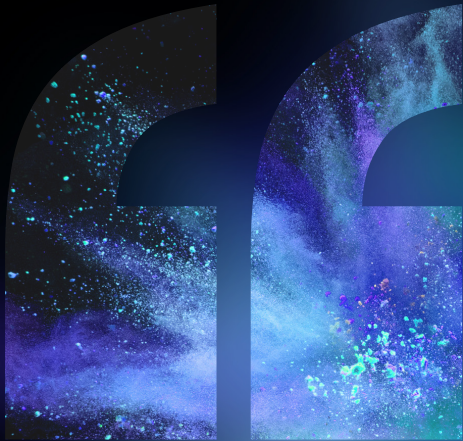
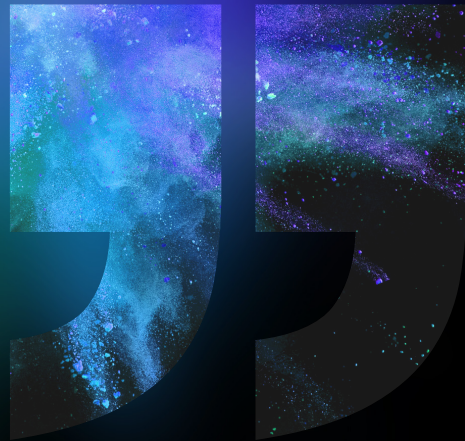


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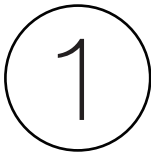


**TECH TRENDS
2022**



— THOUGHT LEADERSHIP

JANUARY 2022



TECH TRENDS 2022

As investment in the tech sector booms and potentially transformative technologies build momentum, responsible business and innovation becomes a focus for companies and regulators alike. We look ahead to five key technology trends to watch in 2022.

All eyes on AI

Machine learning and artificial intelligence (AI), with the capacity to unlock huge volumes of data, are already being used across a wide range of sectors to cut costs, improve performance and create new processes, services and products. In the year ahead, AI will remain a driver for innovation across sectors, from healthcare and pharmaceuticals, to automotive, to insurance and financial services. As the transformative potential of AI-enabled technology is being realised in practice, regulatory scrutiny and consumer concern about the legal, ethical and reputational risks of using AI continue to grow.

What's next?

- **Legislation to address the risks posed by AI:** In 2021, we saw some local or targeted laws passed (for example, New York City's law focusing on AI in recruitment) and a number of guidelines, frameworks and standards to help shepherd the use of AI in certain sectors or jurisdictions. In the year ahead, we expect to see regulation coming to the fore: the European Union's proposed AI regulation is being viewed with interest, given its potential for far-reaching scope and influence; a draft regulation for promotion of the AI industry in the Shenzhen Special Economic Zone may be enacted; and US federal regulation is on the horizon, following the introduction of the Algorithmic Justice and Online Platform Transparency Bill in the Senate in 2021, and a recent announcement by the US Federal Trade Commission. We'll also see further laws targeting specific types of AI-enabled technology, such as autonomous vehicles and facial recognition technology.
- **Responsible AI:** The hidden or unethical use of AI, or failure to tackle the risk of AI bias, could cause severe reputational damage to businesses. Regulatory oversight will also target prudential aspects of "responsible AI" – companies will be expected to have in place documented governance frameworks with clear lines of accountability, robust development, testing and monitoring processes throughout the AI life cycle, and those with oversight responsibilities will be required to have the right expertise. Businesses will also need to understand their reliance on any third-party AI.
- **Litigation risk:** We have already seen court cases on AI explainability brought under data protection laws, and data protection authorities taking action on AI-based facial recognition technology. As legal requirements relating to AI expand and AI use becomes more widespread and potentially more independent of human involvement, questions arise as to development and use standards, liability, rights and ownership in potential copyright works and patentable inventions. IP and commercial disputes relating to AI can be expected in the coming year.

For more, read our briefings: The new EU regulation on artificial intelligence, The Future of AI Regulation in Europe and its Global Impact, Safeguarding the use of AI in the Insurance sector, All Eyes on AI – Australian Government Launches Australia's First AI Action Plan, The Italian courts lead the way on explainable AI and our report in conjunction with Milltown Partners Our Relationship with AI: Friend or Foe?



