. Ultimately, companies must have a core group of people who understand business issues and have a deep understanding of how analytics can best support initiative design.

But overall, 41% say the top pain point at this stage is the lack of alignment among the IT department, the advanced analytics team, and business people. It's a breakdown that negatively impacts the Leaders and Lagging organizations alike. Similarly, all the respondents acknowledge that collaboration problems run deep throughout the initiative-design stage, however, opinions

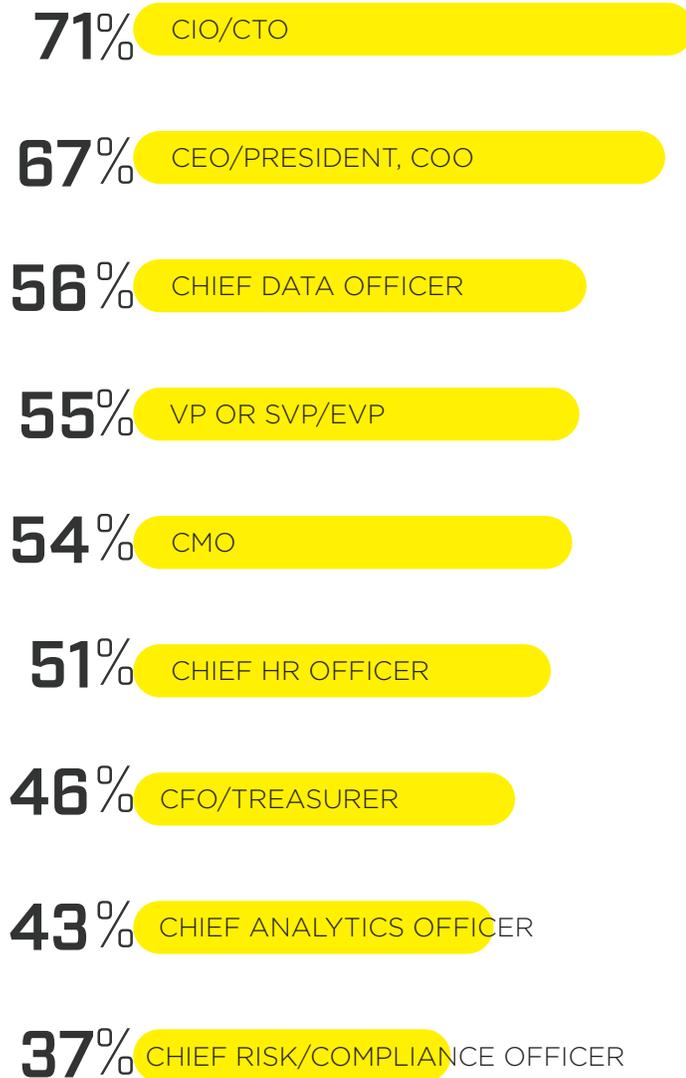
about the extent of these problems differ based on company roles. **For example, while 71% of CIOs/CTOs and 67% of CEOs/Presidents/COOs believe there is a high level of effectiveness among business users and technical people, department managers aren't nearly as upbeat. Just 43% of chief analytics officers agree with that assessment.**

The divergence in rankings below the CEO level illustrates the difference between vision and reality - while everyone may share a desire to use data and advanced analytics effectively, people who actually tap the resource to do their jobs develop a keener awareness of where the gaps lie. These results also suggest that those who are frustrated by the level of effectiveness

WHAT ARE YOUR TOP PAIN POINTS WHEN DESIGNING DATA AND ANALYTICS INITIATIVES?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Lack of collaboration between IT, data and analytics team and the business team	41%	41%	39%	43%	42%
Lack of people with analytics skill sets to define an appropriate to approach the problem	40%	44%	37%	42%	45%
Lack of consistent methods/processes	38%	32%	38%	40%	40%
Desired business outcomes not well defined at the start	37%	42%	39%	35%	30%
Unclear responsibilities across functions	37%	35%	40%	35%	35%
Technology needs not considered early enough	37%	36%	38%	36%	35%
Lack of clear and engaged sponsorship	35%	36%	33%	36%	41%
Not enough focus on who the 'user' will be and how the analytics will change what they do	34%	33%	36%	33%	31%
Other	0%	1%	0%	0%	1%

RESPONDENTS WHO SAID THEIR USERS, SUBJECT MATTER EXPERTS AND TECHNICAL TEAMS ARE EFFECTIVE AT WORKING TOGETHER TO DESIGN DATA AND ANALYTICS INITIATIVES, BY ROLE



could do a better job of communicating this, and proposing solutions, to top leaders.

But some say familiarity offers a ray of hope that such problems can be addressed successfully. “This is a decades-old challenge, not one that’s new or something that we’ve never seen before,” says Steve Petitpas, Microsoft’s general manager of Microsoft.com. “In most cases, the problems result from either misalignment on strategies and goals or too much focus on technology, as opposed to solving a business problem.”

He adds that effective use of data helps people become more closely aligned on strategy. “People can say, ‘Here’s the question we need to figure out, let’s go get the data that can help us,’” he explains. “They can then use that information to drive decisions.”

Also important during initiative design is attention to data privacy, an essential consideration given the importance of closely managing financial and customer information, as well as adhering to the regulatory requirements of individual industrial sectors. To this end, the executives participating in the survey are at various levels of maturity for implementing a comprehensive approach to privacy, with the Leaders incorporating everything from legal and regulatory imperatives to creating incentives for customers to share information about themselves.

Challenges exist during the initiative design phase, and the key to addressing them is cultivating advanced analytics teams with a keen understanding of business needs. When specialists can also think like business managers, they’re better able to identify the best strategies and tools for each new business initiative or problem. That’s especially important today given the pace of innovation happening that provides a growing selection of advanced analytics technology for enterprises. For example, the Leaders and the Challengers are focusing on predictive and prescriptive modeling, along with artificial intelligence to gain insights about possible future outcomes and how to address them.

HOW DOES YOUR PLANNING PROCESS FACTOR DATA PRIVACY INTO A NEW INITIATIVE'S DESIGN?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Data privacy generally does not apply to us	8%	4%	3%	11%	19%
We consider all legal, regulatory, and compliance considerations	34%	15%	29%	39%	44%
We rely on corporate policies that often go above what is required	25%	2%	25%	30%	25%
In addition to the above, we consider what we have 'brand permission' from our customers to do with their data	19%	18%	27%	13%	11%
In addition to the above, we create incentive mechanisms that allow us to share value (pricing, service levels, etc.) with our customers for use of their data	14%	61%	15%	7%	1%

WHAT TYPES OF ADVANCED ANALYTICAL APPROACHES ARE YOU USING?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Cognitive	44%	49%	47%	42%	37%
Predictive Modeling	42%	67%	45%	37%	30%
Prescriptive Modeling	42%	54%	44%	38%	38%
Artificial Intelligence	42%	53%	44%	39%	43%
Natural Language Processing	33%	45%	33%	33%	23%
Robotic Process Automation	25%	43%	31%	19%	13%
Neural Networks	14%	29%	17%	10%	8%
None / NA	4%	2%	2%	5%	8%
Other	0%	0%	0%	0%	0%

