



Data as the New Water:

The Importance of Investing in Data and Analytics Pipelines

An IDC InfoBrief, sponsored by Qlik

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A New Focus on Data and Analytics

For years we have heard that “data is the new oil” or “data is an asset.” However, these refrains have never quite made it to the executive office.

Today, as we face heightened uncertainty, data and analytics have taken on increased importance as inputs into better decision making and subsequent actions.

Have you noticed a change in how your organization’s executives talk about data? Analytics? Enterprise intelligence?

- › 87% of CXOs said that becoming a more intelligent enterprise is their priority for the next five years. (Source: IDC CXO Survey, Q1 2020)
- › Even as economic indicators have taken a hit, 25% of respondents to an April 2020 IDC poll still expect short-term spending on solutions to manage and analyze data to increase.
- › Another 26% told IDC that short-term spending would stay the same as compared to their budget. The rest expect a decline.

Organizations are now starting to think of data as the “new water.”

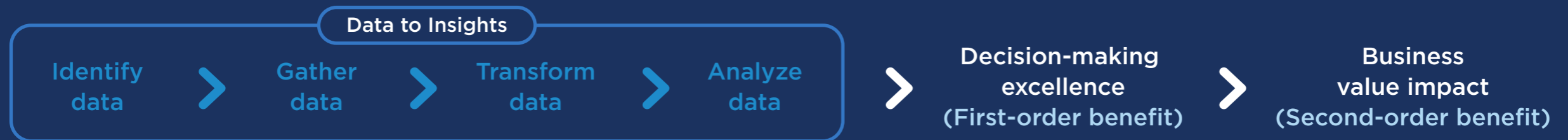
Like water, data must be accessible and clean. It is needed to survive ... and to thrive.



Data as the New Water

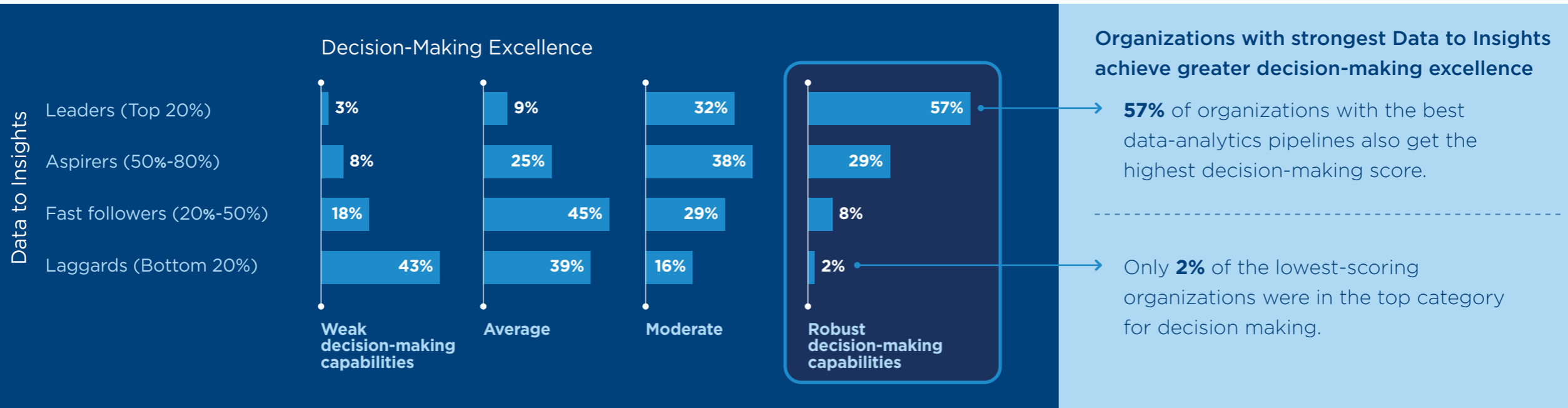
- Like water, data comes from different sources.
- Water requires a network of pipelines with wells, pumps, aqueducts, filters, containers, valves, cisterns, and other artifacts necessary to identify, transform, process, analyze, deliver, and package the resource.
- Data is a resource that also must be identified, gathered, transformed, and analyzed to glean insights. The ultimate goal of such a “Data to Insights” pipeline is to influence better decision making (first-order benefit) and deliver business value (second-order benefit) by both humans and machines.