Quantum leap

Thanks to a global wave of private and public funding, quantum computing has moved from an R&D niche to a computing revolution. With significant advances in hardware, algorithms, fault tolerance and error-correction in the past decade, we are now beginning to see a developing ecosystem and value chain. Using quantum computing to complement and leverage existing technology, such as AI, cloud platforms and classical computing, we could begin to see "quantum advantage" in a range of business use cases and solutions to high-impact problems that are currently intractable. Those monitoring the progress of quantum computing technology are anticipating advances in drug discovery, chemistry and finance.

What's next?

- **Cyber security:** Quantum computing has the potential to break much of today's cryptography, which is used for secure communications, financial payments, data protection, identity authentication and cryptocurrencies. While it may be some time before quantum computing has a practical impact on the effectiveness of our current cryptography, information that is encrypted now could be vulnerable in the future. Many organisations will be considering moving now to post-quantum encryption methods and upgrades to IT infrastructure.
- **Regulatory considerations:** Given quantum computing's national security implications, the technology is already subject to export restrictions, notification requirements and foreign investment controls in a range of jurisdictions. We can expect further legislation as governments protect their national security interests and pursue policies of 'technological sovereignty' and, in time, requirements around governance, oversight, transparency and equitable access. Controls will be particularly important for decision making that incorporates quantum-facilitated AI, where explainability and liability can become complex.
- **On the board's agenda:** Across a range of sectors, many CEOs and CIOs will be allocating resources to start planning for quantum technology. Businesses will begin exploring partnerships with quantum hardware and software developers as well as academic institutions to help anticipate the need for quantum computing talent. The quantum computing sector itself will see increased investment and M&A activity and more SPACs listings as the beginnings of commercial traction are on the horizon for what was once a theoretical technology.

For more, read our briefings: [Successfully Navigating 'Tech Sovereignty' and National Security: Expansion in Foreign Investment and M&A Controls, A Quantum Leap: Recent Quantum Computing M&A and IPOs, Regulatory Responses and Preparing for a Paradigm Shift, Quantum: Emerging technologies and the rule of law](#) and [The National Security and Investment Act 2021](#).

Into the metaverse

The metaverse is being hailed as the next generation of digital interaction and e-commerce. Last year, we saw novel commercial forays into the existing virtual worlds that are already a second home for much of Gen Z. The year ahead will see businesses exploring how to build, operate in and expand metaverse microcosms as they anticipate a future where a significant consumer population has digital identities beyond games and virtual hangouts. This will also mean that 2022 will see us start to explore how our laws may apply, be enforced, and evolve, in the metaverse.

What's next?

- **The "direct-to-avatar" economy:** As well as augmenting existing business models, the metaverse will provide entirely new markets. Companies will be anticipating an expansion in the provision of virtual services via a customer's online presence (such as online meetings, medical appointments, concerts and exercise classes) as well as exploring the provision of virtual goods to the avatars themselves. We expect to see an increase in companies partnering with digital platforms to sell



digital assets ranging from designer clothes to virtual real estate. Ahead of this, brand owners will be giving careful consideration to how to exploit and protect their intellectual property. With aspects of the building of the metaverse being based on new technology (including the application of AI), the question of potential patent protection and freedom to operate will also be important to consider.

- **Fintech meets Web 3.0 and the metaverse:** The year ahead will see experimentation with technologies that could impact the development of the internet and the metaverse. Distributed ledger technology (DLT), which has underpinned a booming cryptoasset industry, may provide the building blocks for a decentralised Web 3.0 and decentralised autonomous organisations (DAOs), which will shape ownership, control and commerce. Non-fungible tokens (NFTs), currently prominent in the arts and entertainment industries, could go on to facilitate trade and investment in virtual goods, alongside cryptocurrencies that are becoming ever more mainstream.
- **Making connections:** Technology such as 3-D scanning sensors, augmented reality glasses and audio equipment will proliferate, allowing for ever more immersive interaction. Improvements in the Internet of Things (IoT) and 5G technology will speed up data transfer, expanding possibilities for the use of virtual and augmented reality at scale. Companies will also begin to explore how to take robotics to the next level through the metaverse – for example, immersive environments could enable the performance of maintenance on off-shore wind farms or the carrying out of high-precision surgery through robot avatars, regardless of the real-world location of human expertise.
- **Real-world law in a virtual reality:** From employee monitoring to consumer analytics, the metaverse and metaverse-like microcosms represent potentially vast sources of data, some types of which will not have been meaningfully collected before. Data security, privacy, employment and consumer protection law considerations will be high on the list of considerations for companies wishing to tap into user data, be they consumers or workers, particularly as data protection enjoys increasing regulatory attention globally. More broadly, businesses will need to keep everything from antitrust laws, to payments regulations to tax implications in mind when expanding into the metaverse and interacting with the increasing number of firms seeking to collaborate in, and capitalise on, the development of virtual and augmented realities.

