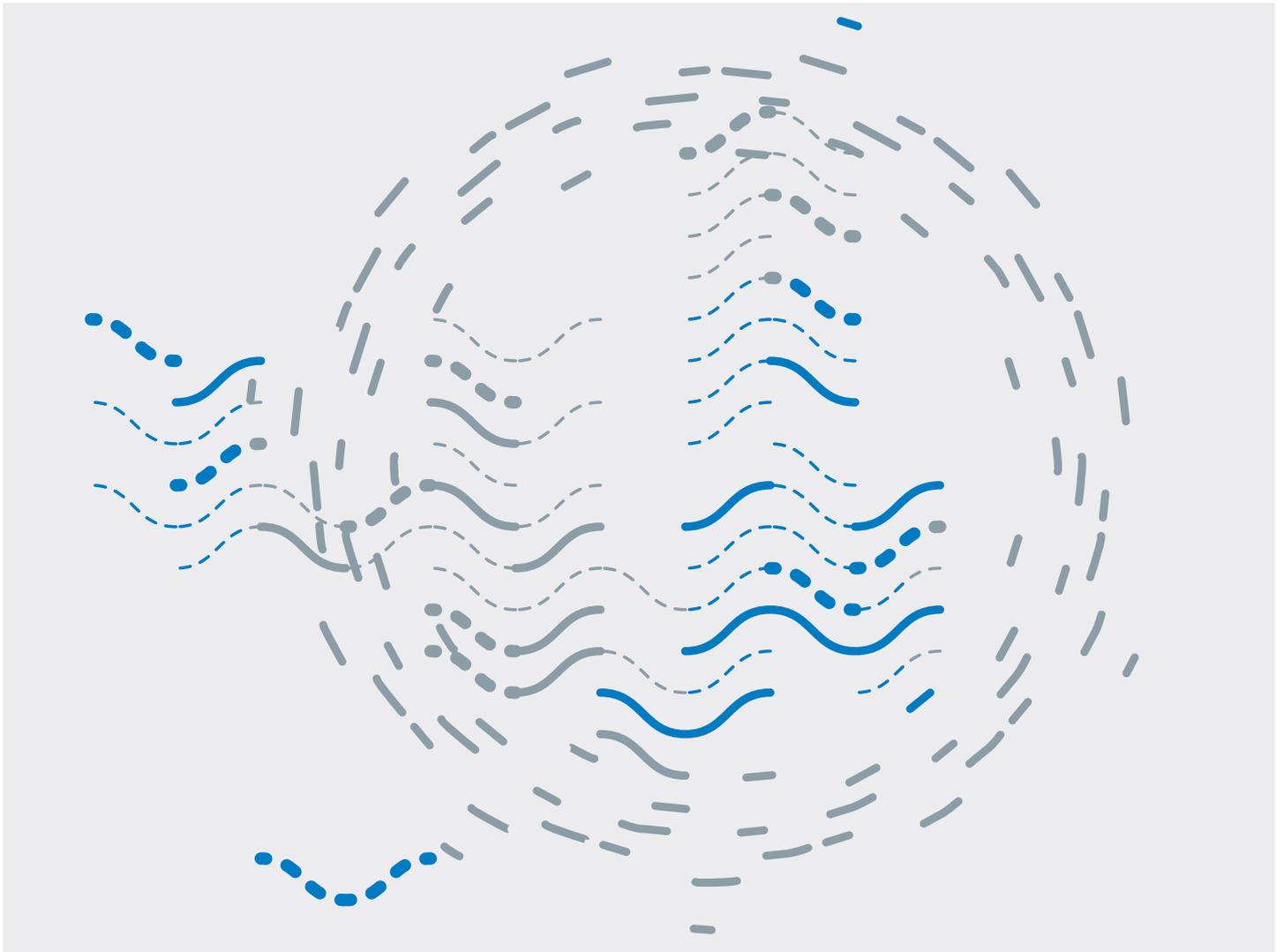


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Organizations can find value by shifting to a subscription model for storing, managing, securing, and deriving insights from data.

# A new era for data: What's possible with as-a-service

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For organizations in today's complex business environment, data is like water – essential for survival. They need to process, analyze, and act on data to drive business growth – to predict future trends, identify new business opportunities, and respond to market changes faster. Not enough data? Businesses die of thirst. Dirty data? Projects are polluted by “garbage in/garbage out.” Too much data for the organization's analytical capabilities? Businesses can drown in the data flood in their struggle to tap its potential.