A typical data and analytics pipeline looks like the following:



First-Order Benefit: Better Decision-Making Excellence

- IDC conducted a study of 1,200 organizations* globally. As part of our analysis, we developed a measure for Data to Insights (D2I) -- the combination of identify, gather, transform, and analyze data
- Leaders were defined by IDC as those organizations with the strongest data-to-insights capability, representing the top 20% of study participants



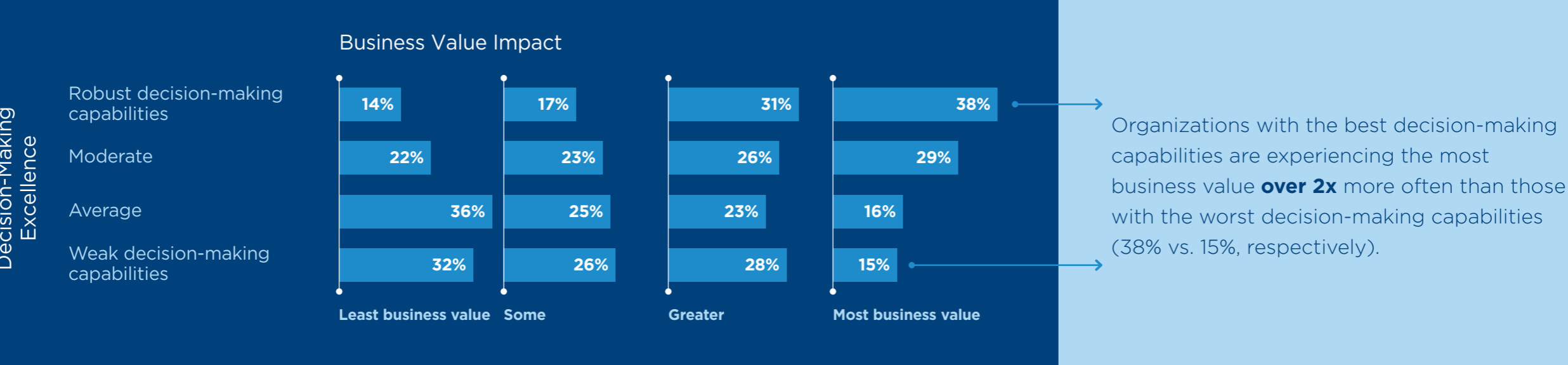
Better decision making is defined by these and other characteristics, such as:

- Spending adequate time on data analysis by flipping the typical 80/20 ratio of hours spent on data preparation vs. analysis
- Requiring evaluation of data in the problem definition phase
- Practicing data-driven decision making and eliminating human biases
- Ensuring that data-driven decisions drive actions rather than defaulting to experience or gut feeling

*Source: Transformative Data Thought Leadership Survey, IDC, February-March 2020; N=1,206; Sponsored by Qlik

Second-Order Benefit: Better Business Outcomes

IDC’s study also found that better decision-making capabilities drive greater business value.



Better business outcomes come in many forms depending on the industry and the individual organization.

Improved operational efficiency, increased revenue, and increased profit are the top three metrics tied to the success of investments in data management and analytics.

76%
say **operational efficiency** has improved, with the average increase being **17%**.

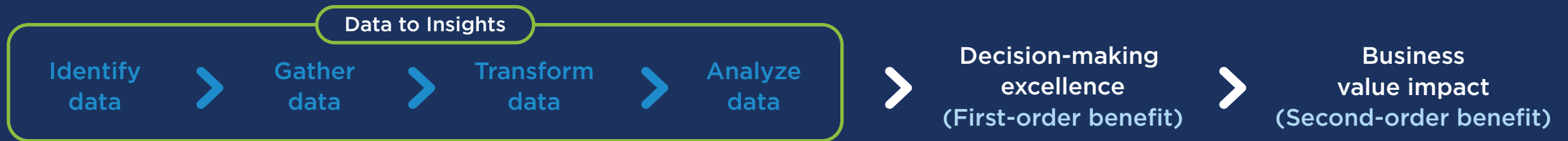
75%
say **revenue** has increased, with the average increase being **17%**.

74%
say **profit** has increased, with the average increase being **17%**.

The Value of the **Whole** Pipeline

Organizations seeking actionable insights should consider that:

- › Improving decision making means viewing their investments as pipelines where all parts are connected.
- › Investing in individual solutions for data identification, gathering, transformation, and analysis is not enough.
 - › Discrete investments can lead to more silos that create “data leaks” — just as deterioration in physical pipelines creates water leaks.



