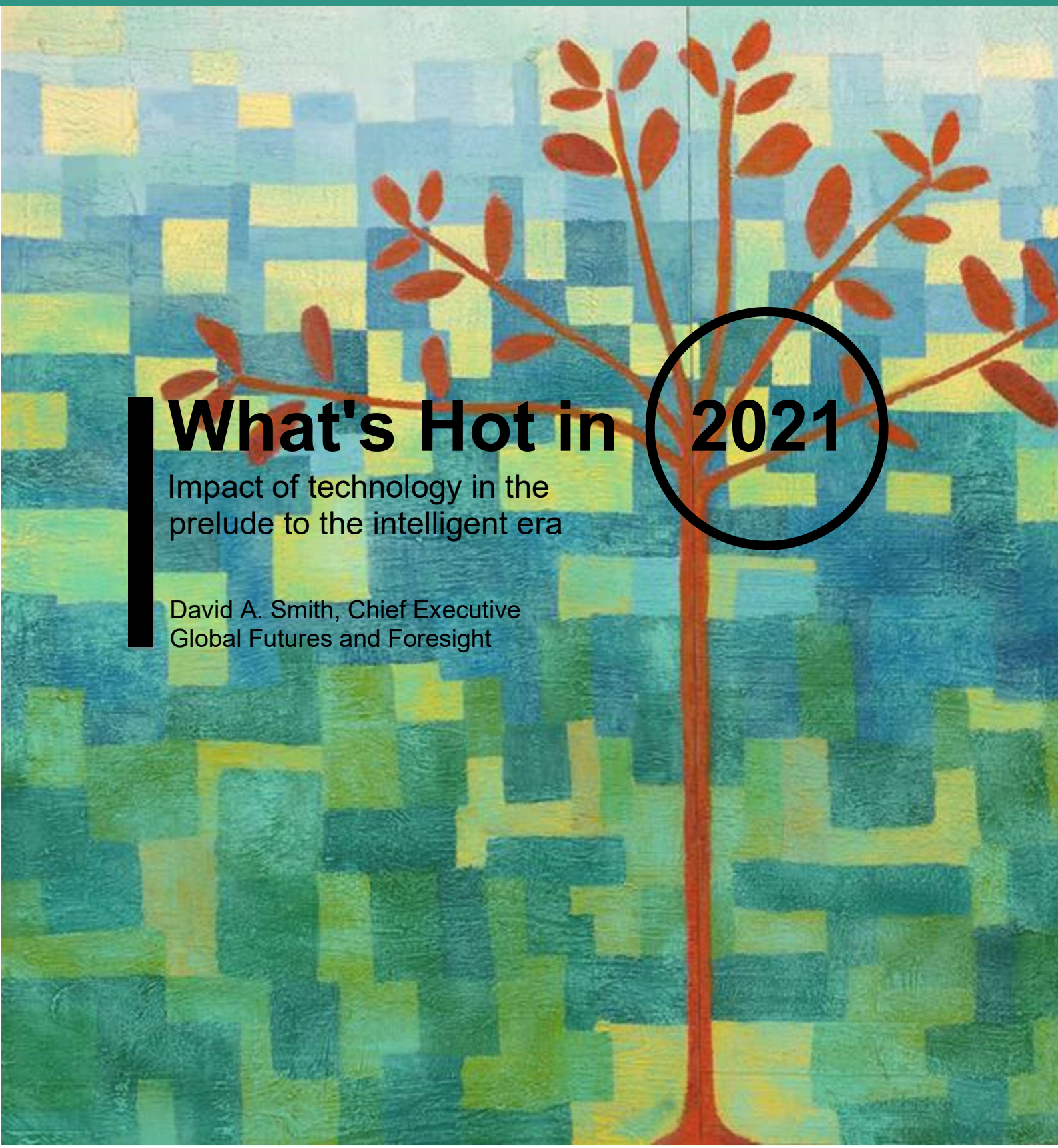

What's Hot in 2021

Impact of technology in the prelude to the intelligent era

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What's Hot in 2021

A prelude to the 'Intelligent Era'