But the right amount of data, clean and properly channeled, can quench a business's thirst for insights, power its growth, and carry it to success, says Matt Baker, senior vice president of corporate strategy at Dell Technologies. Like water, data is not good or bad. The question is whether it's useful for the purpose at hand. “What's difficult is getting the data to align properly, in an inclusive way, in a common format,” Baker says. “It has to be purified and organized in some way to make it usable, secure, and reliable in creating good outcomes.”

Many organizations are overwhelmed by data, according to a recently commissioned study of more than 4,000 decision-makers conducted on Dell Technologies' behalf by Forrester Consulting.<sup>1</sup> During the past three years, 66% have seen an increase in the amount of data they generate – sometimes doubling or even tripling – and 75% say demand for data within their organizations has also increased.

“What's difficult is getting the data to align properly. It has to be purified and organized in some way to make it usable, secure, and reliable in creating good outcomes.”

Matt Baker, Senior Vice President, Corporate Strategy, Dell Technologies

## Key takeaways

- 1 In today's complex business environment, data is essential. But the greatest challenge organizations face is how to organize and channel their data to drive business growth.
- 2 Organizations need to rethink their approach to data infrastructure as massive data streams flood businesses. To extract insights and value from data, organizations should shift to an as-a-service model for easier data movement, better data management, and faster time to action.
- 3 Using data effectively must become a priority for organizations as they continue to amass data. Moving to an as-a-service model to store and manage data can offload data-management tedium and free up resources to derive and then act on data-driven insights.

The research company IDC estimates that the world generated **64.2 zettabytes** of data in 2020, and that number is growing at 23% per year. A zettabyte is a trillion gigabytes – to put that in perspective, that's **enough storage** for 60 billion video games or 7.5 trillion MP3 songs.

The Forrester study showed that 70% of business leaders are accumulating data faster than they can effectively analyze and use it. Although executives have enormous amounts of data, they don't have the means to extract insights or value from it – what Baker calls the “Ancient Mariner” paradox, after the famous line from Samuel Taylor Coleridge's epic poem, “Water, water everywhere and not a drop to drink.”

## Data streams turn to data floods

It's easy to see why the amount and complexity of data are growing so fast. Every app, gadget, and digital transaction generates a data stream, and those streams flow together to generate even more data streams. Baker offers a potential future scenario in brick-and-mortar retailing. A loyalty app on a customer's phone tracks her visit to an electronics store. The app uses the camera or a Bluetooth proximity sensor to understand where it is and taps the information the retailer already has about the customer's demographics and past purchasing behavior to predict what she might buy. As she passes a particular aisle, the app generates a special offer on ink cartridges for the customer's printer or an upgraded controller for her game box. It notes which offers result in sales, remembers for the next time, and adds the whole interaction to the retailer's ever-growing pile of sales and promotion data, which then may entice other shoppers with smart targeting.

Adding to the complexity is an often-unwieldy mass of legacy data. Most organizations don't have the luxury of building data systems from scratch. They may have years' worth of accumulated data that must be cleaned to be “potable,” Baker says. Even something as simple as a customer's birth date could be stored in half a dozen different and incompatible formats. Multiply that “contamination” by hundreds of data fields and achieving clean, useful data suddenly seems impossible.

But abandoning old data means abandoning potentially invaluable insights, Baker says. For example, historical data on warehouse stocking levels and customer ordering patterns could be pivotal for a company trying to create a more efficient supply chain. Advanced extract, transform, load capabilities – designed to tidy up disparate data sources and make them compatible – are essential tools.

## Digital transformation speeds up

The covid-19 pandemic has sped up digital transformation efforts anywhere from three to five years, says John Roese, Dell Technologies' global chief technology officer. “If you do a word association before covid and then today of the phrases ‘drone,’ ‘robot,’ ‘AI,’ two years ago the reaction would have been negative on all three of those.”

**BUSINESS LAB PODCAST** Dell CTO John Roese describes the need for automation in operations – and the human-machine balance needed for it to work.

But as work, recreation, and other aspects of life moved online following shutdowns, technology was suddenly critical to everyday life. At the same time, there was a big shift in “open-mindedness” to investing in new technology – especially technology fueled by vast sums of data – to advance business goals, Roese says.

Take, for example, artificial intelligence. Once widely viewed as threatening, it's now seen as generally positive “because we've started to see how it's transformed health care, how it's made our communication systems more intelligent, our transportation networks work better.”

The Forrester study showed companies are making gains in their data use: 72% of respondents report at least

Figure 1  
“Compared to three years ago, how have the following changed as a result of your digital transformation efforts?”

