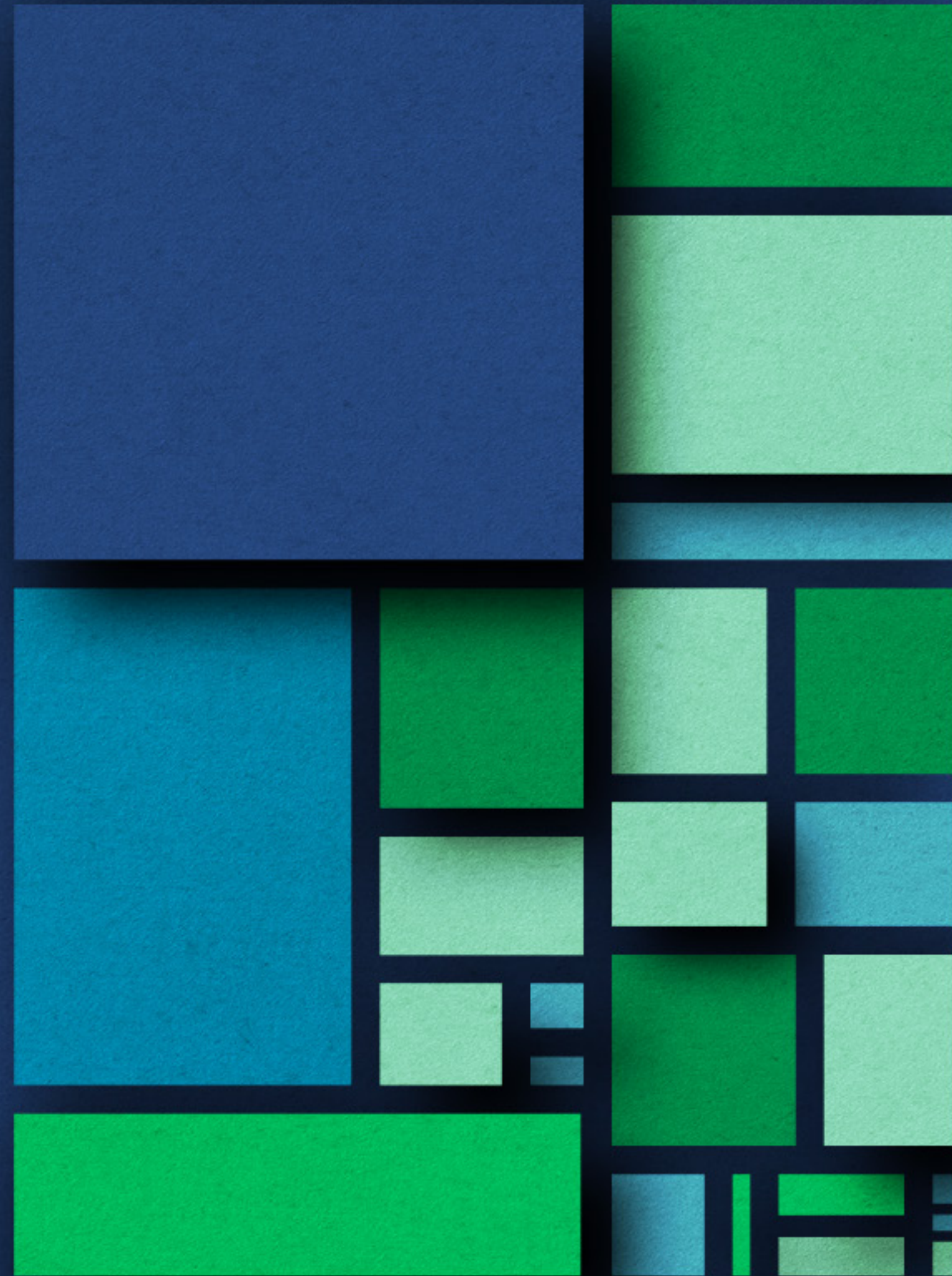


2020 Data & BI Trends

Analytics Alone Is No Longer Enough



Analysis is no longer enough.