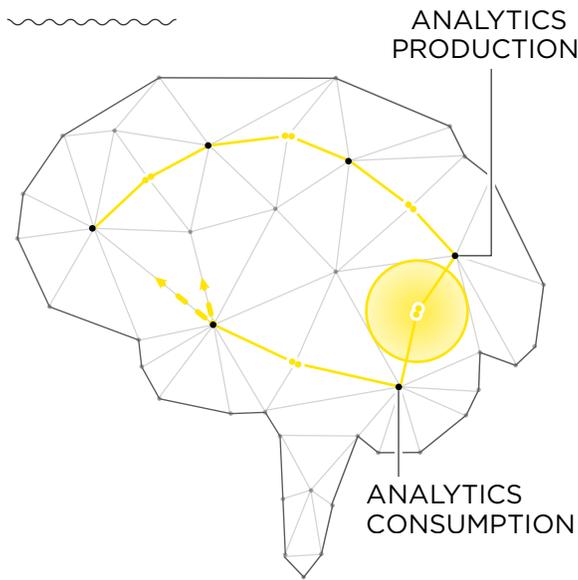
RECOMMENDATIONS

1 Develop and apply consistent processes and a common nomenclature for designing advanced analytics initiatives. This should be balanced with creating an environment for cost-effective experimentation and investigation, which allows teams to ultimately choose the best use cases.

2 Ensure that stakeholders define strategic objectives and desired business outcomes and closely align proposed initiatives to these goals. This does not mean that emphasis should be on achieving some (usually over-hyped) outcome. Rather, focus on a better definition of a strategic outcome such as driving better engagement with customers. That goal should then translate into initiatives that evaluate, streamline, improve or otherwise reimagine customer engagement across all channels.

3 Carefully think through the competencies and roles that are needed across the advanced analytics, IT and business teams – ensure there is joint responsibility and accountability for addressing a specific initiative. Assess the current skills across these teams to ensure that the right mix actually exists to drive initiatives in a way consistent with industry leading practices. The enterprise should also evaluate its partner ecosystem and look for opportunities for collaboration as no one company outside of a select few can hire all the skills they need.

INTERVENTION DESIGN



Intervention design, the next step in the analytics process, translates all the upfront goal-setting, modeling, and methodology development into action—namely, making the insights derived from advanced analytics insights an integral part of business operations. At this stage, it's essential to have a clear and well-defined hypothesis about how value may be achieved. “So if you launch a new advanced analytics initiative, are you expecting to increase the average revenue per customer? Or gain more new customers? Reduce the cost to serve a customer? Something else?” Mazzei explains. “Your assumptions on how to achieve that objective may not always be right in the early stages of an initiative, but if you have a working hypothesis you’ll quickly see where differences arise so you can adjust how you design the initiative.”

Also critical for business success at this stage is determining when in the development process companies design how to apply advanced analytics to best realize the value of their efforts. Clearly, earlier is better, since this gives business leaders the most opportunities to shape and test the validity of initiatives

KEY FINDINGS

- Earlier is better when considering how insights from a specific advanced analytics initiative may lead to different actions
- There’s widespread underuse of advanced analytics among senior business leaders, which, in turn, often makes it difficult to translate into action
- Lack of skills is a significant roadblock to activating the insights derived from advanced analytics

based on available data rather than pure instinct. Leading companies excel in this area, with 38% of them doing this when they are designing the use case at a high level. Challengers do this much later in the process— after they have started data collection and know what is possible. Developing companies and Lagging organizations show a similar, later-in-the-process timing. Note that enterprises across all the maturity levels are learning this lesson. 11% overall still wait until after they’ve built their models, indicating an area that requires further attention.

What will it take to promote the wider adoption of advanced analytics among senior leaders and decision-makers in general? Overall, the respondents are focusing in on data visualization tools. To promote wide acceptance and adoption of advanced analytics among business people, the resource must be accessible and easy to use. This means offering tools with interfaces that present findings in highly visual formats that are well integrated within the primary applications business people use to perform their jobs.

WHEN IN THE PROCESS DO YOU TYPICALLY DESIGN HOW THE INSIGHTS FROM DATA AND ANALYTICS WILL BE APPLIED [WHAT ACTIONS WILL BE TAKEN TO REALIZE VALUE]?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
When we are designing the use case at a high level	22%	38%	18%	23%	28%
After we have started data collection and know what is possible	38%	10%	34%	46%	46%
After we have determined what type of analytics will be applied	28%	17%	33%	26%	16%
After we have built models and determined what insights can be generated	11%	34%	14%	5%	6%
Other	1%	1%	0%	0%	3%

WHAT METHODS/APPROACHES DO YOU USE TO INCREASE THE LIKELIHOOD OF DATA AND ANALYTICS ADOPTION/CONSUMPTION BY END USERS?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Data/Information Visualization	42%	40%	45%	40%	38%
Training of the End Users	38%	33%	39%	37%	36%
Business Process Redesign	34%	42%	34%	33%	34%
Bonus/Rewards/Incentive Redesign	33%	34%	32%	34%	31%
User-Centric Design	29%	24%	32%	29%	25%
Gaming Approaches	18%	21%	15%	21%	17%
None/NA	4%	2%	2%	5%	8%
Don't Know/Unsure	3%	3%	1%	3%	9%
Other	0%	0%	0%	0%	0%

WHAT ARE THE BIGGEST CHALLENGES WITH DRIVING ADOPTION/CONSUMPTION OF INSIGHTS DERIVED FROM DATA AND ANALYTICS?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Skills People who need to take the action do not have the required skills	36%	38%	38%	33%	33%
Business Process The analytics insights are not well integrated into current processes	35%	30%	36%	34%	37%
Organization Design Interaction between various people/groups does not function well	32%	26%	33%	33%	29%
Data Data used for analytics is not of high quality or not trusted	31%	25%	30%	33%	35%
User Design How the individual 'interfaces' with analytics is not well designed	29%	27%	27%	31%	27%
Incentives Actions the analytics suggest are not aligned to current employee incentives	26%	29%	24%	27%	26%
No major issues encountered so far	4%	9%	5%	2%	3%
Don't Know/Unsure	2%	3%	1%	2%	4%
Other	0%	1%	0%	0%	0%

“If you deliver a complicated solution that’s difficult to navigate and presents a lot of technical information that’s not clear to a business user, they’ll be less likely to adopt it,” Papush says. “But if the solution is highly visual and, ideally, it’s integrated within the system of record that business people use to perform their jobs, adoption will certainly be more successful.”

The Leaders are pursuing better interfaces to help promote adoption, but they’re going further. A large number—42%—are taking a more fundamental approach by redesigning business processes.

The survey findings also show that the importance of personal interactions and cross-departmental collaboration is a trend that applies to intervention design. Leading organizations are finding concrete ways of cultivating effective collaboration. “A critical success factor for improving collaboration is colocation—putting various stakeholders into the same room,” Niehaus says. “We then encourage people to work together to first understand the business problem, then try to solve it. We’re finding that while individuals may have their own specialty, when they collaborate well, everyone tries to

do a bit of everything. IT people are not afraid to suggest what the business solution might be, while business people may offer valid input in terms of what can be done differently from an IT point of view.”

