Rethinking the Data Age

The Relationship Between Data Management and Emerging Technologies

Rethinking data management for the data age

Digital healthcare. Self-driving vehicles. Banking chatbots. While not all innovation will be as glamorous as an autonomous car, every industry is reimagining what's possible with technology. Customers today are not just demanding smarter products and personalized, in-the-moment experiences—they expect them.

Emerging technologies are enabling organizations to shift from iteration to innovation and create new business and customer value with data. As every organization races to transform, your competitive advantage is determined by how rapidly you can turn data into meaningful insights.

Data is the foundation of an intelligent business. But data, data consumers and the business expectations of data have changed. The shifting realities call for a higher level of data maturity and the right technologies to achieve outcomes.

It's time to rethink and modernize your data management strategy to ensure you're set up to achieve better outcomes with emerging technologies, improve business outcomes and digitally differentiate.

According to the 2020 Dell Technologies Digital Transformation Index[1]:

93% of businesses face entrenched barriers to transformation

89% of businesses recognize the need for a more agile/scalable IT infrastructure

The top three barriers to transformation are data privacy and security concerns, lack of budget and resources, and the inability to extract valuable insights from data/information overload.

Five trends converging in the data era

The digital era is vastly changing the way we live and work. And the pace of transformation is accelerating. Powered by data, emerging technologies are at the heart of all these changes—and, in turn, are placing unprecedented demands on digital leaders.

Emerging technologies: Edge computing, 5G, artificial intelligence (AI) and machine learning (ML) are transforming how data is being collected, processed and used.

For the first time in history, we're meeting the explosion of data with intelligent infrastructure, software and algorithms to rapidly turn it into actionable information.

- Emerging technologies bring more and better data into your organization.
- This data can be used to create new value and drive better user experiences at the edge.
- To produce meaningful insights, the massive quantities of data must be expertly managed, protected and operationalized across the entire lifecycle.

Exponential data growth: Fueled by an abundance of smart devices and IoT sensors, worldwide data creation has been soaring for more than a decade. More data forms—including unstructured and streaming data types—create new value, but organizations are finding it hard to keep up and harness the full value from the data they're collecting.

Decentralized data: The adoption of emerging technologies leads to more distributed locations where data originates. As data's center of gravity rapidly moves toward the edge, data is increasingly being stored, processed and acted on closer to its source.

Rising consumer expectations: Today's consumers are more empowered than ever and are demanding more data-rich, personalized, real-time experiences. In the past, you could take days to come up with new data insights, but today that's far too long.

- The increasing reliance on AI and ML to make real-time decisions in a distributed environment can strain even the most advanced data management strategies.
- Most organizations don't have the IT capabilities to keep up because their data management is fit for an outdated world where insights and outcomes can be delivered in hours or days. That's no longer the case today, where every second counts to derive actionable business intelligence from data.
- To be able to rapidly turn data into insights, organizations must evolve their expectations and data processing capabilities.

Regulatory environment: Cybersecurity threats are more sophisticated, and the number of data breaches is skyrocketing. Consequently, the regulatory environment is evolving, mandating more resilient data security, privacy and governance.

As more data is collected, stored and processed in multiple locations, the attack surface for malicious activity also grows, making compliance with global data laws and regulations more complex. In addition, customers want to do business with organizations they can trust with their data.

These trends underscore the ways data, data users and consumers have changed, and how organizations are adapting to stay relevant. Fueled by the escalating growth of data, emerging technologies are ushering in a new era of innovation, where an organization's competitive advantage is directly determined by how fast data converts into meaningful insights that drive business outcomes and create new value.

Worldwide spending on Internet of Things (IoT) technology will reach **$1.1 trillion in 2023**.[2]

The data volume organizations manage **rose 40%** over the last year.[3]

By 2022, more than **50% of enterprise data will be created and processed outside the data center or cloud**, up from less than 10% in 2019.[4]

What's possible in the new data era

A decade ago, cloud computing was a novel technology. Now the cloud is ubiquitous, and 82 percent of companies use more than one cloud, while 86 percent expect to do so three years from now.[5] Today's emerging technologies will likewise dramatically reshape all industries.

In the data era:

- Connected living will continue to blur the lines between people and machines.
- Our personal and work lives will be enhanced and augmented by new types of devices and interfaces.
- The relationship between human and artificial intelligence will become more symbiotic.

