



Tech Trends 2020

Oil, Gas and Chemicals (OG&C) companies are using technology to survive and thrive

The technologies that enhance our organizations and our lives are more powerful—and more essential—than ever before. At Deloitte, we are acutely aware that OG&C companies are battling a two-pronged crisis: combating demand and price shocks and working through the short- and medium-term impacts of the worldwide pandemic. Forward-thinking OG&C companies are looking for ways to harness technology levers to survive the crisis and position them to thrive when conditions turn favorable.

This OG&C-specific take on Deloitte's *Tech Trends 2020* report, spotlights the technology trends we expect to cause industry disruption over the next 18 to 24 months and explores OG&C companies' readiness to take advantage of them. Leaders should review any gaps to assess where to focus their energies over this time horizon.

From the growing use of digital twins to realizing the power of the Internet of Things (IoT) to the urgency of addressing the ethical issues associated with disruptive technologies, the trends we explore will have profound implications for businesses, stakeholders, governments, and society in the months and years ahead.



Tech Trends 2020

OG&C companies are using technology to survive and thrive

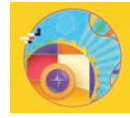
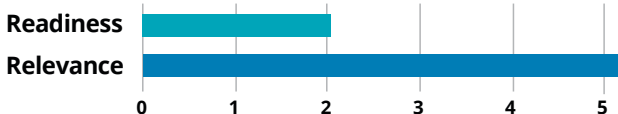


Macro technology forces

For a decade, we've been tracking the emergence and eventual ascent of digital experience, analytics, cloud, digital reality, cognitive, blockchain, the business of IT, risk, and core modernization. To realize the full promise of these macro forces, organizations are exploring how they intersect to create more value, as well as new ways to manage technology and the technology function.

Trends in action

OG&C companies should examine how to combine technology forces to unlock short- and medium-term value. Examples include using reservoir characterization analytics in the hybrid cloud to reduce costs and combining IoT, edge computing, and machine learning to conduct predictive asset analytics, enhance asset reliability, and reduce maintenance costs.

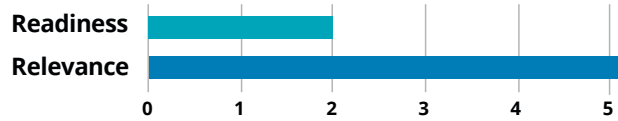


Ethical technology and trust

In a growing trend, leaders are reevaluating how their products, services, and the decisions they make—around managing data, building a partner ecosystem, and training employees, among others—build trust. In this light, trust becomes a 360-degree undertaking to ensure that the many dimensions across an organization's technology, processes, and people are working in concert to maintain the high level of trust expected by their many stakeholders.

Trends in action

Industry organizations have traditionally focused on using technology to strengthen Environment, Health & Safety (EH&S) capabilities and to manage data securely. Emerging trends include using technology to safeguard employee health, assist with emergency preparedness / response, and automate oilfield functions in a responsible manner.



Finance and the future of IT

As technology strategy has increasingly become a core part of business strategy in organizations, IT will need finance's support to effectively rethink governance of technology innovation, adapt to agile methodologies, and secure creative capital. The transition will not happen overnight, but there are strong incentives for both CIOs and CFOs to find ways to effectively fund innovation.

Trends in action

As the cloud becomes more functional and cost-effective, some OG&C companies are embracing the use of "as a service" options to shift CapEx to OpEx and unlock the flexibility of scaling up and down as needed. Others are using Agile development to move from fixed-scope funding toward output- and product-based funding.



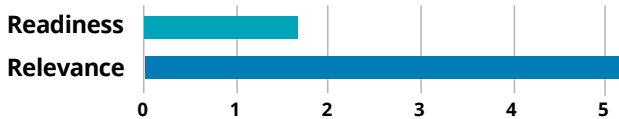


Digital twins: Bridging the physical and digital

Organizations are finding that increasingly sophisticated simulation and modeling capabilities, better interoperability and IoT sensors, and more widely available platforms and tools are making it possible to create simulations more detailed and dynamic than ever. As capabilities grow, expect to see more organizations use digital twins to optimize processes, make data-driven decisions in real time, and design new products, services, and business models.

Trends in action

Digital twins enable operators to optimize end-to-end production from reservoir through processing. Even as industry standards evolve, operators can simulate reservoir activity, construction, turnarounds, and upgrades across the value chain to validate cost/benefit, identify impacts and dependencies, improve planning, and reduce lead/execution time.

