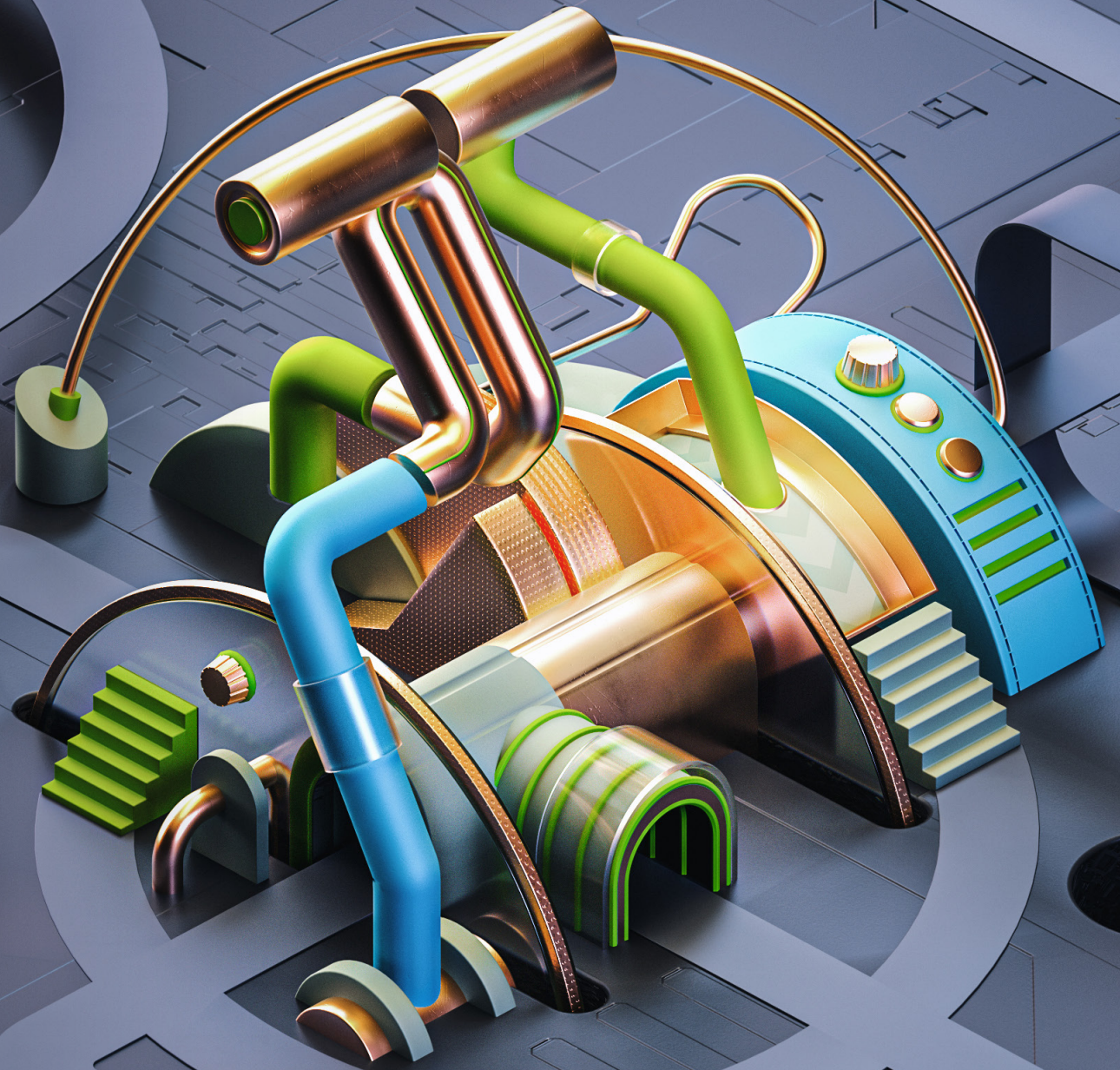


Deloitte.
Insights

Tech Trends 2021





1

2

3

4

5

6

7

8

9

Executive summary

Case studies, insights, and the trends

Strategy, engineered

- Joseph Fuller, Harvard Business School
- Peter Schwartz, Salesforce

Core revival

- Albemarle
- Sogrape
- GM Financial
- Justin Kershaw, Cargill

Supply unchained

- Pactiv Evergreen
- John Tomblin, PhD, Wichita State University

MLOps: Industrialized AI

- National Oceanic and Atmospheric Administration
- Morgan Stanley
- Anthem
- Swami Sivasubramanian, AWS