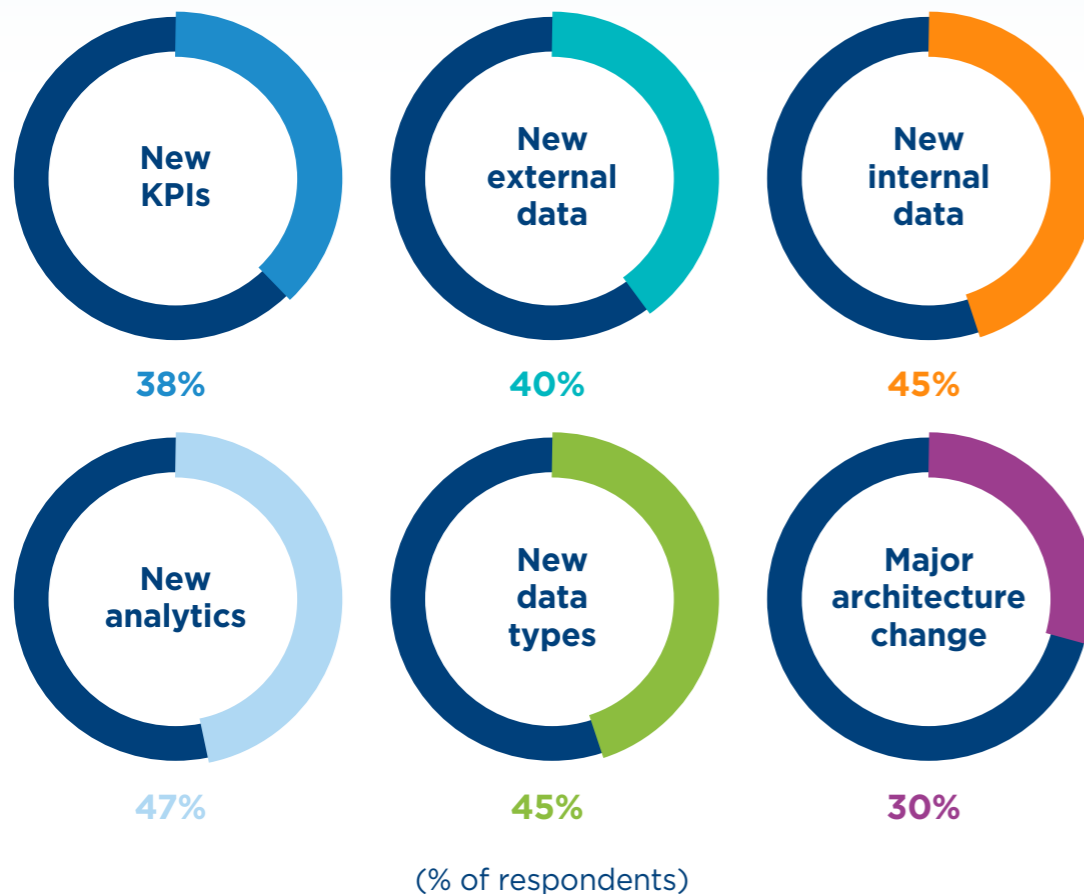
IDC’s survey showed that an interconnected data-to-insights capability, available and viewed as a whole, results in greater improvement in decision making and drives better business outcomes than treating each step of the pipeline individually.

The whole benefit is greater than the sum of its parts.

Achieving Actionable Insight Isn't Easy

Organizations are faced with a more complex and unpredictable environment.

Q. In the last 12-18 months, has your organization done any of the following?



The introduction of new KPIs suggests that organizations are asking new questions, challenging the status quo — a trend accelerated by the COVID-19 pandemic.

- Organizations are dealing not only with more data but also with data of different types and from different sources.
- They are introducing new analysis techniques, such as machine learning.
- More source data is in more disparate locations: on multiple cloud platforms, on premises, and at the edge.

Agility is essential. Support is needed for a wide variety of sources and destinations, analytic approaches, and architectural styles that are agnostic as to IT vendor and deployment.

Source: Business Analytics Survey, IDC, January-February 2020, U.S. only; N = 310

Data Leaks: The Challenges Faced by Data Engineers and Data Analysts

Creating and finding valuable data isn't easy.

Over 60% of organizations experience significant challenges in:

- Investing in technology to create data
- Assessing the value of data
- Identifying valuable data sources — often due to lack of a data catalogue

Much of the data available to an enterprise remains unused or underutilized. The latest technology for data identification, gathering, transformation, and analysis provides a new set of automation features to improve productivity and solution resilience.

Organizations face additional challenges in capturing and moving the data so it can be analyzed.



What are the main challenges the organization has in capturing the data and moving it before processing into analytics-ready data?