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Introduction

2020 was a watershed year for technology and our use of it. Not only did forms of machine learning, biotech, advanced data analysis and gene editing help us develop an effective vaccine in record-time, but our economy – although badly damaged – did not collapse the way it may have done had the pandemic struck two or three decades earlier. For enabling many sectors to continue relatively smoothly, remote and distributed communication tools might be considered as heroes of the pandemic. This progress comes with something of a price for many incumbents, however: now that the genie of distributed everything is out of the bottle, there is no going back. Tech may well be the hero of 2020, but if the necessary organisational, societal and business changes do not accompany it, 2021 could well see it become the villain for many societal stakeholders. Few organisations, understandably focused on surviving 2020, have a handle on what this will mean operationally and organisationally in the coming years.

While the digital era saw an initiation of tech-related change for consumers, businesses and societies more generally, the weight of the combined economic, social and political change that the pandemic compels could define the start of an era of continuous, rapid change for organisations. There can be little doubt that some organisations will reverse the often hurried digital transformations on the pandemic era, nor that some will assume their moves to-date equate a successful corporate transformation. Those hoping that imminent mass-vaccination will help facilitate a return to late 2019 ways of doing things are in for a severe shock. Not only does an insignificant part of the UK population – just 6 percent – want such a return[i], but '...we've seen different versions of the future that are now possible, that weren't really on people's radars before[ii].' As a result, the dangers of doing nothing – or of assuming that transformation is complete - are now greater than the risks inherent in change.

Technology was already pushing mass markets and production to become more personalised and distributed[iii], and this has been accelerated by the pandemic. The accelerating tech proposition has reportedly sped up digital transformation by 5.3 years[iv]. As evidenced by zoom fatigue, our cultural and organisations structures have not yet caught up, creating a dangerous gap that many organisations need to address. This speeding up also compresses the three horizons model of tech emergence, with one critical impact being that '...no single technology trend will change the world on its own. Rather, it is the combined effects of multiple technological forces that make exponential innovation possible[v].'

The pandemic has shown us in myriad ways, that technology is no longer about doing things differently or digitalising existing processes, but about doing different things. Those that do not internalise what this means for their industry and organisation will likely stagnate or worse in the coming year. For those with the foresight to spot key consumer trends, align technologies to core strategies and create new value for customers, 2021 could be the start of a period of innovative breakthroughs that change the way we do business, even what it is we do.

1. The Condensed Tech Horizon

The pandemic has accelerated shifts in tech adoption and organisational change, with leaders needing to move from linear to parallel thinking and ultimately network thinking. No one single technology will prove decisive in the future, rather the confluence of multiple technologies will enable rapid disruption in a range of sectors from health to education and insurance to manufacturing. Furthermore, this change is imminent; machine-to-machine connections are expected to account for 51 percent of global devices and connections in 2021[vi], necessitating consideration of the cloud, edge computing and machine learning, for example. Every second, there are 127 IoT devices that are getting connected to the internet[vii].

With digital transformation accelerated by 5.3 years[viii] thanks to the pandemic, leaders are starting to realise the core proposition of technology as a change catalyst and the necessity of evolving from disconnected tech applications towards a systemic approach[ix]. With this acceleration, technologies previously on the third or second horizon have now been brought forwards.

What does it mean?

- Look into how a range of emerging technologies could shift not just how you do things, but what it is at the core that you do. The IoT, quantum computing, blockchain, CRISPR and more will start to compel new business models and the need to explore them now.
- Technologies erase, or at least weaken, many industry boundaries. New partners, new technologies and new opportunities can come from unexpected places as shown with the input of big tobacco companies into the search for viable COVID vaccines.
- Ambient connectivity and intelligence will create surroundings that ‘react to our voices, gestures, and presence -responding automatically, proactively, almost intuitively[x].'
- Soon, every organisation will be an IoT organisation. Shortly after, we may say the same of quantum computing.

What to do about it?

- Build futures inspired practices into our management and processes, such as horizon scanning, scenario planning and three horizons. Prepare plans for any technology plausibly emerging in the next five years,
- Align our use of technology with our overall strategy.
- Can we build a tech-ready culture?
- Look to overcome legacy technology, legacy mindset and skills, and dangerously fragmented data.
- Ask where we source our new talent from. Does our working environment lend itself to digital talent?
- Take an ecosystem approach to strategic tech. Currently, for example, organisations only protect 60 percent of their business ecosystem with regards to cybersecurity[xi].