In today's fragmented world, we need synthesis and analysis to bring dispersed data together.

Today, there are more ways than ever to connect with one another. Yet, the world is becoming more fragmented and siloed. Where has common ground gone? Why is there so little synthesis?

Social media “likes” polarize us. Inflammatory content lures us in, keeping us hooked. And algorithms just add fuel to the problem. The ramifications can be felt in global politics, elections, trade wars, and more. Many fear that the internet will break into parallel, unintegrated parts (the so-called Splinternet). Local laws, regulations, and privacy protections like the US Cloud Act and the GDPR are at odds with each other in some parts of the world. And in some places, there are no regulations at all.

Business schools, strategy heads, and activist investors push the notion that if it's not a core competency, it's not worth the investment. Specialization is seen as more beneficial. Some argue that academic research breakthroughs are fewer and farther between, because ideas from outside disciplines are often shunned, leading to groupthink – and stifled creativity.

In this fragmented world, we need to start seeing the bigger picture. We need “next practices,” not “best practices.” We need to start thinking differently.

How can we achieve synthesis and analysis?

It takes a trifecta of process, people, and technology.

Businesses that are good at nonlinear thinking are beginning to break away from the pack. These new digital conglomerates are merging data and analytics – from different disciplines – to provide cross-vertical solutions. Innovations such as connecting payments with messaging is a great example of how distributed data together with analytics is a winning formula.

You can turn a fragmented landscape into an opportunity – a data mosaic – through synthesis *and* analysis, with active metadata as the fabric connecting data and analytic supply chains. This works for both business models and data. It's a concept (maverick thinking just a few years ago¹) that will come into play as the 2020 trends unfold.

“By 2025, 20% of revenue growth will be from ‘white space’ offerings that combine digital services from previously unlinked industries, and one-fifth of partners are from previously unlinked industries.”²

–IDC

We have the technology to achieve synthesis and analysis today – but we also need the right processes and people:

1 DATAOPS AND SELF-SERVICE

To build a more agile, empowered workforce, both DataOps and self-service are essential to the process.

2 DATA LITERACY AND ETHICS

To get people both confident and willing to use data, we need data literacy. But also, corporate responsibility around ethical issues like privacy are essential to striking the right balance between risk and reward.

3 5G SPEEDS, AI, METADATA CATALOGS, AND MORE

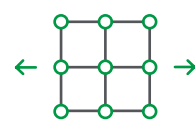
Achieving synthesis and analysis most certainly demands an array of technology that can not only handle data, but also enhance the way we interact with it.

Laying the Data Mosaic: 10 Trends that Facilitate Synthesis and Analysis

Synthesis and analysis are critical for any data-driven company to make use of its pervasive data. Here are 10 trends in 2020 that will help businesses “lay the data mosaic.”



1. Becoming a real-time enterprise is no longer optional.



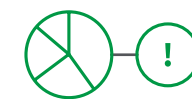
2. Big data is just data. Next up? Wide data.



3. Graph analytics and associative technology surpass SQL.



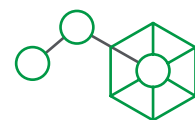
4. DataOps plus self-service is the new agile.



5. Active metadata catalogs are the connective tissue for data and analytics.



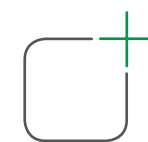
6. The emergence of Data Literacy as a service.



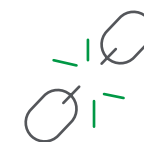
7. Multifaceted interactions will move us beyond search.



8. Ethics and responsible computing are now critical.



9. “Shazam” for data: What’s possible.



10. Independence vs. stack: The sequel.

1

Becoming a real-time enterprise is no longer optional.

