



# A ROUGH ROAD TO DATA MATURITY

By Elias Baltassis, Anne-Douce Coulin, Antoine Gourévitch, Yassine Khendek, and Lucas Quarta

**G**LOBALLY, COMPANIES ARE MAKING progress in their efforts to mature their data capabilities, but the transformation to data-driven organizations is proving arduous for many of them—and it’s not happening as rapidly as they’d hoped. According to BCG’s Data Capability Maturity Survey, the companies we surveyed in 2016 had hoped to raise their data maturity index score by 53% by 2019. But they fell well short of their ambitions, improving their score by 19% according to this year’s survey. (For more on the survey and index, see the “Study Methodology” sidebar.)

Among the eight industries included in our survey, the technology, media, and telecommunications (TMT) sector outpaced the field in terms of data maturity, followed by financial institutions and retail and consumer companies. Geographically, North America led the way in 2019 thanks to a strong showing by both the US and Canada. And although Europe leads Asia on a regional basis, China comes in second to the US in terms of data capabilities at the national level.

## Steady Progress Lifts Maturity Levels

Although the companies we surveyed did not achieve their very high ambitions for progress, their 19% improvement from 2016 to 2019 is noteworthy. In 2016, the average maturity index score was 268, which fell into what we define as the “developing” category on the data maturity spectrum. But by 2019 the average moved to 318, placing it in the “mainstream” category. Moreover, the percentage of companies scoring 300 to 500 points (qualifying them as mainstream or better) more than doubled from 30% to 62%. (See Exhibit 1.)

Given the challenges that companies experienced in attempting to reach their 2016 goals, it’s not surprising that they dialed back their ambitions somewhat in the 2019 survey. But they still have substantial aspirations. On average, respondents expect to lift their capability index scores 25%, to 398 by 2021, which would put them at the threshold of the “state of the art” data maturity category.

## STUDY METHODOLOGY

After conducting our Data Capability Maturity Survey, we used the results to create a performance index. The index establishes benchmarks that help companies more precisely assess the maturity of their data capabilities compared with that of their peers. This knowledge can help companies design better digital strategies to compete more effectively as data-driven organizations. The index is based on the seven data capabilities in BCG's Data Capabilities Model. (See the exhibit.)

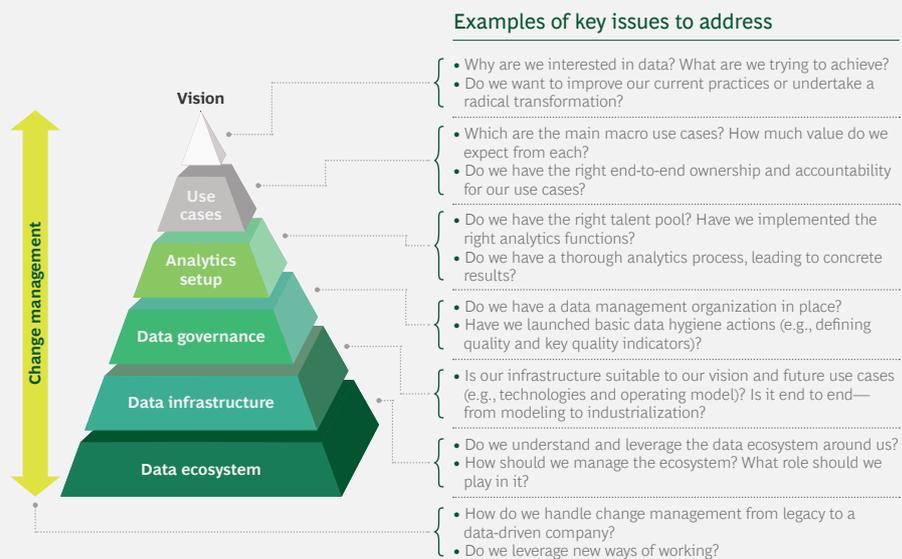
Across these seven capabilities, we weighted 19 dimensions and 55 criteria and then created an aggregate score from 100 to 500. That score placed each company somewhere on the five-stage data maturity spectrum:

- **Lagging.** Has made little to no progress across the seven data capabilities.
- **Developing.** Understands its data capability challenges and has started to work on them in earnest.

- **Mainstream.** Possesses average data capabilities for its industry.
- **State of the Art.** Has several areas of excellence among the seven data capabilities but may not manage them cohesively.
- **Best Practice.** Is advanced in all dimensions of data-capability building and manages them cohesively.

The survey results included in this article are just a sampling of the data we collected. The full data has been reserved for internal BCG analysis and client cases.