While the growth of predictive analytics and machine learning may increase reliance on automated decisions, many observers say human intervention will continue to be important. “It’s not all about technology—there’s still an art and science when it comes to using analytics effectively,” Papush says.

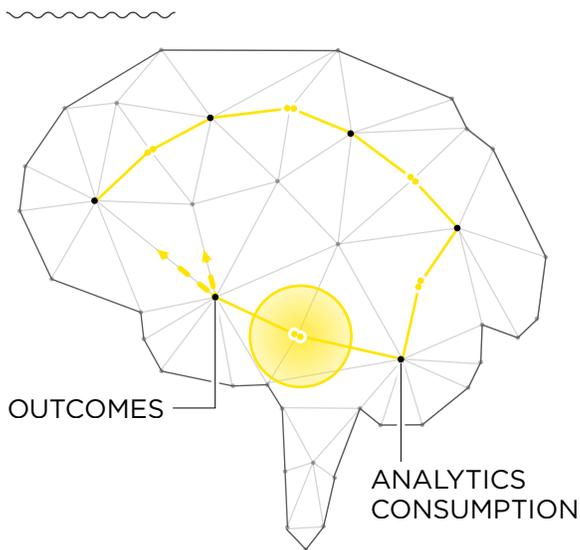
Unfortunately, given how vital the human element is, many organizations don’t have the personnel resources they need for intervention design. When asked to name the biggest challenges to driving the adoption or consumption of analytics, companies at all maturity levels cited a lack of skills among people responsible for acting on insights. Related to this, nearly a third of respondents say they struggle with poor interactions among the various people and groups that consume the insights derived from advanced analytics. Many organizations try to alleviate these issues with training for end users of analytics, which is the second most popular method used to increase the likelihood of analytics adoption (38%).

One other factor is important to consider: Leaders overall encounter fewer challenges in data quality and process alignment, no doubt because these challenges get addressed and resolved as enterprises move up the maturity curve.

RECOMMENDATIONS

- 1** Begin to design the analytics intervention approach as early as possible—even before advanced analytics intervention approaches collection and modelling begins. This enables stakeholders to shape and test the validity of the approach and how it will work in practice.
- 2** Define and refine over time the methods and approaches used to design intervention mechanisms. Ensure things like user-centric design concepts are a part of the approach.
- 3** Don’t forget the human element. While the growth of AI and other forms of automation will increase, human judgment will remain a vital element when making strategic and operational decisions. Continue to consider the change management implications of implementing advanced analytics imperatives across the organization.

MEASUREMENT AND LEARNING



In the end, the value of resource investments devoted to devising and activating advanced analytics strategies must be evaluated for how well they are supporting desired business outcomes and contributing to the long-term success of the organization.

But many companies still struggle to quantify the benefits of data-driven business initiatives. For example, only about a third of companies overall can accurately measure business value to demonstrate the impact of their advanced analytics initiatives. The Leading enterprises are ahead in this area, with a majority taking a portfolio approach to managing advanced analytics initiatives. By contrast, most Developing companies and Lagging organizations admit it's difficult to measure how well their programs have achieved pre-defined business goals. Challengers say performance measurements are inconsistent across functions and lines of business.

The underlying reasons for these breakdowns are varied, and cut across technical and cultural issues. Across all maturity levels, companies are overwhelmed by complexity—so many factors influence business

KEY FINDINGS

- Leaders diligently focus on measuring the impact of their advanced analytics initiatives – and learning how to adapt
- Lagging organizations inconsistently apply performance measurements and often cannot overcome perceived barriers in developing an advanced analytics approach to measure impact
- Poor communication of advanced analytics outcomes is a top challenge to value realization

outcomes that organizations cannot isolate actions from the insights derived from advanced analytics. Financial constraints exacerbate the problem—many companies feel that capturing required data is too costly and difficult. Communicating business outcomes to the stakeholders is also among the top challenges of measuring value realization.

Adding to the challenge is the fact that all companies, except for the Leaders, do a poor job at testing advanced analytics models and taking away lessons for improving them.

Fortunately, these barriers may be overcome with well-designed measurement approaches. For Simon Marland, executive head of digital and business intelligence at Nedbank in Johannesburg, South Africa, detailed KPIs are essential. At Nedbank, he created measurements to gauge progress over the next two years, with specific targets for growth in digital business, gains in revenues, and profit improvements. “With this as a baseline, we then track our progress on a daily basis to see how well we’re moving toward those targets,” he says.

WHICH BEST DESCRIBES HOW VALUE IS MEASURED WHEN DEMONSTRATING THE IMPACT OF DATA AND ANALYTICS ON YOUR ORGANIZATION?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
No visibility into the value created from analytics initiatives	7%	2%	4%	8%	18%
Definition of business outcomes is typically established up front, but measurement is often difficult	24%	6%	14%	35%	42%
Performance of analytics is measured and managed, but inconsistent across functions and lines of business	30%	7%	30%	35%	30%
Performance of analytics is managed consistently globally using a well-defined set of financial and non-financial measures	25%	27%	39%	12%	5%
Analytics initiatives are managed as a portfolio with risk weighted value assessments impacting resource allocation decisions	14%	58%	13%	10%	5%

Many organizations pay close attention to strategic goals. “We focus on unlocking insights about market opportunities that may not be readily visible without advanced analytics,” Papush explains. “Success also means changing the way we make decisions and enable ongoing improvements because we’re putting more information in the hands of business decision-makers.”

The Leaders derive a significant benefit from having more-sophisticated measurement capabilities—their application of advanced analytics gets better over time. An impressive 67% of this group say they’re highly effective at implementing test and learning processes that then impact advanced analytic models and suggested actions. At the other end of the maturity scale, 38% of

Lagging organizations acknowledge being ineffective in this area, while many in the Emerging group call it a draw, saying they are neither effective nor ineffective. The Challengers fair better, with a solid 55% calling their organizations effective and another 15% claiming to be highly effective.

Leaders who are responsible for guiding their organizations to more data-driven cultures must make addressing measurement and communication challenges a high priority.

WHAT ARE THE BIGGEST CHALLENGES TO MEASURING VALUE REALIZATION?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Too many factors influence the business outcome (cannot isolate the actions from analytics)	33%	32%	37%	30%	25%
Capturing required data is difficult/too costly	30%	28%	31%	30%	27%
Communication of business outcomes to the stakeholders	29%	34%	29%	29%	28%
Expected performance outcomes are not well defined	28%	34%	27%	29%	32%
Lack of clear responsibility for business outcomes	26%	27%	27%	25%	24%
Lack of trust in the measurement process	25%	15%	24%	26%	28%
Lack of trust in the data	23%	17%	21%	27%	24%
Don't know/unsure	3%	6%	2%	2%	6%
Other	0%	1%	0%	0%	1%

HOW EFFECTIVE IS YOUR ORGANIZATION AT IMPLEMENTING TEST AND LEARN PROCESSES THAT THEN IMPACT DATA AND ANALYTICS MODELS AND SUGGESTED ACTIONS?