2. Digital Maturity

The forced transformations of 2020 remain incomplete. While technological adoption, work from home and other facets have largely been implemented, their long-term success is yet to be determined or guaranteed. Implicit in the organisational flux our structures are undergoing is the need for new metrics capable of measuring what we actually do, and a notion that culture among management and leadership needs to evolve. 73 percent of business leaders cite company culture as the single most important contributor to corporate success[xii].

Leaders have to deal with change marked by at least three dimensions[xiii]. It's perpetual, pervasive and exponential and although marked by technology, not defined by it. If nothing else this should shift leadership concepts of change away from 'a project to be completed,' and towards 'constant evolution.'

What does it mean?

- In a world that senses everyone and everything all the time, we will need new ways of thinking about how to succeed in the market. The way we think of competitive advantage will change, ushering in a new era of real time business[xiv].
- New leadership, organisational structures and training for upskilling will be required. Only 24 percent of leaders believe that their organisation is capable of fully leveraging the potential of analytics transformation and only 17 percent for automation, robotics or artificial intelligence[xv].
- IT resiliency is a key goal. For example, 90 percent of businesses do not consider themselves as IT resilient[xvi], even though by 2022, some 80 percent of revenue growth will likely depend on digital offerings[xvii].
- We are moving from doing things differently to doing different things.
- Enabled by tech, companies from Yahoo to AIA (China Group)) are giving up on their main markets and creating/exploring new ones. Driven by data and real-time insight and decision making, this is the second wave of digital and the prelude to the intelligent era.
- Those that build the tech and talent networks for the future could experience a post-pandemic surge. Those that don't will likely perish.

What to do about it?

- The role of IT will need to change accordingly. IT could cease to be a standalone functional organisation, but is perhaps equally unlikely to become a fully decentralised competency that feeds tools, expertise, capabilities into the wider organisation.
- Unless '…executives are proactive in shaping and measuring culture, approaching it with the same rigor and discipline with which they tackle operational transformations[xviii],' it is almost impossible to see how any corporate culture survives almost constant disruption brought about by this exponential era.

3. Social Becomes Responsible

In December 2020, European Union and British authorities released draft laws designed to halt the spread of harmful content and improve competition within big tech companies[xix]. Signs are that this trend could both deepen and spread globally. In the United States, 56 percent think the government should break up tech companies if they control too much of the economy and72 percent believe Facebook has too much power[xx]. Other research suggested 85 percent of the public believe big tech companies have too much power[xxi].

If public opinion flows into legislation – which may prove especially tempting for politicians in an age of multiple chronic issues, then social media and big tech more widely, become transformed. However, politically directed change is not the only lever that could force paradigm change in big tech and social media behaviour.

What does it mean?

- The WHO has coined the term 'infodemic' to describe the epidemic of false information, often via social media. However, '...a scenario in which no one believes anything is detrimental to the very nature of social media[xxii].' Forms of self-regulation are likely.
- Four key trends suggest that the wider environment that nurtured and strengthened Facebook, Amazon, Google, Apple, and Microsoft might not exist for much longer.
    - The micro-targeted advertising model will weaken with the end of cookies.
    - More rights for gig workers are possible while zero hours contracts have become deeply unpopular with the wider public
    - Direct to consumer models and subscription models will lead to winners and failures among incumbents.
    - Conscious capitalism and data privacy laws will impact current models
- The sphere of responsibility of big social media companies will likely widen. Issues directly flowing from social media use, such as suicide or mental health, will increasingly see consumer push back against platforms.
- Trust will need to be nurtured.

What to do about it?

- Social companies need to build social responsibility, demonstrate ESG and build engagement.
- A new social contract may be needed, perhaps relating to consumer data and its monetisation.
- Organisations that rely or heavily use social media should review content from a risk management perspective, as well as possibly collaborate on building ‘trust’ platforms.
- The potential boycotting of platforms unwilling to undertake fundamental reform will require organisations to build contingency plans.