For more, read our briefings: [Co-Branding Partnerships In The Physical And Digital Worlds – A Masterclass From Balenciaga And Fortnite](#), [Non-Fungible Tokens: The Global Legal Impact, Fintech Trends 2022](#) or watch our international expert panel discussion on [NFT – The Rise of the Non-Fungible Token](#).



Responsible tech

Political, regulatory and consumer demand for ethical business practices and responsible innovation is greater than ever. In 2021, we saw rapid development in ESG reporting and disclosures, and significant ESG investment. In 2022, we will see companies and governments using data and technology to advance their ESG objectives and digital ethics becoming ever more central to product and process design.

What's next?

- **Digital ethics:** In an increasingly digital world, businesses are navigating how best to embed ethical principles into their processes, products and services. Principles such as fairness, transparency, accountability, access and explainability will remain a focus in data protection and cyber security – as priority areas for targeted laws and guidance (such as codes for processing children's data or laws on use of facial recognition technology), as well as active areas of regulatory enforcement and civil litigation. These principles will be expanded upon in emerging regulation in areas such as online harms, AI and responsible supply chains. Technology developers and

providers will increasingly be expected to be mindful of, and reactive to, end-user interactions, misuse and societal impact – particularly addressing circumstances that could undermine human rights, promote disinformation or facilitate or incite illegal or harmful behaviour. The increasing number and tightening of rules on ethical sourcing will see companies examining supply chain visibility and management in relation to a broad range of matters – from raw materials purchasing, to carbon footprint, to responsible labour practices – both as purchasers and, often, as suppliers themselves. The combination of regulatory pressure, litigation risk and public awareness will make ethical considerations key in tech design, due diligence, governance processes and data use in 2022.

- **Climate tech:** COP26 commitments, public funding and heightened investor attention in ESG initiatives will drive innovation in climate tech in 2022. We'll see the rise of "electrification bundles", which will facilitate the adoption of more sustainability-focused technology for the home, such as rooftop solar, heat pumps and smart power devices. In the automotive industry, more battery-electric vehicles and other alternative engines will be put on the market, with new technologies increasing the range and efficiency of batteries and shortening charging times, and tech solutions for after-life-uses and the recycling of batteries will become ever more important. Carbon capture technology, long-duration storage, agri-tech in farming, circular economy tech and green proptech are all areas to watch. Climate tech companies in these fields and beyond, with their increasing moats in talent pools and intellectual property, strong market currency and growing financing options, will be a focus for M&A activity in the year, and the decade, ahead – with potentially world-changing results.
- **Infratech:** 2022 will be a game changer for reimagining how the energy transition can be achieved through the integration of technology with infrastructure. The resilience of critical infrastructure is a priority for governments across the world as they look to "build back better" from the global pandemic and prepare strategies to achieve their climate targets. Integration of technologies such as smart wires, long-duration storage and even blockchain and other DLTs with infrastructure will be key to the delivery of sustainable infrastructure for a low-carbon future. Across the energy sector, developers will seek to leverage technology to help decentralise energy distribution, create more efficient energy networks and provide demand response services linked to electricity usage and supply forecasting. To facilitate the integration of technology with infrastructure, we will see continued investment in autonomous vehicles, data centres and technologies like 5G and the Cloud, which has become an integral part of IT systems worldwide.
- **Sustainable finance:** Sustainable finance will continue to surge in 2022, and technology companies will step in to help with the harnessing of ESG data and to unlock potential sources of liquidity. Reporting and disclosure requirements are driving increasing volumes of ESG data publishing and measurement. With "greenwashing" remaining high on regulators' agendas, accurate, ingestible ESG data will be crucial to both bond issuers and investors alike. Platforms using technology such as scraping and machine learning to assist with the extraction, collation and analysis of ESG data will be in high demand. We may also see an increased use of asset tokenisation (the conversion of hard infrastructure assets such as buildings or power stations into digital assets through the use of DLT-based tokens), which has the potential to unlock new sources of finance, particularly for projects in the developing world.

For more, read our briefings: [Business and Human Rights: Navigating a Changing Legal Landscape](#), [Testing the US Trafficking Victims Protection Act: Doe v. Apple](#), [EU Taxonomy efforts continue](#), [How data and DLT can accelerate sustainable finance](#), [The impact of ESG on emerging DLT](#), [Big data ethics – charting a course through your data lake](#), and [Italy's first greenwashing case between corporates](#).