Machine data revolution: Feeding the machine

- AT&T
- Loblaw
- ABN AMRO
- Lutz Beck, Daimler Trucks North America

Zero trust: Never trust, always verify

- Takeda
- Halliburton
- John Kindervag, Palo Alto Networks

Rebooting the digital workplace

- Thomson Reuters
- Lloyd's of London
- JLL
- Dan Torunian, PayPal

Bespoke for billions: Digital meets physical

- Hans Neubert, Gensler

DEI tech: Tools for equity

- Deloitte US

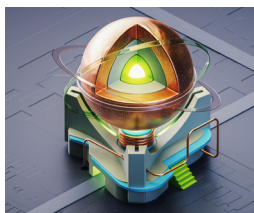
Strategy, engineered



Technology today is a source of new competitive advantage for some organizations and a threat to ongoing survival for others. As a result, the distinction between corporate strategy

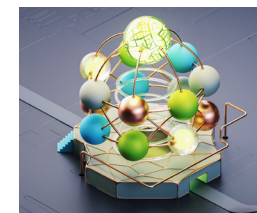
and technology strategy is blurring—each needs to inform the other. Savvy corporate strategists are looking beyond their organization’s current tech capabilities and competitive landscape to consider a broader range of future possibilities about how technology can expand where they play and how they win. But the complex range of uncertainties and possibilities can be too much for the human brain to process on its own. That’s why strategists are turning to strategic technology platforms equipped with advanced analytics, automation, and AI. Organizations are using these tools to continually identify internal and external strategic forces, inform strategic decisions, and monitor outcomes. As a result, companies are transforming strategy development from an infrequent, time-consuming process to one that’s continuous and dynamic, helping strategists think more expansively and creatively about the wide range of future possibilities.

Core revival



Modernizing legacy enterprise systems and migrating them to the cloud may help unleash an organization’s digital potential. Until recently, these undertakings could also bust that same organization’s digital transformation budget. For many, the cost of needed cloud migrations and other core modernization strategies can be prohibitive. This is about to change. In what we recognize as a growing trend, some pioneering companies are beginning to use clever outsourcing arrangements to reengineer traditional business cases for core modernization. Likewise, some are exploring opportunities to shift core assets to increasingly powerful platforms, including low-code options. Finally, many are advancing their platform-first strategies by addressing technical debt in ERP systems and migrating nonessential capabilities to other platforms. In a business climate defined by historic uncertainty, these innovative approaches for extracting more value from legacy core assets may soon become standard components of every CIO’s digital transformation playbook.

Supply unchained



Long considered a cost of doing business, supply chains are moving out of the back office and onto the value-enabling front lines of customer segmentation and product differentiation. Future-focused manufacturers, retailers, distributors, and others are exploring ways to transform the supply chain cost center into a customer-focused driver of value. They are extracting more value from the data they collect, analyze, and share across their supply networks. Finally, some of these organizations are exploring opportunities to use robots, drones, and advanced image recognition to make physical supply chain interactions more efficient, effective, and safe for employees. Granted, transforming established supply chains into resilient, customer-focused supply networks will be a challenge, and for most organizations, it will be an ongoing journey—one of critical importance. The kind of disruption we have seen with the COVID-19 pandemic could well become the norm. When the next global event hits, technology and supply chain leaders won’t be able to claim they didn’t see it coming.

MLOps: Industrialized AI



Sophisticated machine learning models help companies efficiently discover patterns, reveal anomalies, make predictions and decisions, and generate insights—and are increasingly

becoming key drivers of organizational performance. Enterprises are realizing the need to shift from personal heroics to engineered performance to efficiently move ML models from development through to production and management. However, many are hamstrung in their efforts by clunky, brittle development and deployment processes that stifle experimentation and hinder collaboration among product teams, operational staff, and data scientists. As AI and ML mature, a strong dose of engineering and operational discipline can help organizations overcome these obstacles and efficiently scale AI to enable business transformation. To realize the broader, transformative benefits of AI and ML, the era of artisanal AI must give way to one of automated, industrialized insights. Enter MLOps, also known as ML CI/CD, ModelOps, and ML DevOps: the application of DevOps tools and approaches to model development and delivery to industrialize and scale machine learning, from development and deployment to ongoing model maintenance and management.

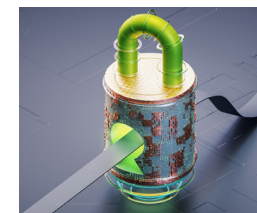
Machine data revolution: Feeding the machine



With machine learning poised to overhaul enterprise operations and decision-making, a growing number of AI pioneers are realizing that legacy data models and infrastructure—all designed

to support decision-making by humans, not machines—could be a roadblock to ML success. In response, these organizations are taking steps to disrupt the data management value chain from end to end. As part of a growing trend, they are deploying new technologies and approaches including advanced data capture and structuring capabilities, analytics to identify connections among random data, and next-generation cloud-based data stores to support complex modeling. Together, these tools and techniques can help organizations turn growing volumes of data into a future-ready foundation for a new era in which machines will not only augment human decision-making but make real-time and at-scale decisions that humans cannot.