Ensuring data quality

Ensuring all relevant data is captured

Ensuring data is properly defined

Classifying data

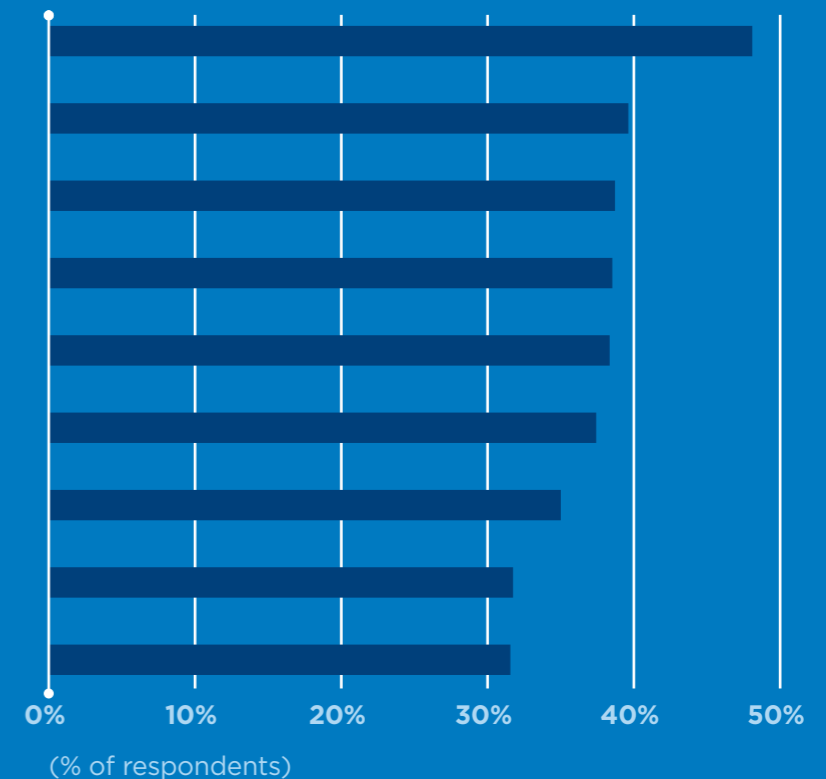
Ensuring the security of data at rest

Ensuring the security of data on the move

Transferring data in a timely manner

Capturing data context

Ensuring data transfers are not duplicated

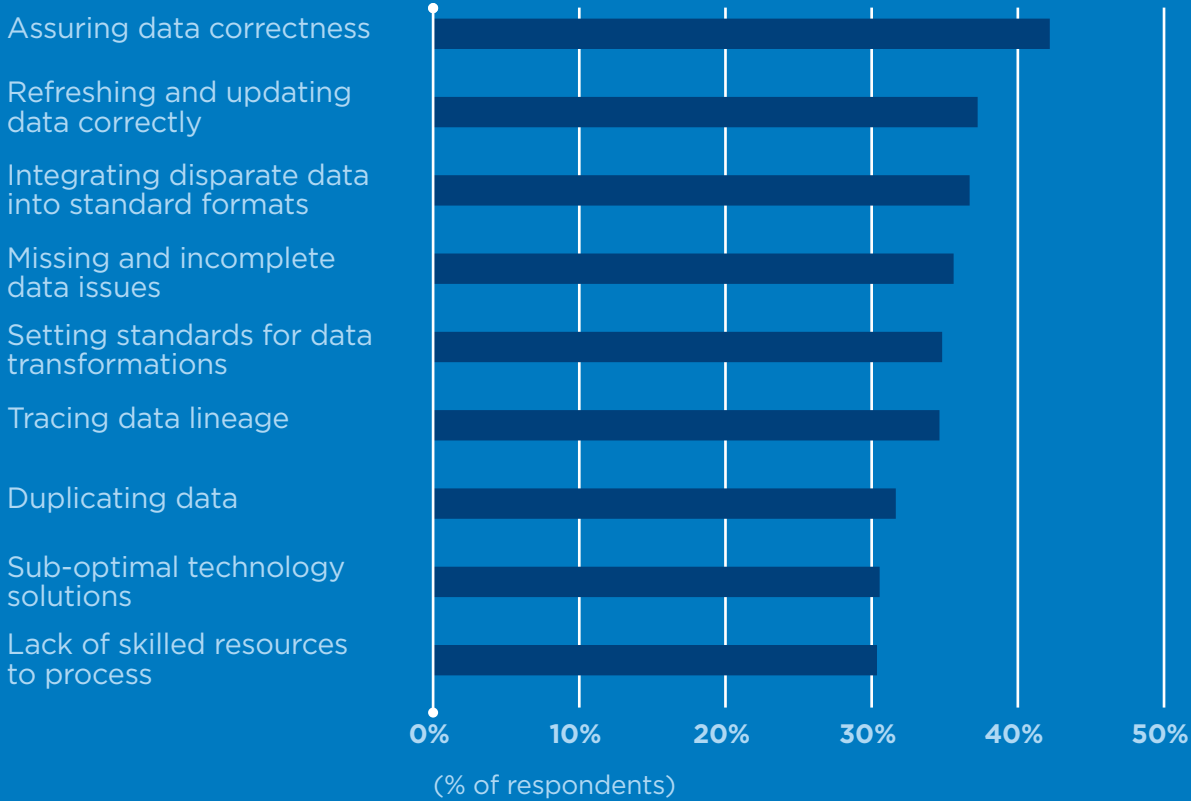


Data Leaks: The Challenges Faced by Data Engineers and Data Analysts

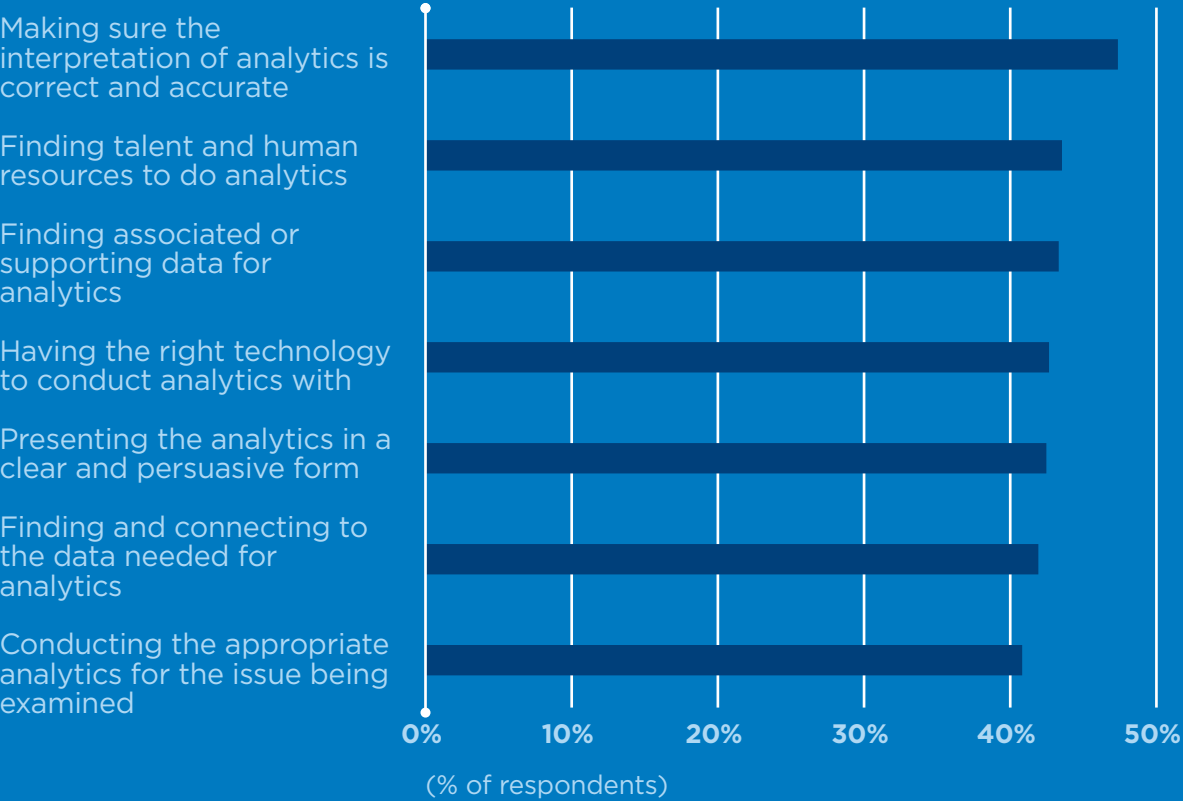
Once the data is moved, organizations are challenged in processing or transforming it so it can be analyzed.