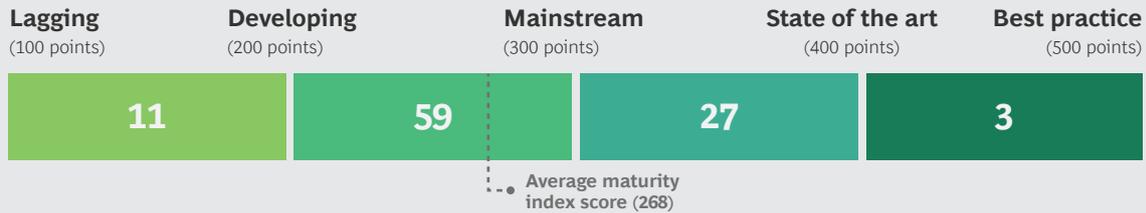
### BCG's Comprehensive Data Capabilities Model



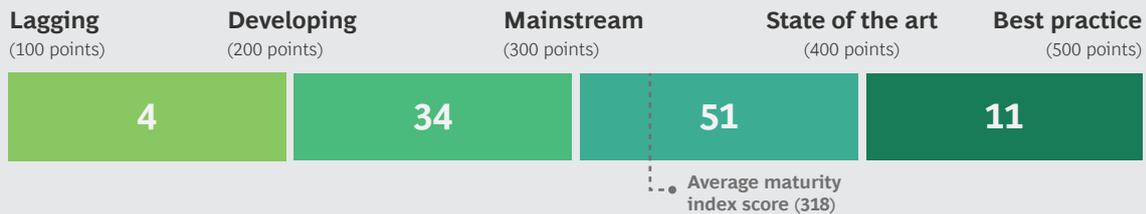
Source: BCG.

## EXHIBIT 1 | Distribution of Companies by Data Maturity

2016 survey (%)



2019 survey (%)



Sources: BCG Data Capability Maturity (DACAMA) Surveys, 2016 and 2019; BCG analysis.

### All Data Capabilities Improved in the New Survey

As part of our analysis to better understand strengths and weaknesses, we examined how companies have performed across seven data capabilities: vision, use cases, analytics setup, data governance, data infrastructure, data ecosystems, and change management. Back in 2016, the strongest data capability among those surveyed was vision, which helped to set a solid foundation for data strategy. Yet, somewhat surprisingly given this strength, companies also said they struggled to apply that vision and develop concrete use cases. Data infrastructure and data ecosystems were even weaker, probably because they require more enterprisewide transformation than developing a vision and identifying use cases.

Since 2016, all capabilities have improved. (See Exhibit 2.) But the 2019 results reveal some surprises. For example, data infrastructure and data ecosystems improved dramatically—although they grew from a comparatively low base, which made those big gains easier to achieve. Driving the growth in these capabilities was the vast improvement in open-source technologies and the increasing number of Analytics-

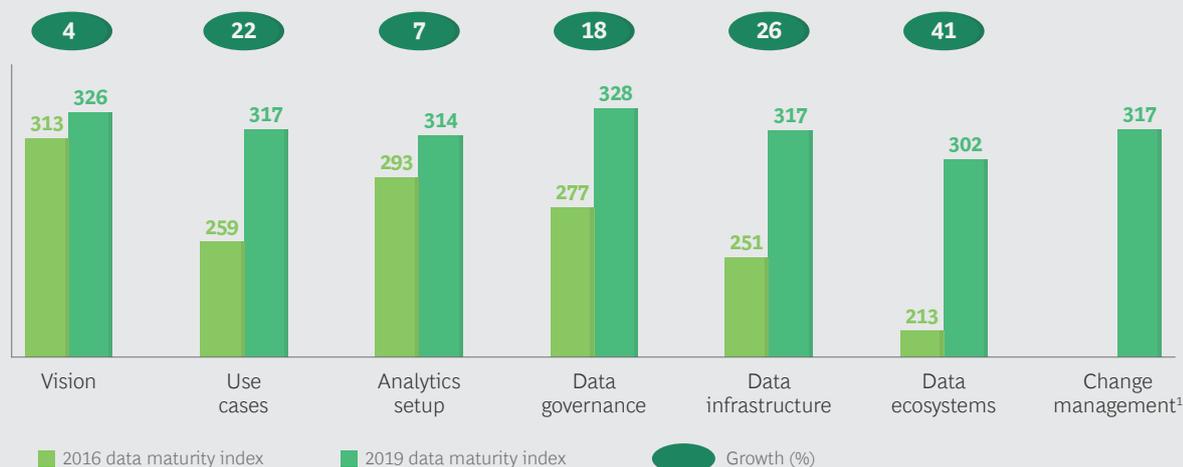
as-a-Service (AaaS) and Platform-as-a-Service (PaaS) solutions.