	INCREASED	STAYED ABOUT THE SAME	DECREASED
OVERALL USEFULNESS OF DATA	72%	21%	7%
ANALYTIC CAPABILITIES	60%	30%	9%
DATA QUALITY	58%	33%	9%
ABILITY TO USE DATA TO FUEL MACHINE LEARNING/AI	54%	35%	10%
QUALITY OF ACTIONABLE INSIGHTS	52%	34%	13%
OUR PEOPLE'S DATA SAVVINESS	52%	35%	12%
DATA-DRIVEN INNOVATION	50%	36%	13%

Source: “Unveiling Data Challenges Afflicting Businesses Around The World,” a commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, based on a survey of 4,036 business and IT decision-makers from more than 40 locations worldwide, January to April 2021

some increase in the overall usefulness of their data as a result of their digital efforts (see Figure 1).

Predictably, with rapid acceleration of technology and their contingent systems comes the data deluge. It takes more effort than ever before to keep up with new technology and analytical tools, and it's almost impossible to find enough qualified information technology (IT) staff to handle the volume of demands. "The sheer scale of those tasks exceeds the human capacity of your IT organization and the budget that you have," Roese says. Organizations have to shift the work into the technology "so that scarce resource of human capacity can still keep up with the high-level objectives, the decision-making, and the things that you want human beings to do."

### Rethinking the approach to data infrastructure

All those factors make a strong case for the as-a-service model – already popular for software – as a flexible alternative to maintaining a full in-house data infrastructure. The Forrester study showed that 57% of decision-makers expect to move to an as-a-service model in the next one to three years, and 22% have already made the switch.<sup>2</sup> Organizations cite benefits such as easier data movement, better data management through a single access point, and faster time to action.

Dell Technologies' Global Data Protection Index 2021, a survey of 1,000 IT decision-makers, showed that as-a-service offerings are making headway among organizations, with storage, backup, and disaster recovery the most popular (see Figure 2).

Speed has become even more essential since the pandemic has decentralized most workforces, Roese says. "In the world where all your IT was sitting in a data center or in a cloud environment, it was pretty easy to put your people nearby. Even if you used a lot of advanced automation technology, you could scale human effort

**Figure 2**  
**As-as-service model growth**

Organizations are looking at a slew of offerings to improve data protection.

STORAGE AS A SERVICE	47%
BACKUP AS A SERVICE	43%
DISASTER RECOVERY AS A SERVICE	41%
NETWORKING AS A SERVICE	37%
CYBER RECOVERY AS A SERVICE	35%
COMPUTE AS A SERVICE	32%
AI AS A SERVICE	29%
EDGE AS A SERVICE	23%
NO AS-A-SERVICE OFFERINGS ARE A PRIORITY	4%

Source: "Global Data Protection Index," Dell Technologies, based on a survey of 1,000 IT decision-makers worldwide, 2021

pretty easily in an environment where everything was co-located." The distributed workforce can also take advantage of edge computing, where data is handled, processed, and analyzed near where it's generated. Much of the world's data will eventually be generated, and acted upon, outside of formal data centers, Roese

"I haven't met a customer yet whose business strategy remains viable if they're hit by ransomware or some other strategic data protection threat and they're not able to quickly and confidently restore their data."

John Scimone, Chief Security Officer, Dell Technologies

says, creating an infrastructure requirement that no single organization can efficiently build or maintain.

Adopting an as-a-service strategy means changing the way the organization views its data, IT infrastructure, and business goals:

**New models, new outcomes.** Organizations no longer have to buy and maintain hardware, software, and storage capacity, and usually, they can change the size and configuration of their IT staff – reducing the overall headcount or changing the skill mix. Instead, they purchase the outcome they need: a technology environment that can be provisioned quickly and scaled on demand. By equipping IT teams with the right tools and freeing up time to do higher-value work, such as proposing innovation to the business, organizations can shift IT from a cost center to a source of revenue.

#### Expanding the business case for investment.

The as-a-service model can deliver the necessary data technology and services at a predictable cost and allows to scale easily to accommodate changes in the organization's needs. It may not be cheaper in the near term than keeping those functions in-house, but it frees up resources to make better use of the data and will allow flexibility to adopt new tools and capabilities as they become available. These factors offer a broader benefit picture to justify upfront investments. Moreover, the model can reduce, sometimes radically, the capital investment required, and expand the share allocated to operating expenses.