Organizations are also challenged in executing data analytics.

Q. What are the main challenges the organization has in processing or transforming the data into an analytics-ready form?



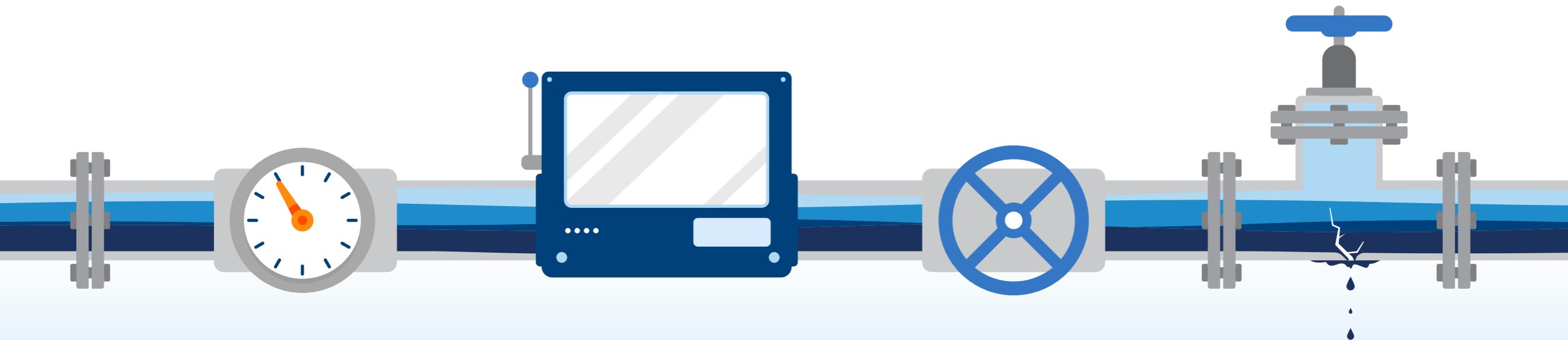
Q. What are the main challenges the organization has executing data analytics?



Sealing the Leaks: Overcoming Data and Analytics Pipeline Challenges

The pipeline is only as good as its weakest link. “Leakage” along any part of the pipeline results in the inability to raise enterprise intelligence.