If you're going to lay your data mosaic, you need information delivered to the right place at the right time. The world's leading organizations are now operating in real time – the speed needed to monitor the efficacy of marketing campaigns, detect anomalies around fraud, provide healthcare and humanitarian services, conduct on-the-spot personalization, or even optimize supply chains. The convergence of three recent breakthroughs will facilitate all of this in a significant way in 2020.

- **High speeds, all the time, everywhere.**

Thanks to 5G and IPV6, we now have access to ultra-connectivity.

- **Infinitely scalable workloads, where you need them.**

As everything is moving to the cloud, Kubernetes is the rising star – allowing the right workloads to run in the right places, even on edge devices.

- **Powerful streaming architecture.**

Change data capture (CDC) and real-time data streaming enabled by solutions like Apache Kafka to efficiently ingest and process data – with low latency and high scale.

PREDICTION

By 2022, more than half of major new business systems will incorporate continuous intelligence that uses real-time context data to improve decisions.³

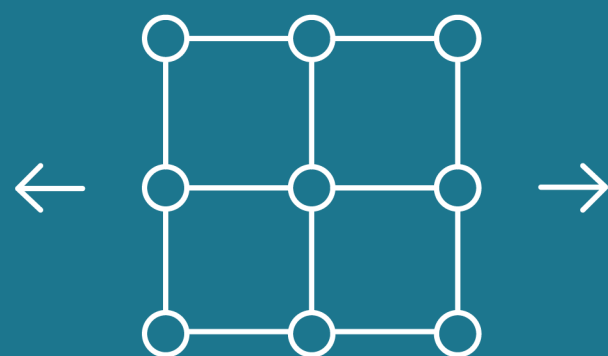
–Gartner

COMPELLING EVENT

Four out of ten enterprise companies (with 5,000 or more employees) included in the Cloud Native Computing Foundation's biannual survey reported that they're running Kubernetes in production environments.⁴

–Enterprisers Project





2

Big data is just data. Next up? Wide data.

PREDICTION

By 2020, most data and analytics use cases will require connecting to distributed data sources, leading enterprises to double their investments in metadata management.⁶

–Gartner

COMPELLING EVENT

Consolidation and the rapid demise of Hadoop distributors in 2019 is a signal that the shift from big to wide data has occurred.⁷

–Amalgam Insights

“Big data” is a relative term and a moving target. Is your current technology robust enough to handle it? If you need to replace or significantly invest in extra infrastructure to handle your data, the answer is no – and you have a big data challenge on your hands.

With infinitely scalable cloud storage, that restriction is gone. And it’s now easier than ever to perform in-database indexing and analytics. We have time-tested tools that ensure data is in the right place – and if not, that it’s easy to move. Technology has essentially caught up; the mysticism of “big data” has finally dissipated.

What’s next? Highly distributed “wide data.” With data formats now more varied and fragmented, we need new ways to deal with data that’s not only big, but wide. The need to handle different types of data has driven an explosion of databases: from 162 in 2013 to 342 in 2019,⁵ evenly split between commercial and open source. Combinations of data eat big data for breakfast, and companies that can achieve synthesis of their varied, fragmented data sources will stand strong.

3 Graph analytics and associative technology surpass SQL.

For decades, we've accepted solutions that aren't optimized for analytics. SQL databases with rows and columns are designed for data entry. Relational analytics tools are based on the relationships between data tables, meaning users can only explore data via predefined connections. These approaches not only prevent people from finding unexpected connections – they make fragmentation worse.

Alternative approaches like graph analytics and associative technology allow us to follow our curiosity and delve deeper. Though different technologies, they're based on the same concept of “nodes, relationship, edge,” focusing on analyzing the natural associations within data – not the data-table relationships defined by someone manually. This type of analytics allows us to address much bigger problems and get better results, especially when AI is applied.

PREDICTION

The application of graph processing and graph databases will grow at 100% annually through 2022 to continuously accelerate data preparation, and enable more complex and adaptive data science.⁸

–Gartner

COMPELLING EVENT

Providing context leads to finding needles in haystacks through “guilt by association” and has helped catch fraudsters,⁹ terrorists,¹⁰ and serial killers.¹¹

–Fast Company; Qlik; GovTech





4

DataOps plus self-service is the new agile.

