

Digital Transformation: How Hybrid Cloud and Artificial Intelligence Have Moved From Priority to Essential Seat

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What digital transformations have come to the fore in the last year or two? In this article, the writers argue for the importance of what is known as the Hybrid Cloud, as well as recent innovations in Artificial Intelligence.

In our hyper-connected world, resilience, speed, security and autonomy are daily challenges. A 2020 IBM Institute Business Value [study](#) conducted across 18 industries indicated that tech-savvy organisations survive and outperform competitors in these challenging times. However, the technology mix contributing to their success has changed. Before COVID-19, the revenue impact of Hybrid Cloud and artificial intelligence (AI) trailed behind the Internet of Things, advanced analytics and Robotic Process Automation; however, they are now leading the way in making the greatest difference. [Top-performing organisations](#) are 74% more likely to use Hybrid Cloud to improve the security and resilience of critical business processes, and 6 in 10 have adopted AI for enhancing customer satisfaction and improving customer retention. Once only a general priority, these technologies have now taken an essential seat in organisations' digital transformations.

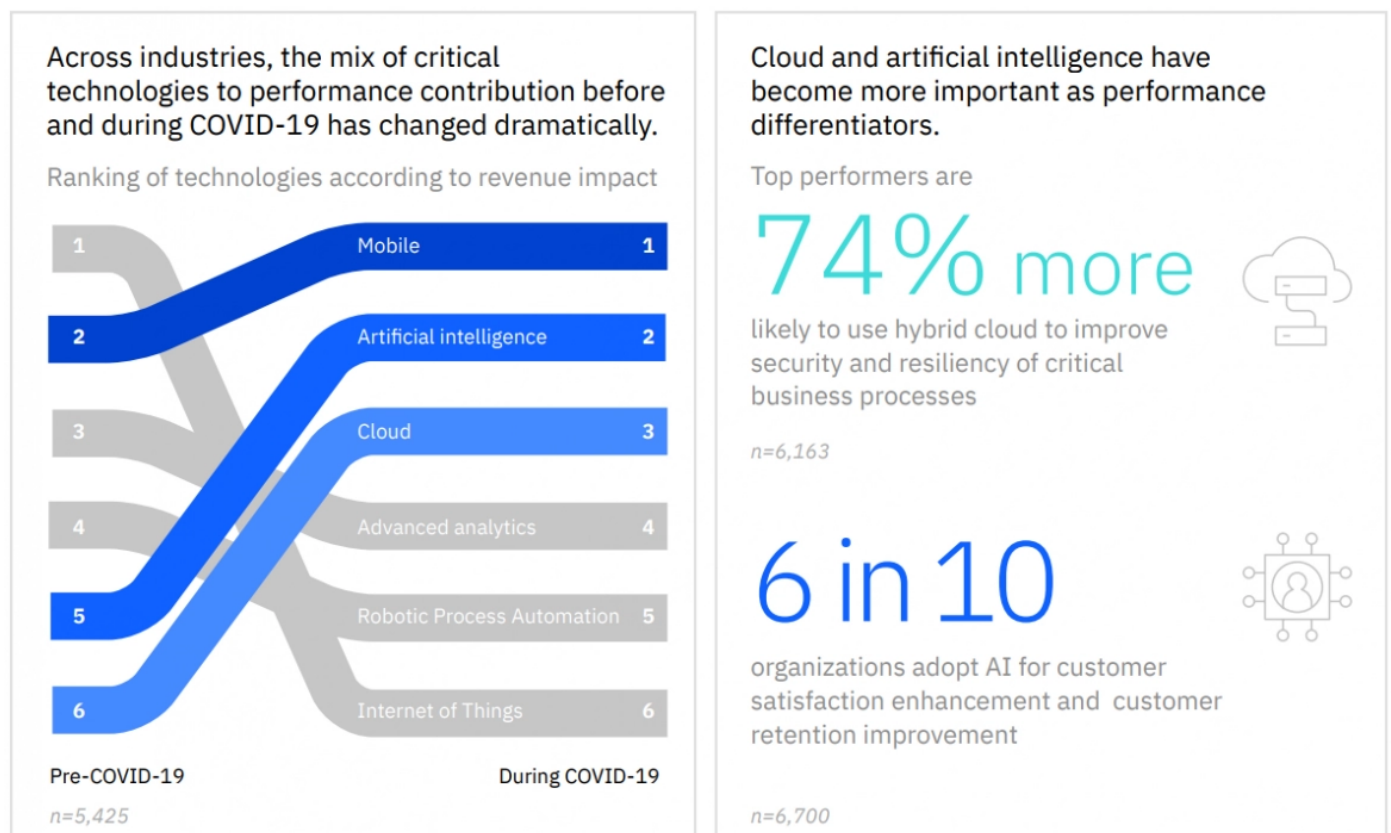


Figure 1: Top technologies driving growth in a time of crisis. Source: [Digital acceleration \(ibm.com\)](https://www.ibm.com/blogs/digital-acceleration/)

What is Hybrid Cloud?

In its simplest form, [Hybrid Cloud](#) enables organisations to work across a mix of public, private and traditional environments as they mix and match their solutions from multi-vendor solution providers to create a unified, automated and well-managed computing environment. Its popularity is increasing because the best of every cloud can be used based on what is needed, resulting in [economics of the cloud](#) that offer improved business performance.

In 2019, 90% of organisations globally were using cloud platforms; by 2023, it is expected that each will be using at least 10 clouds from a growing number of vendors to improve their business performance. In a 2020 study, validated across 30 companies in multiple industries, the business value derived from [Hybrid Cloud](#) was found to be [2.5 times](#) higher than the value derived from a single cloud vendor approach. Since COVID-19, advanced agile companies are using data guided by AI insights on Hybrid Cloud platforms to further leverage their [digital transformations](#).