Less obvious in these results, but very telling, is the relative underperformance of analytics setup (in other words, creating value and having the right analytics processes and people in place), which has gone from the second most developed capability to one of the least mature. That came despite very high ambitions. On average, companies had hoped to raise the maturity score for analytics setup from 293 to 435—a dramatic 48% increase. Instead, it rose just 7% to 314.

This trend was consistent across regions, industries, and company size, suggesting that most companies are struggling with organizational issues as they try to deliver on their business strategy (such as aligning various stakeholders). Interestingly, they are having trouble with their analytics setup despite strong support from top management.

In the face of these challenges, companies have pulled back on their 2021 ambitions for analytics setup and are aiming for a maturity score of 397. Although that's far below the ambition they set in 2016, it

EXHIBIT 2 | Average Data Maturity Index Score by Data Capability



Sources: BCG Data Capability Maturity (DACAMA) Surveys, 2016 and 2019; BCG analysis.

Note: The maximum number of maturity index points is 500, indicating best practice.

<sup>1</sup>Change management is a new dimension introduced in BCG's latest data capabilities framework; hence, it was not evaluated in 2016.

would still amount to a 26% increase over their actual 2019 score.

In fact, the companies in the survey recalibrated their 2021 ambitions across the board. In all cases—except data ecosystems—their 2021 maturity score targets are below their 2019 targets.

We found that, despite the many challenges that these organizations face, state-of-the-art companies tend to mature all seven data capabilities consistently and cohesively, thus maximizing the value of their data. For example, the analytics setup and data ecosystems of these companies are both more than 40% more mature than the rest of the market. This creates significant competitive advantages.

### TMT Leads Industries in Data Maturity

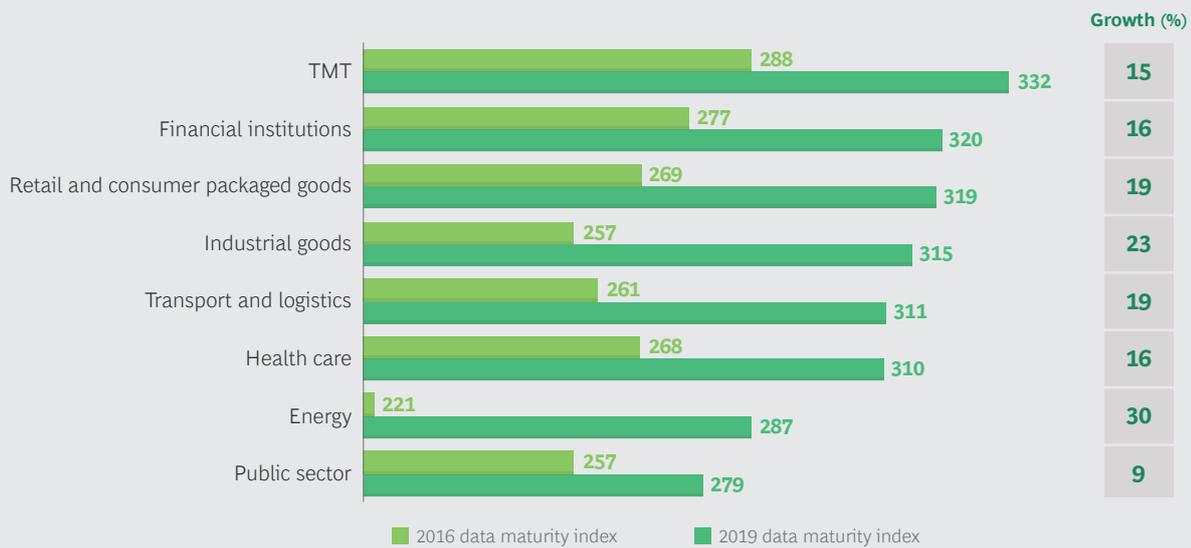
We also took a close look at the maturity of data capabilities across industries. (See Exhibit 3.) All industries have improved their data maturity from 2016 to 2019 but at varying rates. TMT continues to lead in data maturity and improved its index score by 15%, but energy and industrial goods demonstrated the highest upswing, possibly driven by the growth of Internet of

Things (IoT) data in those sectors. Unlike the 2016 survey, which found that midsize companies had more mature data capabilities than small and large companies, the 2019 survey shows that company size makes virtually no difference in data capability maturity.