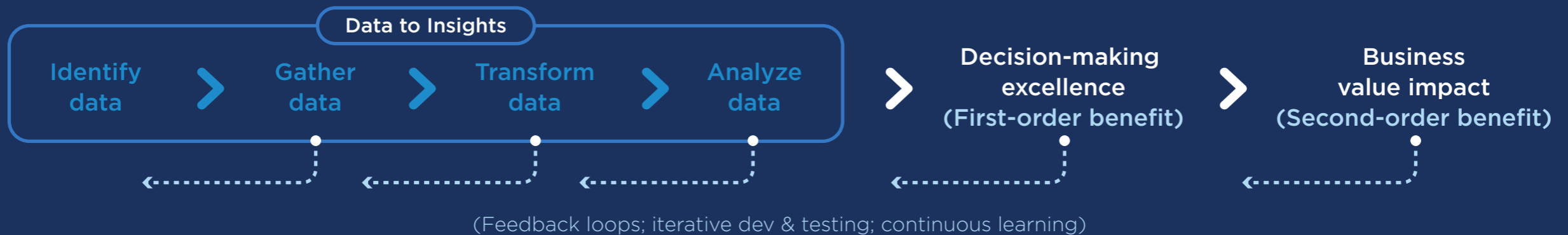
The goal is to maximize the yield of the whole pipeline, i.e., minimize the leakage. Higher yield results in greater enterprise intelligence (first-order benefit), which in turn results in better business outcomes (second-order benefit).



Enterprise Intelligence: Monitor, Learn, Explain, Adapt

While there is an initial sequence to these steps, ongoing maintenance and development of data and analytics pipelines require an agile, iterative approach.

A combination of human expertise and machine learning should be applied to monitoring and learning about each step and the pipeline as a whole, leading to the ability to explain results and adjust more rapidly as the external environment changes.



Greater Enterprise Intelligence Is Already Defining Tomorrow's Leaders

The magnitude of the impact of different challenges at different points of the data-to-insights pipeline will vary. To achieve greater enterprise intelligence and subsequent better business outcomes, the whole pipeline needs to be robust. It doesn't matter whether the faults occur at the well, in the pump, at the filtration facility, in the pipe, or at the faucet: The result is that the final data consumer doesn't get what they expect or need. To avoid this result, IDC recommends that organizations:

Invest in technology solutions to address each step of the data-to-insights pipeline

Hire a team of data, analytics, IT, and business subject-matter experts

Ensure that the data architects, data engineers, business analysts, data scientists, designers, and developers collaborate to create agile pipelines that underpin the new generation of enterprise intelligence

Optimize each stage of the data pipeline to boost its overall benefits

Design a pipeline that embraces rapidly changing data architectures and cloud technologies while providing the necessary agility to use these new innovations for competitive differentiation

Methodology

In February and March of 2020, IDC conducted a survey sponsored by Qlik of IT and LOB respondents responsible for data management and analytics within their organizations.

As part of the survey data analysis, IDC created three metrics:

- › Data to Insights: Comprised of several questions about data identification, gathering, transformation, and analysis
- › Decision-making Excellence: Comprised of several questions about the process and capabilities of making decisions based on the results of data analysis
- › Business Value Impact: Comprised of several questions about quantifiable business benefits and their magnitude

IDC also conducted analysis to establish correlations between data to insights and decision-making excellence, and between decision-making excellence and business value impact.



A Web-based survey was sent to 1,200 organizations in 11 countries: Australia, Brazil, Canada, China, France, Germany, India, Japan, Singapore, the U.K., and the U.S.



Respondents were director, vice president, and C-level decision makers.



Respondents represented organizations of varying sizes. All respondent companies had at least 1,000 employees globally.



Respondent companies represented a variety of industries, including education, finance, government, healthcare, manufacturing, retail/wholesale, transportation, communication, and utilities.