	TOTAL	MATURITY			
		LEADING	CHALLENGING	DEVELOPING	LAGGING
TOTAL	1518	100	688	571	159
Highly Ineffective	6%	1%	5%	8%	11%
Ineffective	11%	2%	7%	15%	26%
Neither Ineffective or Effective	25%	4%	19%	34%	30%
Effective	42%	26%	55%	32%	29%
Highly Effective	16%	67%	15%	11%	4%

RECOMMENDATIONS

1 Make value measurement a key part of any advanced analytics initiative. Although certain initiatives can be exploratory in nature, challenge the prioritization of initiatives where the business objectives and measurement approach are unclear.

2 Ensure that actual results and best practices learned from each initiative are used to make decisions on what projects to stop, refine, or accelerate. Push for as rapid a cycle time as practical for each initiative. The enterprise should experiment but it also needs to understand how to fail fast and move on.

3 Focus on mechanisms to increase the likelihood that these experiences and lessons learned become part of the decision fabric of the enterprise. Organizations need to think carefully about how knowledge and insights get woven into business processes and culture.

THE CASE FOR CHANGE



The pace of business transformation is rapid for most businesses, driven by market insurgents, new customer demands, technology innovation, and other factors. To stay competitive, leading enterprises are using advanced analytics to not only improve current business processes and to answer the fundamental question, “What’s next?” when it comes to what to sell, how to sell, who to sell to, and how to outflank the competition. That requires utilizing advanced analytics at each step of the maturity cycle and ensuring that the process continuously evolves and improves over time. Those that are not making progress fast enough are at an increased risk of falling behind both current competitors and emerging players that were “born” digital with advanced analytics at the center of their strategy. Winning in the market and even survival may hinge on an organization’s ability to make progress in the various areas explored in this report.

ACKNOWLEDGMENTS

Forbes Insights and EY would like to thank the following individuals for their contributions to this report:

R. Krishnakumar, Head of BI and Analytics, Max Life Insurance

Gina Papush, Chief Data and Analytics Officer, QBE

Simon Marland, Executive Head of Digital and Business Intelligence, Nedbank

Chris Mazzei, Chief Analytics Officer and Emerging Technology Leader, EY

Carlos Lopez, Vice President of Business Intelligence, Management Control, and Investor Relationships, Melia Hotels

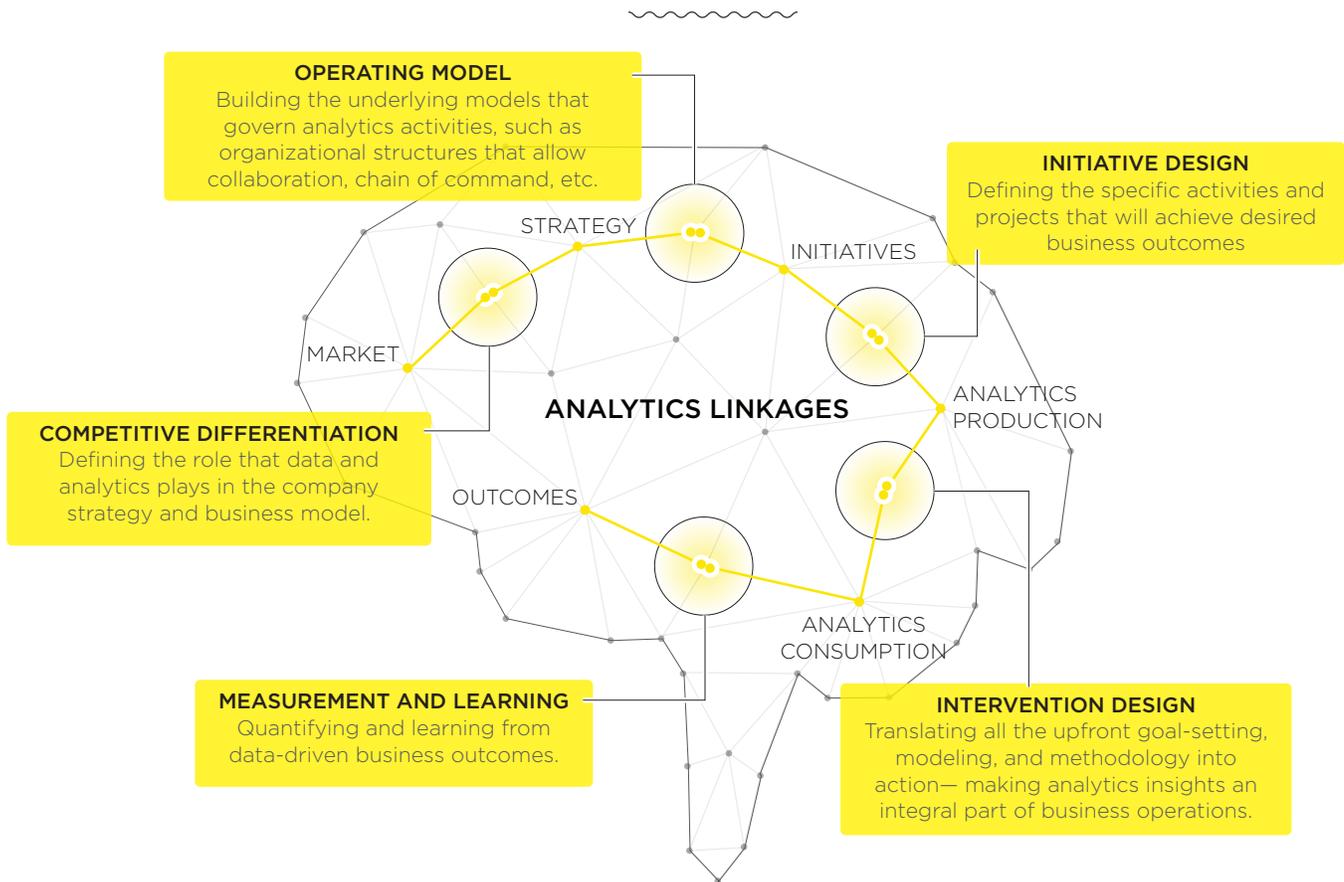
Steve Petitpas, General Manager of Microsoft.com, Microsoft

Janice Carey, Head of Information Management, Monash University

Brenda Niehaus, Group CIO, Standard Bank

APPENDIX 1

INDUSTRY SCORE CARDS



In order to gauge advanced analytics maturity, we measured how well these synapses operate, based on reported challenges, the focus on applying data, and the level of year-over-year progress. Each synapse is worth 20 points, with a perfect score being 100. The findings reveal that all of the industries surveyed have crossed a halfway point toward data and advanced analytics maturity. **The most mature industry, telecommunications, has advanced more than two-thirds of the way (72.6%), and the least mature, automotive, just over half (58.4%).** (See chart on page 41) Thus the leader and the laggard are separated by only 15 points, a relevant but not insurmountable difference. This means that every industry has an almost equal amount of work ahead.