4. Taxing and Regulating the Virtual Economy

Taxation is likely to become a very public issue in 2021, as desperate governments look for additional revenue from sources that do not inflame public anger. Big tech and companies based abroad are an easy target in terms of public support, but may prove difficult in terms of practicality. Digital Services Taxation (DST) is already being pursued by the UK as a way of funding pandemic response stimulus, with estimates that its DST will raise £70 million in 2019-2020, rising to £515 million in 2024-2025[xxiii], although a global solution on digital taxation could be reached by the middle of 2021 according to the OECD – potentially changing this calculus. Yet the growth of virtuality may give rise to the growth of virtual tax avoidance, perhaps through the greater use of remote/cross-border digital talent for example.

What does it mean?

- More digital nationalism is likely in 2021. California based Facebook's largest market is India – with some 270 million users. 'Who should get the tax revenues resulting from those users' data and activities? California? India? A third party that just happens to have low tax rates? There are sound arguments to be made that India should be able to tax profits a distant corporate entity earns from the value created by Indian citizens[xxiv].'
- Regulation may help, not hinder some aspects of digitalism. 64 percent say more clarity is needed in privacy regulation and industry standards before industry wide data-sharing takes root[xxv].
- Regulation and to a degree taxation, has traditionally followed an input-output model. We are now at the point when precedent is no longer a useful guide to the future – our governing of new processes is no longer sustainable[xxvi]. Given the possibility of years of inaction then leading to a huge over-reaction, organisations would do well to be transparent and self-audit (as Sony plans to do with its AI) to avoid onerous retroaction.

What does it mean?

- Those with strategic foresight will look to pre-empt and in conjunction with other stakeholders, help shape the direction of regulation to come.
- MIT Sloan believes that '...the first country to figure out the best way to regulate (and tax) the broader (digital) industry could become the focal point for the next chapter of the world's digital revolution[xxvii].'
- Digital reality will also likely need some regulatory guidelines[xxviii], requiring business and government to work together. An example of how this can be done lies in the sandbox format. Already adopted by developers of autonomous vehicles, virtual currencies, and fintech regulators, sandboxes provide a safe environment to encourage innovation while protecting consumer safety.
- Organisations need to radically police themselves. A Stanford study found that companies that try to fix problems on their own may sidestep more onerous regulations in the future[xxix]. Transparent tax structures would be a good start.

5. Gaming as the Next Tech Platform

The pandemic has boosted gaming's popularity, with overall time spent on gaming surging by 29 percent during the outbreak[xxx], The number of gamers around the globe could top 3 billion by 2023, equivalent to 39 percent of the global population. The game market could exceed $200 billion by this date, but it may have an outsized impact beyond the traditional market boundaries[xxxi].

In 2020, for example. the US' FDA approved its first prescription video game for kids ADHD[xxxii], indicating the potential value of gaming in wellness application and non-pharmaceutical therapeutics. As well as being used for different things, gaming itself is changing as it merges with other forms of media and creating a sort of 'metaverse' – a 'virtual, social space that is always open, always on, and always expanding[xxxiii]'. Avatars could become the new digital version of ourselves, potentially forming their own economy as we design and upgrade them. One obvious and immediate application of this new world is to the sports world, which requires a new way of interacting with fans and combining physical and virtual experiences.

What does it mean?

- Games could turn into digital hubs that provide an array of services beyond the core gaming premise, shifting advertising, engagement and collaboration efforts.
- Sports, concerts, meetings, dating, virtual celebrations and retail could all feature heavily, with subscription services plausibly replacing individual games and favoured by around 58 percent of current gamers[xxxiv].
- Game hubs could become the platform for a variety of apps, from virtual reality through augmented reality to haptics and holograms.
- A VR film/game with AI characters has been created that is dynamic in the way that it creates a new experience – should you want it to -every time you watch or play[xxxv].
- In 2021, two of the contributing technologies - AR/VR will continue to attract high corporate attention - as economic growth without risking health remains important[xxxvi]. Thinking about how these propositions could evolve with regards to the metaverse is key.

What to do about it?