What is AI?

In computer science terms, [AI is defined](#) as 'any human-like intelligence exhibited by a computer, robot, or other machine'. Nested within AI are [machine learning \(ML\) techniques](#), which are used to improve the accuracy of predictive models. ML enables a system to learn from data rather than through explicit programming; as the ML algorithms ingest training data, it is possible to produce more precise models based on that data. Supervised, unsupervised, reinforcement and deep learning are different ML techniques that may be suitable depending on the business problem at hand and the type and volume of the data. For example, deep learning incorporates neural networks in successive layers to learn from data iteratively and is used in image recognition, speech and computer vision applications. AI systems may comprise anything from an expert system—a problem-solving application that makes decisions based on complex rules of if/then logic—to the fictional Pixar character [Wall-E](#), a computer that develops the intelligence, free will and emotions of a human being.

AI's Move from Priority to Essential Seat

AI provides opportunities to gain, serve and retain customers and improves an organisation's ability to generate and act on critical business insights. In 2018, Forrester, a global market research company specialising in the existing and potential impact of technology, [categorised AI technologies](#) in buckets labelled 'maintain, invest, explore, and divest', highlighting ML data cataloguing, cognitive search and ML platforms as high-value, high-mature application areas to maintain.

Forrester also predicted that the growing trend of 'AI-on-AI' would result in faster and better AI models, exemplified by ML data catalogues that use AI to create a foundational data layer, which can be used as training data for downstream AI systems and automation-focused ML platforms that use AI to automate the typically manual model creation and evaluation processes. Today, [ML-powered catalogues](#) and [AutoAI](#) have proven themselves to deliver business value.

Examples of Artificial Intelligence Applications

In a post-COVID-19 IDC MarketScape study, US media, events and research company, IDC, identified that organisations across various industries are using AI practices as a catalyst for business process disruption, digital transformation and the creation of new economies of scale. Enterprises are embracing ML applications across all lines of business to realise AI and ML on a large scale.