It needs to be noted that there is substantial variance in advanced analytics maturity within industries. Irrespective of its overall ranking, each industry has its share of leaders and laggards. These findings should thus be viewed as a reflection of industry averages, and not of particular companies.

While there are slight variations, all industries share similar strengths and weaknesses. **One synapse stands out as the most challenging: intervention design.** No industry scores above 12 of a possible 20 for their maturity in this area. **Operating model, on the other hand, is the synapse where all industries score the highest, with no industry scoring below 12 points.** (See chart on page 41)

INDUSTRIES BY SCORE

INDUSTRIES	SCORE
All industries average	62.7
Telecommunications	72.6
Technology	66.5
Manufacturing	66.2
Financial	63.2
Pharma	63.1
Healthcare	60.5
Media and Entertainment	60.5
Energy	60.3
Government	60.1
Consumer Products and Retail	58.4
Automotive	58.4

INDUSTRIES BY SYNAPSE (MAX 20)

INDUSTRIES	SCORE
Competitive Differentiation Synapse	13.1
Operating Model Synapse	14.0
Initiative Design Synapse	12.7
Intervention Design Synapse	10.7
Measurement and Learning Synapse	12.3

In the following industry score cards, we dig deeper into the individual industries' maturity at each synapse, and reveal their weak spots and challenges within the advanced analytics pathway.

The score cards also include year-over-year performance trends. In exploring year-over-year trends, we've created a composite score to gauge performance of each sector and geography. We did that by comparing the 2015 rankings (based on the Data and Analytics Impact Index) with the 2016 rankings (based on a composite of the results from questions correlated with Competitive Differentiation, Operating Model, Initiative Design, Intervention Design, and Measurement and Learning.) Because the index components differ between one year and the next, this year-over-year comparison gives us relative positioning of each sector and geography and not specific differences in scores. Thus, it needs to be viewed as a directional comparison.

SECTOR

TELECOMMUNICATIONS

CURRENT RANKING

1ST

PERFORMANCE TREND

*** vs. 2015**

*2015 data sample size was too small for valid year-over-year comparisons

	SYNAPSE MATURITY	
	ALL INDUSTRIES	TELECOM
Overall Synapse Maturity	62.7	72.6
Competitive Differentiation	13.1	15.5
Operating Model	14.0	15.8
Initiative Design	12.7	14.5
Intervention Design	10.7	11.7
Measurement and Learning	12.3	15.1

A DEFINITE LEADER BASED ON ITS FOCUS ON THE HUMAN ELEMENT

The telecommunications sector leads in advanced analytics maturity, achieving the highest score overall and for each synapse. A third (33%) of telecommunications executives say that analytics has completely changed the way they compete, compared with 17% for other industries.

THE INDUSTRY HAS MANY BRIGHT SPOTS:

- It leads in its use of advanced analytics for strategy and innovation, with 49% of telecommunications executives declaring themselves proficient, compared with 29% for other industries.
- The initiative design stage benefits from the use of consistent methods (32% for the telecommunications industry, compared with 17% for other industries).
- The industry leads in its approach to intervention design, by focusing on how advanced analytics will be applied early on (45% for the telecommunications sector compared with 22% for other industries).

THE INDUSTRY DERIVES MUCH OF ITS SUCCESS FROM ITS FOCUS ON THE HUMAN ELEMENT:

- Two-thirds (66%) of senior business leaders include analytics in their decision making about designing and executing strategies at least half of the time, compared with 45% for other industries. And the degree of employee latitude to pursue data-driven opportunities is credited for successful analytics initiatives more often than in other industries (36% for telecommunications industry compared with 28% for other industries).

WHAT TO WATCH OUT FOR:

- Improve leadership engagement, while continuing to focus on the customer.

SECTOR

TECHNOLOGY

CURRENT RANKING

2 ND

PERFORMANCE TREND

+1 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	TECH
Overall Synapse Maturity	62.7	66.5
Competitive Differentiation	13.1	13.9
Operating Model	14.0	14.6
Initiative Design	12.7	13.8
Intervention Design	10.7	10.8
Measurement and Learning	12.3	13.4

**A LEADER WITH A NATURAL ADVANTAGE
AND AN ACHILLES HEEL**

The technology industry holds second place for all synapses, with the exception of intervention design and measurement and learning. It has a natural advantage, being more proficient in information technology (44% are highly proficient in advanced analytics, compared with 33% for other industries).

OTHER BRIGHT SPOTS INCLUDE:

- The industry smartly translates its technology advantage into a strategic advantage, with 37% of technology executives describing their organizations as proficient in applying advanced analytics for strategy and innovation, compared with 29% of executives from other industries.
- It successfully uses advanced analytics to target and segment customers (35% for the technology industry as compared with 25% for other industries).

BUT THERE IS A POTENTIAL WEAK SPOT:

- The human element is an Achilles heel for technology companies, especially at the stage of intervention design. Organization design, interaction between various people or groups, does not function well for 42% of technology companies, compared with 32% for other industries.

SECTOR

MANUFACTURING/ INDUSTRIAL PRODUCTS

CURRENT RANKING

3 RD

PERFORMANCE TREND

+3 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	MANUFACTURING/ INDUS. PRODUCTS
Overall Synapse Maturity	62.7	66.2
Competitive Differentiation	13.1	14.0
Operating Model	14.0	14.5
Initiative Design	12.7	13.2
Intervention Design	10.7	10.9
Measurement and Learning	12.3	13.6

**MOVING IN THE RIGHT DIRECTION, BUT
MORE FINE-TUNING IN ORDER**

The manufacturing sector comes in third, and places in the top three for all synapses. The manufacturing sector is ahead in terms of how advanced analytics impact business strategy and key sources of competitive differentiation.

BRIGHT SPOTS INCLUDE:

- Fifty-five percent of respondents from the manufacturing industry say advanced analytics are changing or have changed their business strategy compared with 49% for other industries.
- The manufacturing industry pays more attention to the increase in quality of interactions with partners and vendors (28% for manufacturing industry compared with 21% for other industries).
- User-centric design is a more common approach used for designing advanced analytics business initiatives (used by 51% for manufacturing industry versus 37% for other industries).

BUT THERE IS SOME ROOM FOR IMPROVEMENT:

- Lack of budget and organizational commitment is an issue for 44% of manufacturing executives, compared with 39% for other industries.
- Operating model suffers from lack of data and knowledge management sharing (as reported by 29% of the manufacturing industry versus 24% of other industries), and lack of adoption and engagement by employees (reported by 31% of manufacturing compared with 25% for other industries).
- The quality of data is a bigger challenge with driving the adoption of analytics insights than it is for other industries (reported by 37% versus 31%).

SECTOR

FINANCIAL SERVICES

CURRENT RANKING

4 TH

PERFORMANCE TREND

+3 VS. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	FINANCIAL SERVICES
Overall Synapse Maturity	62.7	63.2
Competitive Differentiation	13.1	13.1
Operating Model	14.0	14.1
Initiative Design	12.7	12.8
Intervention Design	10.7	10.7
Measurement and Learning	12.3	12.5

ON PAR WITH OTHER INDUSTRIES, BUT SOME MISSED OPPORTUNITIES

The financial sector ranks a strong fourth overall. Twenty-three percent of financial executives say that a data and advanced analytics strategy is well established and central to their overall business strategy, which is the average for all industries. The financial sector ends up in slightly weaker spots in competitive differentiation, intervention design, and measurement and learning.