Self-service analytics, enabled by data discovery tools, brings business users closer to the answers they need. But that same agility hasn't been cultivated on the data management side – until now.

Taking inspiration from DevOps, DataOps is an automated, process-oriented methodology that improves the quality and speeds the cycle time of data management for analytics. It automates data testing and deployment, in real time, thanks to technology like change data capture (CDC) and streaming data pipelines. It also leverages on-demand IT resources to provide continuous data delivery. Today, 80% of data should be delivered to business users in this systematic way. When that happens, the need for standalone self-service data preparation will subside.

With DataOps on the operational side and self-service on the business-user side, companies will experience their data flowing more efficiently across the entire information value chain – enabling synthesis and analysis for laying the data mosaic.

PREDICTION

By 2020, the number of data and analytics experts in business units will grow at three times the rate of experts in IT departments, which will force companies to rethink their organizational models and skill sets.¹²

–Gartner

COMPELLING EVENT

Recent consolidation in the data and analytics market shows that this is increasingly a necessity.

5 Active metadata catalogs are the connective tissue for data and analytics.

Data sets are increasingly wide and distributed – which poses a big challenge for enterprises, as all of that data needs to be inventoried and synthesized. Left to its own devices, data can go stale fast. Data catalogs can help, so it’s no surprise that demand for them is skyrocketing.

A promising solution on the rise is machine learning–augmented metadata catalogs. They move data from passive to active, keeping it adaptive and changing – even across hybrid/multi-cloud ecosystems. Essentially, these metadata catalogs provide the connective tissue and governance needed to handle the agility DataOps and self-service provide. They also include information personalization – an essential component to generating relevant insights and tailoring content. But in order to incorporate fragmented, distributed data, a catalog must also work beyond the environment of your analytics tool of choice.

PREDICTION

By 2023, 60% of organizations will use data catalogs to unify data discovery, access, and intelligence and to bring increased transparency and trust in DataOps and business outcomes.¹³

–IDC

PREDICTION

By 2022, a third of Global 2000 companies will have formal data literacy improvement initiatives in place to drive insights at scale, create sustainable trusted relationships, and counter misinformation.¹⁴

–IDC

COMPELLING EVENT

In 2019 a consortium of vendors initiated the Data Literacy Project to help build a more data-literate world.¹⁵

–The Data Literacy Project

6

The emergence of Data Literacy as a service.

It's no longer enough to drop tools on users and hope for the best. Establishing an inclusive system of synthesis and analysis that thrives on participation will help, but no data and analytics technology or process in the world can function if people aren't on board. A critical component for pushing BI tools beyond the industry standard 35% adoption rate is to get people confident in using data. The clear solution? "DLaaS."