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Digital risk and regulation

Access to data and certain technologies is crucial to innovation and everyday operations, so businesses' investment in technology and tech talent will continue, while regulators will be seeking to address risks arising from the growing importance and market power of "Big Data" and "Big Tech".

What's next?

- **Data protection and cyber security:** For many companies, personal data has become one of their greatest assets and one of their biggest potential liabilities. In 2022, data-related enforcement will remain a key risk as data protection and cyber security laws will be more assertively enforced, particularly for egregious breaches of these laws. In the civil courts, judges will continue to scrutinise claims where data subjects have not suffered material harm. Standalone litigation related to more serious data breaches will continue to be a focus for claimant firms and third party funders. We will see a growing number of privacy and cyber security laws coming into force, with India's Personal Data Protection Act, the EU's Cyber Resilience Act, updates to the EU's Network and Information Security Directive and various US state laws among the expected new cohort, as well as possible amendments to the UK's data protection legislative framework post-Brexit. We will also see guidance and implementing regulations being issued which will further develop the application of existing laws, including China's Personal Information Protection Law, Cybersecurity Law and Data Security Law, the United Arab Emirates' Federal Data Protection Law and Saudi Arabia's Personal Data Protection Law. In the year ahead, companies managing increasingly complex and fragmented data protection compliance programmes will be paying particular attention to developments in international data transfer, sensitive data processing, targeted advertising, data monetisation, self-sovereign identity, IoT and ransomware attack response, as market practice evolves following developments in regulations, guidance and case law in these areas. With data matters often also engaging wider issues, such as risk control and operational resilience, the trend of multiple regulators investigating breaches will continue, prompting many companies to refine their breach response and regulatory interaction strategies, particularly where they have sectoral regulators.
- **The digital playing field:** We will see the introduction of further regulation designed to protect consumers, promote data sharing, safeguard competition and manage the digital playing field, including the EU's suite of "digital" laws (the Digital Markets Act, the Digital Services Act, the Data Governance Act and the Data Act). With China's State Administration for Market Regulation signalling tighter competition law enforcement and the Biden administration making assertive antitrust enforcement a US priority, "Big Tech" will be navigating new rules and approaches in 2022. More broadly, as countries around the world propose reforms that see competition, privacy and consumer protection laws converge, multinationals across sectors face increasing complexity in their legal compliance, data governance and regulatory interaction strategies.
- **Fourth-party Risk:** All companies outsource some of their operations – typically "rightsourcing" services and solutions – by selecting from, or mixing, platform-as-a-service, multi-sourcing, shared services and low-code/no-code solutions, as appropriate. These vendors will often engage their own suppliers – fourth-party vendors – over which the ultimate customer may have limited visibility, control or recourse. Reliance on increasingly complex technology (such as AI), wide-spread use of platform and cloud-based infrastructure, and ever increasing regulatory focus on cyber security, supply chain governance and digital operational resilience, will make the "fourth-party risk" introduced through the extended vendor ecosystem an area of focus for many companies in 2022.

For more, read our briefings: [Ransomware: Prevention & Response](#), [China's financial markets: trends to watch in 2022](#), [PRC passes milestone legislation for personal information protection](#), [PRC data security law – a new milestone in data legislation](#), [Lloyd v Google: How the supreme court judgment closed the door on Lloyd's £3.3bn data claim](#), [EU Digital Services Act and Digital Markets Act: What are the implications?](#), [Digital Markets Act: EU regulation of online gatekeepers remains on track for adoption in first half of 2022](#), and [Japan's Act on Improving Transparency and Fairness of Specified Digital Platforms](#).



CONTACTS

US



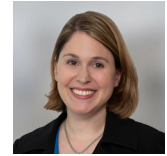
Neil Barlow
Partner
New York
T: +1 212 878 4912
E: neil.barlow@cliffordchance.com



Daryl Fairbairn
Counsel
New York
T: +1 212 878 4960
E: daryl.fairbairn@cliffordchance.com



Steven Gatti
Partner
Washington D.C.
T: +1 202 912 5095
E: steven.gatti@cliffordchance.com



Megan Gordon
Partner
Washington D.C.
T: +1 202 912 5021
E: megan.gordon@cliffordchance.com



Peter Mucchetti
Partner
Washington D.C.
T: +1 202 912 5053
E: peter.mucchetti@cliffordchance.com