**Rethinking culture and talent.** An as-a-service approach will do away with some functions, such as having to maintain servers, but will enable others, such as more sophisticated analytics. "Instead of having to have a giant data science team develop your entire toolchain," says Roese, "a much smaller data science and analytics team can actually use the platforms and capabilities that exist out there to, quite frankly, get almost better work done than what companies could do two years ago." The shift will create upskilling opportunities for employees and changes to workflows to reap the full benefit.

**Changing the IT security equation.** Cybersecurity continues to be a challenge for all organizations. The Global Data Protection Index 2021 revealed that more than three out of five organizations don't think their current data protection approaches will meet all future



**BUSINESS LAB PODCAST** Organizations can't repel cyberattacks with tech alone, says Dell Technologies' John Scimone. They need the help of a strong cybersecurity culture among employees.

challenges (see Figure 3). Three out of four organizations believe exposure to cyberthreats has increased with the growth of employees working from home.

John Scimone, Dell Technologies' chief security officer, says cybercrime is "the most beneficial criminal enterprise

**Figure 3**

### The growing cyberattack threat

Many business leaders today don't have confidence in their organizations to protect against and recover from today's cybersecurity threats.



Source: "Global Data Protection Index," Dell Technologies, based on a survey of 1,000 IT decision-makers worldwide, 2021

in the history of humankind” given the large potential reward and the low likelihood of the perpetrators being caught. “I haven’t met a customer yet whose business strategy remains viable if they’re hit by ransomware or some other strategic data protection threat and they’re not able to quickly and confidently restore their data.”

Moving to an as-a-service approach doesn’t solve security issues, but it does change them. “Many still think of data backups in the era of tornadoes and floods, where if you’ve got your backup 300 miles away from where you’ve got your data stored, then you’re good; your backups are safe,” Scimone says. “Backups today are being targeted by humans who literally find your backups wherever they are, and they seek to destroy them in order to make their extortion schemes more impactful.” In the Global Data Protection Index 2021, one out of

five survey respondents doesn’t protect data across the public cloud – a statistic that alarms Scimone.<sup>3</sup> “They’re essentially copying all of their business data to a computing environment that they have low confidence in,” he says. Some seek security in using multiple data protection vendors, but Scimone says the average cost of data losses in the past year is four times higher for organizations that take this approach than for those that use a single vendor.

Scimone recommends maintaining a data vault – isolated from the network – that stores current versions of the most essential data in an immutable form that can’t be altered once written and uses intelligence to ensure the data is clean before it’s recovered. “These systems have to be designed to be as intelligent, if not more intelligent, than the threats that are going to be undoubtedly coming after them,” Scimone says.

### Becoming data-driven

Regardless of how an organization handles the logistics of gathering, storing, cleaning, protecting, and distributing its data, using data effectively must become a core skill for everyone in the organization. Moving to an as-a-service model can offload a lot of tedium and free up organizational resources for finding and using data-driven insights.

If there’s a silver lining to the dramatic shifts caused by a global pandemic, it’s this: data-driven insights have become a routine feature of daily life, as people have learned to track infection and hospitalization rates in their areas to decide whether to take a vacation, attend a meeting, or host a holiday gathering. News outlets overflow with discussions of data quality and how to interpret fluctuations.

“Watching the curve has become part of our everyday vocabulary,” said Sally Eaves, author, consultant, and professor in advanced technologies, in [a recent webinar](#). “People are aware of the power of data in their lives, not just in their work.”

Organizations can build on that new awareness by improving their overall “data literacy”: training employees to evaluate and analyze data and increasing their confidence in their skills. Data readiness lagged among respondents to the Forrester survey: 54% described their organizations as “data novices,” possessing neither the technology infrastructure nor the advanced analytical skills to make optimal use of their data (see Figure 4).

Only 12% (“data champions”) had both those things. Eaves recommends undertaking a data literacy audit to ascertain the organization’s data readiness and plot a course to becoming data champions. “You need to look at opportunities to democratize data skills, upskilling and reskilling for everyone in the organization, not just in technology-facing roles,” she said. “Link them to promotions and opportunities to progress, and build a community of practice around data.”

The overarching imperative is clear: organizations must use these approaches and technologies to channel the data flood and ride it to more effective functioning, Roesse says. He likens the challenge to a race to build “the more intelligent, more efficient, more effective business.”