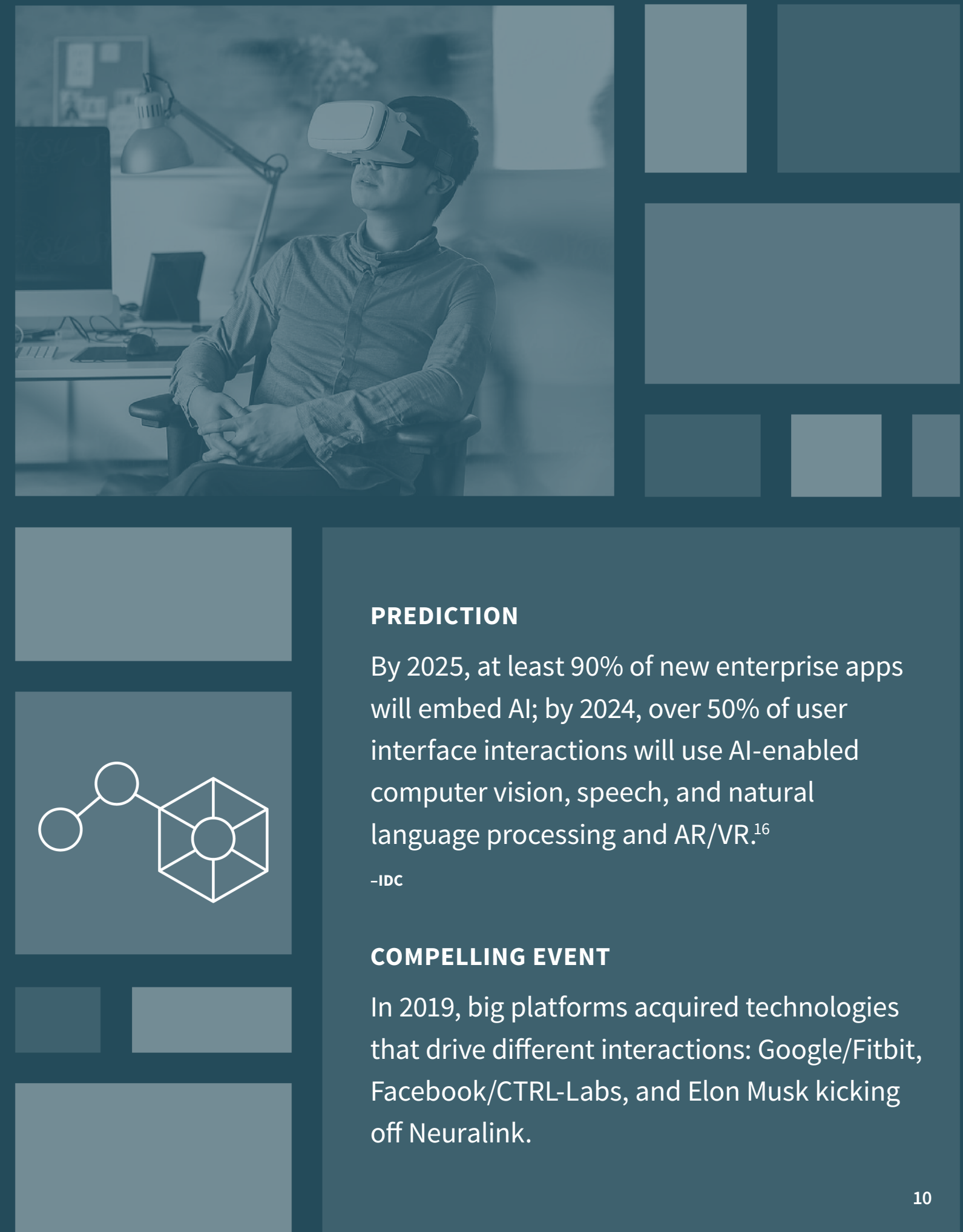
In 2020, as scaling data expertise becomes more critical, businesses will expect to partner with vendors on this journey. What's needed is a combination of software, education, and support – as a service – with outcomes in mind. Driving adoption to 100% makes data a part of every business decision. To reach this goal, the best place to start is by diagnosing where an organization falls on the data literacy spectrum, then working holistically toward making the necessary improvements.



7 Multifaceted interactions will move us beyond search.

Search and voice, powered by chatbots, have emerged as powerful interfaces to query data – especially with mobile applications. But they aren't enough. We need to combine natural language with tried-and-true approaches for data query, such as visual analysis and filtering in dashboards, to build the foundation of a multifaceted interface.

In 2020, more immersive, multifaceted interactions will evolve to enable expressions – and even thoughts – to control or query devices. Inventions around AR/VR, wearable sensors, and machine learning software help machines understand human expressions. Plus, neuroscience has enabled the transmitting of electrical signals from the brain to a computer input. These inventions will evolve the way humans experience and interact with data. Which can hold great benefits for all – especially disabled people – but we must also be aware of how it can be used for ill. We must use them responsibly.