Public healthcare uses of AI include predicting illness and treatment to help physicians and providers intervene earlier, predicting population health risk by identifying patterns and surfacing high-risk markers and model disease progression. One area of application evolved from chatbot engagement with the public using IBM Watson Assistant for Citizens, powered by AI. The [chatbots](#) utilise data from external and local sources to answer common questions regarding COVID-19.

In banking, uses include credit risk, market risk, operational risk and liquidity risk explorations. For example, banks such as [HypoVereinsBank](#) can assess and report on risks and controls more accurately, identify areas for improvement more efficiently and achieve time savings through automation with AI-infused solutions.

In marketing, teams across all industries are turning to AI and ML to engage with hyper-targeted prospects at multiple touchpoints along the sales funnel. Many AI-infused applications are now available on the market, such as [IBM Watson Advertising](#) Predictive Audiences and Conversations Builder.

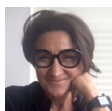
While Hybrid Cloud, data and AI platforms were levers for business growth in pre-COVID projections, their importance has since amplified—embracing them is now essential in powering digital acceleration. Everything is going digital or, at least, combining with digital in the new normal, resulting in the emergence of new challenges to navigate.

Future Challenges: Technical Debt and Ethics

During the pandemic, organisations had no choice but to make tough and quick IT decisions to ensure business continuity, such as enabling remote access to corporate systems to ensure employees could work from home. However, as [Keri Allan from IDG Connect](#) observes, these decisions look set to burden organisations for a number of years with technical debt, a programming concept that reflects the extra development work arising when code that is easy to implement in the short run is used instead of applying the best overall solution. A step-back now needs to be taken in deciding what's good enough to keep, what can be remediated and what needs to be retired or replaced. Going forward, organisations looking to minimise technical debt will need to embark on modernisation initiatives, such as can be offered by [Hybrid Cloud and AI](#).

Building trust-based systems also present a key issue. With AI embedded in everyday life and holding the promise of making organisations more efficient and delivering greater economic value, resources have emerged that aim to increase transparency, embedding ethical principles into AI applications and processes and helping people and organisations adopt AI responsibly. In 2021, the World Economic Forum launched its [Global Action Alliance](#), an initiative to accelerate the adoption of trusted, inclusive and transparent AI. During a [2021 Davos Agenda panel discussion](#) on 'Fostering Responsible AI Leadership', IBM Chairman and CEO and Co-Chair of the Alliance, Arvind Krishna, and President and Trustee of the Patrick J. McGovern Foundation, Vilas Dhar, announced that IBM is open-sourcing its approach to AI ethics and the governance structure it uses to evaluate applications of data and technology. This approach informs the work of [IBM's AI Ethics Board](#), which guides technology decisions across IBM and helps the organisation tackle complicated ethical questions. IBM also provides consulting advice to guide other organisations as they work to implement their own AI ethics initiatives through the Alliance to establish IBM's expertise, structure, workflows and approach to decision-making as the foundation for organisations worldwide.

In these uncertain times, organisations will need to act quickly and take calculated risks to remain ahead in terms of agility, resilience, innovation and security and to tackle the new challenges of technology debt and ethics. As we enter the post-COVID era, investments in Hybrid Cloud and AI are becoming more essential than ever.



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Aliye is a transformational leader with 30+ years of B2B IT experience in engineering, product management and marketing. Demonstrating compelling business results through launching new and existing software solutions to market with core and expanded stakeholders, including client and partner ecosystems, Aliye applies systems thinking, operates as an entrepreneur and follows agile practices. Her focus has been on data and AI to help clients accelerate data-driven business outcomes.



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Diane has over 25 years of experience as a professional marketer contributing to the success of major brands including Bristol-Myers Squibb, Faulding Pharmaceuticals, SOLA Optical and Australia Post. Diane also has entrepreneurial experience building multi-million-dollar businesses and Board experience with not-for-profits. Diane completed her doctoral degree (PhD) in 2007 on the topic of developing a market orientation using an action research approach while working full-time in industry.