Edge computing transforms how people and machines interact virtually everywhere—and as data management practices continue to evolve, so will the relationship between humans and machines.

From smart cities to networked realities, immersive experiences will define the next decade. And for digital leaders, human-machine relationships will be the new innovation frontier. Maintaining a competitive edge in this new world will be contingent on your ability to quickly turn your data into actionable intelligence.

Overcoming today's limitations

Although the importance of extracting actionable insights from data is clear, organizations often lack confidence in their data veracity.

Most of today's data management strategies are optimized for a workflow that transfers data to a central data center, eventually batch-processing it from databases and data lakes. But this centralized approach to data management no longer reflects the realities of the data era. As a result, most organizations will struggle to deliver on the new expectations of the business.

As the pace of innovation quickens:

The volume and types of data are exploding.

The locations where data is generated are becoming hyper-distributed.

The speed with which data needs to be acted on is time-critical.

One indicator that organizations are wrestling with data management is the proliferation of dormant data—that is, data they collect but don't leverage to drive business outcomes.

It's no longer humanly possible to wrap your arms around all of the data in the world today. Data management challenges are one part of the issue, but you also need to have the best technologies and workloads that are optimized for ML outcomes.

89% of organizations say data management and analytics is one of their **top ten business and IT priorities for the next 24 months**.[6]

Many organizations are drowning in a deluge of data and struggling to:

- Locate all their data that's generated from multiple locations.
- Correlate it across the growing number of sources and silos.
- Rapidly put it into the hands of those who can turn it into business intelligence.

Creating new value: The path to digital leadership

Many organizations have embraced the journey to digital as a business imperative.

An Enterprise Strategy Group (ESG) survey found that 65 percent of organizations have used insights and analytics from their data management practice to make a major strategy adjustment.[6] But in the new data era, simply being digital is no longer a differentiator.

Your forward trajectory is based on your capabilities to efficiently mine, store and manage data properly, so you're armed with more data insights and time to focus on creating new value with your technologies.

To transform what's possible and to enable the outcomes of emerging technologies like edge—and to stay ahead of the pack—digital leaders must employ a holistic, connected data strategy.

In the new data era, **simply being digital** is no longer a differentiator.

By the numbers: The case for data management maturity

ESG research shows a clear correlation between data management maturity and business outcomes. Among the most-mature organizations:[6]

83 percent said their data management practices help improve customer experience.

Data Leaders (most mature) saw 52% more revenue than orgs with novice data management practices.

98% of Data Leaders' data management and analytics practices are effective at driving value.

The survey also found that only 8 percent of the 500 surveyed organizations fell into the most mature category. This indicates that most organizations are still very early in their journey to actualize full value from their data.

Overcoming today's challenges to create tomorrow's opportunities

Fueled by the immense data growth, emerging technologies are sparking a new era of intelligence at scale. These technologies enable troves of data to influence real-time decision making and outcomes—all while generating, combining and leveraging even more data insights for continuous improvement.

There's a symbiotic relationship between the advanced, connected technologies you employ to thrive in the digital economy and the wealth of new data waiting to be uncovered. Likewise, there's a symbiosis between success with edge technologies and data management.

By enabling you to act on data near the source, edge technology can both improve efficiency and allow you to create new experiences. Coupled with AI, the edge will change how machines share and react to data—and this is where you'll find the opportunities to create new value as the world becomes more mobile and connected.

But as more functions take place at the edge, you need to manage data differently and consistently—from the core to across edge and hybrid clouds. That requires changes to your compute, network, storage and application architectures.

Now more than ever, organizations need to rethink data management if they are to become an intelligent business with a leadership position in the data era. At Dell Technologies, we envision a future where you can drastically improve the volume, type and quality of data you ingest, prepare and analyze in a consistent way across edge and hybrid clouds.

Democratizing real-time access to production-ready data sets will unlock the next generation of game-changing use cases that will create new value and differentiate an intelligent business in the data era. Read 'A Guide to Good Data Management' to learn how it all starts with data and what the key considerations are for orchestrating an intelligent data management strategy.

According to the Dell Technologies Digital Transformation Index, **91% of businesses agree that extracting valuable insights from data will be more important for their business than ever before.**[1]

The survey identified data management tools as the second top investment organizations planned for the next one to three years.[1]

Click here to read our guide to good data management strategies.

Click here to learn about data management's impact on leveraging emerging technologies.

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