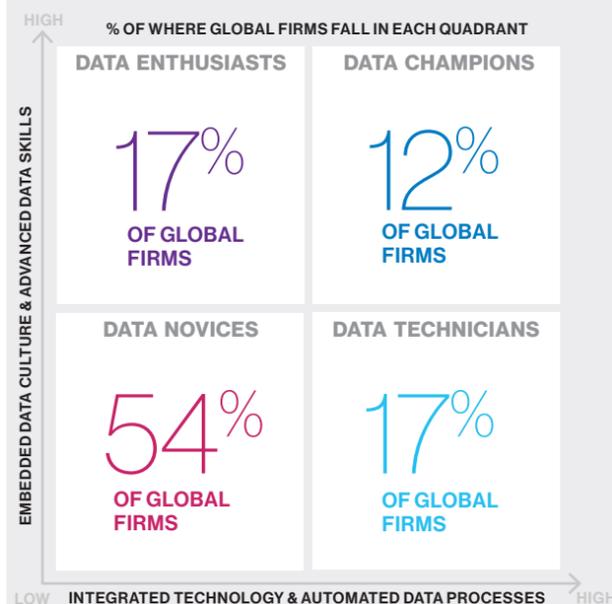
After all, organizations don’t need autonomous systems, AI, and machine learning “because they’re interesting technology,” says Roesse. “It’s because they fundamentally allow you to move faster. And if you move faster than your competitors, you are in the race and you’re likely to win it.”

AI and machine learning “fundamentally allow you to move faster. And if you move faster than your competitors, you are in the race and you’re likely to win it.”

John Roesse, Global Chief Technology Officer, Dell Technologies



Figure 4  
Data readiness assessment

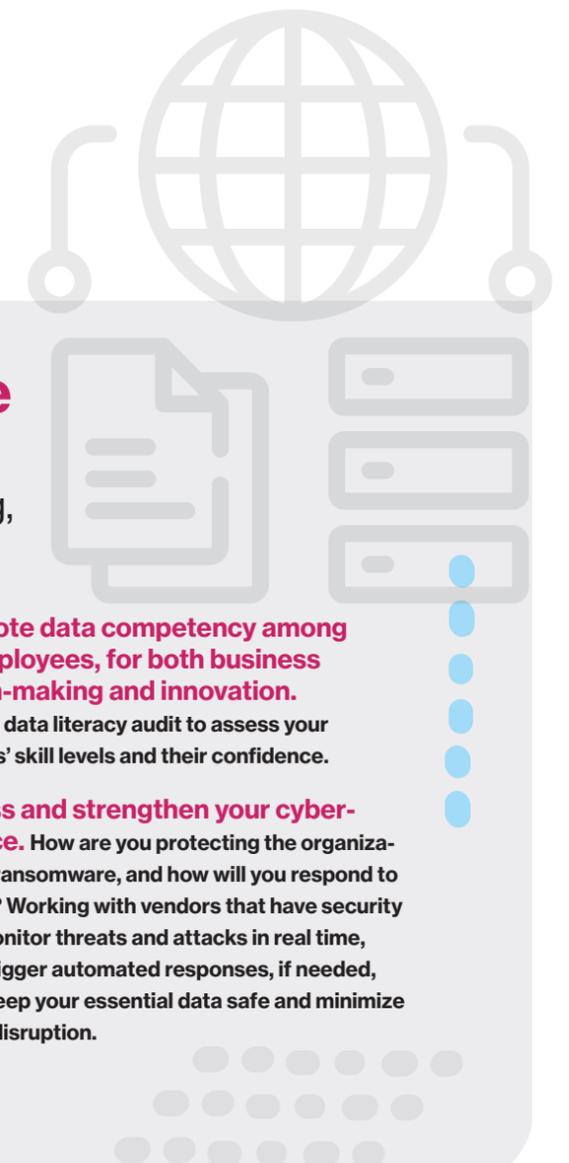


Source: “Unveiling Data Challenges Afflicting Businesses Around The World,” a commissioned study conducted by Forrester Consulting on behalf of Dell Technologies, based on a survey of 4,036 business and IT decision-makers from more than 40 locations worldwide, January to April 2021

## How to win the data race

Here are some tips for moving to an as-a-service model for storing, managing, and getting value from data.