PREDICTION

By 2025, at least 90% of new enterprise apps will embed AI; by 2024, over 50% of user interface interactions will use AI-enabled computer vision, speech, and natural language processing and AR/VR.¹⁶

–IDC

COMPELLING EVENT

In 2019, big platforms acquired technologies that drive different interactions: Google/Fitbit, Facebook/CTRL-Labs, and Elon Musk kicking off Neuralink.

8

Ethics and responsible computing are now critical.

Most technological leaps improve the world around us in some way and bring us collectively to a better place. But some “advances” can be a cause for serious concern. How do algorithms affect our privacy? Our free will? From incorrect use of personal data to auto-profiling, the temptation for exploitation can be hard to resist.

And then there are regulations like the US Cloud act and GDPR, and whether your cloud strategy is in compliance. Borderless corporations are especially affected by this, as rules vary from country to country. Today, a hybrid multi-cloud approach is no longer optional – it’s a must.

The time has come for a broader sense of corporate responsibility. Beyond compliance, companies must gain and hold the trust of their customers. Once an organization is seen as crossing a privacy line, the damage to their brand could be irreparable. The question isn’t only whether something can be done, but whether it should be done. Establishing a digital ethics board at your organization is one way to improve your chances of minimizing risk and maximizing reward. Longer term, organizations need to shift focus from shareholders to stakeholders.



PREDICTION

By 2023, over 75% of large organizations will hire AI behavior forensic, privacy, and customer trust specialists to reduce brand and reputation risk.¹⁷

–Gartner

COMPELLING EVENT

2019 is on track for being the “worst year on record” for breach activity, with a 50% or greater increase over the last four years.¹⁸

–TechRepublic

9 “Shazam” for data: What’s possible.

Shazam, the now-famous musical service that identifies songs through your device’s microphone, has kicked off a category of discovery. Google Lens uses deep learning and visual analysis to identify plants and animals, read and translate text, and more. Amazon is launching a similar technology for finding clothes simply by analyzing a photo. But can we “Shazam” our data?

In 2020, AI embedded across the whole information value chain will allow algorithms in analytic systems to get better at fingerprinting our data, finding anomalies, and (not the least) suggest new data to be analyzed. We’ll be able to point to a data source and see where it came from, who is using it, how much it’s changed, whether its quality is good, and more. It will allow more insights from data, no matter its size – and combine synthesis with analysis.

PREDICTION

By 2024, enterprises that deploy ML-powered data management, integration, and analysis solutions will see a doubling of data-centric-employee productivity.¹⁹

–IDC

COMPELLING EVENT

Amazon’s StyleSnap uses machine learning to find similar clothes and styles.²⁰

–The Verge





10

Independence vs. stack: The sequel.

PREDICTION

By 2022, 70% of enterprises will integrate cloud management – across their public and private clouds – by deploying unified hybrid/multi-cloud management technologies, tools, and processes.²¹

–IDC

COMPELLING EVENT

2019 was a turbulent year for cloud platform acquisitions, with big stack companies attempting to capture more of the BI market.²²

–Matt Turck

Last year saw significant consolidation in the data and analytics space, with large cloud data and application stacks acquiring smaller analytics vendors. The goal for this, presumably, is to get more control over customers and their data and gradually monetize it. Sound familiar? That's because a decade ago, on-premise data and application stacks went on a similar blitz. During that time, R&D efforts were focused on technology integration at the expense of innovation. The good news? That blitz sparked the emergence of a new wave of vendors that could keep their customers' data and analytics independent.

In 2019, we also saw cloud costs ballooning for customers locked into one ecosystem – a tarnish on the cloud's silver lining, so to speak. Perhaps the bigger concern, however, is once customers move their data in, can they move it out? And how much would it cost?

Today, hybrid and multi-cloud platforms are necessary. Data and analytics are the lifeblood of modern-day enterprises and simply too important to belong to just one stack. In fact, most (if not all) organizations have multiple applications and data sources stored in a variety of locations. We've seen this movie before, and we all know how it ends: Companies need independent analytics partners that can connect silos – and help lay data mosaics that foster true business growth.