Zero trust: Never trust, always verify



Sophisticated cyberattacks and shifting enterprise environments have undermined the traditional—and somewhat flawed—castle-and-moat approach to cybersecurity.

Zero trust is rooted in the concept that modern enterprise environments necessitate a different approach to security: There's no longer a defined perimeter inside which every user, workload, device, and network is inherently trusted. In zero trust architectures, every access request should be validated based on all available data points, including user identity, device, location, and other variables that provide context to each connection and allow more nuanced, risk-based decisions. Data, applications, workloads, and other resources are treated as individual, manageable units to contain breaches, and access is provided based on the principle of least privilege. The automation and engineering required to properly implement zero trust security architectures can help strengthen security posture, simplify security management, improve end-user experience, and enable modern enterprise environments. But the move to zero trust could require significant effort and planning, including addressing foundational cybersecurity issues, automating manual processes, and planning for transformational changes to the security organization, the technology landscape, and the enterprise itself.

Rebooting the digital workplace



As the world's largest unplanned work-from-home experiment continues, many business leaders are asking as yet unanswered questions: When the dust settles, will remote work become the

rule or the exception? Is a permanently remote workforce sustainable? How will productivity and employee well-being be affected? Will innovation suffer in the absence of face-to-face peer connections? What will be the role of the physical office? Companies may be able to overcome the digital workplace's deficits and ambiguities by more intentionally embracing its positive aspects, including the data generated by workers' tools and platforms. This can help organizations optimize individual and team performance and customize the employee experience through personalized recommendations, enabling remote work to be far more than a diminished proxy for the traditional office. And as onsite workspaces and headquarters evolve, organizations can use this data to create thriving, productive, and cost-effective offices that are seamlessly interwoven with the remote experience.

Bespoke for billions: Digital meets physical



When we look back, 2020 will likely be the turning point when most of the population adapted to digital interactions to conduct their everyday lives, whether working from home, online schooling, or

ordering groceries. Yet the prevalence of digital interactions has left many of us pining for the days of in-person interactions. As we look to the future, we expect consumers will no longer be satisfied with distinct physical or digital brand experiences: They will expect a blend of the best of both—highly personalized, in-person experiences without sacrificing the convenience of online transactions. In the next 18 to 24 months, we expect in-person and digital experiences to become more seamless and intertwined. Online and offline interactions will not be separate experiences anymore—the customer's journey will be made up of in-person and digital elements that are integrated and intentionally designed to create a seamless brand experience that's tailored to fit the individual customer's behaviors, attitudes, and preferences.

DEI tech: Tools for equity



Many organizations are embracing diversity, equity, and inclusion as business imperatives, with a growing number adopting holistic, organizationwide workforce strategies that address biases

and inequities to enhance enterprise and employee performance. While HR professionals often lead DEI strategies, technology leaders play a critical role as a strategic partner by designing, developing, and executing tech-enabled solutions to address increasingly complex DEI workforce challenges. Over the coming months, we expect enterprises to adopt new tools that incorporate advanced analytics, automation, and AI, including natural language processing and machine learning, to help inform, deliver, and measure the impact of DEI.

Deloitte.

Insights

Sign up for Deloitte Insights updates at www.deloitte.com/insights.

www.deloitte.com/us/TechTrends



Follow @DeloitteInsight



Follow @DeloitteOnTech

Deloitte Insights contributors

Editorial: Matthew Budman, Blythe Hurley, Abrar Khan, Rupesh Bhat, and Nairita Gangopadhyay

Creative: Alexis Werbeck, Dana Kublin, Tristen Click, and Victoria Lee

Promotion: Hannah Rapp

Cover artwork: Vault49

About Deloitte Insights

Deloitte Insights publishes original articles, reports and periodicals that provide insights for businesses, the public sector and NGOs. Our goal is to draw upon research and experience from throughout our professional services organization, and that of coauthors in academia and business, to advance the conversation on a broad spectrum of topics of interest to executives and government leaders.

Deloitte Insights is an imprint of Deloitte Development LLC.

About this publication

This publication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or its and their affiliates are, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your finances or your business. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

None of Deloitte Touche Tohmatsu Limited, its member firms, or its and their respective affiliates shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee (“DTTL”), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as “Deloitte Global”) does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the “Deloitte” name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.