- 1. Assess your current needs and forecast your future ones before choosing a vendor.** How quickly will your organization’s data grow, and what types of sources will it come from?
- 2. Understand your potential vendors’ roadmaps for achieving the capabilities you expect to need.** Which one is on the best path to be your partner over the long haul?
- 3. Beware of lock-in.** Many cloud services are not compatible with other services, limiting the ability to operate in a multi-cloud environment. Pick a vendor that gives you complete control of your data, one simple bill each month, and technology you trust.
- 4. Promote data competency among your employees, for both business decision-making and innovation.** Conduct a data literacy audit to assess your employees’ skill levels and their confidence.
- 5. Assess and strengthen your cyber-resilience.** How are you protecting the organization from ransomware, and how will you respond to an attack? Working with vendors that have security built in, monitor threats and attacks in real time, and can trigger automated responses, if needed, will help keep your essential data safe and minimize business disruption.



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2. “Unveiling Data Challenges Afflicting Businesses Around The World,” 11.
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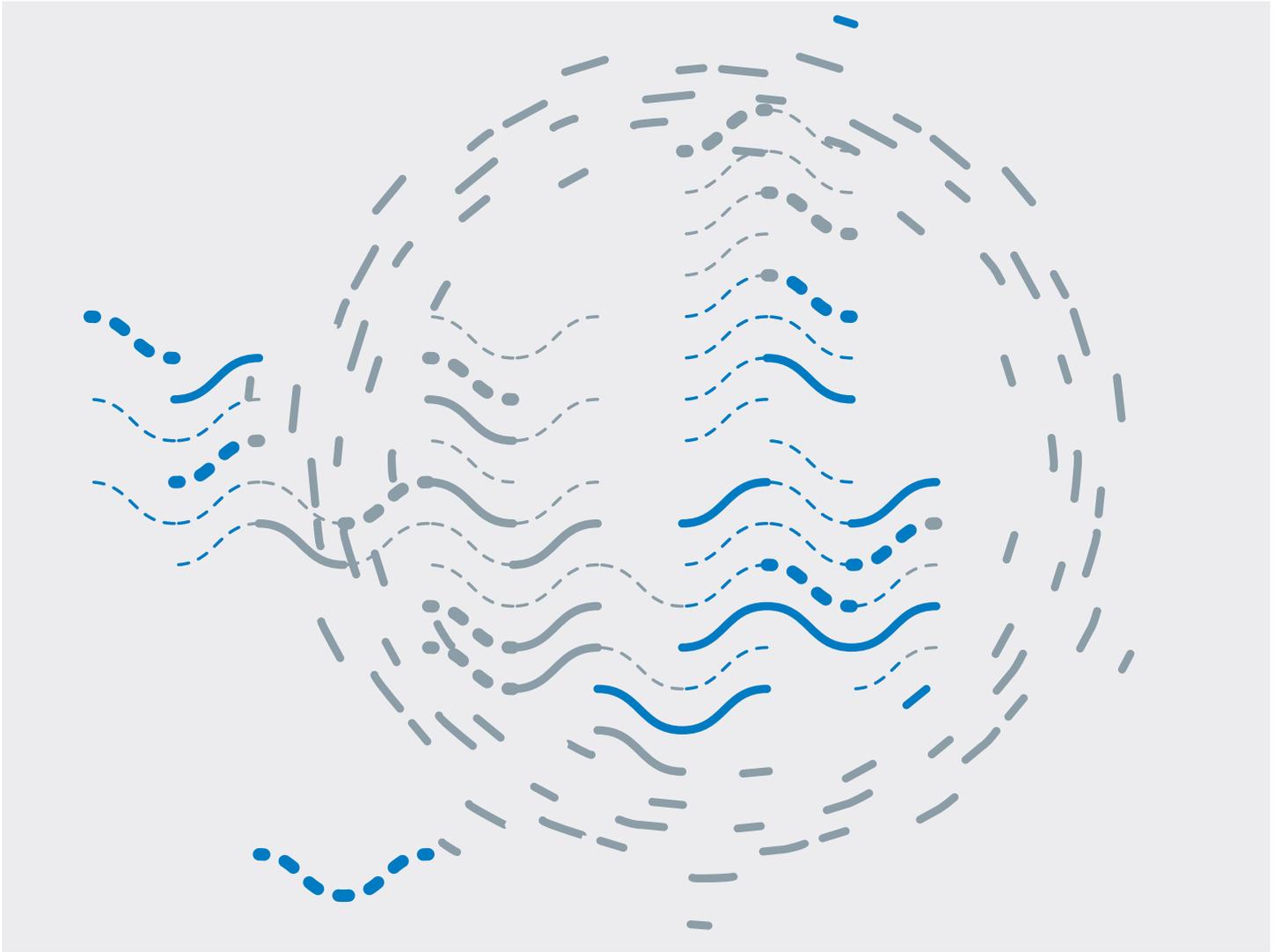
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