It's no coincidence that leading industries focus on improving each of the seven data capabilities. Indeed, TMT and financial institutions, the first and second most mature industries, scored above average in all seven capabilities. Meanwhile, industrial goods, transport and logistics, health care, energy, and the public sector all scored below average for most or all the components.

This tells us that a company in any of the industries in our survey that is looking to advance needs a high level of maturity across all capabilities. That finding is in line with what we learned about individual state-of-the-art companies. Being very good at just a few capabilities is not enough. The silver lining, particularly for energy and the public sector, is that their industries have so few advanced players that investing in these capabilities could give them a pronounced competitive advantage.

EXHIBIT 3 | Average Data Maturity Index Score by Industry



Sources: BCG Data Capability Maturity (DACAMA) Surveys, 2016 and 2019; BCG analysis.  
 Note: The maximum number of maturity index points is 500, indicating best practice.

### North America Continues to Lead Among Regions

As part of our analysis, we also examined data capability maturity across regions. All regions have developed since 2016, and today most have similar maturity levels. But they are evolving at different rates. While North America continues to lead, Europe and Asia have accelerated their growth to close the gap. Both those regions have increased their maturity about 50% faster than North America. Looking forward, all three regions are targeting 25% growth by 2021.

When looking at individual countries, a more complex landscape emerges. (To simplify the process of ranking and comparing countries, we condensed the country rankings to “trailing,” “work in progress,” and “advanced.”) Although the US marginally leads in data maturity, China has the highest concentration of companies with advanced maturity. Among the top eight countries, Japan has a very high percentage of companies with a work-in-progress data capability (79%) and has relatively few advanced and trailing companies. (See Exhibit 4.)

Looking forward, China and India hope to overtake the US in data maturity by 2021.

India is the most ambitious, aspiring to leapfrog its competitors and move from number 12 on the index to number 2.

Meanwhile, companies in the UK, France, and Germany have set targets that would maintain those countries’ leadership positions in Europe.

Canada’s target is near the global average of 398, which would drop it from third to sixth. The implication is that Canadian companies don’t plan to invest as much in data capabilities as those in other countries.

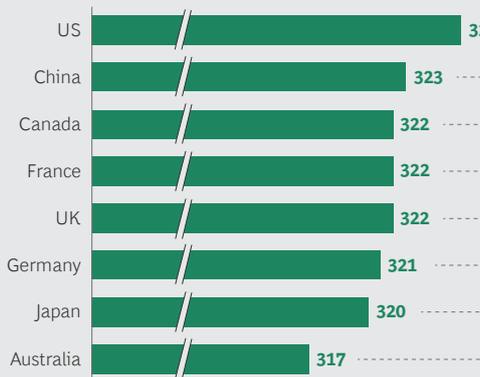
### Stay Focused on Capability Building

Companies looking to evolve into data-driven organizations have encountered some bumps in the road. Critically, however, they have not been dissuaded. True, most have recalibrated their ambitions for 2021 to be more realistic than they were for 2019. But their ambitions are still aggressive—and that’s a good thing. These data capabilities are not something that might, in theory, be useful in the future. They are necessary to compete in the here and now, and most companies are playing catchup. Getting there won’t be easy, but get there they must.

## EXHIBIT 4 | The US Leads in Data Maturity, but China Has the Most Advanced Companies

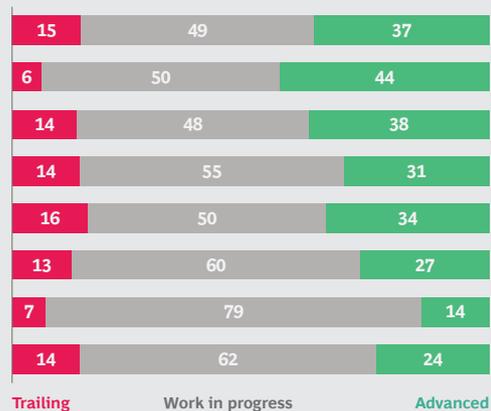
### Average data maturity index by country, 2019

Top eight countries (maturity index points)



### Distribution by data maturity segment, 2019<sup>1</sup>

Top eight countries (%)



Sources: BCG Data Capability Maturity (DACAMA) Survey, 2019; BCG analysis.

Note: The maximum number of maturity index points is 500, indicating best practice.

<sup>1</sup>Trailing < 250; work in progress = 250–349; advanced ≥ 350.

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