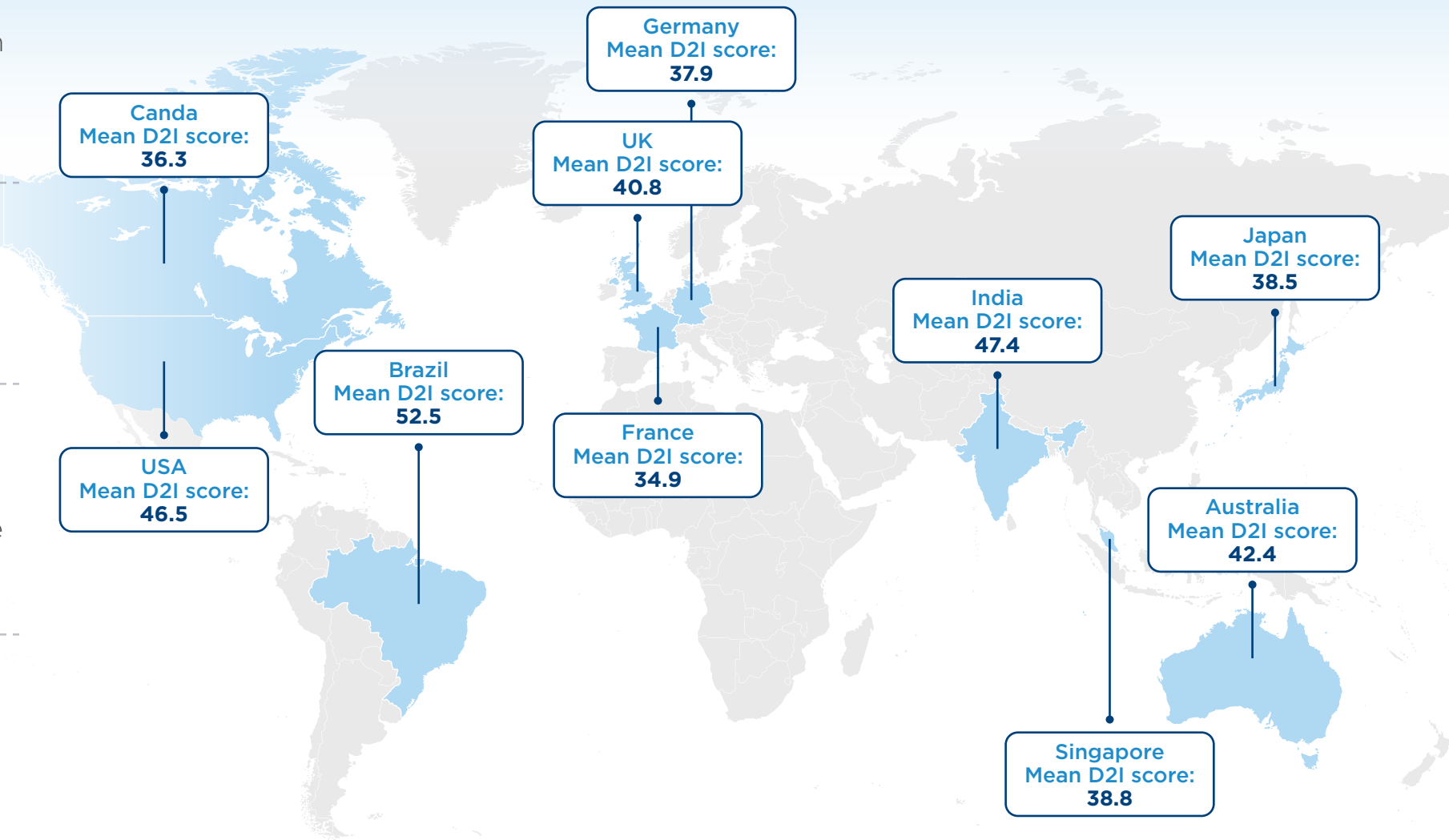
Global Data to Insights (D2I) Scores

Virtually every company in every country surveyed reported a significant challenge in identifying which data sources were valuable at their company.

The average overall data-to-insights (D2I) score is 41.6 across the 10 countries surveyed.

A per-country analysis shows a broad, 17-point range, with Brazil showing the highest overall score at 52.5 and France the lowest at 34.9.

A wide range of regional differences exists in overall D2I scores. The Americas region (U.S., Brazil, Canada) has the highest average score at 45, followed by the APAC (India, Singapore, Japan, Australia) at 41.8 and EMEA (France, Germany, U.K.) at 37.8.



Asia Pacific Points of Interest



Japan

Mean D2I Score: 38.5

% of Orgs citing benefits due to improvements in data management and analytics:

- > Employee productivity: **76%**
- > Revenue: **73%**
- > Operational efficiency: **67%**
- > Shorter time to market for new products and services: **67%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **13%**
- > Profit increase: **15%**
- > Improved operational efficiency: **14%**
- > Employee retention increase: **26%**
- > Shorter time to market for new products and services: **22%**
- > Customer satisfaction/loyalty increase: **18%**



Singapore

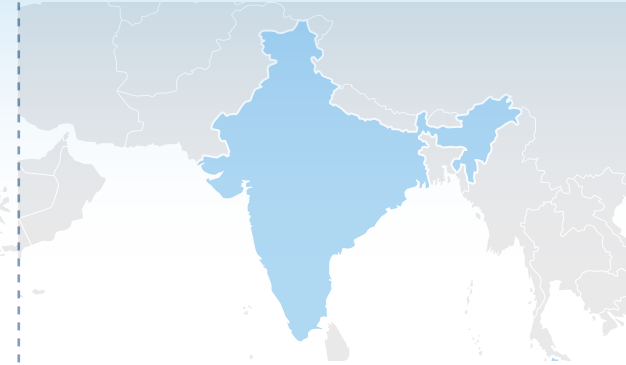
Mean D2I Score: 38.8

% of Orgs citing benefits due to improvements in data management and analytics:

- > Operational efficiency: **83%**
- > Revenue: **80%**
- > Improved operational risk profile: **75%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **17%**
- > Profit increase: **13%**
- > Improved operational efficiency: **21%**
- > Employee retention increase: **14%**
- > Shorter time to market for new products and services: **20%**
- > Customer satisfaction/loyalty increase: **21%**



India

Mean D2I Score: 47.4

% of Orgs citing benefits due to improvements in data management and analytics:

- > Customer satisfaction/loyalty: **81%**
- > Operational efficiency: **81%**
- > Profit: **78%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **22%**
- > Profit increase: **18%**
- > Improved operational efficiency: **21%**
- > Employee retention increase: **14%**
- > Shorter time to market for new products and services: **15%**
- > Customer satisfaction/loyalty increase: **20%**



Australia

Mean D2I Score: 42.4

% of Orgs citing benefits due to improvements in data management and analytics:

- > Customer satisfaction/loyalty: **80%**
- > Operational efficiency: **76%**
- > Improved operational risk profile: **75%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **18%**
- > Profit increase: **17%**
- > Improved operational efficiency: **23%**
- > Employee retention increase: **17%**
- > Shorter time to market for new products and services: **17%**
- > Customer satisfaction/loyalty increase: **27%**

The Americas Points of Interest



Brazil

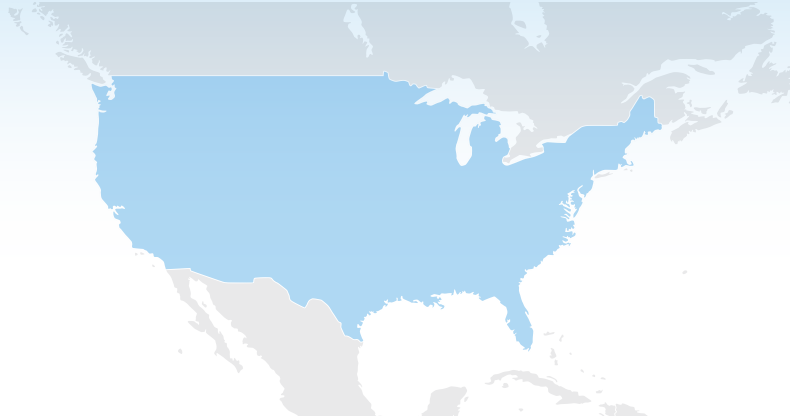
Mean D2I Score: 52.5

% of Orgs citing benefits due to improvements in data management and analytics:

- > Customer satisfaction/loyalty: **90%**
- > Profit: **89%**
- > Number of product/service offerings: **89%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **21%**
- > Profit increase: **20%**
- > Improved operational efficiency: **16%**
- > Employee retention increase: **24%**
- > Shorter time to market for new products and services: **20%**
- > Customer satisfaction/loyalty increase: **22%**



United States

Mean D2I Score: 46.5

% of Orgs citing benefits due to improvements in data management and analytics:

- > Profit: **80%**
- > Operational efficiency: **77%**
- > Customer satisfaction/loyalty: **77%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **18%**
- > Profit increase: **20%**
- > Improved operational efficiency: **17%**
- > Employee retention increase: **19%**
- > Shorter time to market for new products and services: **16%**
- > Customer satisfaction/loyalty increase: **18%**



Canada

Mean D2I Score: 36.3

% of Orgs citing benefits due to improvements in data management and analytics:

- > Employee productivity: **76%**
- > Operational efficiency: **71%**
- > Revenue: **68%**
- > Shorter time to market for new products and services: **62%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **13%**
- > Profit increase: **17%**
- > Improved operational efficiency: **11%**
- > Employee retention increase: **10%**
- > Shorter time to market for new products and services: **15%**
- > Customer satisfaction/loyalty increase: **19%**

Europe Points of Interest



United Kingdom

Mean D2I Score: 40.8

% of Orgs citing benefits due to improvements in data management and analytics:

- > Profit: **77%**
- > Employee productivity: **74%**
- > Customer satisfaction/loyalty: **69%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **17%**
- > Profit increase: **16%**
- > Improved operational efficiency: **14%**
- > Employee retention increase: **12%**
- > Shorter time to market for new products and services: **16%**
- > Customer satisfaction/loyalty increase: **15%**



Germany

Mean D2I Score: 37.9

% of Orgs citing benefits due to improvements in data management and analytics:

- > Revenue: **75%**
- > Operational efficiency: **73%**
- > Profit: **72%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **17%**
- > Profit increase: **15%**
- > Improved operational efficiency: **17%**
- > Employee retention increase: **17%**
- > Shorter time to market for new products and services: **17%**
- > Customer satisfaction/loyalty increase: **21%**



France

Mean D2I Score: 34.9

% of Orgs citing benefits due to improvements in data management and analytics:

- > Revenue: **79%**
- > Customer satisfaction/loyalty: **75%**
- > Profit: **73%**
- > Adherence to regulatory compliance: **71%**

Organizations citing benefits experienced this level of improvement:

- > Revenue increase: **15%**
- > Profit increase: **16%**
- > Improved operational efficiency: **19%**
- > Employee retention increase: **18%**
- > Shorter time to market for new products and services: **18%**
- > Customer satisfaction/loyalty increase: **16%**

MESSAGE FROM THE SPONSOR

Holistic Approach to Data-Driven Transformation

Data is the foundation of the new economy. But data alone can't drive outcomes. It is data and analytics together that close the gaps between data, insights, and action, by transforming data into *active intelligence* that businesses can use to drive better decisions and bottom-line impact — to reinvent everything from customer experiences and business processes to revenue streams and competitive strategy.

Qlik delivers solutions to integrate and manage data, analyze and explore information, discover and share insights, and make informed decisions.

Providing an end-to-end, real-time data integration and analytics platform, Qlik is helping over 50,000 customers in more than 100 countries around the world. For more information, visit qlik.com.