- Creating new sticky markets - virtual events for example – that endure past the crisis and add value in ways that live events cannot do economically.
- A wider range of sectors will need to coalesce tightly around individuals' needs – meaning more customisation, personalisation and technology to make this happen.
- Gaming platforms are becoming de-facto social networks, with all the attendant marketing, advertising, cross-selling and engagement opportunities. Potential negatives exist too, not least with regards to the issues that have plagued incumbent social media companies – privacy, data ethics, use of AI and bias for example.
- Explore ways to participate in this new sphere, and map out what you need to operate here in terms of talent, partnerships and consider how this medium could change it is what you do.

6. Skills, Jobs and the Learning Organisation

Organisations need to redefine themselves as great places to learn. Those that do are already found to achieve 23 percent greater financial returns[xxxvii]. Yet a mere 31 percent of leaders say they can quickly develop the talent they need with their current resources and processes[xxxviii] - even as only 41 percent of workers recognise they have the skills needed to thrive professionally for five or more years[xxxix]. With change accelerating, the gap between what an organisation needs and what standard education provides is widening. The prospect of unemployable workers is one that should trouble policy makers, organisations and society more generally, while the implications of the shift from jobs to skills should be on every CEOs agenda.

What does it mean?

- Less than one in three say their companies are prepared to cope with the workforce disruptions resulting from technology and market trends: only 28 percent say their organisations make effective decisions on how to close skills gaps[xl].
- 18 percent of CEOs said they have made significant progress in 'establishing an upskilling programme that develops a mix of soft, technical and digital skills[xli].' A new focus on skills is needed, with new pipelines, platforms, forms of collaboration and organisational responses.
- COVID-hit Japanese companies have sent staff to others in need, with electronics retailer Nojima planning to hire up to 600 workers from the travel industry, 300 from All Nippon Airways and Japan Airlines, and 300 from hotel operator Toyoko Inn[xlii].
- Skills redundant in one sector can fast be requisitioned for use in another, and the transfer of such skills does not always meet preconceived expectations. Indeed, some surprising linkages may be made; using AI, CareerBuilder figured out that veterinary technicians could make good prison guards[xliii], for example.
- Without a skills focused talent strategy able to adapt across time horizons, organisations face an inescapable combination of chronic talent shortages, legacy thinking and a series of painful disruptions for their employees and business model.

What to do about it?

- A greater commitment to employee learning is needed.
- Remedying, or mitigating, this situation lies in having appropriate data to start with.
- A comprehensive framework for measuring and accounting for human capital would enable an organisation to monitor and assess the ROI for its employees. The hitherto intangible nature of this has resulted in many sectors and organisations misjudging the contribution of their human capital assets[xliv].
- Those able to measure this will develop '...a better understanding of what needs to change to meet future business priorities (both anticipated and unanticipated)[xlv].'
- In acquiring or sourcing innovative skillsets, companies need to provide a greater value proposition to talent and demonstrate a corporate commitment to building employees and even contractors skills and successes[xlvi].

7. Automated Life

More than 80 percent of companies accelerated their automation initiatives in 2020 as a response to the pandemic[xlvii]. History suggests only around half of such initiatives will achieve their goals, while the majority will likely be limited in nature, promoting efficiencies rather than transformation. Some however, will prove catalytic, and as organisations yield these benefits, we are likely to see game-changing AI applications rolled out across multiple sectors.

Automation will be everywhere and begin to significantly influence how we design our organisations as well as our lives, especially as 80 percent of respondents to a recent global survey from HBR acknowledge that it will be very important to the success of their organisation to employ intelligent automation over the next five years[xlviii]. With consumers 'expecting interactions with brands to be on their terms and full of personalised experiences[xlix],' AI needs to be where the data is – ambient, embedded and instantly actionable.

What does it mean?

- All companies are now IoT companies and by extension, intelligent companies. More than 6 in 10 companies plan to ship pre-emptively in the next 3–5 years[l].
- Real-time data, edge processing and AI at the edge creates new business model possibilities and compels organisational renewal.
- New talent, forms of management and leadership are needed, with new forms of on-demand team work increasingly likely in response to pop-up opportunities.
- 73 percent of customers think companies should understand their needs and 78 percent expect consistent interactions across departments. To make that work, real-time data is required[li] - often from outside existing networks ,making the ability to access this data critical.
- Our work processes will shift too. By 2023, one-fourth of employee interactions with applications could be via voice, compared to 3 percent in 2019[lii]. By the end of 2021, 25 percent of digital workers could be using a virtual employee assistant daily[liii].
- A wider range of professional and consumer services will be predictive, geo-located and personalised.