NEED FOR DATA GOVERNANCE:

- In terms of the organization and governance of advanced analytics, the financial sector is on par with all other industries. Seventeen percent of financial executives say that enterprise, department and line-of-business advanced analytics groups exist and are well aligned, which matches the industry average. However, considering that financial companies handle so much sensitive financial information, should their level of data governance be higher than average?

A POTENTIAL WEAK SPOT:

- When designing its advanced analytics business initiatives, the financial sector relies less on user-centric design than other industries (31% for the financial sector compared with 37% for all industries).
- A user-centric approach continues to be underutilized at the intervention design stage, with almost a third (32%) of financial industry executives reporting it as a challenge when driving adoption of the insights derived from data and advanced analytics. At the same time, just above a third (36%) are successful with data visualization, which could help drive consumption.

SECTOR

PHARMACEUTICALS

CURRENT RANKING

5TH

PERFORMANCE TREND

+4 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	PHARMA
Overall Synapse Maturity	62.7	63.1
Competitive Differentiation	13.1	13.8
Operating Model	14.0	13.8
Initiative Design	12.7	12.6
Intervention Design	10.7	9.7
Measurement and Learning	12.3	13.2

POWERING THROUGH REGULATORY CONSTRAINTS, BUT ALSO SOME INTERNAL CHALLENGES

The pharmaceuticals sector ranks fifth in advanced analytics maturity, roughly in the middle of all industries, and keeps its middle position across most synapses. The only exception is the intervention design synapse, where the industry comes in last.

AREAS THAT CALL FOR IMPROVEMENT:

- The sector suffers from a lack of advanced analytics proficiency within many functions, as reported by 46% of the pharmaceutical industry compared to 26% of all industries.
- The pharmaceutical industry is late in the process when designing how the insights derived from data and advanced analytics will be applied, with just 11% doing it at the start, when they are designing the use case, compared with 22% for all other industries.

CONSTRAINT:

- The pharmaceutical industry does not believe it operates on a level playing field, with more than half (54%) citing regulatory constraints as a challenge to the success of advanced analytics. This is the highest for all industries (the industry average is 44%).

BRIGHT SPOTS:

- Advanced analytics strategy is well established and central to the overall business strategy, according to 36% of the pharmaceuticals industry executives, compared with 23% from other industries.
- In terms of the operating model, the industry's enterprise, department and line-of-business advanced analytics groups are well-aligned (25% for the pharmaceutical industry compared with 17% for other industries).

SECTOR

HEALTHCARE

CURRENT RANKING

6 TH

PERFORMANCE TREND

+2 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	HEALTHCARE
Overall Synapse Maturity	62.7	60.5
Competitive Differentiation	13.1	12.6
Operating Model	14.0	13.6
Initiative Design	12.7	12.3
Intervention Design	10.7	10.4
Measurement and Learning	12.3	11.6

**KEEPING AN EYE ON THE CUSTOMER,
BUT LAGGING OVERALL**

The healthcare industry ranks sixth overall, and falls slightly below average across all synapses.

WHERE THE INDUSTRY LAGS:

- The role that advanced analytics play in the business strategy of health organizations is less mature than in other industries. (Advanced analytics strategy is established and a priority in 45% of healthcare organizations versus 52% for all industries.)
- Lack of senior leadership support is a challenge when it comes to developing the business strategy to incorporate advanced analytics (47% of the healthcare sector ranked this as a top pain point versus 34% for other industries).
- Just 33% of healthcare organizations have enterprise-level advanced analytics groups that are well aligned with line-of-business functions, compared with 40% for all industries. Moreover, where enterprise-level analytics teams exist, they focus mostly on selecting or implementing technologies and not strategic approaches.
- Less than a third (31%) of healthcare organizations consistently manage performance of advanced analytics globally or as a portfolio, compared with 38% for all industries.

BRIGHT SPOTS:

- Customer-centricity is the top focus during the initiative design stage. Forty percent of healthcare executives, compared with 26% from other industries, point to increases in customer satisfaction or retention as specific business outcomes they are trying to achieve through the application of advanced analytics.
- The focus on user-centricity carries over through the intervention design stage. Thirty-four percent of healthcare executives point to user-centric design as a way to increase the likelihood of analytics adoption/ consumption by end-users, compared with 29% for all industries.

SECTOR

MEDIA AND ENTERTAINMENT

CURRENT RANKING

7TH

PERFORMANCE TREND

*** vs. 2015**

*2015 data sample size was too small for valid year-over-year comparisons

	SYNAPSE MATURITY	
	ALL INDUSTRIES	MEDIA AND ENTERTAIN.
Overall Synapse Maturity	62.7	60.5
Competitive Differentiation	13.1	13.0
Operating Model	14.0	13.2
Initiative Design	12.7	11.9
Intervention Design	10.7	10.5
Measurement and Learning	12.3	11.9

STILL IN SEARCH FOR SOLUTIONS AND LEADERS TO THRIVE IN THE DIGITAL AGE

The media and entertainment sector ranks seventh in terms of overall advanced analytics maturity. It lags especially in the operating model synapse, where it comes second to last.

THE INDUSTRY LAGS IN SOME CRUCIAL AREAS:

- Fewer media and entertainment executives believe that they have their fundamental advanced

analytics strategy figured out and established (16%) than do executives from other industries (23%).

- There is a fundamental need for proficiency in terms of the operating model, with fewer media and entertainment companies being highly proficient in terms of advanced analytics capabilities in several areas, including operations (16% for the media and entertainment industry and 28% for other industries), and marketing (19% vs 27%).
- The media industry still needs to solve fundamental issues regarding the measurement of value realization. Thirty-nine percent of media industry executives say that the expected performance outcomes are not well defined, compared with 28% for other industries. There is also much less trust in the measurement process (reported by 35% for media compared with 25% for other industries).

THE REASON FOR THE STATE OF PLAY:

- Forty-two percent of media industry respondents say that they have not had the right leader to serve as a catalyst for change, compared with 31% of respondents from other industries.

REASONS TO STAY OPTIMISTIC:

- There is more appetite for major change: 77% of media executives declare an appetite for a major transformation that would result from strategies driven by data and advanced analytics, compared with 67% for other industries.
- There are more resources and commitment: lack of budget and other forms of organizational commitment is an issue for 19% in the media industry compared with 39% for other industries.
- More collaboration at the top: lack of alignment among members of the management committee is an issue for 39% in the media sector, compared with 44% for other industries.

SECTOR

ENERGY

CURRENT RANKING

8 TH

PERFORMANCE TREND

+2 VS. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	ENERGY
Overall Synapse Maturity	62.7	60.3
Competitive Differentiation	13.1	12.9
Operating Model	14.0	13.6
Initiative Design	12.7	11.8
Intervention Design	10.7	10.2
Measurement and Learning	12.3	11.8

THE WILL TO TRANSFORM, BUT ARE THE GOALS MATURE ENOUGH?