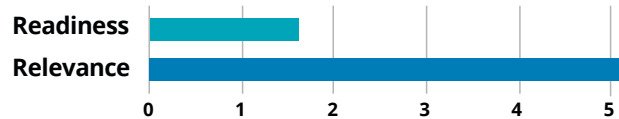


Architecture awakens

To remain competitive in markets being disrupted by technology innovation, organizations will need to evolve their approaches to architecture. A suggested first step is to move the most experienced solution architects into software development teams that are designing complex technology. Investing in and promoting architecture's strategic value enterprise-wide can evolve this function into a competitive differentiator in the digital economy.

Trends in action

Organizations are embedding solution architects within Agile teams to provide real-time, pragmatic, solution-oriented leadership, from ideation through development and deployment. Focus is shifting away from being a gatekeeper (to deployments) toward becoming a true enabler, with greater emphasis on integration, data, and security architectures.

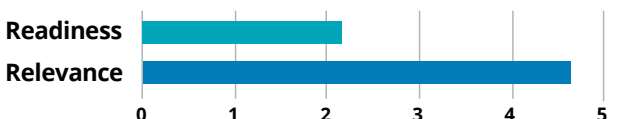


Human experience platforms

A growing class of artificial intelligence (AI)-powered solutions is redefining the way we experience technology and bolstering demand for systems that better understand and appropriately respond to humans. By combining AI, human-centered design techniques, and neurological research, human experience platforms will be able to recognize a user's emotional state and the context behind it, and then respond appropriately.

Trends in action

Companies are equipping their field workers with digital tools to provide real-time support for daily operations, maintenance, and upgrades. For example, augmented reality applications offer context-based instructions and critical data overlaid on physical assets, and the ability to engage with remote experts for live support.



Horizon next: A future look at the trends

There's growing interest in looking beyond *what's new* to *what's next*. Leading organizations take a programmatic approach to sensing, scanning, vetting, experimenting, and incubating future macro technology forces. In a world of seemingly infinite unknowns, it is possible to focus attention on a meaningful collection of known technologies that, taken together, can help chart a path to the next horizon.

Trends in action

OG&C companies are rethinking the future of work and are designing their physical assets and processes for remote and automated operations. Fundamental shifts in where and how work is performed will have impacts beyond plant, equipment, and communications infrastructure, including required employee skill sets and the capabilities of supplier and partner.



Learn more

Follow

 [@DeloitteOnTech](https://twitter.com/DeloitteOnTech)

 [@Deloitte4Energy](https://twitter.com/Deloitte4Energy)

Authors

For questions regarding the *Tech Trends 2020: Oil, Gas and Chemicals perspective*, please contact:

Amy Winsor

Principal

Deloitte Consulting LLP
awinsor@deloitte.com

Nate Clark

Principal

Deloitte Consulting LLP
naclark@deloitte.com

Damon Vaccaro

Principal

Deloitte Consulting LLP
dvaccaro@deloitte.com

Zillah Austin

Principal

Deloitte Consulting LLP
ziaustin@deloitte.com

Brian Miller

Principal

Deloitte Consulting LLP
brianmiller5@deloitte.com

Related reports

Explore Deloitte's other reports

Tech Trends 2020: [Beyond the digital frontier](https://www.deloitte.com/insights/tech-trends)

www.deloitte.com/insights/tech-trends

Bits, Bytes, and Barrels: The digital transformation of oil and gas

www.deloitte.com/us/bits-bytes-barrels

From bytes to barrels: The digital transformation in upstream oil and gas

www.deloitte.com/bytes-to-barrels

Contributors

Shomic Saha

Specialist Leader

Deloitte Consulting LLP
ssaha@deloitte.com

Jay Shannon

Specialist Leader

Deloitte Consulting LLP
jshannon@deloitte.com

Deloitte.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or their related entities (collectively, the "Deloitte Network") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or business, you should consult a qualified professional adviser. No entity in the Deloitte Network shall be responsible for any loss whatsoever sustained by any person who relies on this communication.

About Deloitte

As used in this document, "Deloitte" means Deloitte Consulting LLP, a subsidiary of Deloitte LLP. Please see www.deloitte.com/us/about for a detailed description of our legal structure. Certain services may not be available to attest clients under the rules and regulations of public accounting.

Copyright © 2020 Deloitte Development LLC. All rights reserved.



View the full
Tech Trends 2020
report online