What to do about it?

- Build trust with customers, partners and connections with emerging third-party data exchanges. Companies that ignore trust and transparency risk everything.
- Ensure workers have access to a range of technologies and that cybersecurity frameworks can adapt to these networks.
- Companies with the technology and imagination to design great consumer tech mediated experiences in the home — or in third spaces — will have a huge advantage, at least in the near term.
- For many organisations, an infusion of digital talent into high c-suite positions is a must. Business models predicated on an emerging suite of technology will require new approaches.

8. Automated Management

The rationalisation for forms of automated management is simple enough - since the pandemic has forced us to reevaluate how we work, methods for measuring employee performance and success must also change[liv]. Remote work is more quantifiable, as demonstrated by the substantial data record produced by all remote companies such as Gitlab, potentially aiding in the application of AI and machine learning to their organisational decision making . This logic alone doesn't compel automation, yet a number of other statistics do suggest further room for development.

Globally, the cost of poor management is estimated to approach $7 trillion, or between 9 and 10 percent of the world's GDP[lv]. There is also room for intelligent automation augmenting aspects of management that traditional managers do not do well. 68 percent of people, for example, report they would prefer to talk to a robot over their manager about stress and anxiety at work and 80 percent say they were open to having a robot as a counselor or therapist[lvi].

What does it mean?

- Forms of automation or algorithmic input into management would appear all but inevitable. 8 in 10 expect an increase in cost and added complexity as a result of adding new technologies, and see increased automation and AI technologies as answer to these complexities[lvii]. 2021 will see the start of the testing of the hypothesis that only tech can manage tech.
- As with previous waves of IT, for example, AI will require management to adapt and grow, thus enabling new capabilities of the organisation[lviii].
- AI will also change company structures, and with it the skills, aptitudes and leadership needed to thrive[lix].
- Automation of day to day roles could compel future manager roles to change. A role could easily emerge at the '...intersection of corporate strategy and HR, responsible for analysing what skills will be most essential as the workforce continues to evolve. This role would focus both on setting the organisation's strategy for the future of work, as well as proposing (the direction and scope of) reskilling and upskilling efforts for current employees[lx].'
- Experts in singular fields will still be required, but team leaders will need to bridge multiple disciplines .

What to do about it?

- Map out where automation makes sense, where it could be used to streamline processes and where it could be used to accelerate decision making at all levels of the organisation.
- Build metrics and data architectures that enable algorithmic management.
- Build change management paradigms that seek to build consensus for algorithmic use among employees.
- Ensure any AI applications are as bias-free as possible by fully auditing them.

9. Sustainability Comes Full Circle

Sustainability is hardly new to the organisational radar, yet the urgency of it has never been higher, as technological, regulatory, environmental and economic drivers all ensuring the imperative goes beyond green-washing.

Gartner predicts that by 2029, the circular economy will be the 'only economy,' replacing wasteful linear economies[lxi]. This timeline could be heavily compressed if corporate outcomes and actions meet their expectations. In the next 18 months 70 percent of supply chain leaders are planning to invest in circular economies, for example, even though only 12 percent have linked it with their digital strategies[lxii]. The complexity of achieving a circular economy should not distract from the very real strides that will be made in 2021 – not least because planning for the U.K. requirement for companies to report on their business impacts on climate change by 2025 will commence imminently.

What does it mean?

- Sustainability is no longer avoidable, and can no longer be delegated to marketing.
- Climate change could add around 20 percent to the global cost of extreme weather events by 2040. These elevated climate-related risks spur new approaches to doing business, not least with regard to the supply chain[lxiii]. Given the imminent geopolitical concerns around supply chains, the chance to address this is in 2021, not later.
- With risks to supply chains escalating, a single prolonged production-only shock could wipe out between 30-50 percent of one year's EBITDA for companies in most industries[lxiv].
- 'Thanks to a convergence of satellites, machine learning and big data, virtually any company will soon have the means to monitor in real time how well they are meeting sustainability commitments[lxv].' So too will activists and the public.
- Automated and autonomous energy grids will become an important wrinkle in companies' CRE decisions.
- Critically, 78 percent of executives see the link between sustainability and innovation, believing that a corporate commitment to the former is a path to the latter.