The energy sector comes in in eighth place in overall advanced analytics maturity rankings, and hovers in the bottom half for all synapses. Fewer energy companies have data and advanced analytics strategy at the heart of their business strategy (18% compared to 23% in other industries).

STUMBLING BLOCKS TO OVERCOME:

- Energy executives need to aim higher. Just 14% of energy executives want to apply advanced analytics to transform business models compared with 20% for other industries.
- Consistent methods and approaches for advanced analytics initiative design are always used at just 8% of energy companies, compared with 17% for other industries.
- Unclear responsibilities across functions when designing advanced analytics initiatives are a pain point for 50% of the energy sector, compared with 37% for other industries.

THERE IS WILL TO IMPROVE:

- There is a desire to transform, with just 24% of energy executives saying that unwillingness to take on a major transformation is an issue, compared with 33% for other industries.
- Less fear of change: 18% of energy executives are apprehensive that advanced analytics operating model would disrupt existing models, compared with 24% of other industries.

SECTOR

GOVERNMENT (FEDERAL, STATE, AND LOCAL)

CURRENT RANKING

9TH

PERFORMANCE TREND

+2 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	GOVERNMENT
Overall Synapse Maturity	62.7	60.1
Competitive Differentiation	13.1	12.0
Operating Model	14.0	13.5
Initiative Design	12.7	12.2
Intervention Design	10.7	11.0
Measurement and Learning	12.3	11.3

MIXING HUMANS AND MACHINES

The government sector comes in ninth overall, except for the intervention design synapse, where it places close to the top among all industries.

THE ROLE OF THE HUMAN ELEMENT:

- At the intervention design synapse stage, when insights derived from data and advanced analytics are being translated into ‘actions,’ the sector relies on purely human decision making more than any other sector. The government sector relies on human thinking for 49% percent of intervention design decisions, while the rest of decisions are being made on the basis of automated systems, or a mix of systems and humans. Forty percent of all industries rely purely on humans.
- Overall organization, culture and decision making is based more on intuition than the insights derived from data and advanced analytics at 56% of government organizations compared with 49% for other industries.

AREAS IN NEED OF IMPROVEMENT:

- Operating model suffers from the lack of advanced analytics proficiency within many functions (35% versus 26% for all industries).
- Initiative design would benefit from more advanced analytics capabilities, as the lack of people with analytics skill sets to define an appropriate approach to the problem is a bigger issue for the government sector than it is for other industries (50% versus 40%).
- Lack of budget and other forms of organizational commitment (53% in the government sector compared with 39% for other industries).
- Lack of change management acumen is a challenge for 38% of government organizations compared with 27% in other industries.

SECTOR

CONSUMER PRODUCTS/RETAIL

CURRENT RANKING

PERFORMANCE TREND

10TH -7 vs. 2015

	SYNAPSE MATURITY	
	ALL INDUSTRIES	CONSUMER PROD/RETAIL
Overall Synapse Maturity	62.7	58.4
Competitive Differentiation	13.1	12.2
Operating Model	14.0	13.4
Initiative Design	12.7	11.6
Intervention Design	10.7	10.5
Measurement and Learning	12.3	10.7

OLD HANDS, STRONG FOUNDATIONS, ROOM FOR IMPROVEMENT

The retail and consumer products industry (RCP) comes in tenth among all industries in advanced analytics maturity. The industry is much stronger at the Intervention Design synapse, where it ranks in the middle of the pack.

LONGER EXPERIENCE:

- Advanced analytics is “nothing new” for RCP executives. Just 14% of them say that advanced

analytics not historically being part of an operating model is a challenge, compared with 24% of executives from other industries.

ROOM FOR IMPROVEMENT:

- Only 13% of RCP executives believe that their advanced analytics strategy is well established and central to the overall business strategy, compared with 23% for other industries.
- Just 17% of RCP executives believe that advanced analytics strategies are changing how they target and segment customers, compared with 25% for other industries.
- Advanced analytics are less impactful for strategy and innovation (18% for the RCP industry compared with 29% for other industries).
- During the initiative design stage, only 9% of retail executives always use consistent methods, compared with 17% for other industries.

STRONG FOUNDATIONS:

- Organization design and interaction among various people while driving adoption and consumption of the insights derived from data and advanced analytics are less of a challenge in the RCP industry (24% for the RCP industry and 32% for other industries).
- Fewer RCP executives doubt the accuracy, trustworthiness or quality of data used for advanced analytics (reported by 25% for the retail and consumer products industry compared with 31% for other industries).
- There are fewer challenges with the interaction among various people and groups during the initiative design stage (24% for the retail and consumer products industry compared with 32% for other industries).

SECTOR

AUTOMOTIVE

CURRENT RANKING

11 TH

PERFORMANCE TREND

*** VS. 2015**

*2015 data sample size was too small for valid year-over-year comparisons

	SYNAPSE MATURITY	
	ALL INDUSTRIES	AUTO
Overall Synapse Maturity	62.7	58.4
Competitive Differentiation	13.1	12.0
Operating Model	14.0	13.0
Initiative Design	12.7	11.9
Intervention Design	10.7	10.6
Measurement and Learning	12.3	10.9

NEED TO CHANGE THE CULTURE THAT DRIVES THEM

The automotive industry comes in last in the eleventh spot for overall advanced analytics maturity and sits in the bottom half of the ranking for all synapses.

CULTURE IS THE TOP REASON FOR THE CURRENT STATE-OF-PLAY:

- Organization, culture and decision making is based more on intuition than the insights derived from data and advanced analytics for 64% of the automotive industry, compared with 49% of other industries.

- There is less appetite for a major transformation that would result from strategies driven by data and advanced analytics, as reported by 55% of automotive companies versus 33% of all industries.
- Lack of adoption and engagement by employees is an issue for 38% of automotive companies, compared with 25% for other industries.

PAIN POINTS:

- Just 15% of the automotive industry executives consider their advanced analytics strategy well established and central to the overall business strategy, compared with 23% for all industries.
- Lack of consistent methods and processes when designing advanced analytics initiatives is an issue for 55% of automotive executives compared with 38% for other industries.
- Fewer automotive executives apply data and advanced analytics at the beginning of designing their initiatives which affects how they develop the actions that will be taken to realize value (13% for automotive compared with 22% for other industries).
- The insights derived from data and advanced analytics are not well integrated into current processes for 43% of the automotive industry compared with 35% for other industries.

BRIGHT SPOTS ARE SCATTERED AMONG DIFFERENT AREAS:

- Automotive executives have more trust in data (just 15% express lack of trust in the data, compared with 23% for other industries).
- Lack of people with advanced analytics skill sets to define an appropriate approach to the problem is less of an issue for the automotive industry (30%) than for other industries (40%).

APPENDIX 2

GEOGRAPHIC SCORE CARDS



The regional hierarchy in advanced analytics maturity has not changed since last year, with Asia eking out a minuscule lead over the Americas. But all regions still have far to go, as they are all hovering around the 60% mark on the way to analytics maturity. Executives from around the world agree, as just 10% to 11% of them believe they are market leaders in analytics.