Our goal: Ushering in change for the better.

In an increasingly fragmented world full of unfathomable amounts of data, analytics will suffer without synthesis.

Organizations and analytics professionals must expand their toolkits with methodologies, people, and technology that support both synthesis *and* analysis. This is especially important when using analytics for strategy and innovation, and for navigating the complex regulatory maze.

When we are able to bring data together and empower people to use it in game-changing ways – laying the data mosaic – we can foster true change in business, for people, and in the world.

Ready to get started?

Qlik® technology is designed from the ground up to empower everyone in your organization, no matter what their skill level, to explore data and make discoveries that lead to transformation. With its end-to-end platform, powerful boosts to data literacy from Augmented Intelligence, and an independent open platform that enables you to embed analytics everywhere, we offer data integration and analytics – to help you get the most possible value out of your data and become a leader in your industry.

[Discover How to Bring Data Together](#)

ABOUT QLIK

Qlik is on a mission to create a data-literate world, where everyone can use data to solve their most challenging problems. Only Qlik’s end-to-end data integration and analytics platform brings together all of an organization’s data from any source, enabling people at any skill level to use their curiosity to uncover new insights. Companies use Qlik to see more deeply into customer behavior, reinvent business processes, discover new revenue streams, and balance risk and reward. Qlik does business in more than 100 countries and serves over 50,000 customers around the world.



¹ Maveric Research, We Analyze Too Much, and Synthesize Too Little, published 26 September 2014, ID G00268130

² IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

³ Gartner Press Release, Gartner Identifies Top 10 Data and Analytics Technology Trends for 2019, 18 February 2019, <https://www.gartner.com/en/newsroom/press-releases/2019-02-18-gartner-identifies-top-10-data-and-analytics-technolo>

⁴ <https://enterprisersproject.com/article/2019/7/kubernetes-statistics-13-compelling>

⁵ DB Engines, <https://db-engines.com/en/ranking>

⁶ Gartner, “Metadata Is the Fish Finder in Data Lakes,” published 3 January 2019; by Guido De Simoni, ID G00373975

⁷ <https://amalgaminsights.com/2019/06/17/the-death-of-big-data-and-the-emergence-of-the-multi-cloud-era/>

⁸ Gartner, “Top 10 Data and Analytics Technology Trends That Will Change Your Business,” by Rita Sallam, Donald Feinberg, et al., published 11 April 2019, ID G00379563

⁹ Panama leak: <https://www.fastcompany.com/3069249/what-icijs-data-and-tech-team-learned-from-the-panama-papers-one-year-later>

¹⁰ Killer in Sweden: <https://www.qlik.com/us/company/press-room/press-releases/0215-qlikview-used-to-track-down-alleged-serial-killer-in-sweden>

¹¹ Bin Laden: <https://www.govtech.com/em/safety/Ex-CIA-Analyst-Data-Osama-bin-Laden.html>

¹² Gartner, “Your Data Culture Is Changing — Do You Need DataOps?” by Nick Heudecker, Ted Friedman, Alan Dayley, published 10 June 2019, ID G00390856

¹³ IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

¹⁴ IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

¹⁵ <https://thedataliteracyproject.org/about>

¹⁶ IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

¹⁷ Gartner, “Predicts 2019: Digital Ethics, Policy and Governance Are Key to Success With Artificial Intelligence,” by Jim Hare, Bart Willemsen, et al., published 7 December 2018, ID G00372865

¹⁸ <https://www.techrepublic.com/article/data-breaches-increased-54-in-2019-so-far/>

¹⁹ IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

²⁰ <https://www.theverge.com/2019/6/5/18653967/amazon-fashion-ai-stylesnap-mobile-app-clothes-search>

²¹ IDC FutureScape: Worldwide Data, Integration, and Analytics 2020 Predictions by Frank Gens, SVP & Chief Analyst, 29 October 2019, Doc # US44802519

²² <https://mattturck.com/data2019/>