What to do about it?

- New metrics and concepts of sustainability may be needed as the corporate office decentralises into thousands of mini, home based offices.
- Transparency is key, and with most supply (and value) chains still opaque, obtaining better data into operations is a key first step.
- Map out how various new technologies – from electric vehicles to hydrogen power, and less obvious sources of sustainability such as the IoT – can impact various existing processes or create whole new, more sustainable, ones.
- Scan outside your own industry to look for technologies, their application and possible partners.

10. Brexit, Biden, China (BBC)

Geopolitics has become central to more businesses to an extent perhaps not seen in centuries. Supply chains are just one, but nevertheless, important focus of the wider impact of Brexit, an increasingly aggressive China and a U.S that may be more wedded to the Trumpian direction of anti-China rhetoric and actions than is nominally assumed. The long-tail of COVID's impact on politics has barely begun, and remains unpredictable, but will start to be felt in 2021.

What does it mean and what to do about it?

- By 2022, nearly half of multinationals expect to have modified their geographical base of operations[lxvi].
- Some 37 countries with high pre-existing levels of unrest and poor recovery capacity face a 'perfect storm' of instability over the next 2-3 years[lxvii].
- Global manufacturing and tourism could face hugely different future footprints.
- Even if global trade recovers by 2023, as BCG predicts, flows between regional and global blocs are set to shift dramatically. Two-way trade between the US and China in 2023 is forecast to have shrunk by around 15 percent, or about $128 billion, from 2019 levels[lxviii].
- With China remaining one of the few issues capable of building bipartisan opinion in the U.S, it is increasingly accepted that our policies and consumer habits have contributed to the rise of a China that now seeks military parity with the U.S and hegemony over the East Asian economic area , global supply chains – and beyond.
- The West made China rich, but the Chinese Communist Party under Xi wants to undermine and replace existing systems. The degree to which this geopolitical conflict could create profound business issues for those operating in China is, if anything, underappreciated.
- Economics, technology and more could become divided between American and Chinese camps.
- With regards to Brexit and a fragmenting economic and political world, without supply chain reinvention, consumer products companies risk losing as much as 30 percent of their margins[lxix].
- Brexit is unlikely to be concluded in 2021, with the U.K entering a Swiss style on-going revision of relations with both unions arguably facing bigger internal crisis: managing devolution in the U.K and Poland and Hungary in the EU.
- Digital Economy Agreements – relating to data crossing borders and so on - will become a new gold standard of trade agreements, as pioneered by Singapore.
- Businesses will increasingly need to build for resiliency, be able to scale quickly when opportunities arise, and devise a foreign policy of sorts.
- On the other hand, being asset-light in risky geographies may become a commonplace strategy.

About the author

David is a leading strategic futurist who combines the experience gained from a 35 year IT, marketing and business career with strategic visioning to help organisations better prepare for the future. His career has spanned European and US corporations. He is a much sought-after keynote speaker and is the author of many works on embracing change and the drivers of change. He is also a regular lecturer at business schools across Europe. Before establishing Global Futures and Foresight, an independent futures research firm, he created and ran the Unisys internal Think Tank, The Global Future Forum. Prior to this he was head of strategic marketing for their $2bn global financial services business..

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Global Futures and Foresight is a research and consulting firm that helps organisations be better prepared to embrace change, innovate and develop new strategies and solutions and helps clients to avoid the risk of being blindsided by external disruptive change.

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About Claudia Lopez, Artist (Front cover by Claudia).

Claudia Lopez, Colombian artist with European influences based in UK. Commissions and artwork for sale. My subject matter is landscape. Find more about Claudia Lopez and order a commission by visiting claudialopezart.com
Also artworks in copy at https://6-claudia-lopez.pixels.com/
Instagram/claudialopezart to see more samples of commissions.

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