The differences in scores for the regions are very narrow, much more so than for the industries. Just like the industries, every region is challenged by the same synapse: intervention design. And each region scores the highest for the operating model.

DATA AND ADVANCED ANALYTICS MATURITY BY REGION

INDUSTRIES	ALL REGIONS	APAC	AMERICAS	EMEA
Overall Synapse Maturity	62.7	64.6	63.8	59.5
Competitive Differentiation	13.1	13.5	13.3	12.4
Operating Model	14.0	14.3	14.3	13.2
Initiative Design	12.7	13.2	12.8	11.9
Intervention Design	10.7	10.6	10.9	10.4
Measurement and Learning	12.3	13.0	12.4	11.6

CURRENT RANKING

1 ST

REGION

APAC

DIGITAL TECHNOCRATS FOCUSED ON PROFIT

APAC once again comes in first in our advanced analytics maturity rankings, though it lags behind the Americas slightly in intervention design. A deeper dive into what drives the region shows its strength in data monetization and use of the most sophisticated technologies, but also reveals some concern about data.

	SYNAPSE MATURITY	
	ALL REGIONS	APAC
Competitive Differentiation	13.1	13.5
Operating Model	14.0	14.3
Initiative Design	12.7	13.2
Intervention Design	10.7	10.6
Measurement and Learning	12.3	13.0

AREA OF STRENGTH

Achieving revenue or profit growth from advanced analytics is a holy grail of digitization, and APAC is closer to it than other regions. Sixty-six percent of APAC executives attribute revenue growth of 7% or more to advanced analytics, compared with 56% in other regions. Data monetization is a bigger focus here than in other regions.

	APAC	REST OF WORLD
Exploring ways to sell data to new customers	49%	41%
Exploring ways to sell analytics insights to new customers	48%	39%
Exploring ways to sell analytics insights to existing customers	45%	39%

APAC executives are also using more of the technologies of the fourth industrial revolution.

	APAC	REST OF WORLD
Artificial Intelligence	53%	37%
Natural Language Processing	41%	28%
Neural Networks	17%	13%

AREA OF CONCERN

The level of data governance in APAC is on par with other regions. In terms of data protection, more APAC companies go beyond what is legally required, including seeking “brand permission” from their customers (62% in APAC compared with 56% for other regions). But APAC executives are still more concerned about data than are their counterparts in other regions.

	APAC	REST OF WORLD
Data used for analytics is not of high quality or not trusted	35%	30%
Capturing required data is difficult/too costly	32%	29%

CURRENT RANKING

2ND

REGION

AMERICAS

MARKETERS WHO NEED TO EMBRACE THE FOURTH INDUSTRIAL REVOLUTION

For the second year, the Americas come in second in overall data and advanced analytics maturity. This holds true for all synapses except for intervention design, where the Americas have a tiny lead over APAC. A deeper dive into the findings reveals that the Americas are strong at using advanced analytics for sales and marketing but weaker at change management and the use of the most sophisticated technologies.

	SYNAPSE MATURITY	
	ALL REGIONS	AMERICAS
Competitive Differentiation	13.1	13.3
Operating Model	14.0	14.3
Initiative Design	12.7	12.8
Intervention Design	10.7	10.9
Measurement and Learning	12.3	12.4

AREA OF STRENGTH

More American executives say that they have a high proficiency in using advanced analytics in marketing (31% compared with 25% for the rest of the world) and sales (34% compared with 24% for the rest of the world).

	AMERICAS	REST OF WORLD
Data and analytics are impacting how we target and segment customers	31%	22%
Highly proficient in using data and analytics in customer service	37%	29%
Data and analytics are changing how we fulfill customer needs	30%	24%

AREA OF CONCERN

The rest of the world has a slight lead over the Americas in two very different areas. The first is challenges associated with the impact on the operating model and the organization as a whole of transformation that many organizations are undergoing.

	AMERICAS	REST OF WORLD
Data and analytics would disrupt our operating model too much	26%	23%
Lack of change management acumen	28%	26%

The second, though proficient at IT overall, American executives seem to be less prompt at fully embracing some of the technologies of the fourth industrial revolution:

	AMERICAS	REST OF WORLD
Use Artificial Intelligence	37%	45%
Natural Language Processing	26%	36%
Neural Networks	13%	15%

CURRENT RANKING

3 RD

REGION

EMEA

EMEA comes in third for data and advanced analytics maturity, behind in the other regions in all synapses. But it is just three points behind the average, and five points behind APAC, the leader. A deeper dive reveals that EMEA has challenges with advanced analytics fundamentals that cascade down to its sales and marketing functions and data monetization capabilities.

	SYNAPSE MATURITY	
	ALL REGIONS	EMEA
Competitive Differentiation	13.1	12.4
Operating Model	14.0	13.2
Initiative Design	12.7	11.9
Intervention Design	10.7	10.4
Measurement and Learning	12.3	11.6

ROOM FOR IMPROVEMENT

Only 16% of EMEA executives say that advanced analytics is well established and central to the overall business strategy, compared with 26% for other regions. And just 13% see advanced analytics impacting business strategy and being a source of competitive differentiation, compared with 19% for other regions.

EMEA is also behind in advanced analytics proficiency at all functions, as well as ability to use the insights to better serve customers or to monetize data.

LOWER LEVEL OF DATA AND ANALYTICS PROFICIENCY

	EMEA	REST OF WORLD
Data and analytics proficiency in strategy and innovation	20%	34%
Data and analytics proficiency in marketing	20%	30%
Data and analytics proficiency in sales	20%	31%

LESS IMPACT

	EMEA	REST OF WORLD
Data and analytics has completely changed how we target and segment customers	15%	29%
Data and analytics affecting the actual products or service being offered	18%	23%
Data and analytics is changing how we think about satisfying customer needs	21%	29%

FEWER METHODS OF MONETIZATION

	EMEA	REST OF WORLD
Exploring ways to sell data to existing customers	26%	33%
Exploring ways to combine our data and analytics with partners to develop new products and services	24%	31%

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EYG no. 01096-163GBL

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Bruce Rogers

CHIEF INSIGHTS OFFICER

Erika Maguire

PROGRAM DIRECTOR

Andrea Nishi

PROJECT MANAGER

EDITORIAL

Kasia Wandycz Moreno DIRECTOR

Hugo S. Moreno DIRECTOR

Alan Joch and Kasia Wandycz Moreno

REPORT AUTHORS

DDD Infographic DESIGNER

RESEARCH

Ross Gagnon DIRECTOR

Kimberly Kurata SENIOR RESEARCH ANALYST

Sara Chin RESEARCH ANALYST

SALES

North America

Brian McLeod EXECUTIVE DIRECTOR

bmcleod@forbes.com

Matthew Muszala MANAGER

mmuszala@forbes.com

William Thompson MANAGER

wthompson@forbes.com

EMEA

Tibor Fuchsel MANAGER

tfuchsel@forbes.com