Sharis Pozen
Partner
Washington D.C.
T: +1 202 912 5226
E: sharis.pozen@cliffordchance.com



Benjamin Sibbett
Partner
New York
T: +1 212 878 8491
E: benjamin.sibbett@cliffordchance.com



Daniel Silver
Partner
New York
T: +1 212 878 4919
E: daniel.silver@cliffordchance.com

EUROPE



André Duminy
Partner
London
T: +44 207006 8121
E: andre.duminy@cliffordchance.com



Rita Flakoll
Senior Associate
Knowledge Lawyer
London
T: +44 207006 1826
E: rita.flakoll@cliffordchance.com



Chris Grey
Senior Associate
London
T: +44 207006 4984
E: chris.grey@cliffordchance.com



Nelson Jung
Partner
London
T: +44 207006 6675
E: nelson.jung@cliffordchance.com



Jonathan Kewley
Partner
London
T: +44 207006 3629
E: jonathan.kewley@cliffordchance.com



Richard Kim
Senior Associate
Düsseldorf
T: +49 211 4355 5816
E: richard.kim@cliffordchance.com



Jennifer Mbaluto
Partner
London
T: +44 207006 2932
E: jennifer.mbaluto@cliffordchance.com



Claudia Milbradt
Partner
Düsseldorf
T: +49 211 4355 5962
E: claudia.milbradt@cliffordchance.com



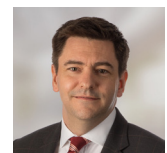
Dieter Paemen
Partner
Brussels
T: +32 2 533 5012
E: dieter.paemen@cliffordchance.com



Simon Persoff
Partner
London
T: +44 207006 3060
E: simon.persoff@cliffordchance.com



Ashley Prebble
Partner
London
T: +44 207006 3058
E: ashley.prebble@cliffordchance.com



Stephen Reese
Partner
London
T: +44 207006 2810
E: stephen.reese@cliffordchance.com



Gunnar Sachs
Partner
Düsseldorf
T: +49 211 4355 5460
E: gunnar.sachs@cliffordchance.com



Dessislava Savova
Partner
Paris
T: +33 1 4405 5483
E: dessislava.savova@cliffordchance.com



Kate Scott
Partner
London
T: +44 207006 4442
E: kate.scott@cliffordchance.com



Matt Taylor
Partner
London
T: +44 207006 2076
E: matt.taylor@cliffordchance.com



Jaap Tempelman
Senior counsel and
co-head of Tech Group
Amsterdam
T: +31 20 711 9192
E: jaap.tempelman@cliffordchance.com



Andrea Tuninetti Ferrari
Lawyer - Counsel
Milan
T: +39 02 8063 4435
E: andrea.tuninettiferrari@cliffordchance.com



Thomas Vinje
Partner, Chairman,
Global Antitrust Group
Brussels
T: +32 2 533 5929
E: thomas.vinje@cliffordchance.com



Thomas Volland
Partner
Düsseldorf
T: +49 211 4355 5642
E: thomas.volland@cliffordchance.com

MIDDLE EAST



Samantha Ward
Partner
London
T: +44 207006 8546
E: samantha.ward@cliffordchance.com



Jack Hardman
Counsel
Dubai
T: +971 4503 2712
E: jack.hardman@cliffordchance.com



Arun Visweswaran
Senior Associate
Dubai
T: +971 4503 2748
E: arun.visweswaran@cliffordchance.com



Yong Bai
Partner
Beijing
T: +86 10 6535 2286
E: yong.bai@cliffordchance.com

APAC



Angelina Gomez
Counsel
Perth
T: +61 8 9262 5521
E: angelina.gomez@cliffordchance.com



Brian Harley
Consultant
Hong Kong
T: +852 2826 2412
E: brian.harley@cliffordchance.com



Ling Ho
Partner
Hong Kong
T: +852 2826 3479
E: ling.ho@cliffordchance.com



Nadia Kalic
Partner
Sydney
T: +61 2 8922 8095
E: nadia.kalic@cliffordchance.com



Paul Landless
Partner
Singapore
T: +65 6410 2235
E: paul.landless@cliffordchance.com



Kimi Liu
Counsel
Beijing
T: +86 10 6535 2263
E: kimi.liu@cliffordchance.com



Natsuko Sugihara
Partner
Tokyo
T: +81 3 6632 6681
E: natsuko.sugihara@cliffordchance.com



Sharon Zhang
Registered Foreign
Lawyer
Hong Kong
E: sharon.zhang@cliffordchance.com

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